11TH INTERNATIONAL CONFERENCE ON
# AFRICAN DEVELOPMENT AID & ECONOMIC TRANSFORMATION

Theme: Addressing Development Challenges Among African Economies in the 21st Century

# CONFERENCE PROCEEDINGS

FACULTY OF EDUCATION,

UNIVERSITY OF LAGOS, NIGERIA
14TH-15TH MARCH, 2024

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# 11TH INTERNATIONAL CONFERENCE ON
## AFRICAN DEVELOPMENT AID & ECONOMIC TRANSFORMATION

**THEME:** Addressing Development Challenges Among African Economies in the 21st Century
**DATE:** Thursday 14th - Friday 15th March, 2024
**VENUE:** Faculty of Education Auditorium, University of Lagos – Nigeria
**TIME:** 10:00am

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**Prof. Folasade Tolulope Ogunsola, FAN, OON**
Vice Chancellor,
University of Lagos – Nigeria

**KEYNOTE SPEAKER**
**Prof. Olufemi Saibu**
Director, Quality Assurance & SERVICOM
University of Lagos – Nigeria

**HOST & LEAD SPEAKER PRESENTER**
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# 11TH INTERNATIONAL CONFERENCE ON
## AFRICAN DEVELOPMENT AID & ECONOMIC TRANSFORMATION

**CONFERENCE PROGRAMME**

**DAY ONE – THURSDAY 14TH MARCH, 2024**

| ACTIVITIES | TIME | ANCHORS |
|---|---|---|
| Conference Registration | 9:00am – 9:45am | |
| Arrival of Guest/Delegates | 9:45am – 10:00am | MC: Dr. Olusola Ige (Sub-Dean)<br>MC: Dr. G Adetoun Emiola |
| Opening Prayer | 10:00am – 10:05am | Prof. Sunday A. Adeyemo |
| National Anthem<br>UNILAG Anthem | 10:5am – 10:10am | |
| Introduction of Guest | 10:10am – 10:15am | MC |
| LOC Opening Remark | 10:15am – 10:20am | Dr. Veronica Folasade T . Babajide |
| Institutional Brief | 10:20am – 10:25am | Dr. Bassey E. Anam |
| VC Address/Declaration of Conference Opening | 10:25am – 10:35am | Prof. Folasade T. Ogunsola *FAS, OON* |
| Key Note Speaker | 10:35am - 11:05am | Prof. Olufemi Saibu (Director Quality Assurance &) SERVICOM |
| Lead Paper Presenter | 11:05am - 11:35am | Prof. Simeon Oladipo (Dean Faculty of Education) |
| Closing Remark | 11:35am – 11:40am | Prof. Kabouh Margret |
| Closing Prayer | 11:45am – 11:50am | Dr. Sule |
| Group Photograph | 11:50am – 12:00noon | |
| Light Refreshment | 12:00noon – 12:30pm | |
| | | |
| **PLENARY SESSION** | **CHAIRPERSON** | **RAPPORTEUR** |
| | Prof. Oluwayemisi Obasoro<br>(Prof. of Adult Education) | Dr. Gladys Adetoun Emiola |
| | Prof. Bello<br>(Prof. of Educational Managements) | Dr. Sule |
| | Prof. Esiobu<br>(Prof. of Science (Biology) Education) | Dr. O.T . Ojo |
| Launch Break | | |

**DAY TWO – FRIDAY 15TH MARCH, 2024**

**VIRTUAL PRESENTATION SESSION**

Opening Prayer/Welcome Remark- 10:00am – 10:15am

Briefing on Institutional Research Projects - 10:15am – 10:30am

Plenary Session- 10:30am – 2:00pm

Policy Review Session - 2:00pm – 3:00pm

## A WELCOME ADDRESS DELIVERED BY DR. VERONICA FOLASADE T. BABAJIDE AT THE OPENING CEREMONY OF THE 11TH INTERNATIONAL CONFERENCE ON AFRICAN DEVELOPMENT AID AND ECONOMIC TRANSFORMATION, HELD IN THE FACULTY OF EDUCATION AUDITORIUM, UNIVERSITY OF LAGOS, LAGOS-NIGERIA, ON 14TH MARCH, 2024.

The Vice-Chancellor, Prof. Folasade Tolulope Ogunsola, FAS, OON; The Deputy Vice-Chancellor, Academic & Research, Prof. Bolanle Oboh; The Vice-Chancellor, Development Services, Prof. Ayodele Atsenuwa; The Deputy Vice-Chancellor, Management Services, Prof. Lucian Obinna Chukwu; The Deputy Vice-Chancellor, Academic and Research, Prof. Bolanle Oboh; The Registrar & Secretary to the Council, Mrs. Olakunle E. Makinde; The Bursar, Mrs Oluwafunmilola Adekunle; The University Librarian, Prof. Yetunde Abosede Zaid; The Dean of School of Post Graduate Studies, Prof. Abraham Osunubi; The Dean of Faculty of Education, Prof. Simeon Adebayo Oladipo; All Professors present; All Heads of Departments; The President, University of Lagos Women Society, Dr. Mrs Taiwo Ipaye. Distinguished Guests; Honorable Delegates; Esteemed Colleagues; Staff of the Communication Department; Unilag Radio; Esteemed Postgraduate students, Ladies and Gentlemen;

Good morning.

It is with great pleasure and honour that I welcome each and every one of you to this year's International Conference on African Development Aid and Economic Transformation. We are gathered here today under the comprehensive theme, "Addressing Development Challenges among African Economies in the 21st Century"; this is a topic that underscores the significance and urgency of collaborative efforts in shaping the future of our beloved continent.

As we stand at the intersection of progress and potential, this conference serves as a vital platform for fostering dialogue, sharing insights, and formulating strategies that will contribute to the sustainable development and economic transformation of African nations. The challenges we face are multifaceted, ranging from socio-economic disparities to environmental sustainability, and it is only through collective knowledge and concerted action that we can overcome them.

Over the next forty-eight hours, we shall have the privilege of engaging with distinguished experts, policymakers, scholars, and practitioners who have dedicated their careers to understanding and addressing the complex issues facing African economies. The diversity of perspectives and experiences represented here will undoubtedly enrich our discussions and lead to innovative solutions that can pave the way for positive change.

I would like to welcome and express our sincere gratitude to the management team of the University of Lagos, ably led by our own dearest mummy, the first female Vice-Chancellor and the first female Provost College of Medicine, our dear Vice-Chancellor, Prof. Folasade Ogunsola, FAS, OON who is The Chief Host of this noble conference. The Deputy Vice-Chancellor, Development Services, Prof. Ayodele Atsenuwa, you are welcome ma and thanks for your immense contributions. The Deputy Vice-Chancellor, Management Services, Prof. Lucian O. Chukwu, The Deputy Vice-Chancellor, Academic and Research, Prof. Bolanle Oboh in absentia, and Prof. Yetunde Zaid, the University Librarian, I thank you all for creating time to be at this opening ceremony despite your very busy schedules. My own Dean, the Dean of the School of Postgraduate Studies, Prof. Abraham. A. A Osinubi, you are welcome, Sir, and thank you for your support. Our own dear quality Dean; my beloved Dean, the Dean of all Deans, the Dean of the Faculty of Education, Prof. Simeon Adebayo Oladipo, who also is the Host and Lead Paper Presenter, thank you Sir for fully supporting the hosting of this Conference. My appreciation also goes to my dearest brother, my Director of Quality Assurance, Prof. Olufemi Saibu; the Keynote Speaker at this year's historic event, you are welcome, Sir and we are prepared to learn from you the strategies for overcoming the economic challenges of our noble continent. I welcome and thank all the Professors and Heads of Department in the Faculty of Education and I the University of Lagos. I welcome in a special way and express my gratitude to my own dearest brother, Prof., Head of Department, and confidant, Prof. Sunday Adeniyi Adeyemo for supporting the hosting of this Conference. I thank all my colleagues in the Faculty of Education and in the University of Lagos. Finally, I welcome and thank my mentees, my postgraduate students, and all who have played a pivotal role in making this conference possible; your several and joint commitments to the advancement of African development is truly commendable.

As we embark on this intellectual journey together, let us remain mindful of the impact our collective efforts can have on the lives of millions across the continent. May this conference be a beacon of inspiration, fostering collaboration, and generating actionable insights that will contribute to the economic transformation and sustainable development of African nations.

Finally, permit me to bring to your notice that this conference is organised by the International Institute of Policy Review and Development Strategies (IIPRDS) Nigeria branch, in partnership with the International Scientific Research Consortium, United Kingdom. Over the years and up till now, the institute has pursued its mandate of being the world's international research institute for policy review and the publication of international journals. This has been achieved through international research conferences, workshops, policy brief summits and stakeholders' forum to discuss emerging trends in development strategies. The institute also publishes association and institutional journals while I must not fail to mention that the institute's membership is drawn from across the globe.

To enhance international standard and best practices, institutional journals are published in collaboration with International Scientific Research Consortium, United Kingdom and international universities. All publications are catalogued in Nigeria's national library and the institute owns copyright in every publication. Our secretariat is located in the UK, at 10 Coventry Innovation Village, Coventry University CV1 2 while our project secretariat is located in Nigeria at House 8, John Etete Ita street in Calabar. Kindly visit our website (**www.internationalpolicybrief.org**) for more information about us and our activities. Our conferences are held within African countries and papers from such conferences are published in Africa, Europe, America, Japan, Germany and across the globe. Today's conference marks the third time Faculty of Education is hosting the conference in UNILAG, It was first hosted on 6-8 May, 2015, followed by 27-29 March, 2019 and here we are now in 2024 to the Glory of God.

Once again, welcome to the 11th International Conference on African Development Aid and Economic Transformation. May our time together be fruitful, enlightening, and, most importantly, a catalyst for positive change.

Thank you for listening.

Veronica Folasade T. Babajide, Ph.D
Conference LOC

***A Welcome Speech Delivered by*:**
**Prof. Folasade Ogunsola**, Ph.D, FNAMed, FAMedS, FAS
at the Opening Ceremony of the
11th International Conference on African Development
Aid and Economic Transformation

*Held in the Faculty of Education Auditorium,*
*University of Lagos, Lagos-Nigeria, on 14th March, 2024*

Ladies and gentlemen,

I extend a warm welcome to each and every one of you to the University of Lagos. It's an honor to host the International Conference on African Development Aid and Economic Transformation here on our campus. This gathering is a testament to our collective commitment to fostering growth and prosperity across the African continent.

I would like to extend my gratitude to the International Institute for Policy Review and Development Strategies for deciding on the University of Lagos as the venue for this significant conference for the third time. Your continued trust in our institution speaks volumes about our dedication to advancing the discourse on African development.

As we convene here today, we cannot ignore the formidable challenges that confront the African state, notably poverty and unemployment. These issues remain persistent barriers to the realization of our collective aspirations for a prosperous Africa. However, they also present us with opportunities to innovate and collaborate as we seek sustainable solutions. In addressing these challenges, we must recognize the pivotal role of research in achieving our development goals. Research serves as the bedrock upon which informed policies and strategies are built. It provides us with the knowledge and understanding needed to develop effective policies and strategies. It empowers us with the knowledge and insights needed to navigate complex socio-economic landscapes and drive meaningful change.

Yet, research alone is not enough. It requires the concerted efforts of everyone present in this auditorium today. We all bear a responsibility to contribute significantly to the development of the African state. Whether through academia, government, civil society, or the private sector, our collective actions can pave the way for transformative impact.

Therefore, I urge each of you to actively engage in the discussions and deliberations that will unfold over the course of this conference. Let us leverage our expertise, insights, and experiences to chart a path towards inclusive growth and sustainable development for Africa.

In closing, I once again extend my heartfelt welcome to all participants. May our time together be marked by fruitful exchanges, meaningful collaborations, and actionable outcomes that propel Africa towards a brighter future.

Thank you.
**Prof. Folasade Ogunsola**, Ph.D., FNAMed, FAMedS, FAS
The Vice Chancellor
University of Lagos

# KEYNOTE ADDRESS AT THE 11TH INTERNATIONAL CONFERENCE ON AFRICAN DEVELOPMENT AID & ECONOMIC TRANSFORMATION

## Addressing Development Challenges Among African Economies in the 21st Century - *Professor O. M. Saibu*

*Director, Quality Assurance Unit,*
*University of Lagos.*

**Overview of the Current Economic Situation in Africa**

Over the past few decades, Africa has experienced significant economic growth, driven by factors such as urbanization, rising consumer demand, and increased investment in infrastructure (World Bank, 2022). According to the World Bank, the continent's GDP has been expanding at an average rate of about 3.7% annually between 2000 and 2023.

**Poverty Rates in Africa and Other Continents**

- Sub-Saharan Africa grapples with high poverty levels, exceeding 400 million people living on less than $1.90 a day, as per the World Bank. Despite economic growth, poverty remains a significant challenge.
- The COVID-19 pandemic has worsened existing vulnerabilities in Africa, pushing millions more into poverty and threatening to undo progress made in poverty reduction efforts.
- Poverty within Africa is not evenly distributed, with the Sub-Saharan Africa region bearing the brunt.

**Importance of Addressing Development Challenges for Sustainable Growth**

a. Inclusive Economic Growth
b. Human Capital Development (Health and Education)
c. Resilience to external shocks
d. Infrastructure investment
e. Institutional reform
f. Sustainable development
g. Human Capital Development

**Key Challenges Hindering Economic Transformation in Africa**

a. Challenge of Inherited Economic Models
b. Pitfalls of Replicating Non-Indigenous Models
c. Call for Indigenous Development Strategies
d. Weak Institutional Framework
e. Lack of Political Will
f. Lack of Project Continuity
g. Corruption and Mismanagement
h. Lack of Vital and Accurate Information

i. Failure to Properly Prioritize Projects
j. Financial Constraints
k. Lack of Cooperation of the Citizenry
l. Poor Quality of Deliverables
m. Lack of Foresight

**Strategic Focus Areas**

a. Building Strong Institutions
b. Realigning the Incentives of Politicians
c. Institutionalization of Goals to Ensure Continuity
d. Being More Accountable
e. Improving Accuracy and Reliability of Broad-Based Data
f. Widening Participation in the Planning Process
g. Provision of Palliatives
h. Adopting Public-Private Partnership
i. Engagement of Capable Policymakers
j. Prioritization of Macroeconomic Objectives

**Conclusion**

This presentation underscores the importance of addressing development challenges among African economies in the 21st century and advocates for the Àjàgbé Ejò approach as a solution for progress. We critique the reliance on foreign policies, highlighting their inadequacy in reflecting African realities, particularly in recognizing the significance of the informal sector. We suggest that sustainable development is contingent upon the choices made by individuals and governments across Africa, rather than external factors like the environment or economic structure.

# UNLOCKING AFRICAN PROSPERITY: RETHINKING EDUCATION POLICIES FOR 21ST-CENTURY DEVELOPMENT

**by**

**Simeon Adebayo Oladipo, PhD**

Professor of Educational Management & Dean Faculty of Education

University of Lagos, Akoka, Lagos - Nigeria

**A Lead Paper presented during the 11th International Conference on African Development Aid & Economic Transformation, 14th - 15th March, 2024, holding at the University of Lagos, Akoka-Yaba, Lagos.**

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### *Preamble*

*I appreciate this distinctive honour done to me as the Lead Paper Presenter at the 11th International Conference on African Development Aid & Economic Transformation, holding at the University of Lagos, Akoka-Yaba, Lagos. I wish to congratulate the organizers of this conference, especially, the anchor persons, the Vice Chancellor and his management team who made it possible at this time, as well as our amiable Dr. Veronica F. T. Babajide who has been working tirelessly to ensure success, staff and students, all the distinguished educationists, administrators, researchers, relevant professionals, and other participants from across the border. This conference could not have come at a better time than this, when issues of globalization, access, equity and quality dilemma and suggestive remedies for the improvement in the education sector in Africa are most pronounced as evidenced in the expressions of various stakeholders and scholars at the national and international levels. I was initially intrigued when I received the invitation to give this Address to this gathering, feeling that more experienced scholars abound globally, I therefore feel highly honoured.*

*Distinguished audience, may I then, begin our discussion by introducing the discourse:*

### *Abstract*

*This comprehensive exploration addresses the intricate challenges confronting African economies in the 21st century, with a particular focus on education. Key issues such as shared responsibility in educational management, political coordination, declining educational standards, and infrastructural inadequacies are scrutinized. The discussion extends to the impact of the COVID-19 pandemic on education, emphasizing the digital divide and the need for inclusivity. The* *conclusion highlights the significance of data in policymaking and proposes recommendations, emphasizing collaborative efforts, digital transformation, enhanced investment in ICT infrastructure, and the reinforcement of education data systems. The overarching goal is to harness education's transformative potential for sustainable development in Africa. The paper advocates for strategic partnerships, policy frameworks, and coordinated efforts to harness the transformative potential of education.*

***Keywords:*** *development, education, economy, technology, policy.*

**Introduction**

In the dynamic landscape of the 21st century, the challenges facing African education and economies have emerged as critical focal points for sustainable development. The intricate interplay between educational systems and economic structures underscores the imperative to address multifaceted issues hindering progress on the continent. Education stands as a cornerstone, encompassing the totality of learning experiences designed to mold individuals into productive members of their communities. With escalating global economic competition, African countries like Nigeria, aspire to secure influential positions in international economic relations, necessitating substantial reforms in education. This is particularly crucial for Africa, urging a radical transformation to ensure global relevance and competitiveness. The reform involves teachers expanding their cross-cultural skills and educational leaders updating policies to address the impacts of global changes in economics, culture, politics, technology, and communication. The imperative is to cultivate greater awareness of African intracontinental relations, encourage collaborations, diminish discriminations, promote technological dissemination, foster innovation, and enhance the quality and effective management of education. Engaging in developmental activities involves fostering a sustained, positive transformation in both the quantity and quality of natural resources within the environment.

Oladipo (2023) observed that despite significant growth in Africa's educational system, substantial challenges persist. Notably, while primary school completion rates have increased, almost one in three children still drop out. Africa lags behind in global school access, with completion rates significantly lower than other regions. The linear progress observed between 2000 and 2015 suggests that Africa would achieve universal primary education in 28 years and lower secondary education in 56 years if maintained. However, the rising marginal cost of reaching the most challenging-to-reach children poses a considerable obstacle. Additionally, the decline in educational quality is evident, with a considerable percentage of students lacking basic literacy and numeracy skills after years of schooling, contributing to what is termed a "learning crisis" on the international stage. Oladipo(2023) further decried that despite growing evidence on effective strategies for promoting access and learning, real changes in educational outcomes have not kept pace.

In the year 2000, various influential organizations, including the Economic Commission for Africa, the World Bank, the African Development Bank, the Global Coalition for Africa, and the African Economic Research Consortium, jointly released a report titled "Can Africa Claim the 21st Century?" The report cautiously affirmed the potential for Africa to claim the century, contingent on its ability to overcome development challenges. It proposed four main strategies for fostering a self-reinforcing process of economic, political, and social development: improving governance, resolving conflicts, investing in people, increasing competitiveness and economic diversification, and reducing aid dependence while strengthening partnerships. Since the report's issuance, Africa has made diverse progress in these strategic areas, with improvements in governance, a reduction in violent conflicts, and a gradual establishment of democracy. Economic competitiveness is on the rise, marked by efforts to diversify economies and enhance value addition along the value chain. Despite positive strides, challenges persist, such as preventing new conflicts, addressing the consequences of past conflicts, and navigating new challenges emerging in the early 21st century. The commitment to sustainable development is evident through international initiatives like the United Nations Millennium Declaration and Africa's New Partnership for Development (NEPAD), providing a roadmap for the continent's growth in the 21st century (United Nations Educational, Scientific and Cultural Organization, 2008). UNESCO warns that Africa's progress is now under threat from 21st-century challenges, including sustaining economic growth and employment amidst global shifts, rising food and energy prices, and evolving trade agreements. Climate change and the imperative to enhance governance and build a capable state also pose significant hurdles.

This paper explores the challenges in African education and economies, aiming to understand their causes, connections, and propose solutions. In a world of fast technological changes and shifting economies, it's crucial to empower Africa. By looking closely at the problems in education and the economy, this paper aims to encourage discussions and suggest creative strategies for sustainable development in Africa.

**Historical Overview of African Education and Economies**

The historical interactions between Africa and the rest of the world, particularly Europe, span centuries, culminating in full-scale colonization in the late 19th century. Initially, Africa maintained autonomy in its global connections, but during the 16th century, trade centers shifted from the savannah hinterland to the coast in response to changes in European trade routes. Pre-colonial Africa was marked by diversified agricultural production and a robust internal trade system characterized by regional complementarities and a broad natural resource base. This intricate network, dominated by African traders, involved exchanges among herdsmen and crop farmers, as well as the trade of various commodities like salt, spices, perfumes, resins, and kola nuts. The sophistication of West African textile manufacturing and other industries allowed for extensive local and long-distance trade. While East and Southern Africa had well-established economic interactions with Arabian and Asian countries, each region showcased distinct economic patterns. Despite variations, there was a pervasive history of integrated and autonomous economic activity in Africa, emphasizing the continent's healthy and independent economic systems before the disruptions caused by colonialism and slavery. (Geda, 2019)

The period leading up to the industrial revolution, particularly in the sixteenth and seventeenth centuries, marked the commencement of European influence on the African economy. This influence was driven by European demands, such as the pressing need for gold coin in Europe, leading to the exploration for gold in West and Central Africa. The demand for labor in the American gold rushes and plantations played a pivotal role in the establishment of the European slave trade. Recent data suggests that an improvement in Africa's terms of trade and a sharp price boom for African commodities before the Berlin Conference in 1845-1885 may explain the subsequent European scramble for Africa. With the onset of the industrial revolution in Europe, Africa lost its remaining autonomy and became primarily a supplier of slave labor for American plantations. The European slave trade and the triangular trade further shaped Africa's economic landscape (Geda, 2019).

Mimiko (2011) argued that colonialism uprooted democratic processes and replaced them with authoritarian rule, nurturing a new elite class steeped in violence to serve colonial interests. Mimiko disputes the notion that Africa's inability to sustain democracy is rooted in its traditional political systems, attributing it instead to the constraints imposed by imperialism, slavery, colonialism, neo-colonialism, and military governance that have dominated the African experience since the fourteenth century. Africa boasts abundant natural resources, encompassing fertile land, renewable resources like water and forestry, and non-renewable resources such as minerals, coal, gas, and oil, vital for national economies and rural livelihoods. While a well-managed natural resource boom can spark growth and industrialization, enabling the transition from primary commodity exports to labor-intensive manufacturing, this potential has not been fully realized in many African nations. The failure is attributed to various factors, including the Dutch Disease, rent-seeking behavior, price volatility, market inflexibility, and regional tensions.

The term "resource curse" describes a scenario where a country, despite deriving substantial revenue from its natural resources sector, experiences economic stagnation and political instability. This phenomenon, particularly associated with non-renewable extractive resources like petroleum, reveals an inverse relationship between development and natural resource abundance. The prevailing narrative suggests that resource-rich countries, especially those with petroleum, tend to grow slower than anticipated and often lag behind resource-scarce nations. Government behavior plays a central role in this curse, emphasizing how administrations manage resource wealth and utilize associated revenues. While historical examples indicate that natural resource booms can catalyze economic transformation, the so-called curse can be averted with the right knowledge, institutions, and policies (African Development Bank, 2007).

Source: ERIC FEFERBERG/AFP/AFP/Getty Images

Oyier (2017) decries that despite Africa holding approximately 30% of the world's mineral reserves, 10% of global oil, and 8% of natural gas, the abundant natural resources have not translated into national wealth for African countries. The key question revolves around who controls and benefits from these resources. While multinational companies (MNCs) are often pointed to as dominant players in African extractive sectors, the historical context reveals that these entities largely represent the interests of their colonial predecessors. Colonial powers disrupted the control over natural resources, shifting it from communities to the crown, a trend retained in African legal systems. Consequently, most African governments manage natural resources exclusively, minimizing citizen involvement. Legislative provisions, as seen in Kenya, reinforce this centralization, leaving citizens excluded from decisions that significantly impact their livelihoods. The extractive sector, led by foreign MNCs, poses challenges rooted in exclusionary practices and lack of citizen participation, raising concerns about MNCs' responsibility to contribute meaningfully to Africa's development.

The establishment of the colonial state in Africa aimed at controlling labor, capital, and resources for external European interests, leading to the concentration of central bureaucratic power and coercive measures against independent social organization. Governance lacked democracy and accountability, with the state asserting broad control over natural resources, particularly land, often subordinating customary rights. This power structure, labeled by Mamdani (1996) as 'the fist of colonial power,' created enclave economies with a focus on raw material extraction for colonial centers. The formal/informal sector dichotomy, characterized by state-controlled 'customary land tenure' in the informal sector and private land tenure in the formal sector, perpetuated disparities in labor force composition, education, and job opportunities, favoring the formal sector. This historical exploitation of resources has contributed to the underdevelopment of the informal sector, marked by low pay, poor nutrition, high unemployment, and poverty (Shivji, 1998; Kanyenze and Kondo, 2011).

Numerous scholars, including Avoseh (2009), Dickson (1985), Falola (2018), Gaba (1975), Nyerere (1979), Prah (1993, 1995), and Rodney (1972), have explored the nature and process of development in traditional Africa from diverse perspectives. Falola juxtaposes cultural identity and development, emphasizing the complex interplay of history, environment, values, and social dynamics. Prah focuses on linguistic aspects, advocating for mass education and scientific development. Dickson argues for a symmetric relationship between education, culture, and development, cautioning against the dislocation of Western literature from African realities. Avoseh draws from African socialism, emphasizing the interconnectedness of life, living, and cultural values. Gaba examines nation-building from an indigenous perspective, highlighting the impact of external influences on African culture.

Education in Africa is a diverse and context-specific phenomenon, challenging any attempt to homogenize it across the continent. Saayman's analysis underscores the dynamic nature of education within specific cultural contexts, emphasizing observation, imitation, and explanation, with the third being a developmental outcome linked to rites of passage. Traditional African education was largely unstructured, focusing on meeting practical needs related to technology, morality, and community relationships. Central to this system was the interconnectedness of the personal world, self, community, and deity, placing the group at the heart of social organization and identity arbitration. However, the arrival of colonialism and the missionary movement disrupted this informal and self-sufficient educational model, prioritizing the individual and introducing new needs and markets influenced by Western nations. The ensuing hybridization of Christian, cultural, and secular values contributed to the alienation of African youth from their native cultures, marking a transformative period in education influenced by Western perceptions and ideologies (Duncan, 2022).

**Lessons From the Asian Tigers**

Before the colonial era, Asia, with the Mughal period in India and various Chinese dynasties, was historically prosperous and the birthplace of early civilizations. However, colonial exploitation by the British and the Dutch, especially through the British East India Company in the 18th century, hampered Asia's development. The aftermath of the First and Second World Wars further devastated Asian economies. Post-independence in the late 1940s marked a rebuilding process, leading to Asia's unprecedented growth and development. Notably, the economies of East Asia, including Singapore, Hong Kong, Taiwan, and South Korea, experienced remarkable success, achieving the 'Asian Miracle' with rapid industrialization and surpassing Europe and America's growth rates from the late 1950s to the late 20th century (Agba and Ozor, 2018).

According to The Standard (2018), The success of Asian Tigers in achieving economic development offers valuable lessons for developing countries, exemplified by their outward-oriented strategy, export promotion policies, and successful industrial output. South Korea's Samsung, now a global consumer electronics giant, stands as a testament to their export-driven success. In addressing housing challenges, Singapore's government intervention in construction and provision of low-cost houses proved highly effective, surpassing the impact of interventions in South Korea and Taiwan. The Asian Tigers' emphasis on agriculture involved land reforms, infrastructure investments, and modernization, ensuring food security. Lessons from their healthcare models, whether tax-financed as in Hong Kong or privately financed as in South Korea, Taiwan, and Singapore, emphasize the need for controlling health expenditures within desired fiscal policies. While acknowledging cultural and environmental differences, there is compelling evidence that the strategies employed by the Asian Tigers can inform the pursuit of development goals, including Kenya's "Big Four" agenda.

Agba and Ozor (2018) in their study highlights the following lessons for Nigeria.

- Education and technology played a crucial role. The Tigers emphasized technology in their high growth rates, focusing on education as a major contributor. The essay suggests a need for a revolution in Nigeria's education system to provide practical knowledge and technological skills.
- Passion and willpower are identified as significant factors. The Asian Tigers demonstrated a strong will to advance, fostering rapid learning capabilities and inquisitiveness. In contrast, the decline in the zeal to acquire knowledge in Nigeria, coupled with a growing interest in performing arts over scientific research, poses a challenge to development.
- Factor accumulation, involving the increase in the quantity and quality of basic factors like labor, capital, and entrepreneurship, is seen as essential for economic growth. Nigeria is encouraged to exploit its vast land, improve the quality of its labor force, and increase capital investment to enhance productivity.
- Export and import policies were crucial for the Tigers' economic growth. The essay suggests that Nigeria needs to diversify its economy, promote export trade, and attract global markets to reduce dependence on oil.
- Effective administration and governance are emphasized, highlighting the negative impact of corruption on development. The essay suggests that Nigeria needs to address corruption, manage public funds efficiently, and attract external aid for development projects.

- Macroeconomic policies, such as managing budget deficits, external debt, and exchange rates, were foundational for the Tigers' success. Nigeria is advised to minimize borrowing, diversify the economy, and improve local industry performance.
- Investment in the home country is deemed crucial for development. The essay urges Nigerian leaders to invest domestically and prevent capital flight. Overall, the study advocates for a comprehensive approach, combining education reform, technological advancement, governance improvement, and economic diversification to propel Nigeria toward sustainable development.

**Recent Progress of Education in Africa**

Children are pivotal to Africa's future, with the continent projected to house nearly 40% of the global population under 18 by the mid-century. Recognizing the potential of this young demographic, African nations must transform demographic growth into an asset by expanding opportunities and investing in vital human capital. Education emerges as a crucial tool in the fight against poverty, preventing its intergenerational transmission, and fostering socioeconomic development. Education is linked to peaceful communities, civic engagement, and robust democracies. To harness the demographic dividend, efforts toward achieving universal quality basic education are essential, building resilience and creating a skilled workforce aligned with labor market needs. The African Union prioritizes education as a critical development goal, emphasizing equitable access, sustainability, and literacy. Despite progress, disparities persist, affecting girls, children from impoverished backgrounds, those with disabilities, and mobile children in realizing their right to education. African countries have committed to developing human capital through universal access to early childhood development, basic education, and sustained investments in higher education, science, technology, research, and innovation, aligning with the Education 2030 goals (AUC and UNICEF, 2022).

UNICEF (2022) noted that before the onset of the COVID-19 pandemic, the world faced a significant learning crisis, with millions of children and young people lacking the essential skills for effective learning and future employment. Inequities, tied to factors such as poverty, gender, disability, migration status, and socioeconomic conditions, had already hindered many from accessing quality education. The pandemic further intensified these disparities, exposing the limitations of education systems in providing essential services like school meals, immunization, mental health support, and protection from violence. The World Bank introduced the concept of 'Learning Poverty' in 2019, estimating that 48% of children globally, and a staggering 87% in sub-Saharan Africa, were unable to read and understand a simple text by the age of 10. The disruptions caused by COVID-19, where over 1 billion students globally stopped attending school, have worsened the global learning crisis. Sub-Saharan Africa, with an 87% learning poverty rate, faces challenges in meeting the 2030 goal of eliminating learning poverty. Without swift remedial action, the consequences, particularly for marginalized and vulnerable children, could include long-term negative effects on life outcomes, health, nutrition, and socioeconomic development. The World Bank estimates substantial economic costs, with the loss of learning projected to cost trillions globally, emphasizing the urgent need for coordinated efforts to address the impact of the pandemic on education in Africa.

During the peak of COVID-19-related school closures in Africa, over 90% of learners faced disruptions in their education, and despite government efforts to implement remote learning strategies, half of students, from pre-primary to upper secondary levels, remained unreachable. Governments in Africa, in response to the pandemic, introduced alternative learning methods such as digital or hybrid approaches. However, these methods posed challenges related to ensuring widespread access to information and communications technology (ICT) infrastructure, addressing digital learning inequalities, and building the necessary teaching capacity for these complex methods. The pandemic-induced disruptions have exacerbated existing gaps in access to quality education, particularly in sub-Saharan Africa, where nearly 9 in 10 children lack online access at home. Gender disparities in internet access, with 300 million fewer women accessing the internet via mobile phones, have widened, and the digital gender divide is expected to worsen due to the pandemic. Despite these challenges, the shift to digital or hybrid teaching methods is seen not only as a temporary response to the pandemic but as a potential long-term strategy to navigate future learning crises and promote inclusive learning for young people entering the knowledge economy (UNICEF 2022).

**Educational Challenges Militating the Growth of African Economies**

Several educational challenges in Africa are impeding the growth of economies on the continent. Addressing these challenges is crucial for fostering sustainable development and economic prosperity. Some of the key issues according to Oladipo (2023) include:

1. **Shared Responsibility for Managing Education Sector:** In Nigeria, the management of the education sector is a shared responsibility among the Federal, State, and Local governments. While education is on the concurrent list in the constitution, the Federal Government regulates, formulates policies, and ensures quality control. Each tier of government focuses on a specific education sector, with the Federal Government directly involved in tertiary education, States in secondary, and local governments in primary education.
2. **Coordination of Policy at the Political Level:** Policy coordination is overseen by the National Council on Education, chaired by the Federal Minister of Education. This body includes all State Commissioners for Education. State-level ministries handle policy development and implementation, managing educational institutions, and overseeing agencies like the State Universal Basic Education Board and Teaching Service Commission.
3. **Decline in Standard of Secondary Education:** Secondary education in Nigeria faces challenges leading to a decline in standards. Principals are considered crucial quality assurance agents, tasked with monitoring teachers and students to ensure adherence to educational objectives for quality outcomes.
4. **Decline in Quality of Higher Education:** Concerns about the quality of higher education in Nigerian universities, polytechnics, and colleges of education have

risen. Graduates often face unemployment, indicating a mismatch of skills. The quality of education has reportedly deteriorated, necessitating comprehensive restructuring.

5. **Shortage of Data for Planning:** Educational administrators lack reliable data for decision-making due to slow development of a national database. Inconsistent data collection methods and insufficient information inhibit effective planning, monitoring, programming, and policy-making.
6. **Inadequate Infrastructure:** Nigerian educational institutions suffer from a shortage of infrastructure, including classrooms, laboratories, staff rooms, and more. The lack of essential facilities hampers effective teaching and learning, impacting teachers' productivity and student outcomes.
7. **Institutional Corruption:** Nigeria's rank on the Global Corruption Index has worsened, impacting effective educational administration. Despite anti-corruption efforts, institutional corruption remains pervasive, affecting the education sector negatively.
8. **Insecurity:** Security challenges, including conflicts and insurgency, affect educational administration. The Boko Haram insurgency has resulted in teacher displacement, hindering access to education. Ethno-religious violence further contributes to insecurity, restricting administrators' fieldwork.
9. **Brain Drain Syndrome:** The quality of education has declined due to the brain drain phenomenon, leading experienced lecturers to seek better opportunities abroad. Lack of incentives, poor working conditions, and late payment of salaries contribute to the reliance on inexperienced lecturers, affecting educational quality.
10. **Inadequate Funding of Education:** Nigeria's government has failed to meet UNESCO's recommended 26% funding formula for education. Budget cuts have impacted both capital and recurrent expenditures, causing delays in completing capital projects and affecting the overall performance of higher education. A breakdown of Nigerian education budget for decade revealed the following:

| Years | Education Budget | % | Annual Budget |
|---|---|---|---|
| 2010 | N234.8billion | 5.10 | N4.6trillion |
| 2011 | N306.3billion | 6.20 | N4.972trillion |
| 2012 | N400.15billion | 8.43 | N4.749trillion |
| 2013 | N426.53billion | 8.60 | N4.987trillion |
| 2014 | N493billion | 10.70 | N4.69trillion |
| 2015 | N392.2billion | 8.91 | N4.4trillion |
| 2016 | N369.6billion | 6.01 | N6.1trillion |
| 2017 | N448.01billion | 6.00 | N7.3trillion |
| 2018 | N605.8billion | 7.04 | N8.3trillion |
| 2019 | N620.5bn | 7.05 | 8.83 trillion |
| 2020 | N652.94bn | 6.9 | N10.50 trillion |

**Source: (NPC, 2020)**

Where by Ghana; in the last 10 years, has not budgeted less than 20 per cent for education, as well as South Africa and Egypt, among others. The implication of this is that majorities of agencies and commissions that depend on the Ministry of Education are also underfunded.

**Sustainable Development in Africa**

Sustainable development (SD), born out of the link between environmental preservation and economic growth, was introduced as an approach to raising living standards without compromising environmental quality. The Brundtland Report in 1987, titled "Our Common Future," played a pivotal role in popularizing this concept. SD aims to preserve and enhance environmental resources while building a wealthier, fairer, and more secure future. This process involves aligning resource use, investment direction, technological focus, and institutional reform with current and future demands, emphasizing a non-decreasing vector of development qualities over time. Initially rooted in ecology, the concept of sustainable development has evolved to encompass economic, social, and environmental aspects. Critically defined as meeting current needs without jeopardizing future generations' needs, sustainable development emphasizes integration and a dynamic balance between economic, social, and environmental factors. It is a multi-dimensional concept focusing on intergenerational and intragenerational justice. For successful implementation, it requires policies supporting economic growth, increased social equality, and reduced harmful environmental effects.

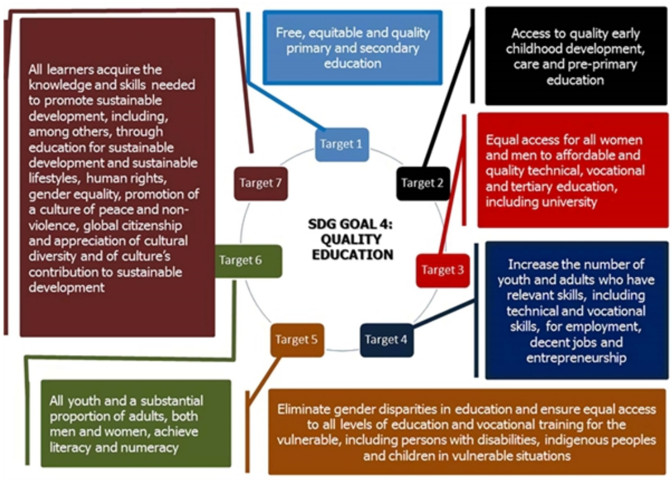
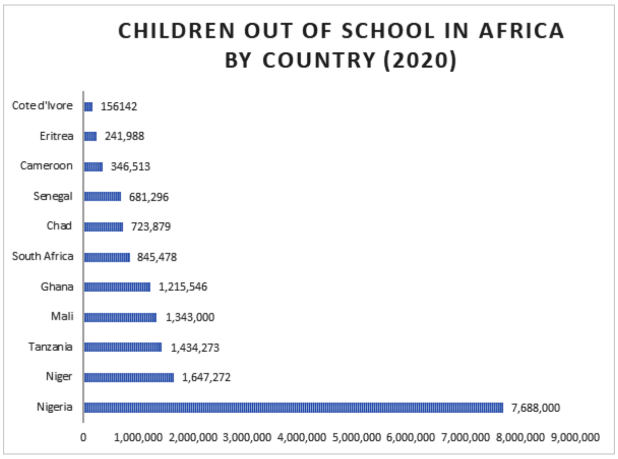



Figure 1: Concept of Sustainable Development
Source: Lawrence, Ihebuzor & Lawrence (2020)

Education is considered a universal human right, yet numerous challenges persist in underdeveloped African nations. The literacy levels in Africa highlight significant disparities across countries. UNESCO reports that over one-fifth of African children aged 6 to 11 are not in school, and almost 60% of teenagers aged 15 to 17 are not enrolled. Girls face a higher exclusion rate, emphasizing the need for initiatives promoting female empowerment and holistic support outside the classroom. Dropout rates, insecurity, poverty, and cultural attitudes towards education contribute to the educational obstacles in Africa. Activists and initiatives like Isibindi Ezikoleni in South Africa aim to address the root causes of disengagement and encourage school attendance. Despite these challenges, local leaders and initiatives, such as the Give North Education initiative in Nigeria, are actively working to bring African children back to school, recognizing education as the key to societal advancement.




The transformative power of education is highlighted, emphasizing its role in developing human capital, increasing individual productivity and employability, and contributing to overall national development. Investing in education and training to meet the growing demand for education among the youth can unlock a demographic dividend for African countries. UNESCO estimates suggest that if investment in human capital remains unchanged, GDP per capita in Africa will increase by 39% by 2050. However, increasing investments in the health and education of young people could lead to an 88% increase in GDP per capita by 2050, emphasizing the significant economic potential inherent in addressing educational challenges and harnessing the demographic dividend.

Despite global and continental commitments to prioritize technical and vocational education and training (TVET) as reflected in SDG 4.3 and 4.4, TVET coverage remains low in Africa. In 2019, only around 10 million adolescents and young people were enrolled in technical and vocational secondary education, constituting a ratio of 762 learners per 100,000 inhabitants, compared to the global average of 801 learners per 100,000 inhabitants. The percentage of young people between 15 and 24 years old enrolled in vocational education is, on average, merely 3%. At the lower secondary level, TVET provision is almost non-existent, with an enrollment rate of only 1.6% of total lower secondary enrollment, while at the upper secondary level, the average is 15%.

The situation varies across countries and regions, with the share of TVET in upper secondary education ranging from 13% in Western Africa to 18% in Central Africa. Leading countries in developing TVET at the upper secondary level include Angola, Egypt, Ethiopia, Mali, Rwanda, Democratic Republic of Congo, and Niger. However, the overall participation of African adolescents and young people in TVET remains very low, with an average enrollment of only 3% of 15 to 24-year-olds. This low level of TVET development is attributed to factors such as insufficient funding and challenges in managing the subsector, which requires a cross-sectoral approach beyond the scope of a single government department.

**Education Systems for the Digital Learning Era**

The COVID-19 pandemic compelled governments worldwide to swiftly implement or expand remote learning programs, often facing challenges due to the lack of ideal preconditions. In response to school closures, countries adopted various learning modalities, including fully remote or hybrid approaches, to counter potential learning setbacks. Despite these efforts, The UN noted that evidence at the country level indicates a significant portion of students, around 48%, equivalent to 54 million, in Western and Central Africa, lacked access or did not participate in the provided remote learning. The primary reasons included the limited availability of distance learning, which was often restricted to specific grades, and the absence of a computer or internet connection, particularly in rural areas.

According to the United Nations (2021), Children and young people across Africa encounter various barriers hindering their access to and utilization of technology and digital tools, leading to multifaceted divides. In the region, only 34% of households have internet access, and approximately 89% of learners lack a computer at home. Internet access is limited, with only 14% of students in sub-Saharan Africa having access to the internet at home. Additionally, access to computers is scarce, with 53% of students in Northern Africa and 8% in sub-Saharan Africa having access to a computer.

Several African nations, such as Kenya and Rwanda, recognized the potential of digital learning before the COVID-19 pandemic, leading to the development of national ICT policies and partnerships with the private sector. This collaboration aimed to reduce the cost of ICT devices and internet connectivity, along with implementing digital literacy programs. In response to school closures, Ministries of Education in Africa have an opportunity to leverage digital technologies to address learning loss through investments in ICT infrastructure and partnerships. Government actions to bridge the digital divide can involve strategic partnerships with the private sector to lower telecommunication costs, engaging with IT corporates and mobile network operators for innovative teaching approaches, and developing policies and incentives to foster local digital ecosystems, ultimately promoting equitable access and stimulating innovations in education delivery. Interministerial collaboration between Ministries of Education and Telecommunications is crucial for successful digital transformation in education.

**Conclusion**

The educational challenges faced by African countries are multifaceted and require comprehensive strategies for sustainable development. The shared responsibility for

managing the education sector, coordination at the political level, declining standards in secondary and higher education, shortage of data for planning, inadequate infrastructure, institutional corruption, insecurity, brain drain, and inadequate funding collectively contribute to hindrances in the effective administration of education in the continent. Moreover, the COVID-19 pandemic has exacerbated existing issues, highlighting the need for resilient and adaptable education systems.
To address these challenges, the following suggestions should be considered:

- There is a pressing need for collaborative efforts among different tiers of government and educational stakeholders to streamline responsibilities, enhance coordination, and ensure effective policy implementation.
- Additionally, efforts should be directed towards improving the quality of education at all levels, focusing on addressing the decline in standards and ensuring accessibility.
- Prioritize investment in physical and technological infrastructure to create conducive and modern learning environments.
- Implement comprehensive measures to combat institutional corruption, ensuring transparency and accountability within the education sector.
- Introduce incentives and improvements in working conditions to retain skilled educators and curb the brain drain phenomenon.
- Prioritize and increase funding for education, aligning with international recommendations like the UNESCO 26% funding formula.
- Integrate sustainable development principles into education policies, emphasizing technical and vocational training to harness the demographic dividend.
- Invest in digital infrastructure and strategies to bridge the digital divide, ensuring equitable access to technology-enabled learning.
- Enhance Education Management Information Systems (EMIS) for robust data collection, analysis, and dissemination, enabling evidence-based decision-making.
- Foster international collaboration for knowledge exchange, resource-sharing, and the adoption of best practices in education.

By collectively addressing these recommendations, African nations can chart a transformative course for their education systems, empowering their youth and fostering sustainable socio-economic development.

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# CONFERENCE COMMUNIQUE
## 11TH INTERNATIONAL CONFERENCE ON AFRICAN DEVELOPMENT AID AND ECONOMIC TRANSFORMATION

Research scholars from different African countries gathered at the University of Lagos from the 14th to the 15th of March 2024 for the 11th International Conference on African Development Aid and Economic Transformation, with the theme, "Addressing Development Challenges among African Economies in the 21st Century". The objective of the Conference was to identify emerging development challenges in all development sectors affecting African states, with strategic empirical recommendations on how to address the issues. The two-day conference featured lead presentations and keynotes.

In her welcome remark, the Vice Chancellor of the prestigious University of Lagos, Prof. Folasade Tolulope Ogunsola. FAN, OON, welcomed the participants to Nigeria and the University of Lagos. She reiterated the importance of the conference, especially at a time when African states are facing development challenges. Among several development issues, to address the problem of unemployment in Africa, she maintained that African leaders must develop and strengthen policies, strategies, capacities, and institutional arrangements to adequately identify and anticipate current and future skill needs. In doing so, they can further establish systems to proactively develop the skills and competencies required for emerging job opportunities in science and technology. Furthermore, she emphasized the significance of collaboration and collective efforts, underlining that the development of the African state requires a shared responsibility with each individual making substantial contributions, regardless of their field of expertise.

**The Conference format was structured around three interrelated components and plenary sessions:**

i. ii. Opening plenary and keynote address
ii. Panel discussion; and
iii. Thematic and interdisciplinary sessions.

At the end of the conference, the following policy issues and recommendations were made,

**The Need for Good Governance:** Good governance is the bedrock for development in Africa. The conference disclosed that corruption and related illicit finance and proceeds of crime drain public resources, can often fuel organized crime, and undermine democratic governance. Corruption and illicit finance also undermine progress across all the Sustainable Development Goals. There must be a strong commitment to enhance accountability and transparency in public service.

**Addressing the Challenges of Terrorism:** The conference reiterated the need for African leaders to address conditions leading to terrorism, violent extremism, and instability while respecting human rights and the rule of law. Development and democracy are mutually reinforcing, and we underscore the importance of free and fair elections to meet the citizens' needs and expectations.

**The Need to Promote Industrialization:** The panelists shared the view that industrialization means African countries must focus on improving the skills of their workforce and developing their infrastructure and wealth-generating activities to integrate more effectively into global value chains. They need to implement appropriate policies, designed to exploit the comparative advantages of each country, while encouraging competition and innovation in high added-value industries, according to the experts' recommendations.

**Expanding Businesses in Africa:** To expand business and gain more in the international scene, African countries must engage more in international trade, by promoting added-value manufacturing and investing more in human capital. This will allow them to exploit the potential of industrialization, which has the power to stimulate inclusive growth in Africa.

**Integrating Skills anticipation and development into Government Agendas:** Government in African states must integrate skills anticipation and skills development policies and programmes into broader socio-economic development agendas, policies, and strategies. Skills anticipation strategies should be incorporated into employment, trade, investment, digital, and environmental policies that support the realization of economic and social goals. Ensure strong linkages, social dialogue, and coordination mechanisms at national and sectorial levels, e.g., through the establishment of sectorial skills bodies), given their critical importance to ensuring that Labour Market Information Systems support improvements in employment governance and contribute to addressing disparities between market demand and supply of skills.

**Prioritizing Collective Action:** The conference reiterated the need for African leaders to take collective action to preserve peace and stability and to address global challenges such as climate change, pollution, biodiversity loss, global health, education, gender inequality, poverty, food insecurity and malnutrition, violent extremism and terrorism, information integrity and a digital transition that respects, protects, and promotes human rights and fundamental freedoms.

**The Need to Promote Human Right:** Society must be built on the principles of human rights. The conference stressed the need for African leaders to be committed to free societies and democratic principles, where all persons can freely exercise their rights and freedoms. Human rights are universal, indivisible, interdependent, and interrelated.

**Commitment to Sustainable Development in Africa:** Although development policies in Africa failed, there is a reaffirmed commitment to the 2030 Agenda for Sustainable Development (2030 Agenda) and to re-energize efforts towards the achievement of the Sustainable Development Goals (SDGs), as multidimensional crises, particularly the economic crises and hardship, post-pandemic experience, external and internal war, ongoing major conflicts, and insurgence, have set back progress towards their achievement.

**The Need for Global Collaboration to Foster Development in Africa:** African countries must continue to work in close cooperation with our partners and with relevant multilateral fora such as the G20. Global challenges require solidarity and a cohesive international response, looking for shared solutions for peace, stability, and development, leaving no one behind. African countries must deepen their partnership with regional organizations, including the African Union (AU), and other international institutional arrangements in achieving the objectives of the AU Agenda 2063, the 2030 Agenda for Sustainable Development, and the Paris Agreement.

**Tackling Debt Vulnerabilities:** Debt vulnerabilities are a significant challenge affecting African states. The panelist fully supports the G20's effort to improve the implementation of the "Common Framework" in a predictable, timely, orderly, and coordinated manner, providing clarity to participants. They recognized the importance of effective and long-term solutions, promoting coordination between official bilateral and private creditors.

**The Need to Foster Development through Financial Institution:** The conference called upon Multilateral Development Banks and development finance institutions to continue to play a key role in fostering sustainable development through increased financing, policy advice, and technical assistance for the benefit of developing countries, particularly the poorer and more fragile countries across the continent. Central to economic development is ensuring access to sustainable and resilient food systems, health care and health security, and clean, affordable, reliable, sustainable, and modern energy for all.

**Combatting Human Trafficking:** The need to stop human trafficking was stressed at the conference. In fairness, it recognized that women and girls are especially impacted by human trafficking, particularly trafficking for sexual exploitation. The UN and its Agencies have a role to play in this respect. Countries of origin, transit, and destination must work together to stop migrant smuggling and human trafficking and uphold the dignity and worth of the human person – in line with the UN Charter.

**The Need to Address Irregular Migration:** African leaders must be committed to finding ways to better address challenges posed by irregular migration, within the framework of our international obligations.

**Strategies for Poverty Alleviation in Africa:** To address the problem of poverty, especially hunger, there is a need to inject consistency and coherence in our investment in areas of shared priority for Africa, including food security, nutrition, sustainable rural development, energy transition, sustainable, inclusive, resilient, and quality infrastructure development, bridging digital divides, education, training and skilling, gender equality, and good governance.

**Addressing the Hunger Crisis in Africa:** There must be a strong commitment to addressing, with partners, the worsening hunger crisis affecting parts of Africa. Strengthening the resilience of agri-food systems is necessary to effectively address food insecurity and malnutrition. That makes internationally coordinated action more urgent than ever. Ensuring food and nutrition security remains a challenge for the international community and affected countries, especially in known hunger hotspots in Africa and beyond, that are vulnerable to climate and conflict-related shocks.

**Promoting Fair Trade Practices:** The conference reiterated the importance of ensuring a level playing field and a transparent, predictable, and fair business environment. Respect for the rules-based multilateral trading system based on market principles needs to be the hallmark of our relations, to protect workers and companies from unfair and non-market policies and practices, including forced technology transfer or illegitimate data disclosure, which distort the global economy and undermine fair competition.

**The Need to Advance Quality Infrastructure:** There was also a call to African leaders to promote a sustainable, resilient, inclusive, and quality infrastructure as a key element for achieving sustainable development by addressing the infrastructure investment gap in low- and middle-income countries. There must be a strong commitment to advancing high standards for quality infrastructure to spur sustainable and inclusive economic development. Infrastructure development should also encompass a wide range of initiatives (i.e. regulatory frameworks, jobs market, energy access, training and research, and health systems) to support partners to offer opportunities to the most marginalized and vulnerable to strengthen social cohesion and inclusion.

**Prioritizing Global Health for Sustainable Development:** The conference acknowledged that global health is a prerequisite for sustainable development. Building on the lessons learned during the COVID-19 pandemic, there is a need to promote global health, knowing that health emergencies are a global challenge that needs a global response.

**The Need for Inclusive and Entrepreurial Education:** There is a need to invest in inclusive and entrepreneurial education. The framework should be able to support skills and self-reliance among youth.

**Promoting Women Empowerment for Inclusive Development:** Gender equality and women's empowerment a fundamental prerequisite to eradicate poverty, to stimulate prosperity and sustainable and inclusive growth, and to build peaceful, just, and inclusive societies. The panelists recognized that unpaid care and domestic work are major obstacles to the full, equal, and meaningful participation of women and negatively impact women's economic empowerment by impairing their ability to work full-time or in leadership positions.

**Dr. Bassey Anam**
Chairman, Conference Plenary Session

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# Book of Proceedings

# BUSINESS EDUCATION ADDRESSING DEVELOPMENT CHALLENGES AMONG AFRICAN DEVELOPMENT IN THE 21ST CENTURY.

**Abdullahi Musa**
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***Abstract***

*Business education is an integral part of national transformation, particularly in emerging economies in Africa. The challenge for these economies is to establish and maintain excellence in their professional education systems that have the capacity to reconcile the needs of the economy with the needs of society. Recent economic changes have significantly impacted higher education, contributing to the rising cost of education and more funding restraints on universities. The biggest challenges facing business schools today include digital transformation, sustainability, economic shifts, increasing competition, meeting student expectations, and changing aspirations. Business schools must differentiate themselves, adapt to the changing education landscape, and offer flexible learning options to students. Business education remains the foundation of human resource development, providing knowledge, skills, attitudes, and understanding needed to perform in the business world as a producer or consumer of economic goods and services that business offers. To ensure national transformation, there is an immediate need to tackle the challenges of business education programs head-on to pave the way for the fulfillment of the slogan of national transformation.*

***Keywords****: Business education, emerging economies, national transformation, challenges, higher education, digital transformation, sustainability, economic shifts, competition, student expectations, changing aspirations.*

## Background to the Study

Business education is a vital track of learning that equips individuals with the necessary skills to excel in the business world. It encompasses a wide range of subjects such as finance, ethics, and soft skills like leadership, written and oral communication. The objectives of a business education program include providing students with comprehensive knowledge about various aspects of business-like accounting, marketing, finance, and management. Moreover, it emphasizes the importance of incorporating courses in international business to prepare students for the global marketplace by understanding cultural differences and the impact of currency changes on business deals. Additionally, soft skills development is crucial, focusing on traits like leadership, communication, teamwork, and adaptability to change. Real world connections are also emphasized through opportunities like case studies, mentoring, and job shadowing to bridge the gap between classroom learning and practical application. Africa faces several development challenges, including economic growth, inflation, climate change, governance, poverty, inequality, conflict, and security. The COVID-19 pandemic has had a significant impact on the African continent, with rising inflation and additional attempts at taxation likely to trigger cost of living protests. Sub-Saharan African countries entered the crisis with elevated debt vulnerabilities and less room to spend, and pandemic-related fiscal packages have exacerbated the situation. Climate change is also a significant challenge, with expanding agriculture, clearing of forests for charcoal and firewood, and climate change being the primary causes of loss of biodiversity in Africa. Good governance is crucial for addressing development challenges in Africa, conflicts and military coups in countries such as Sudan, Niger, and Gabon are likely to hamper growth in the Economic and Monetary Community of Central Africa and some Sahel nations. Addressing these development challenges requires a collective effort from governments, civil society organizations, and the private sector.

**Sustainable Development, Communication channels, Good governance, Capacity building, and Partnerships.**

The development of sustainable capacity-building, communication channels, good governance, and partnerships is crucial for addressing the challenges faced by African countries. The Paris Committee on Capacity-building emphasizes the need for multi-stakeholder partnerships to support effective capacity-building in developing countries, including African countries, to implement the Sustainable Development Goals (SDGs). The UN's SDG Partnership Guidebook provides a practical guide to building high-impact multi-stakeholder partnerships for the SDGs, emphasizing the importance of partnerships in achieving sustainable development. Capacity-building is also essential for collaborative North–South translational health research and training in resource-constrained settings, highlighting the importance of support, infrastructure, and partnerships in the health sector. Additionally, citizen-generated data projects require capacity-building, up-scaling, spreading, and sustainability, which can be achieved through community engagement and infrastructure, emphasizing the role of partnerships and capacity-building in sustaining initiatives.

In Africa, expanding agriculture, clearing of forests for charcoal and firewood, climate change, and desertification are the primary causes of loss of biodiversity, highlighting the urgent need for sustainable development initiatives and partnerships to address these challenges. These sources underscore the critical role of sustainable capacity-building, communication channels, good governance, and partnerships in addressing the major problems faced by African countries.

**Partnership Strategy Framework**

A partnership strategy framework is a set of principles, tools, and processes that help define the goals, roles, expectations, and outcomes of a partnership. It is essential to have a clear and effective framework that guides collaboration to ensure a successful and mutually beneficial partnership. The framework should be documented and agreed upon by both parties, and it can be formal or informal, depending on the nature and scope of the partnership. Partnerships are a powerful way to grow businesses, reach new audiences, and create value for both parties. However, managing business partnerships can be challenging, particularly as companies increasingly strike relationships with partners in different sectors and geographies. Adhering to four key principles can help companies manage strategic partnerships and increase the odds that their collaborations will create value.

In the context of sustainable development, partnerships are crucial for achieving the Sustainable Development Goals (SDGs). The UN's SDG Partnership Guidebook provides a practical guide to building high-impact multi-stakeholder partnerships for the SDGs, emphasizing the importance of partnerships in achieving sustainable development. The guidebook sets out the key building blocks of successful partnerships and the underlying processes necessary to develop and keep those partnerships. Capacity-building is also essential for collaborative North–South translational health research and training in resource-constrained settings, highlighting the importance of support, infrastructure, and partnerships in the health sector. A partnership strategy framework is crucial for managing successful partnerships, and partnerships are essential for achieving sustainable development goals. The framework should be documented and agreed upon by both parties, and it can be formal or informal, depending on the nature and scope of the partnership. A partnership strategy involves collaborating with independent business entities to combine resources and achieve common goals. It can encompass various types of strategic partnerships, such as integration partnerships, where companies join forces to enhance their offers and offset costs. For example, Nike and Apple have a strategic integration partnership, leveraging their respective strengths to create added advantages.

Developing a partnership strategy involves creating a strategic partnership agreement that outlines the terms, scope, and parties involved. This agreement typically includes the parties involved, the nature of the partnership, and the mutual benefits for each party. To create successful strategic partnerships, it's essential to understand the types of partnerships your potential partners engage in and align your goals with theirs. Researching potential partners' goals and existing partnerships can provide valuable insights for developing mutually beneficial collaborations.

**Emerging Economies**

Emerging economies refer to countries experiencing significant economic growth and transitioning from developing to developed status. These economies, like Brazil, China, India, and South Africa, offer opportunities and challenges for businesses. They often have high growth rates, a growing middle class, and potential for international operations. However, they also pose threats such as competition from domestic businesses and risks like intellectual property theft. Policies favoring industrialization and economic growth are common in emerging markets. For instance, Brazil saw rapid growth but faced setbacks due to political instability. Russia's growth was driven by transitioning to capitalism, while China's growth relied on government spending and exports. India's growth stemmed from economic reforms and technological advancements. South Africa joined the BRICS association, enhancing its economic ties. Emerging markets face risks like capital inflow slowdowns and contagion effects, as seen in the "Fragile Five" countries. Overall, emerging economies offer potential for growth but require careful navigation of risks and challenges.

Emerging markets have made remarkable progress in strengthening their macroeconomic policies since the turn of the century, which helped them more than double per capita incomes on average. Monetary policies in 65 percent of the countries we have identified as emerging markets follow forward-looking inflation-targeting regimes, and inflation has fallen and stabilized in most. Public finances in several are guided by fiscal rules. Many embraced major banking sector reforms after the financial crises of the 1990s. Progress was tempered by the global financial crisis in 2008–09, but not derailed.

**Economic Track Record**

This economic track record helped policymakers in emerging markets deploy bold measures during the pandemic without unravelling market confidence. Economic relief measures included increases in government spending, liquidity support to firms and banks, release of bank capital buffers with the intent to support lending, and asset purchase programs by central banks to stabilize domestic markets. Low domestic inflation and monetary easing by advanced economies also gave central banks in emerging markets room to cut domestic policy rates substantially. Household savings increased in most emerging markets following the onset of the pandemic. Much of the domestic savings went to finance the government, reducing the need for foreign borrowing, which, together with lower private investment, kept current account deficits in check.

However, some measures such as direct monetary financing of budget deficits or temporary freezes on loan repayments raise new risks. Policymakers defended them as temporary tools to alleviate enormous economy wide strains. Higher fiscal deficits have also added to already elevated sovereign debt in some countries. In others, high corporate sector debt, including of state-owned enterprises, and unhedged foreign exchange exposures in corporate debt pose contingent fiscal risks in the event of corporate distress. Increased government debt held by domestic banks also intensifies the link between the health of the government and that of the banking system.

**Targeting Corporate Sector Support**

As the health crisis comes under control, countries must begin to transition from wholesale crisis emergency support measures to those that target support to viable firms and eventually allow a handover to private-led growth. How fast this can be done will depend on the link between growth and employment in the corporate sector and whether a country can afford to support viable firms long enough to allow them to shake off pandemic-induced distress. How efficiently that happens will depend on the strength of labor market institutions, safety nets, banking system oversight, and insolvency procedures for a smooth reallocation of resources. While advanced economies face similar challenges, the ensuing trade-offs are likely to be more acute for emerging markets because they typically face more imposing budget constraints.

**Generating job-rich, balanced, and Sustainable growth**

Beyond the immediate recovery, a vital step toward long-term economic health is raising productivity and lessening the scarring effects of the crisis on investment, employment, human capital (because of setbacks to learning), and financial system strength. The long-term growth payoffs from structural reforms can be significant if they are well designed and properly sequenced (Duval and Furceri 2019).

Clear communication on policy intentions, with measures to protect the vulnerable, is essential as well to building social support for difficult reforms. It is also the time to build stronger economies than emerging markets had before the pandemic by taking steps to create better and more equal access to health care and education, strengthening public infrastructure, and retraining workers displaced by the pandemic. Building resilience to climate change and steering digitalization for inclusive growth are also necessary.

**Restoring Macroeconomic Resilience**

The importance of building economic health during peaceful times. Emerging markets will soon need to start rebuilding fiscal, external, and macro-financial buffers to prepare for the next crisis. That means re-establishing fiscal rules and restoring financial regulatory standards, which were set aside during the pandemic, and rebuilding external reserves if they are running low. Priorities will vary and will need to be addressed without hurting growth prospects raising tax capacity for spending on public services where safety nets are weak, taking steps to reduce debt and debt accumulation (fiscal consolidation) where the sovereign debt burden is high, and tightening macro prudential policies on financial institutions where financial stability risks are elevated.

**Governments**

In many emerging markets will need to balance different goals, such as raising spending on public investment and social safety while resuming fiscal consolidation to keep public debt on a firm downward path. Public and external debt have risen significantly for the median emerging market economy. While low global interest rates have kept debt servicing costs manageable, external borrowing costs should not be expected to stay low indefinitely. Investors typically differentiate across emerging market debt. Even when debt is incurred in domestic currency, the sizable share of domestic debt held by foreigners makes the domestic financial market an important transmitter of external financial shocks. Sustained high debt and gross financing needs will likely aggravate policy trade-offs and expose emerging markets to abrupt changes in the risk appetite of investors.

**Rebuilding Resilience**

Emerging market policymakers can overcome adverse shocks and rebuild economic resilience. Moreover, medium term growth in most emerging markets is projected to remain strong. However, a collective global effort is crucial for emerging markets to realize their growth potential and generate much-needed dynamism in global activity, trade, investment, and finances.

**National Transformation**

It involves the process of transitioning a country from a developing status to a developed one through multidimensional efforts. This transformation often includes empowering the private sector, enhancing government excellence, and fostering economic partnerships. For instance, Saudi Arabia's Vision 2030 and its National Transformation Program aim to create a diversified, innovative, and leading nation by implementing strategic objectives like digital transformation and inclusive private sector growth.

Additionally, digital transformation plays a crucial role in national transformation, especially in emerging markets. The COVID-19 pandemic has accelerated the adoption of digital technologies in these countries, highlighting the importance of policies supporting regulatory guidance, digital infrastructure development, and capacity building. Digitalization can enhance global value chains participation, support SME integration, and drive economic growth by leveraging technologies. While digital transformation offers significant opportunities for emerging economies, challenges such as connectivity gaps, skills shortages, and financing limitations need to be addressed to ensure inclusive and sustainable development. or decades, information and communication technologies (ICTs) have variably impacted people, enterprises, and societies depending on their degree of readiness in terms of human capital development, digital infrastructure dissemination, info structure build-up, and the availability of an integrated, supportive, and conducive environment. With the acceleration in digital transformation––since the COVID-19 pandemic hit and the added urgency for countries to respond and, more importantly, adapt––these technologies have demonstrated the potential to become a game changer, especially for emerging economies, and help as a key economic driver that can spur and accelerate development and growth.

Businesses, and people's lives and livelihoods in the developed and developing worlds. The impact led to more people working remotely especially in digitally connected organizations. New business models emerged for teleworking, including hybrid and to some extent reflecting a glimpse of what the future of work will look like. Online and distance learning in many educational institutions became the norm during the pandemic and most likely is here to stay in different blended models based on the availability of the infrastructure and affordability of access, whether in synchronous or asynchronous modes also showing what the future of learning will offer.

However, the acceleration of digitalization will undoubtedly exacerbate the divides in emerging economies unless a timely, comprehensive, and inclusive development approach is implemented. Therefore, it is imperative to constantly assess the impact of digitalization on employment, productivity, and inequality. On this note, while digitalization can and will result in many jobs being replaced by innovative machines, others that are technology-related will be created, mainly offering high-end employment opportunities that require tech-savvy skilled human capital capable of embracing, adapting, and making the most of the prospects enabled through emerging innovative technology platforms.

**Challenges in Higher Education and Digital Transformation Challenges in Higher Education**: Higher education institutions face various challenges in adapting to digital transformation, including financial constraints, limits imposed by current IT infrastructure, and diminishing budgets due to reduced government funds. Digital Transformation Barriers: The barriers inhibiting digital transformation in higher education include financial constraints, limits of IT infrastructure, and the need for equal access to technological resources for all students.

**Sustainability and Economic Shifts**

Sustainability in Higher Education: The digital era and new competencies required in education, particularly in engineering sciences, have triggered discussions on sustainable development and the need for systemic action to promote a sustainable lifestyle and educate about sustainable development. Economic Shifts: Economic shifts impact higher education institutions, leading to challenges like reduced government funds, diminishing budgets, and decreased student enrollment due to uncertain economic situations.

**Competition and Student Expectations**

Competition: Higher education institutions are facing competition in adapting to digital transformation and ensuring quality education delivery. They need to reinvent teaching processes, transform assessment activities, and focus on value through service model reinvention.

**Digital Transformation is Important**

Its providers can learn from digital transformation approaches and models in other sectors, but they have unique needs and complexities that relate to their individual levels of digital maturity. Many are creating new digital transformation strategies, and some are incorporating digital into existing strategies, but all are recognising the need for clarity around the role of digital in the delivery of institutional ambitions, missions, and values.

Effective digital transformation is a difficult problem to crack in any sector, and HE is probably a couple of steps behind other sectors. While everyone acknowledges the need for it, there's a lack of understanding about how best to move forward. Jisc's work in this area will be instrumental in enabling all HEIs to create their own digital transformation frameworks and strategies that balance pragmatism with innovation and ambition. Successful digital transformation requires effective digital leadership, appropriate investment, robust secure infrastructure, engaged stakeholders and digitally capable staff and students. The complexities and scale of higher education providers present challenges to achieving ambitious digital strategies.

**Vision and strategy:**

1. What is our vision for digital transformation and how does it align with our overall strategic goals (e.g. environmental sustainability, equity, diversity and inclusion (EDI), internationalization, local and regional impact).
2. How will digital transformation help us to improve our services, operations and stakeholder experiences.
3. What is our attitude to digital: is our main priority operational resilience and business continuity; enhancing the organization's mission, or major changes to our business model.
4. How can digital improve learning, teaching and assessment.
5. How can digital drive our research forward.
6. How can digital enhance the unique selling point and reputation of our institution.
7. How do we benchmark ourselves across the sector.

**Assess Readiness**

Readiness and current state:

i. What is our baseline in terms of digital maturity, and what are our biggest gaps.
ii. How digitally capable are our stakeholders (leaders, governors, staff, students, partners).
iii. What evidence do we have about the ways that different staff (teaching, research, professional services, etc.) experience the digital environment.

**Leadership**

Planning and prioritization

i. What is our roadmap for digital transformation, and how do we plan to prioritise different initiatives.
ii. How will we balance the need for operational efficiency with the investment in digital transformation.

**Governance and Leadership**

i. Is there sufficient digital awareness among the executive team and the board of governors for them to make informed decisions in strategic digital areas, to inspire and model good practice?
ii. What structures or mechanisms will we put in place to govern the digital transformation process.
iii. Which internal processes and governance structures need to change so that we can track the performance of our digital strategy and respond to new opportunities in an agile way.

**Stakeholder Engagement**

i. How will we engage with different stakeholders during the transformation process?

ii. What communication strategy will we employ to manage change effectively?

**Investment and Resources**

i. What kind of financial investment are we prepared to make in digital transformation.
ii. Do we have the necessary resources (human, technological, time) to implement our digital transformation strategy.

**Implementation**

Risk management

i. What potential risks could we face when taking digital initiatives forward, and how do we plan to mitigate them.
ii. How do we plan to manage the cyber security risks associated with increased digitalization

**Changing Practice**

i. What do we need to do to improve the digital competencies of all stakeholders?
ii. How do we work with stakeholders as partners in change.

**Technology and Infrastructure**

i. Do we have the necessary secure and reliable technology infrastructure to support our digital transformation.
ii. How do we balance investment and effort to refresh, consolidate and/or integrate existing legacy systems and services and also develop new ones as appropriate?
iii. How can we ensure that physical and virtual infrastructure integrate efficiently and effectively to deliver strategic objectives.

**Data management and security**

i. How will we manage the increased volume and variety of data that comes with digitalization?
ii. How do we improve the flow of data between systems to support informed decision making?
iii. How do we plan to ensure data privacy and protection in the new digital environment?

**Review**

Performance measurement and review:

a. How will we measure the success of our digital transformation initiatives and have we embedded ongoing review mechanisms?
b. What key performance indicators (KPIs) will we use to monitor progress and adjust our strategy as necessary.

**Step One**

Assign responsibility for different elements of the framework/maturity model to appropriate teams and individuals. These are the people who will assess maturity levels and work on the action plan/s. Some may have responsibilities or interest in more than one area of the framework, particularly if they have responsibilities that cross over several areas. (For example, a librarian may be involved in producing action plans around learning and teaching, research or collections development. Human resources teams may work on digital wellbeing, digital capabilities and other specific areas that include staff development.)

It is also important at this stage to identify time scales and deadlines for the process – so that action plans for each area are considered and approved by senior leaders at the same time (see sections three and four). Appropriate board level committees and groups should be identified/created with responsibility for progressing digital transformation across the organisation.

**Tips and ideas**

1. Try to resist the temptation to adopt a silo approach at this stage. Look at each area of the framework/maturity model with fresh eyes and consider which stakeholders have something different to offer can you involve students, and are there opportunities for cross-faculty working, for example. Try not to appoint only "the usual suspects".
2. You could have teams from different faculties working on the same area, as some will be more digitally mature in specific areas than others. If you adopt this approach, consider how you can bring them together at a later stage and how faculties can learn from each other and share good practice.
3. Make sure each team has a senior leader or sponsor involved in some way this can help with the later stages of organization wide prioritization.
4. It could be useful at this stage to carry out a review of stakeholders and map them to different elements of the framework so that no group/s are excluded from planning or engaging with strategies and plans that will affect them.

**Step Two**

**Assess maturity** for each area of the framework using the maturity model for digital transformation in higher education. You could approach this in two ways. It may be of value to assess the maturity level across the activity area for the whole organisation or teams may have been assigned to focus on specific faculty/schools or departments. Ultimately, prioritisation decisions around investment require a whole-organisation picture, so if you decide to focus on specific sections of the organisation you'll need to amalgamate them or assess them together later.

**Tips and Ideas**

1. Don't take the levels of maturity as too prescriptive or exhaustive. While they provide a general framework for understanding an organization's level of digital advancement, they should not be interpreted as a one-size-fits-all solution.
2. Don't focus solely on technology aspects. Underlying cultural and organizational issues are included in the maturity statements to highlight that digital

transformation is not just about technology – it's also about people, processes and culture.

3. The maturity model offers a 'big picture' view for each area for the whole organization. Conversations held while assessing maturity models are likely to delve into the details, so record or capture this detail in preparation for the next stage (producing action plans and business cases).
4. It may be useful to record the evidence you have to reflect your chosen level of maturity (eg recently updated policies, results from surveys, previous investment in systems, project reports).
5. Consider each area in relation to organizational values, principles and strategic aims to make sure practice and policies reflect these.
6. As part of this process, revisit existing policies and procedures and review them to see if they need updating.

**Step Three**

Use the templates to create action plan**/s** for each area of the framework that need development (use alongside the maturity model document). The suggested template prompts teams to reflect on current maturity levels, to identify actions, KPIs, investment, responsible owners, relevant stakeholders, supporting resources and documents, and assign priority levels. If several action plans are being developed for one area by different teams (eg faculty level) you should also consider producing a business cas**e** that highlights benefits against investment. This business case would augment the action plan when senior leaders consider it.

**Step Four**

Senior leaders and governors need to collate and review action plans and business cases to assess and refine strategic priorities, produce an organisation-wide plan/roadmap and allocate investment. This process will be easier for senior leaders if they were involved in producing plans and in the surrounding discussions, as they will have a better understanding of the challenges, benefits and proposed implementation. Timing is a critical factor, as informed decisions are only possible if action plans for each area are submitted around the same time (see step one). This also links to key decision-making committee meetings and schedules.

**Step Five**

Adjust the reviewed individual action plans to align with an organisation-wide plan. New priorities and timescales will be assigned and action plan owners will need to be fully informed of strategic and investment priorities. All stakeholders involved in the plan will need to be informed and prepared for the actions identified (and this may require additional training or development).

**Step Six**

Initiate projects, actions and work to implement action plans. Review and adjust the action plans as appropriate during development. Troubleshoot problems as they arise and record and share solutions. Evaluate the process and outcomes against targets identified in the plans.

**Tips and ideas**

i. Good project management across all action plans can help to align timescales, identify dependencies and highlight emerging problems.
ii. Using IT-based project management approaches can be problematic for projects that focus more on responsive approaches to stakeholder needs and/or practices. Make sure that appropriate methods are used for each project that don't only focus on the digital aspects.

**Step Seven**

**Feedback progress on action plans** into the organisation-wide roadmap on a regular basis or at the end of the project/initiative. Successes can be shared more widely, particularly if they can inform future plans or other ongoing work. Celebrating success and articulating the benefits can support ongoing stakeholder engagement.

**Step Eight**

Regularly revisiting and reviewing progress against the organisational digital transformation strategy, roadmap and maturity model allows you to reassess digital maturity and supports identifying new areas for development. Digital transformation strategies and plans should be seen as constantly evolving to reflect external influences and changing organisational practices. Vision, appropriate investment, equity, diversity and inclusion, environmental sustainability, stakeholder engagement, security and safety, international activities, staff training and development, and digital wellbeing. These are all included within this framework at various points, but relate to specific practices and areas of work for a particular group of staff or other stakeholders.

**Innovation**

Supporting the development of new ideas and solutions by encouraging creativity, enterprise and supporting digital leadership. Aligning appropriate innovation with strategic aspirations, existing practice, legacy systems and processes.

**Curriculum Development**

Reviewing, planning and developing a course of study. Usually, a formal departmental and institutional process, mapped to graduate outcomes, benchmarks and professional standards, producing specific documentation (e.g. course handbook, schedule and materials).

**Information Management and use**

Practices and procedures around collecting, organising, storing and sharing information in a way that allows for efficient retrieval and use. This includes information created by the organisation and that provided by third parties.

**Business Intelligence (BI)**

The collection, management and use of data and information to inform business decisions and strategies. It comprises the strategies and technologies used by enterprises for data analysis and management of business information.

**Decision Making**
Evaluating evidence and business intelligence to identify options and make choices about all aspects of business, including investment and planning to achieve strategic goals.

**Communication**
How the organisation uses digital technology and networks to enhance and support communication between stakeholders, as well as disseminating key messages outside the organisation.

**Community Participation**
Encouraging stakeholders to engage with, and participate in, decision-making processes that affect them. Enabling and supporting stakeholders to participate in wider community activities. Ensuring equitable and inclusive experiences of digital participation.

**Relationship Management**
Using digital technologies to build and maintain positive relationships with and between stakeholders to ensure engagement, feedback and involvement as partners. Includes working, learning and wider community relationships.

**Challenges in Doing Business in Africa**

1. Price-sensitive Market: Africa's market, despite its growing GDP, faces challenges due to the relatively low purchasing power of consumers. This necessitates a focus on marketing strategies to connect with price-sensitive consumers and the acquisition of market data to understand consumer behaviour.
2. Skilled Labour Shortage: The skills gap in Africa's labour market remains high, despite a young population. There is a misalignment between schooling, training programs, and the skills demanded by the labour market. Businesses struggle to find skilled talent due to weaknesses in the educational systems that prioritize theoretical knowledge over practical skills.
3. Electricity Challenges: While Africa presents exciting economic opportunities, challenges like unreliable electricity supply persist. Access to electricity is crucial for business operations and economic growth, highlighting the need for infrastructure development to support business activities.

**Conclusion**
Business education plays a crucial role in addressing the development challenges faced by African economies in the 21st century. The paper highlight key issues such as the need for skilled labor, challenges in doing business in Africa, the importance of institutions, and the impact of digital transformation on development in Africa. These challenges underscore the importance of robust business education programs that can equip individuals with the skills needed to navigate the complexities of the African business landscape.

**Recommendations**

1. Skill Development: Enhance business education programs to bridge the skills gap in the labor market. Focus on practical training that aligns with the needs of industries to ensure graduates are equipped for the workforce.

2. Institutional Strengthening: Emphasize the importance of strong institutions in fostering economic stability and growth. Encourage transparency, accountability, and inclusivity in institutions to create an environment conducive to business development.

3. Digital Transformation: Leverage digital technologies to drive development. Invest in digital infrastructure and education to empower businesses to adapt to the digital age and capitalize on emerging opportunities.

4. Resource Management: Promote responsible resource management practices to ensure sustainable economic growth. Direct revenues from natural resources towards education, healthcare, infrastructure, and social programs to benefit the population.

5. Internationalization of Higher Education: Enhance international collaborations in higher education to improve academic partnerships and knowledge sharing. Develop clear policies, organizational structures, and financial resources to support internationalization efforts in African countries.

6. Talent Acquisition and Development: Encourage businesses to invest in talent acquisition and development strategies. Provide incentives for employees to enhance their skills and adapt to the evolving business landscape.

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# EFFECTS OF SELECTED FOREIGN DEBT COMPONENTS ON NIGERIAN ECONOMY

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***Abstract***

*External debt is a critical tool used by the government to fund her spending capacity, especially when it is difficult to raise taxes and reduce public expenditure as well as a significant shortfall in domestic savings to finance productive activities and provision of infrastructure. On this basis, this study is aimed at investigating the effect of foreign debt components on the growth of Nigerian economy. The study adopted econometrics analytical method rooted on Autoregressive Distributed Lag (ARDL) technique using time series data from 1986 to 2023. The empirical results from ARDL revealed a long run relationship between the variables used in the study. Bilateral debt and debt service payment have a negative and significant effect on economic growth, while multilateral debt has a positive and insignificant effect. Also, 95 percent of disequilibrium in the short run is corrected each year. The study recommends that government should diversify their economic base in other to improve their internally generated revenue as well as improve the ease of doing business in the country in other to attract more investors and generate more revenue in the country and government should go for long term external debt and concessional loan that have minimal effect to service.*

***Keywords:*** *Foreign debt, bilateral debt, multilateral debt, debt service, Growth.*

## Background to the Study

In the face of budget deficits, government often resorts to borrowing; the borrowing can be internal or external debt. Debt is a critical tool used by the government to fund her spending capacity, especially when it is difficult to raise taxes and reduce public expenditure. Reasonable borrowings and judicious use of borrowed fund to finance public expenditure and infrastructural developments are antidotes to fast-track economic growth. But excess borrowings without appropriate planning for investment may lead to heavy debt burden and creates unnecessary intergenerational transfer, since it benefits the present but burdens the future generations. Shortfall in domestic savings to finance productive activities compels nations to borrow (Amadi, et al. 2022). Aguwamba & Adeghe (2017) assert that external debt is one of the sources of financing capital formation in any economy. But servicing the debt mostly when the borrowed fund is not adequately invested reduces the capital stock of the economy.

Nigeria external debt history traced back to 1958 when Nigeria government borrowed US$28 million from World Bank for railway construction. As one of the developing economy, Nigeria cannot do without external debt to finance its infrastructural and developmental projects like power generation, roads, rails etc. One of the measures taken by different nations to bridge the gap between government's generated revenue and its expenditure (Deficit) is to borrow. Hence, relying on domestic and external debt to finance economic growth and expansion is inevitable (Amadi, et al. 2022). According to Amadi et el. (2023) external debt is not that bad if the country channeled the borrowed fund to productive assets and development of infrastructure capable of repayment.

Over the years, Nigerian government has borrowed fund from both bilateral and multilateral financial institutions to improve her physical infrastructure. Since 2015, the total debt owed to multilateral financial institutions skyrocated from 374 billion Naira in 2015 to 1.142 trillion Naira in 2022 (NBS, 2022). "Total external debt stood at N33.25 trillion (US$43.16 billion) in Q2 2023, while total domestic debt was N54. 13 trillion (US$70.26 billion). The share of external debt (in naira value) to total public debt was 38.05% in Q2 2023, while the share of domestic debt (in naira value) to total public debt was 61.95%" (DMO, 2023). Bakare (2011) asserts that a country's indebtedness does not necessarily slow growth, rather it is the nation's inability to optimally utilize these loans to foster economic growth and development and ensure effective servicing of such debt that hampers the benefits derivable from borrowed capital resources. Despite this huge loan sourced from external financial institutions and countries, researchers are in total dismay if the loan has impacted in the growth and development of the country. Based on the aforementioned, this study tends to empirically investigate the effect of external loan on Nigerian economy.

**Literature Review**

The study anchored its theoretical framework from the External Debt Effect Theories and the Debt Overhang Theory. The external debt theory which posits that the essence of external debt is to close or fills the gap between the available domestic funds and the total investment inquired in the countries with low income, if the domestic savings are not sufficient for the investment, the gap has to be filled with foreign funds. The idea behind this is that the investment spending and the total Gross Domestic Product (GDP) are proportionally related, and they have a positive relationship (Amadi & Ibzan, 2016). As government borrows externally and spends directly on physical infrastructure its resultant effect is growth. While the debts overhang theory propose that if a nation is dreadfully indebted to the level that the debts exceed its repayment capacity, debt service will choke investments and hinder economic growth (Gordon & Cosimo, 2018). Debt overhang is a situation where the debt burden is so enormous that a nation cannot further secure other debts to fund new project. Coccia (2010) affirmed that debt overhang in relation to public debt and public debt servicing affects economic growth negatively by prioritizing debt repayment over other expenditure. Its consequences are high interest payment obligations which hamper growth by reducing public resources productive capable of stimulate growth.

Study conducted by Ijirshar, Fefa and Godoo (2016) assessed the link between external debt and economic growth in Nigeria from 1981-2014. They used descriptive and econometric tools in evaluating the time series data generated. The finding gave a significant relationship between external debt and economic growth in Nigeria in a long run hence external debt servicing had both long run and short run negative impact on Nigeria economic growth. They thus, recommended that stock of external loan borrowed should be efficiently managed since it increases growth rate. Similarly, Lucky and Godday (2017) empirically investigated the relationship between the public debts structure and the growth performance of the Nigerian economy for the period 1990-2015 using multiple regression analyses. The variables used in the analysis include gross domestic product, domestic debt, external debt, and total debt. The findings revealed a positive and significant impact of total public debt on gross domestic product in Nigeria. The study also revealed negative and significant impact of external debt to economic growth; the domestic debt has a positive and significant effect on the economic growth in Nigeria.

In addition, Grace et al. (2019) observed negative evidence in Nigeria between external debt service and growth. The period covered by the study was from 1981 to 2017 using the ARDL model. Similarly, Muhammad & Abdulla (2020) evaluated the relationship among external debt servicing and economic growth from 1985 to 2018 in Nigeria using ARDL model. Debt service was found to have negative effect on economic growth, although statistically insignificant in the short and long-run.

Ohiomu (2020) modeled the nexus for external debt and economic growth for policy analysis on public finance and public debt management in Nigeria using the ARDL technique and found a negative effect of external debt on growth the study confirmed the existence of a debt overhang.

Didia & Ayokunle (2020) provided support that both in short-run and the long-run, external debts have positive relationship with the Nigerian economy but not statistically significant. Faizulayev et al. (2020) employed data from 1981 to 2017 in their study. The findings showed that debt services and external debt have a negative and significant effect on real growth both in the short and long run. Muhammad & Abdullah (2020) evaluated the association of external debt servicing and economic growth from 1985 to 2018 using ARDL model. Debt service was found to have negative effect on economic growth, but statistically insignificant in the short and long-run.

Additionally,Adekunle et al (2021) employed the non-linear approach to examine effect of external debt on growth. The study used foreign debt indicators debt service as percentage of GDP as the dependent variable. The study found and concluded that the threshold of external debt stock is 6.81% of gross national income GNI, implying that any level above 6.81% will exert negative penalty. Ogbonna et al., 2021 adopted the ARDL model to study the relationship between external debt services and growth. The period of the study was from 1986 to 2018. The study concluded that there is a long run negative and significant link between external debt services and economic growth in Nigeria. The study recommends an optimal use of external debt in Nigeria.

Also, Akanbi, et al (2022) investigated the relationship between external debt service and economic growth in Nigeria from 1981 to 2020 using the Auto-Regressive Distributed Lags (ARDL) model. The ARDL bound test results showed there was co-integration. The speed of change between the short-run and long-run of the co-integrating equations was 88.86%. The study used debt overhang theory, the neo-classical theory and endogenous theory as the theoretical framework. The study provided evidence of a negative relationship between external debt service and economic growth although this is not statistically significant. The result shows resource depletion effect of external debt services on growth. External debt stock has a positive but not significant relationship with growth. There is a positive but not significant relationship between external reserves to external debt ratio with growth. Debt service to export ratio has a positive relationship with growth. The study recommends that policy makers in Nigeria should develop a methodology to compare the return on external debt to be incurred with the cost of debt so that gains that may eventually offset the cost of debt service. This methodology should be a policy or legislation. Moreover, Amadi et al. (2022) provided evidence in Nigeria on the negative connection that external debt service have with growth. The period covered by study was from 1981 to 2017.

Similarly, Isubalew (2023), examined the effect of external debt on economic growth in sub-Saharan Africa: The study investigated the short-run and long-run effect of external debt on the economic growth of 39 SSA countries during the last decade for the periods of 2011–2021. The result of the study revealed that external debt has a significant negative impact in both the short and long run. The study concludes that the negative impact of the long run is greater than that of the short run. The policy implication is that SSA countries should allocate the external debt on the projects that bring other investment opportunities to amortize external debt. Further, the strategies that improve domestic revenue mobilization sources that compliment external debt such as improving informal sectors to broaden tax bases and minimizing domestic revenue leakages need to be established in SSA countries.

Furthermore, Amadi et al. (2023) examined the effect of external debt service payment on infrastructure development in Nigeria from 1981 to 2022 using ARDL method. The findings show evidence of negative significant effect of external debt service payment on infrastructure development in Nigeria.

**Methodology**

The study employed the Autoregressive Distribution Lag (ARDL) model developed by Pesaran, Shin and Smith in 2001. Also, Augmented Dickey-Fuller (ADF) unit root test was engaged to test for stationarity of the data. The bounds test was utilized to investigate the presence of long-run relationship.

**Mode Specification**

For straightforwardness the study adapted the model used by Ajuh *et al* (2021). The functional forms of the model are stated thus:

GDP = f(EXD) ………………………………………………........................…..….. (1)

Where, GDP is the proxy for economic growth and EXD is external debt. In equation (1) external debt (EXD) were disaggregated into multilateral and bilateral debt. Therefore, the equation was re-estimated as follows

GDP = f(MLD, BLD DSP, EXR) ……………………….....................................….. (2)

Econometrically, the model in equation (2) can be re-organized as follows:

$GDP = \beta_0 + \beta_1 MLD + \beta_2 BLD + \beta_3 DSP + \beta_4 EXR + \varepsilon_t$……………………….……………. (3)

In reference to equation (3) the long run ARDL model is specified as:

$InGPDt = \beta_0 + \beta_1 InGPD_{t-1} + \beta_2 lnMLD_{t-1} + \beta_3 lnBLD_{t-1} + \beta 4lnDSPt_{-1} + \beta_5 \Delta EXR + \varepsilon_t$…… (4)

The short run dynamic model is presented as thus:

$\Delta InGPDt = \beta_0 + \beta_1 \Delta InGPD_{t-1} + \beta_2 \Delta lnMLD_{t-1} + \beta_3 \Delta lnBLD_{t-1} + \beta_4 \Delta lnDSP_{t-1} + \beta_5 \Delta EXR + ECT_{t-1}\, \varepsilon_t$ ………(5)

Where:

GDP = Gross Domestic Product (a proxy for economic growth)

MLD = Multilateral Debt

BLD = Bilateral Debt

DSP = Debt Service Payment

EXR = Exchange Rate and

$\beta_0, \beta_1, - \beta_4$ = parameter estimates

$\mu$ = stochastic error term

**Estimation Procedure**

The study employed the Auto-regressive distribution lag (ARDL) method to test the existence of co-integration among variables. This approach is recommended over co-integration approaches build by Engle and Granger in 1987 and Johenson in 1988 which require a large sample series and all variables to be stationary at first difference that is I(1). The methodology has the advantage of relieving the task of determining the order of integration among variables because variables are presumed to be stationary at level and first difference. Therefore testing for unit roots to determine l(0) and l(1) are not necessary for ARDL technique (Ewetan & Urhie, 2014). But according to Rahman and Islam (2020) it is essential to carry out unit root test to guarantee that no I(2) variable(s) is /are included in the model because it is assume that l(2) variable(s) may cause the system to collapse as cited in Amadi et al (2024).

**Results and Discussion**

**Stationarity Test**

The study engaged Augmented Dickey- Fuller (ADF) unit root test to test for the stationarity of the data. The results are presented below.

**Table 1: Augmented Dickey-Fuller Unit Root Test**

| Variable | Level | 1st Difference | 5% Critical Value | Order of Integration |
|---|---|---|---|---|
| Log(GDP) | Non-Stationary | -4.857292 | -2.948404 | I(1) |
| Log(MLD) | Non-Stationary | -4.668878 | -2.948404 | I(1) |
| Log(BLD) | Non-Stationary | -6.477217 | -2.948404 | I(1) |
| Log(DSP) | -4.036799 | ----- | -2.945842 | I(0) |
| Log(EXR) | -4.045107 | -------- | -2.948404 | I(0) |

**Source: Author's Computation using E-views (2024)**

The Augmented Dickey-Fuller (ADF) unit root test in table 1 above discovered that only the variables DSP and EXR were stationary at its level. While GDP, MLD and BLD were stationary at first difference, that is, integrated of order one I(1). Given the unit root properties of the variables, the study proceeded to ascertain if there is a co-integration among the variables in the model by using the Autoregressive distributed lags (ARDL) Bounds Test for co-integration.

**ARDL Bounds Testing for Cointegration**

Having confirmed that not all variables are not integrated in the same order, but a mixture of I(0) and I(1), as shown in table 1 above. The study adopted the ARDL bounds test method to co-integration to determine if there is co-integration or a long-run relationship between the variables under consideration in the model.

**Table 2: ARDL Bounds Test for Cointegration**

| Test Statistic | Value | K |
|---|---|---|
| F-Statistic | 4.135468 | 4 |
| **Critical Value Bounds** | | |
| *Significance* | *I(0) Lower Bounds* | *I(1) Upper Bounds* |
| 1% | 3.01 | 3.88 |
| 5% | 2.22 | 3.19 |
| 10% | 2.21 | 3.25 |

**Source: Author's Computation using E-views (2024)**

As shown in Table 2 above, the value of F-statistic 4.135468, which is greater than the upper and lower bounds of the 5 percent critical value interval (2.22 and 3.19) allowed for the rejection of the null hypothesis that there is no long-run relationship between the variables and accept the alternative and conclude that there is a long-run relationship between the dependent variable (GDP) and the independent variables (MLD, BLD, DSP and EXCR) within the period under review.

**Table 3: ARDL Estimates for External Debt and the Nigerian Economy**

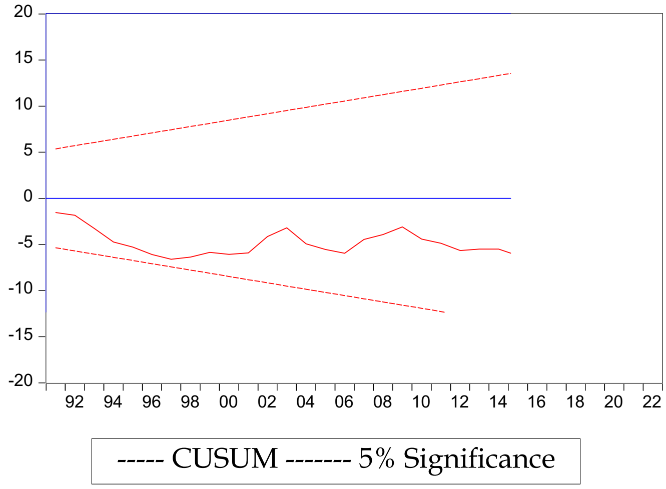
| Dependent Variable: GDP | | | | |
|---|---|---|---|---|
| **Variable** | **Coefficient** | **Std Error** | **t-statistic** | **P-value** |
| **A: Longrun Estimates** | | | | |
| Log(MLD) | 0.007276 | 0.023401 | 0.310937 | 0.7588 |
| Log(BLD) | -0.058869 | 0.039619 | -1.484874 | 0.0015 |
| Log(DPS) | -0.037249 | 0.026615 | -1.399547 | 0.0366 |
| EXCR | -0.043786 | 0.019796 | -2.211823 | 0.0377 |
| Constant | 2.303235 | 2.063772 | 1.116031 | 0.0001 |
| **B: Shortrun Estimates** | **Coefficient** | **Std Error** | **t-statistic** | **P-value** |
| D(MLD) | 0.007075 | 0.022599 | 0.313061 | 0.7572 |
| D(BLD) | -0.057240 | 0.037470 | -1.527620 | 0.0109 |
| D(DSP) | -0.151132 | 0.047970 | -3.173068 | 0.0044 |
| D(EXCR) | -0.045135 | 0.035922 | -1.256502 | 0.0021 |
| ECM(-1) | -0.955327 | 0.165746 | -5.866384 | 0.0000 |

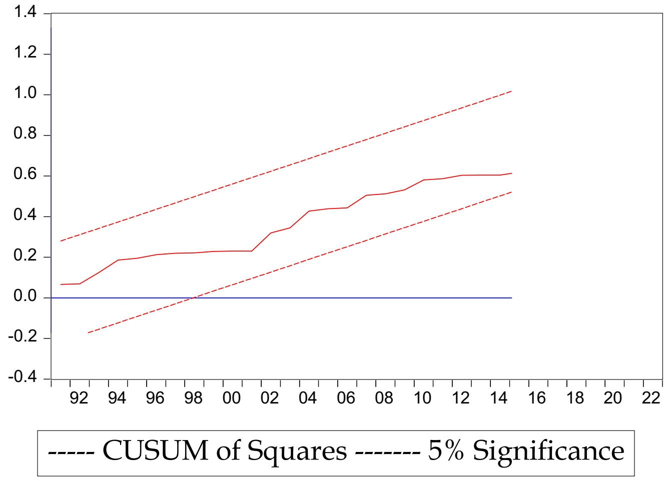
**Source:** Author's Computation using E-views (2024)

It was revealed that both the long run and short run result of the multilateral debt has a positive and insignificant effect on economic growth in Nigeria. The implication of this result is that debt sourced through multilateral has been misappropriated and wrongly channeled to projected that could not service or repay the loan borrowed. This study is in agreement with the work of Ajuh et al (2021), Ibrahim (2016), Elom-Obed, et al (2017) and Akhanolu, et al (2018). While the coefficient of bilateral debt and debt service payment were negative and statistically significant in the long-run and short-run periods. The negative effect of bilateral and debt service payment on economic growth aligns with the study conducted by Amadi et al (2023) and Amassoma & Adeniran (2017) who found a negative effect of debt service payment on growth. As the debt keep accumulating, debt service payment is increasing thereby eroding the revenue that would have been used to provide infrastructure for sustainable growth in the country. Additionally, the ECM result in Table 3 is rightly signed with a coefficient value -0.955327 and is statistically significant at 5% level of significance. Thus, it will rightly act to correct any deviations from long-run equilibrium.

**Stability Test**

To know whether the short and long-term relationships established earlier are stable and consistent. The study employed the stability test using the cumulative sum of recursive residuals test (CUSUM) and cumulative sum of squares (CUSUMSQ). Pesaran et al (2001) as cited in Amadi, et. al (2013) accentuated the importance of review the error correction model stability. The graphs below represent the results of the CUSUM and CUSUM of squares tests. The graphs revealed that our coefficients are stable. Since both the cumulative sum of residuals and the cumulative sum of squared residuals fall within the critical limits of the 5 per cent level of significance.




**Conclusion and Recommendations**

All things been equal, External debt plays a crucial role to close or fills the gap between the available domestic funds and the total investment inquired in the countries, if the domestic savings are not sufficient for the investment. When nations have access to external debt, it can enable them to fill the gap of insufficient domestic saving that will contribute to domestic investment and growth. The study employed the autoregressive distributed lag method and examined the effect of external debt on economic growth in Nigeria using annual time series data. The result revealed a long run relationship between the variables: bilateral debt and debt service payment had negative and significant effect on economic growth, while multilateral debt has a positive and insignificant effect. Also, 95 percent of disequilibrium in the short run is corrected each year. The study recommends that government should diversify their economic base in other to improve their internally generated revenue as well as improve the ease of doing business in the country in other to attract more investors and generate more revenue in the country and government should go for long term external debt and concessional loan that have minimal effect to service.

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# CHALLENGES OF VIRTUAL CLASSROOM MANAGEMENT IN QUALITY INSTRUCTIONAL DELIVERY OF EDUCATIONAL MANAGEMENT COURSES IN RIVERS STATE OWNED UNIVERSITIES IN THE 21ST CENTURY

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***Abstract***

*The study investigated the challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned Universities in the 21st century. The study adopted the descriptive survey research design. Two objectives, two research questions and two hypotheses guided the study. The population of the study consisted of all 65 lecturers of the Department of Educational Management of Rivers State University and Ignatius Ajuru University of Education in Rivers State. The entire population was used for the study. A structured questionnaire titled "Challenges of Virtual Classroom Management in Quality Instructional Delivery Questionnaire" was used as instrument for data collection. Three experts validated the instrument and Cronbach Alpha Method was used to obtain an average reliability coefficient of 0.86. 65 copies of the questionnaire were administered to the respondents, retrieved, and used for the study. The items were rated on a four (4) point rating scale; mean was used to answer the research questions while z-test was used in testing the formulated null hypotheses. The findings reviewed that internal challenges such as lack of interest by students, inadequate knowledge of computer operation, financial challenge, inadequate training of teachers and lack of concentration by students and external challenges such as erratic power supply, unstable internet services, limited computer facilities, lack of central databases and high cost of data are challenges of virtual classroom management that militates against quality instructional delivery of Educational Management courses in Rivers State owned Universities in the 21st century. The researchers recommended that Rivers State Government should provide ICT tools for state universities and massively embark on training and retraining of lecturers and students on usage of the tools for hitch-free virtual instructional delivery of Educational Management courses and that the government of Rivers State in collaboration with the schools' management should provide free internet services*

*to the state universities to help improve virtual classroom management in quality instructional delivery of Educational Management courses.*

***Keywords:*** *Challenges, Virtual Classroom, Management, Quality Instructional Delivery, Educational Management Courses*

**Background to the Study**

The use of technology is increasingly penetrating the education domain and is gradually being used to deliver education, knowledge, and skills in new and innovative ways. The increased use of fast changing technologies and its incorporation in every workplace, sector, and delivery of instructions in the classroom had given credence to two diverse modes of learning namely the virtual learning or online learning and the traditional face-to-face. The virtual learning or online learning mode is delivered through social platforms such as zoom, WhatsApp, google classroom, skype.com, gotomeeting.com, youtube.com, blackboard.com, udemy.com, futurelearn.com and so on. The virtual learning takes a place in a virtual classroom. In corroboration Elenwo and Nnadieze (2023) stated that online learning requires the use of computers, smart phones, laptops, data and so on to log into the Zoom App which is a platform used for teaching and learning. Virtual classroom according to Gupta and Gupta (2014) is a teaching and learning environment located within a computer-mediated communication. Just like in a real-world classroom, a student in a virtual classroom participates in synchronous instruction, which means that the teacher and students are logged into the virtual learning environment at the same time. Virtual classroom has been described by Schutt & Linger (2013) as a web-based environment that allows an individual to participate in live training events without traveling to any other place. In a virtual classroom a learner can sit in the comfort of his/her environment and listen to teachers, participate in the laboratory exercises, ask questions, and effectively interact with the teacher as if the action is taking place in a conventional classroom but it is done with the convenience of technological gadgets as desktop that have internet and phone connection. The internet on the other hand provides such advantages and new ways of communicating, interacting, and assessing information for both teachers and students.

In another words, virtual classroom could be seen as the classrooms, capable of replacing partially or totally the conventional educational, evaluative, and administrative functioning of a regular classroom by adopting the advanced computer and ICT technologies like the internet, e-mail, on-line chatting, www, CD-ROMS, DVDs, teleconferencing and video conferencing (Mangal and Mangal, 2009). In a virtual classroom, students may be in a different location from their teacher, or from other students in their class. Also, teachers and students in virtual classrooms may be using a range of ICTs to facilitate learning, communication and collaboration in ways that may not be typical in a conventional classroom. Xenos (2018) asserted that virtual classroom is not only something for distance learners, but also for blended learning, or even as a supplement of on-campus courses with an environment that could be exploited not only to emulate a traditional classroom, but also to move beyond the traditional classroom limitations.

In spite of the enormous benefits linked to the usage of virtual classroom Ohiwerei, Azih and Okoli (2013) opined that virtual classrooms are faced with challenges such as lack of teachers to teach Information Technology Communication (ICT) in schools, lack of computers, lack of provision of electricity, lack of internet connectivity, obsolete computer and so on. In the same vein Rajab and Soma (2020) emphasized that the challenges of virtual learning may be internal/subjective and external/objective from the perspective of the teacher. The researchers outlined lack of interest to learn and adapt to new learning situations, unwillingness to apply ICT in classroom, age old believe of the effectiveness of chalk and talk method of teaching, time consuming with respect to preparation of lecture materials, fear of students looking into inappropriate sites, lack of interest and motivation among the students to learn, inability to motivate the students to use virtual learning mode, absence of face-to-face contract, grasp over language often acts as a barrier as virtual classrooms, financial conditions, inadequate practice as internal challenges and lack of interest of authority in preparing/providing the appropriate infrastructure, lack of awareness of the benefits of virtual learning, and lack of coordination between the educational institutions and the community as external challenges. Internal challenges in this study signifies the factors in the jurisdiction of the tutor and the learners while external challenges are the ones outside their influence. Achieving quality instructional delivery in the virtual classroom requires an effective classroom management.

Classroom management refers to the general daily maintenance of the classroom, which comprises on classroom rules for student input during instructional time and the types of reward systems used (Martin & Sass, 2010). Adedigba and Sulaiman (2020) averred that classroom management is an extensive and essential component that expresses how a teacher manages the learning activities, the pupils' behaviour and other social rapport in the classroom. In the other hand Dambo and Wokocha (2021) opined that virtual classroom management involves all preventative measures put in place to achieve order in online classrooms for effective instructional delivery in a computer mediated leaning environment.

Instructional delivery refers to the interaction among the student, the teacher, the content, and the knowledge/skills/dispositions students will need for learning and collaborating with others in a diverse society and rapidly changing world (Shaker & Adeeb, 2014). The process of instructional delivery involves applying a repertoire of instructional strategies to communicate and interact with students around academic content, and to support student engagement. Instructional delivery can also be defined as the knowledge of teaching techniques and their application for learning to take place in such a flexible manner that would not distort the original intent of the teacher for being in the classroom (Hallinger, Heck & Murphy, 2014). Quality instructional delivery requires availability of quality learning facilities for quality teaching and learning activities which in turn leads to high academic achievement of students including students undertaking Educational Management programmes.

Educational Management is concerned with the operation of educational organizations through planning, organizing, and directing activities in a school, effectively utilizing human and material resources, to accomplish the school's objectives (Peretomode & Peretomode, 2019). The Educational Management courses are designed to provide highly motivated, conscientious and efficient education managers for all levels of the education system, assists learners in better assigning and managing resources, tracking progress in real time, and making timely and informed decisions, reduce capital leakage and improve cost efficiency, have better control over human resources, allows one to choose, allocate, and monitor each resource based on its abilities and needs, allows for forecast and plan events as well as make timely decisions for any issues or help in crisis management, and assists in properly allocating responsibilities to the right person, avoiding duplication of efforts.

**Statement of the Problem**

With the spread of information communication technology tools and its integration in teaching and learning in tertiary institutions and Educational Management programme in particular means more than teaching basic computer skills and software programs. Virtual teaching has changed teaching methods, learning styles and teacher/student relationship. The integration of technological tools in education met with challenges as teachers and students are used to traditional face-to-face mode of teaching and learning. Like the traditional classroom, teachers need to ensure proper classroom management for quality instructional delivery. Unfortunately, Okoro (2020) asserts that the application of modern technologies in teaching has suffered setbacks and, observed a lot of outcries on managing virtual classroom in the delivery of instruction. The question is what are the challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century?

**Purpose of the Study**

The purpose of the study was to investigate the challenges of virtual classroom management and quality instructional delivery of educational management courses in rivers state owned universities in the 21st century. Specifically, the study sought to;

1. Ascertain the extent of internal challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.
2. Ascertain the extent of external challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.

**Research Questions**

The following research questions were answered:

1. To what extent is the internal challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.

2. To what extent is the external challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.

**Hypotheses**

The following null hypotheses were tested:

1. There is no significant difference in the mean responses of Educational Management lecturers at Rivers State University and Ignatius Ajuru University of Education on the extent of internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.
2. There is no significant difference in the mean responses of Educational Management lecturers at Rivers State University and Ignatius Ajuru University of Education on the extent of external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.

**Methodology**

The descriptive survey research design was used in conducting the study. The population of the study consisted of all 65 lecturers of Department of Educational Management (EDM) in Rivers State owned Universities. That is, 42 from Rivers State University (RSU) and 23 from Ignatius Ajuru University of Education (IAUoE). The sample size is 65 lecturers, and no sampling technique was used for the study, since the population is small. The instrument used for data collection was a structured questionnaire titled "Challenges of Virtual Classroom Management in Quality Instructional Delivery Questionnaire (CVCMQIDQ). The instrument provided responses to the research questions with 10 items using a 4-point rating scale weighted as Very High Extent (VHE) – 4 Points, High Extent (HE) - 3 Points, Low Extent (LE) – 2 Points and Very Low Extent (VLE) – 1 point. To ensure the consistency of the instrument, the test-retest method of reliability was adopted, and Pearson Product Correlation Coefficient (PPMCC) was used to establish the reliability coefficient of o,80. 65 copies of the instrument was administered, retrieved, and used for the study. The data analysis was done using the mean to analyze the research questions while z-test was used to test the hypotheses. the mean was obtained by the total summation of all responses as assigned to a rating scale in an item divided the total number of responses: 4+3+2+1= 2.50. The mean score of 2.50 and above indicate high extent, while those below indicates low extent. Also, the decision rules for the hypotheses were that any hypothesis which z-Test value is less than the z-critical table value of ±1.96 is considered accepted whereas if it is more than the critical table value is considered rejected.

**Results**

**Research Question 1:** To what extent is the internal challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.

**Table 1: Mean Ratings on Extent is the Internal Challenges of Virtual Classroom Management in Quality Instructional Delivery of Educational Management Courses in Rivers State Owned Universities in the 21st Century**

| S/N | Items | RSU EDM Lecturers (42) | | IAUoE EDM Lecturers (23) | | RSU/ IAUoE EDM Lecturers (65) | Decision |
|---|---|---|---|---|---|---|---|
| | | $\bar{X}$ | SD | $\bar{X}$ | SD | Average Mean Set | |
| 1 | Lack of interest by students hinders virtual affects instructional delivery | 3.03 | 0.91 | 2.98 | 0.99 | 3.01 | HE |
| 2 | Inadequate knowledge of computer operation affects instructional delivery | 2.97 | 1.01 | 3.22 | 0.88 | 3.10 | HE |
| 3 | Financial challenge affects virtual class | 3.53 | 0.95 | 2.94 | 1.05 | 3.24 | HE |
| 4 | Inadequate training of teachers hinders virtual instructional delivery | 2.78 | 0.98 | 3.05 | 0.86 | 2.92 | HE |
| 5 | Lack of concentration by students distorts virtual lecture | 2.94 | 1.00 | 2.69 | 1.03 | 2.82 | HE |
| | **Grand Mean/SD** | **3.05** | **0.97** | **2.98** | **0.96** | **3.02** | **HE** |

**Source: Field Survey, 2024**

The data presented in Table 1 shows that the responses of the respondents (RSU EDM lecturers and IAUoE EDM lecturers) for items 1-5 had an average mean score of 3.01, 3.10, 3.24, 2.92 and 2.82 respectively and a grand mean of 3.02 This implies that the respondents agree to a high extent that lack of interest by students, inadequate knowledge of computer operation, financial challenge, inadequate training of teachers and lack of concentration by students disrupts virtual instructional delivery.

**Research Question 2:** To what extent is the external challenges of virtual classroom management in quality instructional delivery of educational management courses in Rivers State owned universities in the 21st century.

**Table 2: Mean Ratings on Extent is the External Challenges of Virtual Classroom Management in Quality Instructional Delivery of Educational Management Courses in Rivers State Owned Universities in the 21st Century**

| S/N | Items | RSU EDM Lecturers (42) $\bar{X}$ | SD | IAUoE EDM Lecturers (23) $\bar{X}$ | SD | RSU/ IAUoE EDM Lecturers (65) Average Mean Set | Decision |
|---|---|---|---|---|---|---|---|
| 6 | Erratic power supply hinders instructional delivery | 2.95 | 0.98 | 2.91 | 0.92 | 2.93 | HE |
| 7 | Unstable internet services distort virtual class | 3.09 | 0.87 | 2.70 | 1.17 | 2.90 | HE |
| 8 | Limited computer facilities for teachers affect virtual lectures | 2.99 | 0.91 | 3.08 | 0.85 | 3.04 | HE |
| 9 | Lack of central databases disrupts virtual classes | 2.90 | 1.00 | 3.00 | 0.89 | 2.95 | HE |
| 10 | High cost of data hinders virtual instructions | 3.06 | 0.90 | 3.07 | 0.99 | 3.07 | HE |
| | **Grand Mean/SD** | **3.00** | **0.93** | **2.95** | **0.96** | **2.98** | **HE** |

**Source: Field Survey, 2024**

The data presented in Table 2 shows that the responses of the respondents for items 6-10 had an average mean score of 2.93, 2.90, 3.04, 2.95 and 3.07 respectively and a grand mean of 2.98. This infers that the both the RSU lecturers and IAUoE lecturers agree to a high extent that erratic power supply, unstable internet services, limited computer facilities, lack of central databases and high cost of data affects virtual instructional delivery.

**Hypothesis 1:** There is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.

**Table 3: Z-Test Result on Internal Challenges of Virtual Classroom Management in Quality Instructional Delivery of Educational Management Courses in Rivers State Owned Universities in the 21st Century**

| Respondents | N | $\bar{X}$ | SD | DF | SL | z-cal | z-crit | Decision |
|---|---|---|---|---|---|---|---|---|
| RSU | 42 | 3.05 | 0.97 | 63 | 0.05 | 0.29 | ±1.96 | Accepted |
| IAUoE | 23 | 2.98 | 0.96 | | | | | |

**Source: Field Survey, 2024**

Table 3 above revealed a z-calculated value of 0.29 which is less than the z-critical value of ±1.96. Thus, the null hypothesis was accepted. This means that Educational Management lecturers in Rivers State University and Ignatius Ajuru University of Education do not differ significantly on the internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.

**Hypothesis 2:** There is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.

**Table 4: Z-Test Result on External Challenges of Virtual Classroom Management in Quality Instructional Delivery of Educational Management Courses in Rivers State Owned Universities in the 21st Century**

| Respondents | N | $\overline{X}$ | SD | DF | SL | z-cal | z-crit | Decision |
|---|---|---|---|---|---|---|---|---|
| RSU | 42 | 3.00 | 0.93 | 63 | 0.05 | 0.21 | ±1.96 | Accepted |
| IAUoE | 23 | 2.95 | 0.96 | | | | | |

**Source: Field Survey, 2024**

Table 4 above revealed a z-calculated value of 0.21 which is less than the z-critical value of ±1.96. Therefore, the null hypothesis was accepted. This infers that Educational Management lecturers in Rivers State University and Ignatius Ajuru University of Education do not differ significantly on the external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century.

**Discussion of Findings**

The finding of research question 1 with respect to the extent of internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century indicated that the respondents (RSU EDM lecturers and IAUoE EDM lecturers) agree to a high extent that lack of interest by students, inadequate knowledge of computer operation, financial challenge, inadequate training of teachers and lack of concentration by students disrupts virtual instructional delivery. This means that internal challenges of virtual classroom management influence quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century to a high extent. The finding corroborates with Rajab and Soma (2020) who asserted that the challenges in virtual learning include lack of interest, age long believe into the effectiveness of chalk and talk method of teaching, lack of interest and motivation among the students to learn, inability to motivate the students to use virtual learning mode, absence of face-to-face contact, financial conditions, and inadequate practice. These are prominent challenges that deter the effective management of the instructional process in virtual classrooms. The corresponding hypothesis 1 which states that there is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century with a z-calculated value of 0.29 which is less than the z-critical value of ±1.96 at 0.05 level of significance was accepted. This concludes that there is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of internal challenges of virtual classroom management in quality instructional delivery of Educational Management courses.

The finding of research question 2 with respect to the extent of external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century indicated that the respondents (RSU EDM lecturers and IAUoE EDM lecturers) agree to a high extent that erratic power supply, unstable internet services, limited computer facilities, lack of central databases and high cost of data affects virtual instructional delivery. This infers that the external challenges of virtual classroom management influence quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century to a high extent. The finding corroborates with Rajab and Soma (2020) who emphasized that the lack of interest of authority in preparing/providing the appropriate infrastructure is a setback to virtual classroom management. The corresponding hypothesis 2 which states that there is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in Rivers State owned universities in the 21st century with a z-calculated value of 0.21 which is less than the z-critical value of ±1.96 at 0.05 level of significance was accepted. This infers that there is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of external challenges of virtual classroom management in quality instructional delivery of Educational Management courses.

**Conclusion**

Based on the results and findings of this research work, it was concluded that internal challenges such as lack of interest by students, inadequate knowledge of computer operation, financial challenge, inadequate training of teachers and lack of concentration by students and external challenges such as erratic power supply, unstable internet services, limited computer facilities, lack of central databases and high cost of data affects virtual instructional delivery. Also concluded was that there is no significant difference in the mean responses of Educational Management lecturers of Rivers State University and Ignatius Ajuru University of Education on the extent of internal and external challenges of virtual classroom management in quality instructional delivery of Educational Management courses in the 21st century.

**Recommendations**

1. Rivers State Government should provide ICT tools for state universities and massively embark on training and retraining of lecturers and students on usage of the tools for hitch-free virtual instructional delivery of Educational Management courses.
2. Government of Rivers State in collaboration with the schools' management should provide free internet services to the state universities to help improve virtual classroom management in quality instructional delivery of Educational Management courses.

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# EFFECTS OF READING DIFFICULTIES ON ACADEMIC PERFORMANCE AMONG NATIONAL DIPLOMA (ND) STUDENTS OF NIGER STATE COLLEGE OF AGRICULTURE MOKWA

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***Abstract***

*In special education, majority of people are having special learning needs, but not all require special education treatment to cope with learning. The study on effects of reading difficulties on academic performance among National Diploma (ND) students at Niger state college of Agriculture Mokwa, the work determines comprehension errors that affect students' academic performance and find out the effects of reading difficulties on students' academic performance. Two research questions guided the study, the study adopted survey research design, the population of the study comprise of lecturers of English and General Studies department of Niger State College of Agriculture Mokwa. A purposive sampling technique of 5 lecturers was used for the study. Questionnaire tagged "Effects of Reading Difficulties on Academic Performance Questionnaire" (ERDAPQ) was used as instrument for data collection from lecturers while a reading passage using cloze tests was administered to the 45 sampled students' males and females read individually as the researchers noted the errors and scored accordingly. The instrument was validated by two experts in research and the reliability coefficient was determined as 0.76. The data collected from the respondents was analysed using mean score. Findings of the study revealed that, mispronunciation of words is the most common comprehension error. Other errors made by students are omission of words, addition of words, and substitution of words. Majority of lecturers agreed that reading difficulties were the main cause of poor academic performance of ND students CAM among others. Recommendations made include reading programs and activities should be made to form part in the creation of contextualized reading curricula and be used as reading literacy initiatives in the school.*

***Keywords:*** *Reading, Reading difficulties, Comprehension errors, Academic performance*

**Background to the Study**

The quality of a man's life can be enhanced by the literacy level and directly related to his working life (Organization for Economic Cooperation and Development (OECD), 2018). There is a direct relationship between literacy life, academic achievement of students and Development among African Economies too. In special education, ability to read is an acquired ability which involves being able to decode textual material and unlock the meaning therein, having problem with reading affect other facet of human's life and that is why special education valued reading. Hence, training individuals with good literacy who can comprehend and question what they read is one of the most important goals for today's education and Development among African Economies (Moreillan, 2017). Individuals who are regarded as smart as their peers but having reading difficulty (poor reading abilities) cannot improve generally as much as their peers. As per record, all students pass elementary education averagely before proceeding, even those who have poor reading ability pass their classes. They cannot perform reading at the level expected of their grade, resulting in anxiety and depression throughout their schooling, and after school it will also affect their entire economic life. They are usually stereotyped as unsuccessful throughout their formal education.

Reading is a complex process as it involves all facets of our lives, sensation, perception, marketing, comprehension, application and integration. It is the process of making and getting meaning from printed words and symbols. Reading as a whole, is a means of communication and of information and ideas. Aracelo as cited by Panerio (2018) reported that 85% of the things that people do involve reading. Individuals read street signs, advertisements, menus in restaurants and recipes from cook books, dosage of medicine and others. Moreover, reading is the foundation of academic success, life, learning and economic transformation. Reading also plays a vital role in ones' success in school. It is one of the most important skills an individual learner must need to succeed. It is a prerequisite of all learning areas. It serves as a gateway for every learner to learn the different subjects because when a learner has a difficulty in reading, he/she may encounter also difficulties in all subject areas. Research have shown that there are many reasons in the difference in the achievement level of the students. Luz (2017) stresses that many Filipino learners do not have the reading habit required in learning, as she noted, "The problem of non-reading lies at the heart of why the Philippines is so uncompetitive in the world economy and why so many of our people continue to live in poverty or barely escape it. The success of China today in its economic transformation is because of their long-time plan in education.

According to Ogwumike, Ndimele and Innocent (2015) reading difficulty is the level of difficulty in understanding of text or message.' The understanding, according to them, is seen in the knowledge got outside the text or message which happens as a result of the interaction with the words that are written. Reading deficiency, on the other hand, is a learning defect which manifests significantly in problems of reading accurately, speed or comprehension in a way that successful academic output is hindered. Another name for reading disorder is dyslexia (deficiency in spelling, writing as well as reading). In academic learning the ability to read is considered very important. Reading by learners of

English as a second language (L2) is one of the first moves they can make outside the classroom situation. That is, especially so in Nigeria which is both a multilingual and multicultural nation. Just like other aspects of language learning, reading is a complex task, and worse still are the challenges that face the L2 students in the development of fluent reading abilities.

**Conceptual Clarification**

**Reading**

Reading in special education perspective is a language-based activity, according to (Lyon, 2010), reading does not develop naturally, and for many children, decoding, word recognition, and reading comprehension skills must be taught directly and systematically. If a child's knowledge of English is poor the reading skill as well as reading comprehension will also be poor (Baker, 2016). Having raised the question of whether the problem with reading a reading problem or language problem is, Carter and Nunan (2012) concluded that it involved both. Reading is crucial to the academic success of students and to the growth of a nation (Oberholzer, 2015; Oyetunji, 2011). Successful students in school are those who develop interest in reading because many of the subjects taught and class assignment given require reading comprehension (Darrel, 2015; Grams, 2013; Oberholzer (2015) highlight that reading is a basic life skill and a cornerstone for success at school and throughout life; therefore, students who can read well can function more effectively in everyday activities (Darrel, 2015; Oberholzer, 2015). It is believed that reading as well as language competency is both the means and the end to educational achievement (Jordaan, 2011); as such, Botha et al. (2018) state that students' language competence affects their performance in all subjects. If students' reading competencies are poor, then their writing competencies and their comprehension levels would also be poor (Botha et al., 2018). While it is true that language competency is both the means and the end to educational achievement, the acquisition of its proficiency requires fluent reading nevertheless, fluency in reading is always met with a complex interaction of factors resulting to students' poor reading, learning and achievement (Jordaan, 2011).

**Reading Difficulties**

Reading difficulties in special education are elements behind a student's slow and inaccurate reading and writing skills, possible problems encountered in reading comprehension both in L1 and L2 levels, especially the English language. A learner needs to be given sufficient time to learn English as a Second Language (ESL) so that one can realize one's full potential in linguistic and academic development. According to Chandran and Shah (2019), problems in reading and comprehension emanate from environmental, instructional, and biological sources. These causes mean that the surrounding that one is born and brought up determines their ease of grasping new languages and, in this case, English. Another difficulty that ESL learners face is because of the setup of the English language. The words in English can be ambiguous and of unfamiliar vocabulary to countries that use it as a second language (Mohammed and Rashid, 2017). Also, these learners have limited time to cognitively process texts presented to them and output the required responses, especially when around natives. Some of the other sources originate from the wrong pronunciation of words due to ethnicity, encountering new words, not understanding the meaning of the words, and poor reading habits (Mohammed and Rashid, 2017). Looking at these scenarios, ESL students would need more time and commitment to understand and read English to use it around others.

According to Dhananjay and Eram (2021) some of common reading problems are; Read slowly, Tracks figures, Exhibits difficulty in recalling known words, word by word reading, Incorrect phrasing, Poor pronunciation, Substitutions Omission, Distortion and Addition (SODA), repetitions, reversal. Not able to decode the single words accurately and fluently, Difficulties understanding structure of words, Difficulties with reading comprehension, may have trouble learning the alphabet or connecting letters to sounds (phonological issues) , may make many mistakes when reading aloud, and repeat and pause often, may have difficulty in remembering the sounds of letters, may mispronounce words, pronunciation and/or vocabulary issues, and so many other difficulties with word recognition, poor spelling, and decoding abilities. The list of reading difficulties is long and there can be different reasons for these difficulties.

**Causes of Reading Difficulties**

There are many factors which according to special educators affects reading skills of students. These factors may include medical problem, psychological problems, environmental problems, socio-economic background, parental education, motivation to learn, exposure to conventional education, disability and associated conditions. The reading readiness, socioeconomic status, emotional instability, physical deficiencies, and social pressure at home or school may responsible or effect on reading skills of students (Pigada and Schnitt, 2019). Another study highlighted that most of the reading difficulties are created and inherent (Hosp and Reschly, 2013). They are the result of unrecognized, predisposing conditions within the child, but for the most part they caused by factors of child's surrounding at home, school and other daily environments. Sometime reading difficulties may be because of inappropriate guidance or lacking proper instruction at right time for reading skills. Because of these students will fail to acquire the skills required to develop appropriate reading ability. They also concluded that, reading difficulties vary from minor to severe form. Early identification, promptly corrections and remediation will improve the reading skill in students over the time.

According to Lerner (2010), children who have a good start in reading, read more and become better readers, in contrast to those who have a poor start in reading and so do not engage in wide reading but fall further behind. Similarly, Lyon (2010) notes that learning to read begins long before children enter formal schooling, and that those who have stimulating literacy experiences from birth have an edge in vocabulary development, understanding the goal of reading, and developing an awareness of print and literacy concepts. Lyon (2010) concludes that the children who are most at risk for reading failure enter kindergarten and the elementary grades without these early experiences.

In agreement with Lyon, Lerner (2010) argues that children come to school without the literacy experiences (reading, writing and numeracy skills), and some struggle because they have received poor or inadequate reading instruction. Dickinson and Neuman (2016) point out that the socio-economic and the domestic environment of a child have an impact on learning to read. Dickinson and Neuman (2016) stress that children raised in poverty, those with limited proficiency in English, those from homes in which the parents' reading levels and practices are low, and those with speech, language and hearing difficulties, are at increased risk of reading failure because often they are not exposed to literacy practice.

**Theoretical Framework**

This study was guided by Piaget's (1983) theory of cognitive development. Cognitive development is that aspect of development that deals with thinking, problem solving, intelligence and language. According to Piaget, cognitive development is a combined result of the maturation of the brain and nervous system and the experiences that help individuals adapt to the environment. He contends that cognitive development in all children will follow predictably and qualitatively distinct levels or stages. These stages are from concrete operational thought to formal operational thought. These stages are useful in this study in that adolescents' reading abilities and social/emotional adjustment in secondary schools depend on how successful they went through these early steps (Lerner, 2010). Piaget emphasizes that the order in which the periods occur is approximately fixed but a child's rate of progress through them is not and the age at which each stage or sub-stage is negotiated varies from child to child. The stage progression portion of Piaget's cognitive development theory has important implications on reading development stages (Chall, 1987). First, reading process is developmental and no child skips a stage. Second, individual children may take different lengths of time and need different experiences to complete their development. The schemata (mental structures) aspect of Piaget's (1983) theory is in line with reading definition of reading beyond the lines in this study. This relates to the way reading is correctly viewed as a highly subjective interaction of learner's prior knowledge, perception and purposes with those of the author. This interaction is guided by Piaget's two complementary processes of assimilation and accommodation.

**Statement of the Problem**

In special education, reading plays an essential role in our educational system and social lives. The reading process is the foundation for language and other functions such as writing, vocabulary identification, use, grammar advancement, and excellent spelling to function well (Chandran and Shah, 2019). Reading, understanding, and comprehension of the second language, especially English, pose a great challenge to the learners, teachers, parents and entrepreneur since young learners may lack required exposure to the proper enabling environment, social milieu, and peer well-versed in linguistic abilities. Nature and nurture play their part in creating reading and other linguistic skills in young learners with English as a Second Language (ESL).

Nurture and socialization play a predominant role in overcoming ESL learning barriers in young children. Across the world, a second language (other than mother tongue) is acquired through Reading in classrooms, often without any exposure to English outside it. In India also, a child acquires efficiency in ESL, the second language, generally through socialization and in classrooms. Therefore, oral proficiency may not be a good predictor of reading comprehension, and speech ability in the ESL context in India, where students learn a second language through reading rather than speaking. Most of the students start speaking English only after five years of exposure to English, whereas they start reading and writing their mother tongue fluently by this time. These children thus confront with the task of learning to read in a language that they have yet to master orally. Because reading instruction strongly builds on oral language proficiency, second language speaking children may therefore experience a considerable gap. (Droop and Verhoeven, 2013). The academic performance of students even at higher institutions level boils down to their ability to read and comprehend well, this is the threshold of this study, effects of reading difficulties on academic performance among ND students at Niger state college of Agriculture Mokwa (CAM).

**Objectives of the Study**

The study was conducted to:

1. Determine comprehension errors that affect students' academic performance of ND students of Niger State college of Agriculture Mokwa.
2. Find out the effects of reading difficulties on students' academic performance among ND students of Niger state college of Agriculture Mokwa.

**Research Questions**

The following questions were answered by the study:

1. Are there comprehension errors that affect students' academic performance among ND students of Niger state college of Agriculture Mokwa?
2. What are the effects of reading difficulties on students' academic performance among ND students of Niger state college of Agriculture Mokwa?

**Methodology**

The study adopted survey research design. The population of the study comprise of lecturers of English in the GSE department of College of Agriculture Mokwa. A sample of 5 lecturers of GSE (English language unit) using purposive sampling technique was used for the study. Questionnaire tagged Effects of Reading Difficulties on Academic Performance Questionnaire (ERDAPQ) was used as instrument to data collection from lecturers while a reading passage using cloze tests was administered to the 45 sampled students. Fourty five students' males and females read individually as the researchers noted the errors and scored accordingly. The instrument was validated by two experts in research and the reliability coefficient was determined as 0.76. The data collected from the respondents was analysed using mean score.

**Analysis and Discussion of Result**

Research Question 1: Are there comprehension errors that affect students' academic performance among ND students of Niger State College of Agriculture Mokwa?

**Table 1: Analysis of respondents on whether comprehension errors affect students' academic performance among ND students of Niger State College of Agriculture Mokwa.**

| S/N | Item Statement | SA | A | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|
| 1 | Word pronunciation error | 6 | 4 | - | - | 0.05 | Accept |
| 2 | Words omitted | 5 | 5 | - | - | 0.05 | Accept |
| 3 | Words added | 4 | 6 | - | - | 0.05 | Accept |
| 4 | Words distorted | 3 | 7 | - | - | 0.05 | Accept |
| 5 | Words not recognised | 4 | 6 | - | - | 0.05 | Accept |
| | Average Mean | | | | | 0.05 | Accept |

The analysis in Table 1 revealed that, word pronunciation error, words omitted, words added, words distorted and words not recognized are types of comprehension error that affects students' academic performance of ND students of CAM with a mean average score of .05.

**Research Question 2:** What are the effects of reading difficulties on students' academic performance among ND students of Niger State College of Agriculture Mokwa?

**Table 2:**

| S/N | Item Statement | SA | A | D | SD | Mean | Decision |
|---|---|---|---|---|---|---|---|
| 1 | Reading appears to affect performance in all other academic subjects. | 5 | 5 | - | - | 0.05 | Accept |
| 2 | Reading comprehension is very important in secondary schools as students use it as a tool to get new information, ideas, attitudes and values from all content areas and especially in literary texts. | 4 | 6 | - | - | 0.05 | Accept |
| 3 | Reading comprehension is needed in order to interpret examination question and even to comprehend what the question require for an answer. | 5 | 5 | - | - | 0.05 | Accept |
| 4 | Reading difficulties are the principle causes of failure in school. | 4 | 6 | - | - | 0.05 | Accept |
| 5 | Reading on comprehension helps in information gathering and learning of concepts. | 6 | 4 | - | - | 0.05 | Accept |
| | Average Mean | | | | | 0.05 | Accept |

The analysis in Table 2 revealed that, reading appears to affect performance in all other academic subjects, reading comprehension is very important in ND as students use it as a tool to get new information, ideas, attitudes and values from all content areas and especially in literary texts, reading comprehension is needed in order to interpret examination question and even to comprehend what the question require for an answer, reading difficulties are the principle causes of failure in school and reading on comprehension helps in information gathering and learning of concepts.

## Conclusion

Mispronunciation of words is the most common comprehension error. Other errors made by students are omission of words, addition of words, and substitution of words. Majority of lecturers agreed that reading difficulties were the main cause of poor academic performance of ND students of CAM, and that library resources and reading material are not well-established in public mixed day district secondary schools. They also agreed that there is lack of learning consistency of ND students in CAM due to poor reading abilities evidenced by poor academic performance in the school.

**Recommendations**

Based on the findings of the study it is recommended that:

1. Reading programs and activities should be made to form part in the creation of contextualized reading curricula and be used as reading literacy initiatives in the schools. This can be categorized as literacy program, individual reading recovery program and enrichment/enhancement program.
2. Continuous training for teachers should be encouraged to enhance their knowledge and skills in both oral and reading to make them effective teachers on whom learners can model.
3. Students should be encouraged to develop reading culture through series of literary activities and programs to enhance better reading skills.

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# EFFECT OF SELF- REGULATED LEARNING INSTRUCTIONAL STRATEGY ON STUDENTS' ACHIEVEMENT IN PHYSICS CONCEPTS AMONG SENIOR SECONDARY SCHOOLS

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***Abstract***

*A successful learner plans, monitors, and evaluates his/her learning. Therefore, this study determined the effect of self-regulated learning instructional strategy on students' achievement in Physics concepts among senior secondary schools in Education District II Lagos State. Four research questions and four hypotheses guided this research. The hypotheses were tested at a 0.05 level of significance. The design of this study was a pretest-posttest control group quasi-experimental research design. The study population consists of all the SS2 Physics students in the 2022/ 2023 school year in Lagos State. Through a multi-stage sampling technique, four schools from Education District II, Lagos State were selected. The sample consists of 109 students from intact classes of the four schools. Physics achievement test adapted from the West African Senior School Certificate Examination (WASSCE) past questions was used to collect data. The data was analyzed using descriptive and inferential statistics like mean, standard deviation, and independent and paired sample t-tests. Results revealed first; that the Self-regulated learning instructional strategy (SLIS) is an effective learning instructional strategy that can potentially enhance students' achievement in Physics more than the talk-and-marker instructional strategy (TIS). Second, this study established no significant gender difference in learners' achievement in Physics concepts. The researchers recommend that Physics teachers should adopt SLIS in teaching and learning Physics since it has proven to be an active learning strategy. Seminars and workshops should be organized for Physics teachers on how to use SLIS to teach Physics. Supervisors and inspectors of Physics should monitor and supervise Physics teachers on using SLIS in teaching and learning of Physics.*

***Keywords***: *Self-regulated learning, achievement, and Physics concepts.*

**Background to the study**

Physics is a physical science subject that studies matter in relation to energy. It is a crucial science subject as no student can be offered admission to study courses such as Engineering, Medicine, Pharmacy, Chemistry, Agriculture, Environmental, and Biological Sciences in any tertiary institution in Nigeria without a credit pass in Physics in the West African Senior School Certificate Examination. (WASSCE) or National Examinations Council (NECO) Senior School Certificate Examination. Physics is the most fundamental of all the sciences, playing critical roles in medicine and surgical research (NERDC, 2011 & Babajide, 2013 cited by Azowenunebi, Adeyemo, & Babajide, 2019) and has to date remained a fundamental part of the educational system.

Developing countries including Nigeria and other African countries acknowledge Physics as a basic requirement for economic, scientific, and technological developments, (Adegoke, 2009; Babajide, 2013 cited by Azowenunebi, Adeyemo, & Babajide, 2019). Physics forms the backbone of science and technology. (Ogunleye & Owolabi, 2008; Okeke, 2019). As critical as Physics is as highlighted above, countries cannot develop or sustain any form of technology unless a good foundation for effective and efficient Physics education is laid right from secondary school (Adegoke, 2009 cited by Azowenunebi, Adeyemo, & Babajide, 2019). Teaching of Physics at the secondary school level lays the foundation for the application of science and technology for the benefit of society. In the development of any nation technologically, knowledge of basic concepts and principles in Physics is central (Jegede & Adebayo, 2013 in Achor & Gdadamosi 2020). Laying a solid foundation in Physics education involves employing appropriate teaching and learning techniques which will translate into good academic achievement in Physics (Adegoke, 2009).

Several teaching methods have been observed by previous researchers as improved strategies for teaching. Such strategies include the effect of conceptual change pedagogy Achor & Yakubu (2021). They determined the effect of conceptual change pedagogy on students' academic performance in thermal concepts of secondary school Physics. The result revealed that students who were taught Physics using conceptual change pedagogy performed significantly better than their counterparts who were taught Physics with traditional teaching methods. Amosa, Ogunlade, & Atobatele, (2016), determined the effect of field-trip teaching on students' academic performance using a quasi-experimental research design on 120 students in Kaduna State, Nigeria. They observed that the students who were exposed to field trips outperformed those who were not exposed to teaching strategy. Problem-solving, team teaching (Archor, Imoko & Jimin, 2011), and so on. With all these improved teaching strategies, the achievement of students in Physics has not yet gotten to an excellent level and is fluctuating. The performance of students in Physics in WASSCE 20012 – 2017 Table 1.

**Table1. Students Performance in May/June SSCE (WAEC) Physics 2012– 2017.**

| Year | Total Number of Candidates | Total Pass $A_1 - C_6$ | % | Total Pass $D_7 - D_8$ | % | Total Fail $F_9$ | Failed % |
|---|---|---|---|---|---|---|---|
| 2012 | 624658 | 429415 | 68.74 | 120369 | 19.27 | 74874 | 11.99 |
| 2013 | 636857 | 296910 | 46.62 | 175877 | 27.62 | 164070 | 25.76 |
| 2014 | 635739 | 386270 | 60.75 | 157414 | 24.76 | 92055 | 14.48 |
| 2015 | 657266 | 390447 | 59.40 | 160664 | 24.44 | 88598 | 16.15 |
| 2016 | 640491 | 497713 | 77.70 | 96694 | 15.09 | 31233 | 7.21 |
| 2017 | 703813 | 373647 | 53.08 | 192954 | 27.41 | 137212 | 19.50 |

**Source: The West African Examination Council (WAEC) Head Quarters, Yaba, Lagos**

A cursory look at table 1 shows a fair but inconsistent performance of candidates in May/June WASSCE for five consecutive years. A lot of factors have been identified by previous researchers as being responsible for this inconsistency in achievement in Physics. As asserted by Adeyemo (2010) and NERDC (2011), the factors include inadequate modern laboratory facilities, inadequate qualified teachers, inadequate classrooms, inadequate teaching methods, and examination malpractice. National Examination Council 2011 Chief Examiners report cited by Achor (2020) indicated a high level of examination malpractices in core subjects including Physics. Furthermore, an unstructured interview conducted by the researcher among Physics Lecturers at Federal Collage of Education Technical Akoka on the relationship between students' performance in WASSCE Physics and their performance in Physics in the College of Education, revealed that most students who scored 'A' or 'B' in WASSCE could not solve simple Physics problems in the College of Education. This result is not far-fetched from what is obtainable in the Universities as the lectures from universities can attest to. This assertion confirms NECO Chief Examiners' report of a high degree of examination malpractices in SSCE and is an indication that many students who wrote and passed the SSCE are not independent learners. However, the researcher opined that if most of the candidates of WASSCE or NECO own the grades they enter tertiary institutions in Nigeria with, it may be that they were not able to retain most of the concepts taught in secondary school. Therefore, there is a need to make students independent learners who can take ownership of their learning. An independent learner is a lifelong learner. This necessitated the current study: (Effects of self-regulated learning instructional strategy on students' achievement in Physics concepts among senior secondary schools in Lagos state). Self–regulated learning has been commended as the main skill needed to start and sustain lifelong learning (EU Council, 2002 in Junyi et-al, 2018; Hoyle & Dent 2018).

An increasing body of study suggests that models of education planned to meet the needs of the industrial past are inadequate for the numerous challenges and opportunities facing 21st-century learners (Alberta Education, 2010; Barron & Darling-Hammond, 2008; Friesen & Jardine, 2009; Perkins, 2009 in Sharon & David 2013). New educational environments require different ways of planning learning outcomes for students and also new methodologies for teaching and assessment of learning. Self-regulated learning is defined as the process of planning, monitoring, and controlling individual cognitive achievement before, during, and after the learning process (Junyi, Zongkui & Xiangen, 2018). It has been commended as the main skill needed to start and sustain lifelong learning (EU Council, 2002 in Junyi, Zongkui & Xiangen, 2018; Hoyle & Dent 2018). Educational policymakers assert that one major aim of formal schooling is directing learners on how to learn (Hoyle & Dent, 2018) and that for this aim to be achieved, learners must be able to self-regulate their learning. This will translate them into independent and professional learners and enable them to be lifelong learners thereby achieving the Nigerian national policy of lifelong learners (National Policy on Education, 2014).

Researchers in Western nations have shown that self-regulated learning is very effective in promoting academic achievement (Paris & Paris 2001; Dignath et al., 2008; Sadati & Simin 2015). Self-regulated learning is as fundamental to learners' success as reading, writing, and arithmetic and is regarded as the fourth R of education (Abdul & Abidha 2016). In recent years when many schools are going online, it is crucial that students can self-regulate as learners to be successful online learners (Yukselturk & Bulut,2007; Sun et al., 2008; Rakes & Dunn, 2010 You & Kang, 2014 in Ejubovic & Puska, 2019).

The choice of gender as a moderator variable is due to inconclusive results obtained on gender and achievement in science (Physics). Researchers such as (Ezieim, 2006; Okwo Otubar, 2007; Achor & Gbadamosi 2020) observed that gender has a significant influence on achievement while (Babajide, 2016; Agommuoh & Nzewi, 2003) observed that gender does not affect the achievement of students in Physics. Therefore, the influence of gender on achievement is still a controversial issue among science researchers. It is hence necessary for more studies on the role of gender in students' achievement in science with particular reference to Physics to be carried out.

**Theoretical Overview of Self-Regulated Learning**

Two theoretical perspectives: social-cognitive and information-processing theories guided much of the research on self-regulated learning (Hoyle & Dent, 2018). Social –Cognitive theory was founded most prominently by Albert Bandura in 1953. The theory focuses on observational learning, modeling, and self-efficacy. Its major assumption is that human learns by observing the behavior of others and the consequences of their behavior. The information processing theory was originally proposed by American Psychologist George Armitage Miller in 1956. Miller and other Psychologists used metaphor processing to explain how the human mind works. The theory asserts that the human mind receives stimuli, process them, store them, locate them, and then respond. Social-cognitive and information-processing theories give corresponding accounts of how self-regulated learning, and self-regulation generally, progress. As believed by social cognitive theory, human functions depend on the way personal (e.g., biological, affective, cognitive), environmental, and behavioural factors interact (Bandura, 1986, 2001 in Schunk & Greene, 2018). Human actions, feelings, and thinking are not just a result of external factors and reinforcements, as behavioural theories have asserted (e.g., Skinner, 1987 in Schunk & Greene, 2018). Nor are individuals directed merely by internal hidden drives and impulses, as claimed by psychodynamic theories (e.g., Freud, 1960 in Schunk & Greene, 2018), nor purely by their own free choice, as many humanists have argued. Personal, behavioural, and environmental influences jointly determine the human experience. In institutes of learning, learners' behaviours, including their degree of self-regulation, are directed jointly by internal and external influences.

**Statement of the Problem**

Education ought to be the training of the mind to think and raising of people who learn how to learn and not the learning of facts. Students must be taught how to think and not what to think. This means that the traditional learning approaches used in most Nigerian secondary schools cannot meet this need. This is because traditional education entails that the teacher is in an active position and downloads a lot of information that learners are not curious about or eager about. The learners in this case receive it without argument and internalize it, hence, they cannot learn how to learn due to the passive way they receive it. Self-regulated learning helps learners to learn how to learn, to acquire high-level thinking skills, and positive attitudes toward learning. However, the reverse is the case in most Nigerian secondary schools. The traditional talk-and-marker method employed in pedagogical processes in most Nigerian secondary schools does not encourage the act of thinking. The teacher often pours out facts into the minds of students they believe are empty just for them to reproduce the same during examination. Previous researchers had observed several strategies that could be used to produce students with very good performance in their examination as noted in the background of this study. Yet the problem of inconsistency in the achievement of Physics concepts taught in class persists. The researchers are of the view that employing a self-regulated learning instructional strategy will improve students' creative thinking and enable them to learn to prepare themselves for anything and attain and maintain very good performance in WASSCE and life. This paper explores the effect of self-regulated learning instructional strategy on students' achievement in Physics concepts among Senior Secondary Schools in Education District 2, Lagos State.

**Purpose of the Study**

The main purpose of this study was to determine the effects of self-regulated learning instructional strategy on students' achievement in Physics concepts among Senior Secondary Schools in, Education District 2, Lagos State.

Specifically, this study sought to determine the;

1. Effect of self-regulated learning instructional strategy on students' achievement in Physics.
2. Comparative effects of self-regulated learning and talk-and-marker instructional strategies on students' achievement in Physics.
3. Influence of gender on the achievement of students in Physics.
4. The interaction effects of treatment, and gender on students' achievement in Physics.

**Research Questions**

The following research questions guided this study:

1: What is the effect of self-regulated learning instructional strategy on students' achievement in Physics?

2: What are the comparative effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics?
3: What is the influence of gender on students' achievement in Physics?
4: What is the interaction effect of treatment and gender on students' achievement in Physics?

**Hypotheses**

The following hypotheses were tested at $\alpha = 0.05$ level of significance in this study.

$H_0$1: There is no significant effect of self-regulated learning instructional strategy on students' achievement in Physics.

$H_{02}$: There is no significant difference in the effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics.

$H_0$3: There is no significant influence of gender on students' achievement in Physics.

$H_0$4: There are no significant interaction effects of treatment and gender on students' achievement in Physics.

**Design of the study**

The design for this study was a pre-test, post-test control group quasi-experimental research design. The design is represented symbolically below

| | | | | | |
|---|---|---|---|---|---|
| Self- Regulated group | $\mathbf{O_1}$ | → | **S** | → | $\mathbf{O_2}$ |
| Talk-and-marker | $\mathbf{O_1}$ | → | **C** | → | $\mathbf{O_2}$ |

$\mathbf{O_1}$ represents pre-test observation and $\mathbf{O_2}$ represents the post-test observations. S represents the experimental group and C represents the control group. The 2x2x2 factorial design was adopted for this study. The factorial design consists of the instructional strategy (Self-regulated learning, and control (talk-and-marker) instructional strategies and one moderator variable (gender at two levels: male and female)

**Sampling and Sampling Technique**

Multi-stage sampling technique was used; first, an education district (district 2) was chosen out of six education districts in Lagos state by simple random sampling technique. Then, a purposive sampling technique was used to select schools and teachers from the district based on the following criteria:

1. The school must be government-owned (public), co-educational, and have qualified Physics teachers with at least a bachelor's degree qualification in Physics Education or bachelor's degree qualification in Physics with a Postgraduate Diploma in Education.
2. The teachers must have at least five years' experience teaching Physics after graduation from the university.
3. The teacher must have an interest in participating in the study.
4. The teacher must show interest in taking part in the training.

Four teachers from four schools met the above criteria. They were then trained in the use of experimental treatment (Self-Regulated Learning Strategy). The teachers and their intact classes were purposively assigned to treatment depending on the teacher's demonstration of high competence in using a self-regulated instructional strategy. Two teachers who showed the highest competence by observing them teach with the strategy were purposively assigned to the different treatment groups while the other two were assigned to the control group. Therefore, there were two teachers for the experimental group and two teachers for the control group. Senior Secondary 2 students were selected for this study because they were not preparing for any external examination like WASSCE or Joint Admission and Matriculation Board (JAMB). Four intact classes of the selected schools were used.

**Sample Size**

A total of 109 students comprised the sample. Females (52) and males (57). By treatment: Fifty-two (52) students consisted of the experimental group while the control group consisted of 57 students. Male students in the experimental group were 27 while female students were 25. For the control group, male students were 30, and female students were 27.

**Instruments for Data Collection**

The research instrument was the Physics Achievement Test (PAT), adapted from the WASSCE (West Africa Senior School Certificate Examination) past questions. The Physics Achievement Test was validated by two experts from the Physics Education Department of Science Education University of Lagos and two from test development from the Federal College of Education Akoka Yaba. They removed some items from the instrument and added some. They also reframed some that were not properly worded. PAT had 20 objective questions adapted from WASSCE's past questions. Using Bloom's taxonomy of education. To ensure the internal consistency of PAT, it was pilot tested to obtain its reliability coefficient. Kuder Richardson (KR-20) statistics were used to calculate the reliability of PAT which gave 0.74. All the items had an item difficulty index of 0.4 – 0.8. Also, the inter-rater was used to obtain the reliability coefficient of the stimulus instrument, it gave 0.76 using Scott's pi. This shows that the inter-rater reliability coefficient of the instrument was high.

**Procedure for Data Collection**

Week 1: Coordination program for research assistants and pre-test administration.
Week 2 – 5: These weeks were used to administer the treatment to both experimental and control groups using the instructional procedural steps for them.
Week 6: This week was characterized by administration of post–test to both experimental and control groups.

**Self–regulated learning procedural instructional strategy**

Self–regulated learning instructional strategy consists of two components: the Facilitator's activities and the learners' activities.

**Learners' Activities**

It has two parts: What the learners do in their comfort zone outside the classroom and what they do in the classroom during lessons.

**Learners' activities at their comfort zone.**
It consists of 3 phases: Planning, monitoring, and evaluating their learning.

A. **Learners plan their learning**
   During planning, the learner will ask himself/herself these questions and internally provide answers to them: What does this task, Simple Harmonic Motion (S.H.M) entail? What am I required to do? (Explain the meaning of S.H.M. and mention the motion in my environment that is S.H.M.). What do I know before that will enable me to learn S.H.M?
B. **Learners monitor his/her learning.**
   Am I getting what I am studying? If not, why? What have I not done well? If I am getting what I am reading, what made it possible?
C. **Learners evaluate his /her learning by asking the following questions:**
   How much of what I am learning is clear to me? The part that is not clear what do I do to make it clear to me? Do I need additional help from either my peers who seem to understand it better; go over what I am learning again; or seek help from my teacher?

**Frequency and percentage distribution of students by demographic characteristics**

| Treatment | Gender | Frequency | Percentage |
|---|---|---|---|
| Self-Regulated | Female | 25 | 22.94 |
| | Male | 27 | 24.77 |
| Control | Female | 27 | 24.77 |
| | Male | 30 | 27.52 |

**Research question one: What is the effect of self-regulated learning instructional strategy on students' achievement in Physics?**

**Table 2: Descriptive statistics of self-regulated learning instructional strategy students' pretest and posttest scores.**

| Self-regulated learning instructional strategy | | |
|---|---|---|
| | Pretest | Posttest |
| Sample size | 52 | 52 |
| Mean | 43.37 | 60.00 |
| Mean percentage | 43.37 | 60.00 |
| Standard deviation | 10.13 | 15.72 |
| Variance | 102.68 | 247.06 |
| Pretest-posttest mean difference | 16.63 | |
| Gain percent | 38.34 | |

The fifty-two (52) students who received treatment under the self-regulated learning instructional strategy had a pretest mean score of 43.37 (43.37%) with a standard deviation of 10.13. In the post-test, the students had a posttest mean score of 60.00

(60.00%) with a standard deviation of 15.72, Table 2. This gave a pretest-posttest mean difference of 16.63, in favour of the posttest. The mean difference accounted for a gain of 38.34%. This shows that the use of a self-regulated learning instructional strategy had the effect of enabling students to make a gain of 38.34% in Physics achievement.

**Research question two: What are the comparative effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics?**

The comparative effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics were obtained by getting the mean scores, pretest-posttest mean differences, and the gain percentages for each of the treatments. Table 4.7 contains the results.

**Table 3: Comparative effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics**

| instructional strategy | Self-regulated learning | | talk-and-marker | |
|---|---|---|---|---|
| | Pretest | Posttest | Pretest | Posttest |
| Sample size | 52 | 52 | 57 | 57 |
| Mean | 43.37 | 60.00 | 31.93 | 35.70 |
| Standard deviation | 10.13 | 15.72 | 9.81 | 11.24 |
| Pretest-posttest mean difference | 16.63 | | 3.77 | |
| Gain percent | 38.34 | | 11.81 | |

The fifty-two (52) students who were taught using a self-regulated learning strategy, had a mean score of 43.37 with a standard deviation of 10.13 in the pretest Table 3. For the posttest, the students had a mean score of 60.00 with a standard deviation of 15.72. The pretest-posttest mean difference was 16.63 which gave a mean gain percent of 38.34%. Furthermore, the fifty (57) students who were taught using the talk-and-marker instructional strategy had a mean score of 31.93 with a standard deviation of 9.809 in the pretest. For the posttest, the students had a mean score of 35.70 with a standard deviation of 11.238. The pretest-posttest mean difference was 3.77 which gave a mean gain percent of 11.81%.

**Research Question Three: What is the influence of gender on students' achievement in Physics?**

| Gender | N | Pretest Mean | Std. Deviation | Posttest Mean | Std. Deviation | Pretest-posttest mean difference | Std. Error Mean |
|---|---|---|---|---|---|---|---|
| Female | 52 | 37.4038 | 10.31325 | 46.3462 | 16.77753 | 8.9424 | 2.32663 |
| Male | 57 | 37.3684 | 12.50376 | 48.1579 | 19.49431 | 10.7895 | 2.58208 |

For the pretest, female students had a mean score of 37.40381 with a standard deviation of 10.31325 while the male students had a mean score of 37.3684 with a standard deviation of 12.50376, Table 6. Also, it shows that for the post-test, female students had a mean score of 46.3462 with a standard deviation of 16.77753 while the male students had a mean score of 48.1579 with a standard deviation of 19.49431. The within group's pretest-posttest mean difference for the females was 8.9424 while the within group's pretest-posttest mean difference for the male students was 10.7595 The posttest mean difference between the females and the males was 1.8471 in favour of the male students.

**Research Question four.** What is the interaction effect of treatment and gender on students' achievement in Physics?

Table 8: **Descriptive Statistics of students' pretest and posttest scores based on treatment and gender interaction**

| Treatment | Gender | N | pretest Mean | pretest S. D | Posttest Mean | Posttest S.D | Mean Difference | Position |
|---|---|---|---|---|---|---|---|---|
| Self-Reg. | Female | 25 | 42.20 | 10.214 | 57.80 | 15.948 | 15.60 | 2nd |
| | Male | 27 | 44.44 | 10.127 | 62.04 | 15.520 | 17.60 | 1st |
| Talk-and-marker | Female | 27 | 32.96 | 8.350 | 35.74 | 8.627 | 2.78 | 4th |
| | Male | 30 | 31.00 | 11.017 | 35.67 | 13.309 | 4.67 | 3rd |

For the pretest and the posttest mean scores with standard deviations for the interaction between treatment and gender, and the mean differences are presented. The females taught using a self-regulated learning strategy had a pretest mean score of 42.20 with a standard deviation of 10.214 and a posttest mean score of 57.80 with a standard deviation of 15.948, Table 8. The pretest-posttest mean difference for the females was 15.60. The males taught using a self-regulated learning strategy had a pretest mean score of 44.44 with a standard deviation of 10.127 and a posttest mean score of 62.04 with a standard deviation of 15.520. The pretest-posttest mean difference for the males was 17.60. The males taught using the talk-and-marker instructional strategy had a pretest mean score of 31.00 with a standard deviation of 11.017 and a posttest mean score of 35.67 with a standard deviation of 13.309. The pretest-posttest mean difference for the males was 4.67. Using the mean difference, the male students taught Physics using a self-regulated learning instructional strategy benefitted most from the interaction of treatment and gender. This was followed by the female students taught using a self-regulated learning instructional strategy. The third and fourth positions of mean difference were for the males and females who were taught using the talk-and-marker instructional strategy respectively.

**Hypothesis one ($H_0 1$): There is no significant effect of self-regulated learning instructional strategy on students' achievement in Physics.**

**Table 4: Analysis of the significance of the effect of using self-regulated learning instructional strategy on students' Physics achievement.**

| | Paired Differences | | | | | T | df | Sig. (2 - tailed) |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | | | |
| | | | | Lower | Upper | | | |
| pretest to posttest | -16.635 | 16.140 | 2.238 | -21.128 | -12.141 | -7.432 | 51 | 0.000 |

The result of the paired sample t-test contained in Table 4 shows a t-value of -7.432 and a p-value of 0.000 (df = 51). Since $p < 0.05$, the difference in the mean between the pretest and the posttest was significant. Therefore, the null hypothesis ($H_0 2$) that there is no significant effect of self-regulated learning instructional strategy on students' achievement in Physics is rejected. Hence, from the results obtained in this study, there is a significant effect of the use of self-regulated learning instructional strategy on students' achievement in Physics.

**Hypothesis two ($H_0 2$): There is no significant difference in the effects of self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics.**

**Table 5: Analysis of the significance of the difference between students' post-test achievement scores based on treatments.**

| Posttest | Levene's test for equality of variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|
| | F | sig | t | df | Sig. (2-tailed) | Mean diff | Std. Error diff | Lower | Upper |
| treatment | 10.814 | .001 | -9.345 | 107 | 0.00 | -24.298 | 2.600 | -29.453 | -19.144 |

For the independent samples t-test was conducted, the t-value was -9.345 and $p < 0.05$, (df = 107). Since $p < 0.05$, the difference in mean scores between students who were taught using self-regulated instructional strategy and talk-and-marker instructional strategy was significant. There was a rejection of the null hypothesis that there is no significant difference in the effects of, self-regulated learning, and talk-and-marker instructional strategies on students' achievement in Physics.

**Hypothesis three ($H_0 3$): There is no significant influence of gender on students' achievement in Physics.**

**Table 7: Analysis of Students' Achievement in Physics based on Gender**

| Posttest | Levene's test for equality of variances | | t-test for Equality of Means | | | | | 95% Confidence Interval of the Difference | |
|---|---|---|---|---|---|---|---|---|---|
| | F | sig | t | df | Sig. (2 - tailed) | Mean diff | Std. Error diff | Lower | upper |
| Gender | 2.188 | .142 | -.518 | 107 | .606 | -1.8117 | 3.4997 | -8.7496 | 5.1261 |

Equal variances assumed

The results displayed in table 7.0 show that the independent sample t-test has a t-value of -0.518 and $p > 0.05$, ($df = 107$). Since $p > 0.05$, the difference in mean scores between male and female students was not significant. There was a failure to reject the null hypothesis that there is no significant influence of gender on students' achievement in Physics. Hence, there was no significant influence of gender on students' achievement in Physics.

**Table 9: Analysis of the Interaction Effects of Gender on Students' Physics Achievement.**

**Tests of Between-Subjects Effects**

Pdependent Variable: posttest

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 16287.791[a] | 3 | 5429.264 | 29.327 | .000 |
| Intercept | 248118.044 | 1 | 248118.044 | 1340.225 | .000 |
| treatment | 15911.202 | 1 | 15911.202 | 85.945 | .000 |
| gender | 117.567 | 1 | 117.567 | .635 | .427 |
| treatment * gender | 126.084 | 1 | 126.084 | .681 | .411 |
| Error | 19438.815 | 105 | 185.132 | | |
| Total | 279525.000 | 109 | | | |
| Corrected Total | 35726.606 | 108 | | | |

a. R Squared = .456 (Adjusted R Squared = .440)

For the effects of the interactions between treatment and gender, the interaction effects of treatment, and gender ($F_{(1,105} = 0.635$; $p = 0.427$), The following arises from the results: there is a significant influence of treatment on students' achievement in Physics; there is no significant influence of gender on students' achievement in Physics. There is no significant effect of the interaction between treatment and gender on students' achievement in Physics. There was a failure to reject the null hypothesis that there is no significant interaction effect of treatment and gender on students' achievement in Physics.

**The major findings of the study are summarized as follows**:

1. There is a significant effect of the use of self-regulated learning instructional strategy (SLIS) on students' achievement in Physics.
2. The students who were taught Physics using SLIS performed significantly better than the students who were taught Physics using TIS.
3. There was no significant influence of gender on students' achievement in Physics.

**Discussion of Findings**

Presentation of a detailed explanation of the result of the analysis.

**Effect of self-regulated learning instructional strategy on students' achievement in Physics.**

The effect of the self-regulated learning instructional strategy was obtained by comparing students' pretest and posttest achievement scores. The maximum and minimum scores obtained for the pretest and posttest were one hundred (100) and zero (0) respectively. The result shows that the fifty-two (52) students who received treatment under the self-regulated learning instructional strategy had a pretest mean score of 43.37 (43.37%) with a standard deviation of 10.13. In the post-test, the students had a posttest mean score of 60.00 (60.00%) with a standard deviation of 15.72. This gave a pretest-posttest mean difference of 16.63, in favour of the posttest. The mean difference accounted for a gain of 38.34%. This shows that the use of a self-regulated learning instructional strategy had the effect of enabling students to make a gain of 38.34% in Physics achievement. The significant effect of the use of self-regulated learning instructional strategy on students' achievement in Physics was tested using a paired sample t-test at $p < 0.05$. Analysis of the main effect of SLIS showed that there is a statistically significant effect of the use of self-regulated learning instructional strategy (SLIS) on students' achievement in Physics. This positive outcome aligns with the findings of (Chen & Hu, 2008; Zhang et al., 2012a in Junyi, Zongkui & Xiangen, 2018) who reported that SLIS led to effective academic performance.

**Conclusion**

This thesis revealed that SLIS is an effective learning instructional strategy that can potentially enhance students' achievement in Physics more than TIS study.

**Recommendations**

Based on the results of this thesis, the following recommendations were made: First, Physics teachers should adopt SLIS in teaching and learning Physics since it has proven to be an active learning strategy. Second, seminars and workshops should be organized for Physics teachers on how to use SLIS to teach Physics. Third, supervisors and inspectors of Physics should monitor and supervise Physics teachers on using SLIS in teaching and learning Physics. Fourth, Physics teachers should ensure that learners are engaged in SLIS in and out of the classroom and make instruction in Physics tailored to SLIS.

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# ILO- OCCUPATIONAL SAFETY AND HEALTH MANAGEMENT PRACTICES EXISTING IN BUILDING CONSTRUCTION COMPANIES IN EBONYI STATE, NIGERIA

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***Abstract***

*This study examined the provision of ILO- Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria, using a descriptive research design. The population of the study comprised ninety- (91) professionals which include thirty (30) Architects, twenty-five (25) Builders, and thirty-six (36) Quantity Surveyors who are responsible for policymaking in the building construction industry. The instrument for data collection was a structured 10-item questionnaire titled "Examination of the Provision of ILO- Occupational Safety and Health Management Practices Existing in Building Construction Companies' questionnaire" (EOPILOOSHMPECCQ). The instrument was validated by three experts in the Building department. Cronbach Alpha reliability technique was used to determine the reliability of the instrument which yielded an overall reliability coefficient of 0.81. Data for the study were collected by the researcher with the help of three research assistants. Out of 91 copies of the questionnaire administered to the respondents, 81 copies were filled and returned representing an 89% rate of return. The data collected were analyzed using frequency for demographic information of respondents, mean and standard deviation for answering the research questions while the null hypothesis was tested using chi-square at 0.05 level of significance. The results show That there is no existence of ILO- Occupational safety and health management practices in building construction companies in Ebonyi state, Nigeria. The implication of this study from the findings is that the study will serve as an eye opener to the management of construction companies on the need to follow Occupational safety and health management practices. Based on the findings, the study among others recommended that: the Ebonyi state government should enforce Occupational safety and health management practices on building construction companies by*

*Ebonyi state and there should be routine checks at ongoing building construction sites by the Abakaliki Capital Territory Development Board (ACTDB) commission and professional bodies within the built industry to ensure adherence to with ILO- Occupational safety and health management practices.*

***Keywords:*** *ILO- Occupational safety and health, management practices, Building Construction Companies*

**Background to the Study**

The construction sector at the production stage is labor-intensive and requires human involvement, which makes it complex, due to the kind of work performed in the sector. it has made the construction industry the most dangerous or highly hazardous sector (Smallwood and Haupt 2002). The construction industry moves in stages specifically with planning, financing, and designing and continues until the project is accomplished and ready to be used. This goal is accomplished by the parties involved in the built industry that work assiduously to ensure is accomplished. During the process of achieving this goal, the construction workers encounter some hazards which affect their lives drastically (Ayangade, 2000).

According to Mgbeahuru, Okolie and Nwekete (2022), many hazards are being observed on various occasions in the building sector during the production stage when compared to other sectors in terms of accident cases, the construction workers in the industry encounter different challenges which pose threat to their health. This shows that in the building industry accidents occur regularly. It is pertinent to note that the cause of accidents in the construction industry is as a result of unsafe behaviour. These incessant accidents or injuries occurrence in the construction industry bring loss to the construction worker and the industry at large, which creates economic losses and also gives rise to for loss of productive time until the construction environment atmosphere is normalized (Mgbeahuru *et al*, 2022).

An occupational health and safety management system is imperative for any organization that wants to remain competitive in the construction industry. This is seen by management as a duty of care to the employees of their organizations, which should be pursued with commitment and cooperation (Kalejaiye,2013). Injuries, accidents and ultimately death are Occupational hazards due to unsafe and unhealthy practices in an unregulated environment (Mgbeahuru *et al*,2022). The origin of OSH regulations in Nigeria is traced to the United Kingdom and the US, where the majority of them are adopted. (Idoro,2008). According to the Labour Safety Health and Welfare Bill, ( 2012) In 2012, the OSH Bill in Nigeria was specifically designed to ensure an enabling working environment in all industrial sectors both the formal and informal sectors while the National Council for Occupational Safety and Health is empowered to oversee the Bill. This repeals the Factories Act 1990 and serves as comprehensive Occupational Safety and Health legislation for the workplace. This is because the provisions and requirements of OSHMS encourage greater awareness of responsibilities and aspects of health and safety, highlighting the impact of poor health and safety standards on the performance of organizations (Diugwu, Baba, and Egila, 2012).

**Aim of the Study**

This study aimed to examine the provision of ILO- Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria.

**Objectives of the Study**

The research objective include, to;

Examine the provision of ILO- Occupational Safety and Health Management practices existing in building construction companies in Ebonyi state, Nigeria.

**Research Question**

What is the ILO - Occupational Safety and Health Management practices existing in building construction companies in Ebonyi state, Nigeria?

**Hypothesis**

**HO**: There are no ILO - Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria.

**Methodology**

The study adopted a descriptive survey design. The study was carried out in Ebonyi state, Nigeria. The population for this study comprised ninety- (91) professionals which include thirty (30) Architects, twenty-five (25) Builders, and thirty-six (36) Quantity Surveyors who are responsible for policymaking and are working with the registered building construction companies with the Ebonyi state ministry of Housing and Urban Development. There was no sampling. Therefore, the entire population was used for the study. The data for the study were collected using a structured questionnaire titled "Examination of the Provision of ILO- Occupational Safety and Health Management Practices Existing in Building Construction Companies' questionnaire" (EOPILOOSHMPECCQ). The instrument was subjected to validation by three experts (one in the building department and the other in Educational Measurement and Evaluation, all from Nnamdi Azikiwe University, Anambra state were used for the validation exercise. Cronbach alpha method was used to determine the internal consistency of the questionnaire items. The instrument yielded an overall reliability coefficient of 0.88 was obtained for the entire instrument. The 91 copies of the instrument were distributed to the respondents by the researcher with the help of three research assistants. Out of the ninety- one (91) copies of the questionnaire administered to the respondents, eighty-one (81) copies were filled and returned representing an 89% rate of return. The descriptive statistics of mean and standard deviation were used to answer the research questions. The hypotheses were tested using chi-square at a 0.05 level of significance. Chi-square was used to test the hypotheses since the data obtained are nominal data and it summarizes the discrepancies between the expected number of times each outcome occurs and the observed number of times each outcome occurs, by summing the square of the discrepancies, normalized by the expected numbers, over all the categories.

## Results

**Table 1:** General/ Demographic information of respondents

| Demographic variables | Frequency | Percentage(%) |
|---|---|---|
| **Professional background** | | |
| Architect | 26 | 32 |
| Builder | 25 | 31 |
| Quantity Surveyor | 30 | 37 |
| **Gender** | | |
| Male | 75 | 93 |
| Female | 6 | 7 |
| **Years of Experience** | | |
| 1-5 years | 27 | 33 |
| 6-10 years | 20 | 25 |
| 11-15 years | 15 | 19 |
| Over 15 years | 19 | 23 |
| **Highest Educational Qualifications** | | |
| HND | 25 | 31 |
| B.Sc/B.Tech | 32 | 39 |
| MSc/MPM | 20 | 25 |
| Phd | 4 | 5 |

Data in Table above 1, shows that Quantity Surveyors- constituting 37% of the population sample. Architects constitute 32% of the respondents, 31% of the respondents are builders. Among the respondents 93% accounted for the male counterparts while 7% of the respondents are female professional in the construction industry. About 33% of the respondents possess 5 years professional experience in the construction industry,25% possess 6-10 years' experience,23% possess over 15 years professional experience and 19% possess 11-15 years' experience. Respondents with HND were found to hold adequate academic qualification constituting 31% of the respondents, while the rest of the respondents (39% and 30%) possess B.Sc/B. Tech and Masters Degrees respectively as their highest educational qualification.

**Research Question:** *What is the ILO- Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria?*

**Table 2: Mean and Standard Deviation on *the ILO- Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria.***

| SN | Items | SA | A | D | SD | N | $\bar{x}$ | SD | Decision |
|---|---|---|---|---|---|---|---|---|---|
| 1 | There is existence of daily supervision, to ensure the protection of workers on construction site | 4 | 61 | 13 | 3 | 81 | 2.81 | 0.57 | Agreed |
| 2 | There is existence of compensation for victims of occupational accidents and diseases in the construction company | 1 | 23 | 29 | 28 | 81 | 1.96 | 0.82 | Disagreed |
| 3 | There is existence of adequate arrangements to ensure a safe and healthy environment before commencement of work on construction site | 4 | 16 | 16 | 45 | 81 | 1.74 | 0.94 | Disagreed |
| 4 | There is enforcement of cooperation and communication among workers and their representatives in the construction site by the management | 9 | 57 | 13 | 2 | 81 | 2.90 | 0.60 | Agreed |
| 5 | Existence of adequate provision of resources including human and financial resources on construction site | 2 | 12 | 29 | 38 | 81 | 1.72 | 0.80 | Disagreed |
| 6 | Existence of full participation of workers in the fulfillment of the OSH policy on construction site | 3 | 3 | 43 | 32 | 81 | 1.71 | 0.71 | Disagreed |
| 7 | There is existence of dailyinspection of work system, premises, plant and equipment in the construction site | 28 | 48 | 2 | 3 | 81 | 3.24 | 0.68 | Agreed |
| 8 | There is existence of daily performance evaluation of the OSH management system in the construction site | 1 | 3 | 40 | 37 | 81 | 1.60 | 0.62 | Disagreed |
| 9 | There is existence of day -to-day arrangements for hazard and risk identification, prevention and control in the construction companies | 1 | 2 | 54 | 24 | 81 | 1.75 | 0.55 | Disagreed |
| 10 | There is existence of OSH training for workers doing jobs subject to strict requirements for OSH in the construction site | 3 | 13 | 29 | 36 | 81 | 1.79 | 0.84 | Disagreed |
| | **Grand Mean** | | | | | | **2.12** | **0.71** | **Disagreed** |

***Source***: Researcher's Field Work, 2021.

Result on Table 1 shows that the respondents in item 1, 4 and 7 agreed that the ILO-Occupational safety and health management practices exist in building construction companies in Ebonyi state, Nigeria.This is actually explained by the means scores of 2.81, 2.90 and 3.24. The individual mean scores are above 2.50, which means that respondents in items 1, 4, and 7 agreed that there is existence of daily supervision, to ensure the protection of workers on construction site, there is enforcement of cooperation and communication among workers and their representatives in the construction site by the management and there is existence of daily inspection of work system, premises, plant and equipment in the construction site.

However, respondents in item 1,2,3,5,6,8,9 and 10 disagree that the ILO- Occupational safety and health management practices are existing in building construction companies in Ebonyi state, Nigeria. This is explained by the mean scores of 1.96, 1.74, 1.72, 1.71, 1.60, 1.75 and 1.79 for respondent in item 2,3,5,6,8,9 and 10 respectively. The mean scores are below 2.50, which means that respondents in item 2,3,5,6,8,9 and 10 disagreed that; there is existence of compensation for victims of occupational accidents and diseases in the construction company, there is existence of adequate arrangements to ensure a safe and healthy environment before commencement of work on construction site, existence of adequate provision of resources including human and financial resources on construction site, existence of full participation of workers in the fulfillment of the OSH policy on construction site, There is existence of daily performance evaluation of the OSH management system in the construction site, there is existence of day-to-day arrangements for hazard and risk identification, prevention and control in the construction companies and there is existence of OSH training for workers doing jobs subject to strict requirements for OSH in the construction site. The grand mean score of 2.12 shows that the ILO- Occupational safety and health management practices do not exist in building construction companies in Ebonyi state, Nigeria.

**Testing for Hypothesis**

**Table 3: Chi-square Analysis of Mean Ratings the Professionals' Responses on *the ILO- Occupational safety and health management practices existing in building construction companies in Ebonyi state, Nigeria.***

| | | D.f | $X^2$.cal | $X^2$.crit | Decision | Significance |
|---|---|---|---|---|---|---|
| Chi-square | | | 9.064 | 40.11 | Accept HO | Not |
| Number of valid Cases | 81 | 27 | | | | significant |

Decision rule: Accept Ho: if $X^2_{critical} > X^2_{calculated}$, Reject Ho: if $X^2_{critical} < X^2_{calculated}$

**Decision**:

From table 3, the Chi-square table shows a calculated value of 9.064, degree of freedom df =27. The $X^2_{calculated}$ (9.064) are less than the values of the $X^2_{critical}$ (40.11) gotten from the chi-square distribution table. We accept the null hypothesis that 'Health and safety risk has no significant management process in the Nigeria construction industry'; thereby rejecting the alternate hypothesis.

**Discussion**

The findings on Table 2 showed that the ILO- Occupational safety and health management practices do not exist in building construction companies in Ebonyi state, Nigeria. This is because there is no; existence of compensation for victims of occupational accidents and diseases in the construction company, existence of adequate arrangements to ensure a safe and healthy environment before commencement of work on construction site, existence of adequate provision of resources including human and financial resources on construction site, existence of full participation of workers in the fulfillment of the OSH policy on construction site, existence of daily performance evaluation of the OSH management system in the construction site, existence of day-to-day arrangements for hazard and risk identification, prevention and control in the construction companies and existence of OSH training for workers doing jobs subject to strict requirements for OSH in the construction site. This connotes none existence of ILO-Occupational safety and health management practices in the building construction companies. Nag (2003) opined that the elements of ILO-Occupational safety and health management system require consultation, co-operation and commitment from all stakeholders and Workers' participation which is seen as a vital part of the process and on which ILO bases its assessment on construction industries. The finding on table 2 agreed with Chudley and Greeno (2006), who examined that construction regulations as statutory instruments setting out the minimum legal requirements for construction works and relate primarily to the health, safety and welfare of the workforce which must be taken into account when planning construction operations and during the actual construction period. This shows that these minimal legal requirements for construction works are not followed, in other to tackle incessant accident occurrences in construction sites.

According to Okeola, (2009) the Ministry charged with enforcement of these laws has not been effective in identifying violators probably due to inadequate funding, lack of basic resources and training therefore, consequently, neglect safety oversight of other enterprises, particularly construction sites and non-factory works. Umeokafor, Isaac, Jones and Umeadi (2014) agreed that the impact of the enforcement authority is ineffective, as the key stakeholders pay less attention to OSH regulations; thus, rendering the OSH scheme dysfunctional and unenforceable, at the same time impeding OSH development. Idoro, (2004) and Kolawole, (2014) viewed the none-existence of Occupational safety and health management system as problem to adopting almost all existing regulations of reference on health and safety in Nigeria from foreign countries, especially from the British legal system with little or no changes made and that some provisions from these laws do not necessarily meet the conditions experienced in Nigeria. In addition, the labour law does not provide workers with right to remove themselves from dangerous work situations without loss of employment. Nevertheless, the emergence of new regulations, laws, standards and codes has made many construction organizations to improve their safety performance. Mgbeahuru *etal* (2022) observed the management ill duty of care to the employees of their organizations are pursued with less commitment and cooperation accounts to none-compliance building construction companies to ILO occupational safety and health management system.

## Conclusion

The summary of results of the study base on the professional's responses are:

1. That there is no existence of ILO- Occupational safety and health management practices in building construction companies in Ebonyi state, Nigeria.
2. There is no compliance by building construction companies in Ebonyi state to ILO occupational safety and health management system.

## Recommendations

1. The Ebonyi state government should enforce the Occupational safety and health management practices on building construction companies by Ebonyi state.
2. There should be routine checks at ongoing building construction sites by the Abakaliki Capital Territory Development Board (ACTDB) commission and professional bodies within the built industry to ensure adherence to with ILO-Occupational safety and health management practices.

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# BUSINESS INFORMATION MANAGEMENT PRACTICES ADOPTED BY SMALL AND MEDIUM SCALE ENTERPRISES IN EBONYI STATE

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***Abstract***

*The study was carried out to determine business information management practices adopted by small and medium scale enterprises in Ebonyi State. The study was guided by two research questions and two null hypotheses. The study adopted descriptive survey research design. The population of the study was 2,433 small and medium scale enterprises in Ebonyi State, whose businesses were registered with the Small and Medium Enterprises Development Agency of Nigeria. The sample size of 344 small and medium scale enterprises was used for the study. A structured questionnaire containing 29 items entitled "Information Management Practices Adopted by Small and Medium Scale Enterprises (IMPSMSEQ)" was used for data collection. The instrument was validated by three (3) experts. The Cronbach Alpha Reliability coefficient was 0.92. Three hundred and forty-four (344) copies of instrument were distributed, while 321 copies representing 93% were successfully retrieved from the respondents. Mean x and Standard Deviation (SD) were used for finding answers to the research questions. The null hypotheses were tested at 0.05 level of significance using t-test statistical tool. The findings showed that business information management practices adopted by small and medium scale enterprises in Ebonyi State are toning to business news on radio broadcasts, watching business advisement on television broadcasts, watching business video on YouTube, posting sales promotion on Face book, uploading business videos on YouTube, displaying billboard with vital information and chatting with the customers on WhatsApp. The hypotheses tested showed that gender, years of experiences and location of small and medium scale enterprises operators did not differ significantly in their mean responses on information generating management, information processing practices management adopted by small and medium enterprise in Ebonyi State. Based on the findings of the study, it was recommended, among others, that Government agencies and other bodies serving small and medium scale enterprises should set up a module on business information management on its website to enable small and medium scale enterprises owners to generate information for effective management of their business enterprises. The* *educational implication is that business education teachers should while teaching small scale business courses teach and make more emphasis on the benefits of the utilization of information management practices to promote business activities.*

***Keywords:*** *Business, Information, Management Practices, Small and Medium Scale Enterprises*

**Background to the Study**

Small and medium scales enterprises are seen as the backbone of all economic activities and are the key source of economic growth in Nigeria. It occupies a significant position in the economic development of every nation, especially in developing countries like Nigeria. Since the rise in their popularity, small and medium scales enterprises have consistently grown and generated interest from a wide range of stakeholders including governments, researchers, donors and non-governmental organizations because of their roles in tackling the employment challenges, stimulating innovations and advancement and achieving sustainable Development (World Bank, 2020). As a result, both the developed and the developing countries are actively engaged in and continue to seek pragmatic ways of improving the activities of small and medium scale enterprises. The Central Bank of Nigeria (CBN) has, through its various circulars and intervention fund programmes generally defined small and medium scale enterprises (SMEs) as entities with assets base of N5m and not more than N500M excluding land and buildings with employees between 11 and 200 (CBN, 2017). Momba (2013) saw a small-scale enterprise as an enterprise with 5-49 employees and a medium scale enterprise with 50-99 employees. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2021) categorized small scale enterprises as business ventures with a minimum of 10 and maximum of 49 employees with assets within the range of five to fifty million Naira (excluding land and buildings), while medium scale enterprises are business ventures with employee number of between 50 and 199; while asset base (excluding land and building) is put at between N50 million and N500 million. However, defined, small and medium enterprises are a productive activity either to produce or distribute goods and or services, mostly undertaken in the informal sector.

Small scale and medium scale enterprises are business organizations set-up by individuals or group of individuals, known as business operators, for the main purpose of providing goods and services. The capital to operate the business is supplied by only one person or by a few people who are the managers of the business. It is usually a sole proprietorship, a partnership, or a family-owned company. Small scale and medium scale enterprises, according to Olufemi (2017), exist in the form of sole proprietorship and partnership, though some could be registered as limited liability companies and characterized by: simple management structure, informal employer/employee relationship, labour intensive operation, simple technology, fusion of ownership and management and limited access to capital. Their classification into small and medium enterprises depends on the scale or size of business operators' control. Furthermore, small scale and medium scale enterprises engage in different types of activities ranging from construction, agro-allied, information technology, manufacturing, educational establishments, business services, tourism and leisure among others.

In Ebonyi State, the small and medium scale enterprises have continued to thrive even before the creation of the state in 1996. About 80% of all the economic activities in Ebonyi State are purely small and medium scale enterprises (Nwusulor, 2016). This accounts for their (SMEs) huge contributions to the greater outputs of the Ebonyi State economy. According to SMEDAN (2022) collaborative National Survey of Micro, Small & Medium Enterprises (MSMEs), Ebonyi State has 2,433 small and medium scale enterprises. They bring employment generation, poverty reduction and diversification of the economy etc, these small and medium scale enterprises are located in different strategic positions of the State (Ebonyi) especially in the capital territory (Abakaliki). They operate in different dimensions as water production, cassava processing, rice milling, provision stores, hair dressing, fruit juice making, computer centers, shoe making, palm oil production, vehicle repairs and maintenance, laundry and dry-cleaning services, bookshops, transport service/companies, carpentry, electronics repairs and accessories, poultry farms, restaurants and fast-food centers, saloons (haircuts/plaiting), fruits and vegetable vendors, cosmetics shops, etc. These enterprises have been struggling resiliently to survive on their own even when the State Government has not shown enough interest to promote them. To a reasonable extent they have contributed immensely to the economic growth of the State.

Though small scale and medium scale enterprises are making positive contributions to economic growth and development in Ebonyi State, the rate of failure is high. According to West and Wood (2012), 90 percent of all these business failures result from lack of experience and knowledge about the market. In this information age, business information is a valuable asset. It is most powerful as it aids management decision making and can give business owners a competitive edge over their rivals. According to Igwe (2020), no business is without competitor. Gathering information about competitors is critical. Igwe (2020) added that in the business environment where knowledge is power, those who own the best information about customers and market trend and use it most effectively control the market. It provides the means to predict the actions of both customers and the competitors. For many businesses, the information they hold on their customers, market and competition is considered as their most valuable resources to business owner/managers.

Business owners, according to Okolo in Ogbu (2023), are people who have the ability to see and evaluate business opportunities, put together the necessary resources to take advantage of them and to initiate appropriate actions to ensure success. The business owners employ and contract the managers to oversee the running of their businesses. A manager can be seen as a person who is responsible for the realization of management processes, which make plans and decisions, organizes, supervises and controls human, financial and information resources of business enterprises. Gorgievski, Ascalon and Stephan (2011) defined a manager as the person employed in an administrative position, who has comprehensive knowledge necessary for leading people and managing an organization in order to achieve optimal realization of set tasks in confined conditions. Thus, the manager of a small-scale business is the person who is employed by the owner of the venture to oversee the management of the business which includes the management of the material and human resources on his behalf.

Business information is information that holds meaning, value or significance for businesses. Information management practices refer to the processes and tools used to collect, store, organize and share information within an organization. It is the collection, storage, management and maintenance of data and other types of information. It involves the gathering, disseminating, archiving and destruction of information in all its forms. Igwe (2020) describes information management as the collection, organization and maintenance of data, including document, images, knowledge, bases, code and other types of virtual media. Information management is a vital aspect of data driven business that allows the owner to make better decision and achieve business goals and objectives. Utilization of information management in business operations can help the owner of a business to use, protect and store information and to operate more effectively.

Information management is the key to success for any organization. It can help organizations achieve efficient operation by effectively managing information lifecycle. It also helps them avoid security breaches and data loss which could lead to financial loss or other consequences. Effective information management ensures that information is available to the right people at the right time, enabling better decision making and improved productivity. Information management ensures that data and information are collected, stored, processed, and disseminated in a way that supports the organizations objectives. It involves managing data as a valuable asset and applying best practices for data governance, security, and quality to support decision making processes. According to Umar and Umar (2021), the key area of information management in the business environment which small and medium scale enterprises need to adopt includes information generation practice and information processing as the basis for better business decisions and for improved productivity. Information generating practices means all the information created as a result of research and development activities (for example, tangible materials, data, software, research products, and information first produced by the parties in the performance of the statement of work) (Umar & Umar 2021). Information is usually generated through such modes as observation, thought process, deliberation or imagination, experimentation, processing of data, the happening of various events, and so on. Generating information about business is a critical resource for making decision and exercising control over small and medium scale enterprises. Mchombu (2020) found information generating practices as a necessary business strategy required of operators of small and medium scale enterprises for success in business environment. Moorthy (2022) noted that business information practices adopted by business operators to includes toning to business news on radio broadcasts, watching business advisements on television broadcasts, watching business video on YouTube, checking sales invoices, accessing the Internet, checking customer billing statements, reading sales analysis reports and discussing with business colleagues. Cacciolatti, Fearne, and McNeil (2021) noted that small and medium scale enterprises that make good use of business information presents higher probability of growth. Hatega (2017) noted that insufficient access to business information makes small and medium scale enterprises less aware of business opportunities. Enete, Amusa, and Eze (2009) opined that the ability of small and medium scale business operators to generate business information is very essential for the success of business venture. Dalton (2019) contend that managers in small and medium scale enterprises generate business information from the following sources: Personal contact, for example, established entrepreneurs and friends; newspapers; printed sources, for example trade literature, journals and reports; solicitors; mass media such as television and radio; seeking for advisory services from business consultant; frequent visitation of information centers; and sources available on the Internet such as Facebook, Wikipedia, YouTube, LinkedIn, Skype, Twitter blogs, among others. O'Hare (2017) stated that to improve small and medium scale enterprises, managers/owner can generate different information about the market and customers by reading various sources of business information which includes company reports, share price data, profiles on executives, company directories, business statistics, credit ratings, market research reports, country profiles, trade journals and other related information materials and attending business conferences.

Shokane (2013) posits that business managers could generate information through personal sources of information (colleagues and friends); newspapers; printed sources (trade literature, journals and reports); mass media (television and radio); information centers; advisory services and the Interne. However, Igwe noted that many small and medium scale enterprises exist without the knowledge of how to generate good information about the market and customers for their business to thrive. Information processing, according to House and Sigler (2019), refers to the recording and refinement of data to make it more meaningful and useful. Similarly, Okoro (2015) stated that processing information is the refining of data to make it more useful and more understandable. According to Odiari (2018), processing information includes compiling information, categorising information (placing it in categories, such as accounts), sorting information (alphabetically, numerically, by weight, by date, and so on), ranking information (by Naira value, size, ability, and t he like), and other operations that refine information, making it more useful. The author also added that processing may also include formatting the information. Mgbodile (2016) stated that effective processing of information could be determined by considering the following strategies: browsing the internet with the computer; through appropriate utilization of the company's equipment; use of the manual system of information; use of electronic media of information; training and retraining of business operators. World Bank (2015) found that business information processing is one of the major problems of small and medium scale enterprises in Nigeria. It also found that most small and medium scale enterprises in Nigeria do not maintain and practice complete information processing in their business venture. Small and medium-scale business is not the exclusive activity of men. It involves different gender such as men and female. In this study, the first demographic characteristics are gender. It is refers as the physical differences between people who are male, female or intersex. Gender is also defined as the different biological and physiological characteristics of males and females. Turner and Akinremi in Ucha (2021) noted that the gender of owners/operators of small and medium scale enterprise may influences the way one thinks and behaves. Study conducted by Akujo (2019) shows that female makes use of information management more than men in carrying out their business activity. To Akujo, female use more of information channel such as Facebook, Wahsapp and Youtube in sharing business information more than men. This may also be the same with the small and medium scale enterprises in Ebonyi State. Experience in business is a factor that may determine the outcome of this study. Experience refers to the knowledge and skills that one gains through doing something for a period of time. Hornby in Ucha (2021) noted that experiences have influence the way one thinks and behaves. Small and medium-scale business operators have various experiences depending on the years of operation of their businesses. Their years of experience have been organised into two clusters for the purpose of the study. The first cluster is 1–10 years of experience, adjudged by the researcher as lowly experienced, and the second is 11 years and above, adjudged as highly experienced. According to Boden and Nucci (2019), where a business owner has four or more years of experience, the business is more likely to prosper. This may also be connected to the use of information management by small and medium enterprise in Ebonyi State. These views, however, are either theoretical in nature or have not been empirically proven to affects small and medium scale business operator's utilisation of information management practice in Ebonyi State. It is against this background that the researcher empirically determined the modern information management practice adopted by small and medium-scale business enterprises in Ebonyi State.

**Statement of the Problem**

Information is a key element in the success of any business whether small or big. It helps to make decisions, drives innovation and enables businesses to stay ahead of their competitors. There have been ongoing arguments among scholars that business information is the key element in the success of any business whether small or big. Without reliable information, SMEs may have no idea on where it stands in its market, it's financial and sale figure or how to stay ahead of its competitors. In Ebonyi state, SMEs rise and fall within short of their existing. The reasons for this exit have been attributed to lack of information management practice by small and medium scale enterprises managers or owners. There are, however, no empirical evidence to ascertain the actual situation regarding the information management practice in small and medium-scale enterprises in Ebonyi State. This is beacuse the actual situation regarding the information management practice adopted by small and medium-scale enterprises in Ebonyi State is uncertain. It is based on this premise that the researcher is motivated to examine the information management practice adopted by small and medium-scale enterprises in Ebonyi State.

**Purpose of the Study**

The major purpose of this study was to determine the business information management practices adopted by small and medium scale enterprises in Ebonyi State. Specifically, the study sought to:

1. Determine the information generating management practices adopted by small and medium scale enterprises in Ebonyi State.
2. Determine the information processing management practices adopted by small and medium scale enterprises in Ebonyi State.

**Research Questions**

The following research questions were raised to guide the study.

1. What are the information generating management practices adopted by small and medium scale enterprises in Ebonyi State?
2. What are the information processing management practices adopted by small and medium scale enterprises in Ebonyi State?

**Hypotheses**

The following null hypotheses were formulated to guide the study and were tested at 0.05 level of significance.

1. There is no significant difference between male and female operators of small and medium enterprises in the mean ratings of information generating management practices adopted by small and medium enterprises in Ebonyi State.
2. There is no significant difference between small and medium scale enterprises operators in the mean ratings of information processing practices management adopted by small and medium enterprises in Ebonyi state based on their years of experience.

**Methodology**

The study adopted descriptive survey research design. The study was conducted in Ebonyi State. Ebonyi State is one of the five states in the South East Geographical Zone of Nigeria The population of the study is 2,433 SMES whose business is registered with Small and medium enterprise development Agency of Nigeria (SMEDAN). A sample size of 344 SMEs was used for the study. Yaro Yamane formula was used to determine the sample size. The instrument for data collection was structured questionnaire designed by the researcher titled: Information Management Practices adopted by SMEs. The instrument contained 29 items arranged in five clusters with four-point rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree. The instrument was validated by three experts, two from Business Education and one from Science Education Department. The instrument was administered to the sample of 30 SMEs in Enugu State for trial testing. Data collected from them was analyzed using Cronbach Alpha reliability co-efficient. The value obtained in each cluster were cluster 1 (0.83) and 2(0.76), while the entire instrument yielded a reliability index of 0.82. 344 copies of the questionnaire were administered to the respondents with help of four research assistants. However, out of 344 copies of the questionnaire administered only 321 representing 93% was retrieved and used for data analysis while 21 copies were not returned. The collected from the respondents was analyzed using Mean, Standard Deviation and t-test statistic at Alpha level of 0.05 significance. Any items with mean of 2.50 was taking as one of the information management practices adopted by small and medium scale enterprises, while a mean value below 2.50 shows that the respondents disagreed on the item as one of the information management practices adopted by small and medium scale enterprises. The result of hypotheses tested with t-test was accepted when the calculated p-value is greater than the selected level of significance at 0.05 and rejected when the calculated p-value is less than the selected level of significance at 0.05.

**Results**

**Research Questions One**: What are the information generating practices adopted by small and medium scale enterprises in Ebonyi State?

The data providing answers to the above research question are presented in Table 1.

**Table 1: Mean Ratings of Respondents on the Information Generating Practices Adopted by Small and Medium Scale Enterprises**

| S/N | Items | N | Mean | Std. | Decision |
|---|---|---|---|---|---|
| 1 | Checking report of other business enterprises | 321 | 1.96 | 0.63 | Disagree |
| 2 | Toning to business news on radio broadcasts | 321 | 3.44 | 0.64 | Agree |
| 3 | Watching business advisement on television broadcasts | 321 | 3.38 | 0.73 | Agree |
| 4 | Checking daily trade report publication on the Internet | 321 | 1.83 | 0.78 | Disagree |
| 5 | Watching business video on YouTube | 321 | 3.31 | 0.76 | Agree |
| 6 | Sending messages through e-mail | 321 | 1.98 | 0.80 | Disagree |
| 7 | Checking sales invoices record | 321 | 3.38 | 0.77 | Agree |
| 8 | Observing customer's quotation | 321 | 3.35 | 0.76 | Agree |
| 9 | Accessing the Internet | 321 | 3.13 | 0.93 | Agree |
| 10 | Checking customer billing statements | 321 | 3.33 | 0.69 | Agree |
| 11 | Reading sales analysis reports | 321 | 3.32 | 0.69 | Agree |
| 12 | Discussing with business colleagues | 321 | 3.38 | 0.72 | Agree |
| 13 | Conducting market survey | 321 | 3.28 | 0.74 | Agree |
| 14 | Chatting with customers on WahasApp | 321 | 1.81 | 0.78 | Disagree |
| 15 | Checking purchase requisitions | 321 | 2.08 | 0.97 | Disagree |
| 16 | Use of General Ledger | 321 | 3.42 | 0.65 | Agree |
| 17 | Accessing tax information | 321 | 3.52 | 0.63 | Agree |

The results displayed in Table 1 revealed that the small and medium scale business operators' agreed on 12 items (2, 3, 5 7, 8, 9, 10, 11, 12, 13, 16 and 17) with mean scores between 3.13 and 3.52 which are above the cut-off point of 2.50 as the information generating practices adopted by small and medium scale enterprises in Ebonyi State and disagreed with five items (1, 4, 6, 14, and 15). The respondents agreed that the information generating practices adopted by small and medium scale enterprises in Ebonyi State are turning to business news on radio broadcasts, watching business advisement on television broadcasts, watching business video on YouTube, checking sales invoices record, observing customer's quotation, accessing the Internet, checking customer billing statements, reading sales analysis reports, discussing with business colleagues, conducting market survey, use of General Ledger and accessing tax information.

**Research Questions Two**: What are the information processing practices adopted by small and medium scale enterprises operators in Ebonyi State?

The data providing answers to research question two are presented in Table 2.

**Table 2: Mean Ratings of Respondents on the Information Processing Practices Adopted by Small and Medium Scale Enterprises**

| S/N | | N | Mean | Std. | Decision |
|---|---|---|---|---|---|
| 18 | Processing customer's quotation | 321 | 3.41 | 0.78 | Agree |
| 19 | Preparing daily sales report | 321 | 3.36 | 0.71 | Agree |
| 20 | Analyzing daily trade publication | 321 | 1.50 | 0.68 | Disagree |
| 21 | Sorting of correspondences | 321 | 3.40 | 0.61 | Agree |
| 22 | Arranging of documents | 321 | 3.48 | 0.56 | Agree |
| 23 | Reading of documents | 321 | 1.58 | 0.76 | Disagree |
| 24 | Analyzing questionnaire responses from customers | 321 | 3.14 | 0.85 | Agree |
| 25 | Rechecking calculated sale figures | 321 | 3.49 | 0.61 | Agree |
| 26 | Preparing of statistics | 321 | 3.09 | 0.96 | Agree |
| 27 | Writing of invoices/statements | 321 | 3.36 | 0.69 | Agree |
| 28 | Endorsing of correspondences | 321 | 1.43 | 0.60 | Disagree |
| 29 | Recording of stock | 321 | 3.44 | 0.56 | Agree |

Data in Table 2 revealed that items 18, 19, 21, 22, 24, 25, 26, 27 and 28 have mean scores between 3.09 and 3.44 which are above the cut-off point of 2.50 and standard deviations of 1.00, 1.01, 0.99, 0.99, 0.99 and 1.48 respectively. They were items of information processing practices adopted by small and medium scale enterprises operators. On the other hand, items 20, 23, and 28 have mean values of 1.50, 1.58 and 1.43 which are below the cut-off point of 2.50 and were disagree by the small and medium scale business operators. The respondents agreed that processing customer's quotation, preparing daily sales report, sorting of correspondences, arranging of documents, analyzing questionnaire responses from customers, rechecking calculated sale figures, preparing of statistics, writing of invoices/statements and recording of stock are the information processing practices adopted by small and medium scale enterprises in Ebonyi State.

**$H_{01}$:** There is no significant difference in the mean responses of male and female small and medium enterprises operators on information generating management practices adopted by small and medium enterprises in Ebonyi State.

**Table 3: Independent t-test of Mean Ratings of Responses of Male and Female Small and Medium Scale Enterprises operators on Information Generating Management Practices Adopted by small and Medium Scale Enterprises**

| Items | Gender | N | Mean | Std. | Df | t-cal | Alpha | p-val. | Decision |
|---|---|---|---|---|---|---|---|---|---|
| Item1 | Male | 188 | 1.89 | .625 | | | | | |
| | Female | 133 | 2.03 | .644 | 319 | 1.933 | 0.05 | .054 | Not significant |
| Item2 | Male | 188 | 3.46 | .623 | | | | | |
| | Female | 133 | 3.41 | .664 | 319 | .751 | 0.05 | .453 | Not significant |
| Item3 | Male | 188 | 3.45 | .711 | | | | | |
| | Female | 133 | 3.30 | .758 | 319 | 1.827 | 0.05 | .069 | Not significant |
| Item4 | Male | 188 | 1.82 | .811 | | | | | |
| | Female | 133 | 1.85 | .750 | 319 | .367 | 0.05 | .714 | Not significant |
| Item5 | Male | 188 | 3.26 | .781 | | | | | |
| | Female | 133 | 3.36 | .731 | 319 | 1.162 | 0.05 | .246 | Not significant |
| Item6 | Male | 188 | 2.06 | .856 | | | | | |
| | Female | 133 | 1.87 | .707 | 319 | 2.036 | 0.05 | .043 | Significant |
| Item7 | Male | 188 | 3.31 | .828 | | | | | |
| | Female | 133 | 3.47 | .691 | 319 | 1.820 | 0.05 | .070 | Not significant |
| Item8 | Male | 188 | 3.34 | .802 | | | | | |
| | Female | 133 | 3.36 | .712 | 319 | .261 | 0.05 | .794 | Not significant |
| Item9 | Male | 188 | 3.29 | .861 | | | | | |
| | Female | 133 | 2.91 | .992 | 319 | 3.607 | 0.05 | .000 | Significant |
| Item10 | Male | 188 | 3.33 | .700 | | | | | |
| | Female | 133 | 3.33 | .684 | 319 | .041 | 0.05 | .967 | Not significant |
| Item11 | Male | 188 | 3.35 | .734 | | | | | |
| | Female | 133 | 3.27 | .631 | 319 | .927 | 0.05 | .355 | Not significant |
| Item12 | Male | 188 | 3.46 | .696 | | | | | |
| | Female | 133 | 3.26 | .757 | 319 | 2.438 | 0.05 | .015 | Significant |
| Item13 | Male | 188 | 3.32 | .751 | | | | | |
| | Female | 133 | 3.22 | .744 | 319 | 1.229 | 0.05 | .220 | Not significant |
| Item14 | Male | 188 | 1.83 | .813 | | | | | |
| | Female | 133 | 1.78 | .742 | 319 | .598 | 0.05 | .551 | Not significant |
| Item15 | Male | 188 | 2.08 | .943 | | | | | |
| | Female | 133 | 2.09 | 1.02 | 319 | .046 | 0.05 | .963 | Not significant |
| Item16 | Male | 188 | 3.47 | .615 | | | | | |
| | Female | 133 | 3.35 | .709 | 319 | 1.615 | 0.05 | .107 | Not significant |
| Item17 | Male | 188 | 3.54 | .597 | | | | | |
| | Female | 133 | 3.51 | .681 | 319 | .436 | 0.05 | .663 | Not significant |
| | | | | | **319** | **1.240** | **0.05** | **.369** | **Not significant** |

The result of the t-test analyses presented in Table 3 indicated that there is no significant difference in the mean responses of male and female operators of small and medium enterprises on information generating management practices adopted by small and medium enterprises operators. This is because data in Table 3 shows that the p-values for fifteen items (item 1, 2, 3, 4, 5, 7, 8, 10, 11, 13, 14, 15, 16 and 17) ranged from 0.058 - 0.934, which is greater than 0.05. Only three items 6, 9 and 12 had a p-value of .000, 0.043 and 0.015, which is less than 0.05. The grand total of P-value is 0.369 which greater than 0.05., this implies that the null hypothesis that stated that there is no significant difference in the mean responses of male and female operators of small and medium enterprises on information generating management practices adopted by small and medium enterprises in Ebonyi State is not rejected.

**$H0_2$:** There is no significant difference in mean responses of small and medium scale enterprises operators on information processing practices management adopted by small and medium enterprises in Ebonyi state based on their years of experience.

**Table 4: Independent t-test of Mean Ratings of Responses of the Respondents on Information Processing Management Practices Adopted by small and Medium Scale Enterprises Operators Based on Years of Experiences**

| Items | Gender | N | Mean | Std. | Df | t-cal | Alpha | p-val. | Decision |
|---|---|---|---|---|---|---|---|---|---|
| Item18 | 0-10years | 198 | 3.38 | .827 | 319 | .881 | 0.05 | .379 | Not significant |
| | 11years above | 123 | 3.46 | .716 | | | | | |
| Item19 | 0-10years | 198 | 3.38 | .701 | 319 | .778 | 0.05 | .437 | Not significant |
| | 11years above | 123 | 3.32 | .729 | | | | | |
| Item20 | 0-10years | 198 | 1.48 | .688 | 319 | .662 | 0.05 | .509 | Not significant |
| | 11years above | 123 | 1.53 | .668 | | | | | |
| Item21 | 0-10years | 198 | 3.41 | .629 | 319 | .224 | 0.05 | .823 | Not significant |
| | 11years above | 123 | 3.39 | .583 | | | | | |
| Item22 | 0-10years | 198 | 3.49 | .540 | 319 | .486 | 0.05 | .628 | Not significant |
| | 11years above | 123 | 3.46 | .604 | | | | | |
| Item23 | 0-10years | 198 | 1.63 | .805 | 319 | 1.407 | 0.05 | .160 | Not Significant |
| | 11years above | 123 | 1.51 | .705 | | | | | |
| Item24 | 0-10years | 198 | 3.10 | .897 | 319 | .906 | 0.05 | .366 | Not significant |
| | 11years above | 123 | 3.19 | .785 | | | | | |
| Item25 | 0-10years | 198 | 3.55 | .565 | | | | | |
| | 11years above | 123 | 3.39 | .685 | 319 | 2.346 | 0.05 | .020 | Significant |
| Item26 | 0-10years | 198 | 3.07 | .958 | 319 | .536 | 0.05 | .592 | Not Significant |
| | 11years above | 123 | 3.13 | .974 | | | | | |
| Item27 | 0-10years | 198 | 3.38 | .701 | 319 | .633 | 0.05 | .527 | Not significant |
| | 11years above | 123 | 3.33 | .685 | | | | | |
| Item28 | 0-10years | 198 | 1.42 | .615 | 319 | .139 | 0.05 | .890 | Not significant |
| | 11years above | 123 | 1.43 | .602 | | | | | |
| Item29 | 0-10years | 198 | 3.41 | .570 | 319 | 1.052 | 0.05 | .294 | Not Significant |
| | 11years above | 123 | 3.48 | .563 | | | | | |
| | | | | | **319** | **.837** | **0.05** | **.468** | **Not significant** |

Summary of result on Table 4 indicates that eleven (11) out of twelve (12) items have their P- values ranging from 0.160 to 0.890 which are greater than 0.05 indicating no significant difference between small and medium scale enterprises operators on information processing practices management adopted by small and medium enterprises in Ebonyi State based on their years of experience. While only item 25 has P-value of 0.025 which is less than 0.05 indicating a significant difference between small and medium scale enterprises operators on information processing practices management adopted by small and medium scale enterprises operators in Ebonyi State based on their years of experience. The grand P-value 0.468 is greater than 0.05, indicating that the null hypothesis which stated that there is no significant difference in mean responses of small and medium scale enterprises operators on information processing practices management adopted by small and medium enterprises in Ebonyi State based on their years of experience is not rejected.

**Discussion**

The results of the study shows that the small and medium scale enterprises operators agreed that the information generating practices adopted by small and medium scale enterprises in Ebonyi State include toning to business news on radio broadcasts, watching business advisements on television broadcasts, watching business video on YouTube, checking sales invoices, observing customer's quotations, accessing the Internet, checking customer billing statements, reading sales analysis reports, discussing with business colleagues, conducting market surveys, use of general ledger and accessing tax information. These findings are in line with Mchombu (2020) who found information generating practices as a necessary business strategy required of operators of small and medium scale enterprises for success in business environment. The findings of the study is also similar with Moorthy (2022) who found that business information practices adopted by business operators to includes toning to business news on radio broadcasts, watching business advisements on television broadcasts, watching business video on YouTube, checking sales invoices, accessing the Internet, checking customer billing statements, reading sales analysis reports and discussing with business colleagues. On the same note, the finding is supported by Cacciolatti, Fearne, and McNeil (2021) who noted that small and medium scale enterprises that make good use of business information presents higher probability of growth. This finding is in accordance with Hatega (2017) who noted that insufficient access to business information makes small and medium scale enterprises less aware of business opportunities. The findings of the study are also similar with those of Enete, Amusa, and Eze (2009) who opined that the ability of small and medium scale business operators to generate business information is very essential for the success of business venture.

The finding of this study is also in consonance with Dalton (2019) who contend that managers in small and medium scale enterprises generate business information from the following sources: Personal contact, for example, established entrepreneurs and friends; newspapers; printed sources, for example trade literature, journals and reports; solicitors; mass media such as television and radio; seeking for advisory services from business consultant; frequent visitation of information centers; and sources available on the Internet such as Facebook, Wikipedia, YouTube, LinkedIn, Skype, Twitter blogs, among others. The findings is also supported by O'Hare (2017) who stated that to improve small and medium scale enterprises, managers/owner can generate different information about the market and customers by reading various sources of business information which includes company reports, share price data, profiles on executives, company directories, business statistics, credit ratings, market research reports, country profiles, trade journals and other related information materials and attending business conferences. The finding is in accordance with Shokane (2013) who also posits that business managers' could generate information through personal sources of information (colleagues and friends); newspapers; printed sources (trade literature, journals and reports); mass media (television and radio); information centers; advisory services and the Internet. The test of null hypothesis 1 indicated that there was no significant difference in the mean responses of male and female operators of small and medium scale enterprises on information generating management practices adopted by small and medium enterprises in Ebonyi State. The findings of the study contradict the findings of Turner and Akinremi in Ucha (2021) who found that the gender of business owners/operators of small and medium scale business operators influences the way one thinks and behaves.

The findings of this study with respect to the table 2 identified the information processing practices adopted by small and medium scale enterprise in Ebonyi State. The findings of the study indicate that the owners of small and medium scale enterprises agreed that processing customer's quotation, preparing daily sales report, sorting of correspondences, arranging of documents, analyzing questionnaire responses from customers, rechecking calculated sale figures, preparing of statistics, writing of invoices/statements and recording of stock are the information processing practices adopted by small and medium scale enterprises in Ebonyi State. The finding is supported by Mgbodile (2016) who stated that effective processing of information could be determined by considering the following strategies: browsing the internet with the computer; through appropriate utilization of the company's equipment; use of the manual system of information; use of electronic media of information; training and retraining of business operators. Contrarily, World Bank (2015) found that business information processing is one of the major problems of small and medium scale enterprises in Nigeria. It also found that most small and medium scale enterprises in Nigeria do not maintain and practice complete information processing in their business venture. The test of null hypothesis 2 indicated that there was no significant difference in mean responses of small and medium scale business operator on information processing practices management adopted by small and medium enterprises in Ebonyi state based on their years of experience. The findings of the study agree with Boden and Nucci (2019) who found that where a business owner has four or more years of experience, the business is more likely to prosper. Thus, experience might influence business owner's knowledge on the adoption of information management practice.

**Conclusions**

This research focused on the information management practices adopted by small and medium scale enterprises in Ebonyi State. Based on findings of this study, it was concluded that small and medium scale enterprises in Ebonyi State adopt information management practices in carrying out their businesses. Based on the findings of the hypotheses tested, it was concluded that gender, years of experiences and location of small and medium scale operators did not significantly influence the mean responses on information generating management, information processing management, information disseminating management, information storage management and retrieval management practices adopted by small and medium enterprise in Ebonyi State.

**Recommendations**

Based on the findings of this study, it was recommended that:

1. Government agencies and other bodies serving small and medium scale enterprises should set up a module on business information management on its website to enable small and medium scale enterprises owners to generate information for effective management of their business enterprises.
2. Small and medium scale enterprises operators should always read newspapers, magazine, brochures, catalogues, turning to radios and watching televisions in order to be able to generate business information to support their business matters. It is through all these methods that SMEs could be aware of changes in customer needs, sources of supplies and new legislation by government as it affects SMEs and specific businesses.
3. Small and medium scale enterprises operators should adopt the use of computer information processing system in processing their business information for the improvement of information management practices in their business venture.

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# ASSESSMENT OF SOCIAL MEDIA MARKETING AS A USEFUL TOOL FOR BOOSTING ECONOMIC GROWTH IN NIGERIA

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***Abstract***

*The development of mass media, transitioning from traditional to new media, including the convergence of various media forms a mediamorphosis, which refers to the transformation and evolution of media in response to technological advancements and changing societal needs. This phenomenon encompasses how traditional media forms adapt to digital platforms, the impact of social media on communication patterns, and the convergence of various media channels. As technology continues to shape the media landscape, mediamorphosis highlights the dynamic nature of media and the need for constant adaptation to remain relevant and effective in disseminating information and engaging audiences. Social media has been driven by technological advancements and the realization of McLuhan's prophecy of a "global village" fostered by the internet. Social media platforms, facilitating feedback and online advertising, sales promotion, and personal selling, have become integral for business branding. This study assesses the use of social media marketing tools for boosting Nigerian economic growth, focusing on Niger State. Through survey research involving 384 business owners, it was found that while majority use social media, they lack awareness of its potential for business expansion. To address this, the researchers recommend initiatives such as introducing entrepreneurship-focused programs on the state-commercial radio station, Prestige FM 91.7 MHz, sponsored by the government of Niger State, to raise awareness and stimulate entrepreneurship for economic development.*

***Keywords:*** *social media, Social Media Marketing, Small and Medium Enterprises, Economic Development*

## Background to the Study

Social media marketing has been identified as a powerful tool for enhancing economic growth by supporting various aspects of business development. Research has demonstrated that social media interactions, such as referrals and online community discussions, can have a positive impact on marketing outcomes like customer acquisition and sales (Appel et al., 2019). The tourism industry has emphasized the significance of incorporating social media practices in marketing to promote business growth (Hays et al., 2013). Firms can utilize social media data to identify innovation opportunities and improve the innovation process, indicating the potential for social media to drive economic growth by fostering creativity and technological advancements (Li et al., 2020). The influence of social media on economic growth extends beyond individual businesses to broader geopolitical and participatory economic growth contexts. The increased use of social media can lead to participatory economic growth and impact geopolitical dynamics (Kamruzzaman, 2022).

The integration of social media marketing strategies in Small and Medium Enterprises (SMEs) has been recognized as a crucial factor in driving growth and development, particularly in regions like Nigeria (Oyekan, 2022). Social media serves as a connection bridge between SMEs and potential buyers, enabling these businesses to reach a wider audience and expand their market presence (Maiorescu et al., 2020). However, leveraging social media platforms, businesses can enhance customer engagement, boost sales, drive innovation, and ultimately contribute to overall economic development. The advent of social media has revolutionized communication and marketing strategies, offering new opportunities for entrepreneurship and economic growth. In Nigeria, where the economy is striving for development, leveraging social media for marketing purposes has become increasingly crucial.

Despite the widespread use of social media platforms, many business owners in Nigeria, particularly in Niger State, many entrepreneurs do not fully understand the potential benefits of social media marketing for expanding their businesses. This knowledge gap hinders the effective utilization of social media as a tool for entrepreneurship and economic development in the region. This research aims to assess the impact of social media marketing on boosting economic growth in Nigeria, with a focus on Chanchaga local government area, Niger State.

**Objectives of the Study**

The research objectives are to:

1. Evaluate the current level of social media usage among business owners in Chanchaga local government area.
2. Assess the awareness and understanding of social media marketing methods among entrepreneurs in Chanchaga local government area.
3. Propose effective strategy that will enhance awareness and utilization of social media for business growth in Nigeria.

**Research Questions**

1. What is the extent of social media usage among business owners in Chanchaga local government area?
2. To what degree are entrepreneurs in Chanchaga local government area aware of and comprehend various social media marketing?

3. What strategic approaches can be recommended to increase awareness and optimize the utilization of social media for business growth among entrepreneurs in Nigeria?

**Theoretical Framework**

Technological Determinism Theory (TDT) is a concept that posits technology as a driving force in shaping societal structures and human behavior. According to this theory, technological advancements have a deterministic influence on social change and development. TDT suggests that the introduction and adoption of new technologies lead to inevitable consequences that impact various aspects of society (Ugochukwu et al., 2021).

Various research has explored the implications of TDT in different fields, such as educational technology, sociology, and information science. technological determinism influences the acceptance and use of technology, emphasizing the role of technology in shaping user behavior and attitudes (Venkatesh et al., 2016; Williams et al., 2015). Therefore, TDT provides valuable insights into the intricate relationship between technology and society. By understanding the deterministic nature of technology and its impact on social structures, this study has navigated the complexities of technological advancements and their implications for individuals and communities.

**Conceptual Clarifications**

**Social Media**

Kaplan and Haenlein (2010) characterize social media as internet-based applications rooted in the principles and technology of web 2.0, facilitating the creation and exchange of user-generated content. Web 2.0 technologies on the social web enable two-way conversations with consumers, allowing brands to actively listen and respond. Okoro and Santas (2017) defines social media as online tools and services that enable user engagement, content creation, distribution, and information search. The interactive and collaborative nature of these platforms defines their "social" aspect. Social media comprises various online platforms, blogs and social networking sites (Treem et al., 2016), that allow users to create, share, and exchange content. It significantly influences brand equity, consumer behavior, and purchasing decisions (Ahmad et al., 2019).

In a business context, social media is employed for marketing, branding, and reshaping business strategies (Simangunsong & Handoko, 2020). It is essential for businesses to comprehend the reasons for and methods of adopting social media for various purposes (Simangunsong & Handoko, 2020). Furthermore, social media platforms allow individuals to connect with others, communicate in real-time, and engage in various forms of interaction, such as sharing text, images, videos, and links, and also facilitate user-generated content, user participation, and creating a dynamic and interactive online environment.

**SMEs and social media**

Small and Medium Enterprises (SMEs) can significantly benefit from utilizing social media platforms due to their limited resources compared to larger corporations (Ahmad et al., 2019). Social media tools like Facebook are commonly used by SMEs for customer communication, internal collaboration, and support (Sulaiman et al., 2015). Innovative SMEs are more likely to adopt social networking sites such as Facebook, Twitter, and LinkedIn, with firm innovativeness positively linked to Twitter adoption (Siamagka et al., 2015). The COVID-19 pandemic has prompted many SME managers to explore the benefits of social media for their businesses (Effendi et al., 2020). Additionally, social media adoption has been found to positively impact the performance of SMEs, particularly in terms of competitive advantage (Oyewobi et al., 2022).

A considerable percentage of SMEs primarily use Facebook as their main social media tool, with a smaller proportion utilizing other platforms like Twitter, Instagram, and Blogs (Kakumbi & Phiri, 2022) and social media campaign strategies significantly impact the performance of SMEs (Javaid et al., 2023). Social media not only aids in increasing awareness and customer engagement but also facilitates global reach and enhances the public image of SMEs (Jones & Graham, 2018). Hence, the adoption of social media by SMEs is influenced by factors such as limited resources, innovativeness, and the need for effective customer communication. Leveraging social media platforms can lead to improved performance, increased customer engagement, and enhanced brand visibility for SMEs.

**Economic Development and social media in Nigeria**

Economic development involves a complex set of mechanisms that drive growth and prosperity within a society. Governance plays a crucial role in economic development (Azam & Emirullah, 2014). Poverty is a significant concern in economic development, Jäntti et al. (2014) emphasize that there is a relationship between poverty, development, and community economics. Community economic development relies on appropriate business strategies, capacity building, and strong community links for success (Chan, 2006). Mindset has driving economic progress on socio-economic development (Halushka et al., 2022), emphasizing the importance of mindset in driving economic progress.

Economic development in Nigeria is a critical area of focus for policymakers and researchers, aiming to enhance the country's prosperity and well-being. The utilization of social media in Nigeria has been a subject of research, with studies examining its impact on various aspects of society. Okpara et al. (2021) investigate the effectiveness of COVID-19 YouTube animated cartoons on health behavior among social media users in Nigeria, highlighting the potential influence of social media on health-related behaviors. Okafor et al. (2020) discuss the deployment of whistleblowing as an accountability mechanism in Nigeria, emphasizing the role of media and NGOs in promoting transparency and governance. Solomon et al. (2023) analyzes the factors influencing social media adoption among SMEs in developing countries, including Nigeria, shedding light on the challenges and opportunities faced by firms in leveraging social media for growth. The relationship between economic development and social media in Nigeria is multifaceted, with social media playing a significant role in shaping public discourse, activism, and business practices. By leveraging social media effectively, Nigeria can harness its potential for economic growth, social change, and accountability.

**Research Methodology**

This study used quantitative survey to gather data from business owners in Chanchaga Local Government Area, Niger State. A structured questionnaire was administered to assess social media usage patterns, marketing awareness, and perceived benefits and challenges. To effectively capture the views of the public or a specific group as the primary data source in a study, utilizing surveys is a common and recommended approach because of its structured method for collecting data from a large and diverse sample of individuals which is particularly valuable for understanding opinions, experiences, and perspectives within a population (Krosnick, 1999). Survey research is recognized for its ability to provide both quantitative and qualitative data, offering a comprehensive understanding of the subject under investigation (Geyer et al., 2020). By employing standardized questions, surveys maintain consistency in data collection and analysis, enabling researchers to draw reliable conclusions from the gathered information (Kelley, 2003).

**Population of the Study**

This study focuses on entrepreneurs residing in Niger State, Nigeria. The total population of Niger State, according to the 2006 National Housing and Population Census, was recorded as 3,950,249 individuals. Chanchaga Local Government Area (LGA) was purposively chosen as the sample area due to its location in the capital city, Minna Municipal, where residents are more likely to possess the necessary resources for utilizing social media, such as smartphones, internet access, electricity, and literacy levels. The total population of Chanchaga LGA, based on records from the National Housing and Population Commission, was 201,429 in 2006.

However, since the latest population census in Nigeria was conducted in 2006, efforts to conduct subsequent censuses in 2016 and 2023 were unsuccessful. Consequently, the study had to rely on projected and estimated population figures. According to Ugochukwu et al. (2021), using projected population figures allows researchers to generate findings that are more generalizable and transferable. The projected population growth rate for Niger State was calculated to be 3.4% annually over a thirteen-year period which is obsolete. As there were no population censuses in 2016 and 2023, the percentage rise was extrapolated over an 18-year period to estimate the population as of 2024.
The projected population was calculated thus:
$P (1+r) n / 100$

Where;
P = Population of the Base year.

1 = Population Constant.
r = Annual population growth rate. (3.4%) as projected by NPC (NSBS, 2012).
n = Expected number of years. (18 years: 2006 - 2024).

Therefore;
201, 429 (1 + 3.4) 18 / 100
201,429 (4.4) 18 / 100
15,953,176.8 / 100
159,531.76
= 159,532 (approx.) and this formed the population of the study.

**Sample Size of the Study**

Sample size determination is a crucial aspect of research design, ensuring that studies have adequate statistical power to draw meaningful conclusions. The use of online calculators for sample size estimation has been emphasized in various studies. Akoğlu (2022) developed an online calculator to aid researchers in estimating sample sizes for diagnostic accuracy studies, providing a convenient and efficient method for determining the required sample sizes for their studies. Similarly, Oyewobi (2013) examined the impact of public service motivation on job satisfaction and organizational commitment of Quantity Surveyors in the Nigerian public service using an Australian online research calculator for sample size determination. These instances underscore the opportunity for researchers to leverage Australian online research calculator provided by the Australian Bureau of Statistics for sample size determination, thereby strengthening the methodological rigor and validity of a research. Therefore, the sample size for this study was determined using Australian Calculator as depicted in Figure 1.

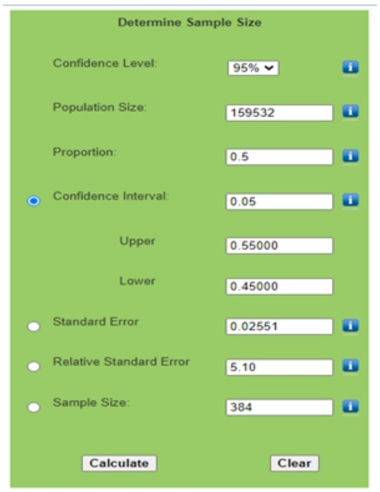


**Figure 1:** Sample Size calculation

Figure 1 depicts the sample size for this study, the calculations were based on a confidence level of 95%, a precision level of 0.05, and an estimated variance (proportion) of 0.5, as recommended by the National Bureau of Statistics (Uguchukwu et al., 2021).

This calculator enables the researchers to compute the required sample size, standard error, and relative standard error. The study sample size was arrived at 384.

**Sampling Technique**

The researchers, have reduced the population to a manageable size, utilized purposive sampling and distributed questionnaires to 384 business owners in Chanchaga Local Government in Niger State, Nigeria and ensured participation was voluntary and convenient by only approaching respondents who were readily available and less busy during questionnaire distribution, thus minimizing the risk of lost questionnaires.

**Data Collection**

The researchers utilized a structured questionnaire with close-ended research questions as the primary tool for data collection. Close-ended questions were chosen to minimize the influence of extraneous variables. The questionnaire consisted of two sections: Section A focused on respondents' socio-demographic features, while Section B contained 15 research questions on thematic issues. Respondents were provided with a range of alternative options to choose from. To ensure a 100% return rate, all 384 copies of the questionnaire were distributed face-to-face in the purposively selected Local Government Area (Chanchaga), and respondents were asked to fill and return the questionnaires at the same point of distribution.

**Research Analysis**

Data analysis was conducted using statistical tables and simple percentages. Table 1 depicted the evaluation result for the current level of social media usage among business owners in Chanchaga Local Government Area, Niger State, Table 2 presents the assessment on awareness and understanding of social media marketing methods among entrepreneurs in the region and Table 3 shows the assessment on effective strategies that could enhance awareness and utilization of social media for business growth.

| S/N | Items | SA | A | D | SD | U | Total |
|---|---|---|---|---|---|---|---|
| 1 | Are you aware of social media platforms? | 277<br>72% | 107<br>28% | 0<br>0% | 0<br>0% | 0<br>0% | 384<br>100% |
| 2 | Do you have any social media platform like Facebook, Twitter, and Instagram, installed on your phone? | 107<br>28% | 240<br>62% | 8<br>2% | 27<br>7% | 2<br>1% | 384<br>100% |
| 3 | Is Facebook your favourite social media platform? | 127<br>33% | 120<br>31% | 91<br>24% | 45<br>12% | 1<br>0% | 384<br>100% |
| 4 | Do you spend four (4) hours or more on social media platforms daily? | 127<br>33% | 160<br>42% | 46<br>12% | 48<br>12% | 3<br>1% | 384<br>100% |
| 5 | Do you use social media platforms effectively for social interactions? | 147<br>38% | 167<br>43% | 64<br>17% | 6<br>2% | 0<br>0% | 384<br>100% |
| 6 | Do you use social media platforms effectively for promoting your business or services? | 49<br>13% | 52<br>14% | 119<br>31% | 164<br>43% | 0<br>0% | 384<br>100% |

Table 2 analysis reflects varying sentiments regarding social media marketing among respondents in Niger State. A majority (54%) strongly agree and 32% agree that social media marketing is a valuable tool for promoting businesses, while 6% disagree and an additional 6% strongly disagree. When it comes to actively seeking information or training on social media marketing strategies, only 4% strongly agree, 9% agree, 52% disagree, and 35% strongly disagree, with no respondents being undecided. Moreover, opinions are divided on whether social media marketing can positively impact business growth and visibility, with 35% strongly agreeing, 32% agreeing, 23% disagreeing, and 10% strongly disagreeing, while 1% remain undecided. Similarly, while 53% strongly agree and 32% agree that social media marketing can effectively target potential customers, 9% disagree, 5% strongly disagree, and 1% are undecided. Additionally, respondents express mixed views on their ability to apply social media marketing strategies effectively to enhance business growth, with 17% strongly agreeing, 24% agreeing, 33% disagreeing, and 25% strongly disagreeing, while none are undecided. Furthermore, 13% strongly agree and 14% agree that investing time and resources into social media marketing would yield positive results, but 31% disagree and 43% strongly disagree. However, 43% strongly agree and 38% agree to participating in workshops or training sessions focused on improving social media marketing skills, whereas 10% disagree, 9% strongly disagree, and none are undecided. Lastly, 49% strongly agree and 35% agree that integrating social media into their business strategy is essential for staying competitive in the current market, while 8% disagree, 8% strongly disagree, and 0% are undecided.

**Table 3: Assessment on effective strategies that could enhance awareness and utilization of social media for business growth**.

| S/N | Items | SA | A | D | SD | U | Total |
|---|---|---|---|---|---|---|---|
| 1 | Increase in awareness and utilization of social media would positively impact your businesses? | 205<br>53% | 121<br>32% | 33<br>9% | 21<br>5% | 4<br>1% | 384<br>100% |
| 2 | A well -implemented social media strategy could contribute to the growth of businesses in Chanchaga local government area? | 189<br>49% | 134<br>35% | 30<br>8% | 30<br>8% | 1<br>0% | 384<br>100% |
| 3 | Government or community organizations should support programs aimed at enhancing social media usage for business growth? | 107<br>28% | 240<br>62% | 8<br>2% | 27<br>7% | 2<br>1% | 384<br>100% |
| 4 | Entrepreneurs in Niger State, should allocate resources towards enhancing their social media presence for long -term growth? | 147<br>38% | 167<br>43% | 64<br>17% | 6<br>2% | 0<br>0% | 384<br>100% |

Table 3 data illustrates varying perspectives on the impact and importance of social media for businesses in Chanchaga local government area and Niger State overall. A majority (53%) strongly agree and 32% agree that an increase in awareness and utilization of social media would positively impact their businesses, while 9% disagree and 5% strongly disagree, with 1% undecided. Similarly, regarding the potential contribution of a well-implemented social media strategy to business growth in Chanchaga local government area, 49% strongly agree and 35% agree, with 8% disagreeing, 8% strongly disagreeing, and 0% undecided. Furthermore, opinions are divided on whether government or community organizations should support programs aimed at enhancing social media usage for business growth, with 28% strongly agreeing and 62% agreeing, while 2% disagree, 7% strongly disagree, and 1% are undecided. Lastly, entrepreneurs' perspectives on allocating resources towards enhancing their social media presence for long-term growth are mixed, with 38% strongly agreeing, 43% agreeing, 17% disagreeing, 2% strongly disagreeing, and 0% undecided.

**Research Findings**

What is the extent of social media usage among business owners in Chanchaga local government area?

1. Majority of the respondents admitted that they are aware of social media platforms.
2. A significant majority of respondents agreed to having social media platforms installed on their phones.
3. Significance number of respondents agreed to using Facebook as their preferred social media platform.
4. A considerable portion of respondents agreed that they spend four or more hours on social media daily.
5. Respondents strongly agreed they use social media effectively for social interactions.
6. A notable proportion of respondents disagreed that they use social media effectively for business or services promotion.

To what degree are entrepreneurs in Chanchaga local government area aware of and comprehend various social media marketing?

1. Respondents in Niger State overwhelmingly agree that social media marketing is a valuable tool for promoting businesses.
2. Few respondents actively seek information or training on social media marketing strategies.
3. Majority of the respondents believe that social media marketing positively impacts business growth and visibility.
4. A significant portion of respondents agree that social media marketing can effectively target potential customers.
5. A notable proportion of respondents can't apply social media marketing strategies effectively to enhance business growth.
6. Few respondents believe that investing time and resources into social media marketing would yield positive results.
7. There is considerable interest among respondents in participating in workshops or training sessions focused on improving social media marketing skills.
8. Majority of the respondents believe that integrating social media into their business strategy is essential for staying competitive in the current market.

What strategic approaches can be recommended to increase awareness and optimize the utilization of social media for business growth among entrepreneurs in Nigeria?

i. There is a strong agreement among respondents that increasing awareness and utilization of social media would positively impact their businesses.
ii. Respondents strongly believe that a well-implemented social media strategy could contribute to business growth in Chanchaga local government area.
iii. There is significant support for the idea that government or community organizations should support programs aimed at enhancing social media usage for business growth.
iv. Perspectives among entrepreneurs regarding allocating resources towards enhancing their social media presence for long-term growth are varied but generally positive.

**Conclusion**

From the findings presented, it's evident that while there is a notable level of awareness and utilization of social media among business owners in Chanchaga local government area, there are also significant weaknesses in their comprehension and effective utilization of social media marketing strategies. Despite the majority being aware of social media platforms and having them installed on their phones, a notable proportion still struggle to effectively utilize them for business promotion, particularly in terms of targeting potential customers and enhancing business growth. Additionally, while there is considerable interest in participating in workshops or training sessions to improve social media marketing skills, the findings indicate a lack of proactive efforts among respondents to seek information or training on social media marketing strategies.

Furthermore, the disparity in perspectives regarding the effectiveness of social media marketing strategies highlights the need for comprehensive educational programs and support systems to bridge the knowledge gap among entrepreneurs in Chanchaga local government area. In conclusion, to optimize the utilization of social media for business growth in Nigeria, strategic approaches should focus on addressing these weaknesses through targeted educational initiatives, fostering partnerships for support, and promoting digital literacy and skill development specific to social media marketing.

**Recommendations**

The researchers recommend the following:

i. Introduce entrepreneurship-oriented programs on local media platforms.
ii. Focus on bridging the knowledge gap regarding the full potential of social media marketing methods.
iii. Promote economic development through enhanced entrepreneurship by leveraging social media effectively.
iv. Initiate sensitization programs for entrepreneurship by the government MDAs in Niger State is necessary to boost the state's economy.
v. Lastly, Niger State government needs to strengthen entrepreneurship-based programs airing on its two major radio stations, Badeggi, and Prestige FM.

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# IMPLEMENTATION OF PHYSICS RESEARCH OUTCOME: PANACEA FOR RESUSCITATING THE NIGERIAN DWINDLING ECONOMY

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***Abstract***

*This paper discusses the implementation of physics research outcomes for the resuscitation of the Nigerian dwindling economy in all spheres, spur growth, and produce highly skilled manpower that can lead and sustain the economic prosperity the nation desires. To objectively perform this task, the researchers compared the practices of two advanced countries, United States of America and Switzerland with the practices in Nigeria, using descriptive cross-sectional study/review of the three different climes. The results show a wide range of research funding / implementation gap between the Western world and Nigeria. Findings also revealed that while almost every physics research outcome is being funded and implemented by different agencies in the two advanced countries, close to nothing is being funded let alone implemented in the Nigerian State. This review therefore recommended a pragmatic viewpoint to the funding of physics research results and the implementation of research findings for the development of Nigeria's economic.*

***Keywords**: Physics research, dwindling economy, funding, resuscitating.*

**Background to the Study**

There is no denying that globally, all scientists work together to address the issues plaguing humanity across a number of economic sectors via scientific advancements, the development of new technologies, and creative applications of state-of-the-art research knowledge which have been affirmed as germane tools for driving success in our competitive global economy. As a result of this, one of the most important performance indicators of a nation's potential economic advantages for bringing about development at the national and international levels is the strength of its venture into research and development (Heyard & Hottenrott, 2021). This, not withstanding, must include the collaborative effort of both the public and private sectors. This is based on the fact that developmental drive is the collective responsibility of all.

Taking a cue from how advanced countries employed research outcomes in boosting their economies, there has been a strong clarion call for governments of underdeveloped and developing countries to, as a matter of urgency, separate politics from education and sincerely fund relevant university research as a tool to encourage local creativity, maximize wealth and bring about prosperity (Fleming *et al.*, 2019; Bloch & Sorensen, 2015; Sarkies *et al.*, 2017; Omosule, 2018, Poege, *et al.*, 2019). This is due to the fact that pertinent scientific research outcomes produced by Western institutions have been adjudged to have a track record of being highly influential in the majority of these knowledge-based economies (Institute of Physics, 2017). A good example is found in (Organisation for Economic Cooperation and Development [OECD], 2019) and (Institute of Physics Report [IOP], 2017) where studies have indicated that more than forty percent of jobs in the United Kingdom (UK) industrial sector are not just related to physics, but created as products of Physics Research.

In order to buttress the preceding claim, findings of numerous studies on physics education in developed nations, for example, have produced amazing accomplishments when put into practice (Bowe, 2016; IOP, 2017 & IOP Report, 2017). Using this as a template to foster economic growth and increase their Gross Domestic Products ( GDPs ), Omosule (2018) submitted that developing African nations are expected to adopt the method of adequate funding and implementing university research and other research organisations within their locality to advance their course and move a step further by adding to the global body of knowledge, the relevant indigenous creativity and / or innovations that are necessary to better the lots of humanity the world over. This becomes imperative because, in the majority of developed nations with significant increases in research and development expenditures, the viability of this boosting their economies have been demonstrated and celebrated without a shadow of doubt. For instance, Bloch & Sorensen, (2018), noted that "over the previous 25 years, the average OECD country's GDP share of research and development climbed from 1.6% in 1986 to 2.2% in 2011" (pp. 2 – 3). The study also found that in post-secondary education, it has nearly quadrupled from 0.31% to 0.57% as a percentage of GDP over that time (pp. 4 – 6).

As a rider to the above, our review highlights the need for a result-driven Physics research funding and implementation, in order to explore the rich potentials of scholars in the Nigerian higher institutions of learning and implement the outcome of their research endeavours for optimal performance of the nation's economic system. The following questions are instrumental in any drive for the advancement of any economy. Is there accessible research funding? Is research thoroughly carried out, whether or not there are accessible research funding? How does non-implementation of self-sponsored research outcome affect critical scientific research? A painstaking examination and implementation of each of the questions above is instrumental in the development of any economy the world over.

After examining the international dimensions to research funding and implementation, this paper provides a mind-blowing difference in the average number of quality research funding and implementation between the two advanced countries and the developing nation, Nigeria. Our focus is to objectively unravel the opportunities inherent in sincerely funding and implementing scientific research in Nigeria. For example, funding and implementation of university research outcome should be based on each research institution's capacity to proffer practical solutions to the problems bedeviling each sector of the economy. This will further serve as encouragement to all researchers of the country, while other research bodies are expected to take a cue by becoming productive and researching to rescue their immediate environment from future economic challenges.

Thereafter, we explored the rationale behind adequate research funding in the Western countries and came up with four interrelated goals in their epoch moves: providing accessible fund for meaningful research encourages mass research outcome; implementation of relevant individual research outcome gives room for a sizable amount of options to boost the economy; implementation of research outcome unravels talents and promotes scientific innovations; and building and funding innovative scientists/researchers leads to creativity and new inventions. After critically examining these rationales, we presented a more pragmatic view of potential gains inherent in implementing university research outcome for the Nigerian economic development. The paper concludes by enumerating the implications of implementing scientific research outcome to resuscitating the current dwindling Nigerian economy and future economic/scientific challenges that may later come our way as a nation.

**Research Agencies/Implementation Levels in US, Switzerland and Nigeria**

The process of putting a particular intervention into action within a system or organization is known as implementation. To say the least, several calls have been made in support of the use of research outcome by African governments to formulate policy and give their economies a boost (Usmeldi, 2018; Wilson et al., 2015; Bao & Koenig, 2019; and Science, 2016). This is because, quite a number of Western nations with productive education and buoyant economies have been identified with proper funding and implementation of university research findings. For instance, the United States of America that is having the highest number of public research funding departments and implementation level has been known to maintain stable economy with reasonable GDPs for the past 5 decades. Among the public research funding departments/agencies in the United States of America (USA) include but are not limited to: United States Agency for International Development (USAID); United States Department of Education (ED); United States Department of Energy (DOE); Environmental Protection Agency (EPA); National Aeronautics and Space Administration (NASA); and the National Science Foundation (NSF) to mention but a few. In the same vein, Switzerland, a country with 3.9% of Nigerian population (worldometers.info) can boast of research funding agencies like Universal Postal Union (UPU); World Health Organisation (WHO); World Intellectual Property Organisation (WIPO); World Meteorological

Organisation (WMO); Optimus Foundations (UBS); C&A Foundation - Laudes Foundation; Human Dignity Foundation; Jacobs Foundation; MAVA Foundation; Novartis Foundation; and OAK Foundation to mention but a few. Drawing from the above, one would expect that the Nigerian nation, with its teeming population of 227,149,302 according to world meters, would parade quite a mouthful of research funding departments/agencies. However, it is pathetic to know that the Nigerian nation only parades one research funding agency in the name of Tertiary Education Trust Fund (TETFUND), (tetfund.unn.edu.ng). This TETFUND intervention was designed to give Nigerian scholars or researchers per se, the opportunity to look inward and locally generate practicable results that will put the nation in an enviable position within the competitive global economy. Howbeit, its focus has been a bit shifted politically as it has been subdivided into two arms: while one arm's research award is dedicated to the National Research Fund (NRF); the other is saddled with Institution Based Research (IBR).

**Impact of Physics Research Funding/Implementation to Global Economy**

Clearly, the best way to capitalise on the economic potential a nation desires in line with several kinds of discoveries is to fund and implement physics research, or related initiatives that directly aim to develop new technologies or advance ones that already exist. The design of novel materials with desirable qualities such as Magnetic Resonance Imaging, MRI is based on research in physics. The cost of standard resistors, dynamic elements like capacitors, solar power, rechargeable cells, solar televisions, and low energy-consuming pressing irons in countries like China, North Korea, US, and Switzerland have all decreased as a result of this research, which is essential for the switch to sustainable energy sources. Physics knowledge has aided in the development of novel production and analysis methods in multidisciplinary research, which has advanced the fields of nanotechnology and space research (Murray & Treanor, 2021; OECD, 2017).

In addition to this, another justification for maintaining and implementing Physics Research has to do with cutting-edge technologies, especially ones that flow tangentially from basic physics studies whose goal is to satiate universal curiosity. Take, for instance, the 1980s global data sharing requirement from the European Organisation for Nuclear Research's (CERN) high-energy particle accelerators. This issue was solved in a way that directly influenced the development of the popular World Wide Web which later metamorphosed into today's digital revolution a few decades later. With the help of the aforementioned examples, one could argue that research with direct applications is simple to defend; yet there are philosophical and economic justifications for investing in physics even in cases when the payoff is not immediately apparent. The rationale is that research programs in physics produce the technical labor force that the competitive digital economy of today requires.

In spite of the huge gap between the attention the Nigerian Physics/Physics Education researchers receive from their Government as compared to what their counterparts in the Western world enjoy, they still, on daily basis, produce several research outcome whether in the fear of publish or perish syndrome of the university system or in the quest for scholars to contribute their quota to the global body of knowledge in this present atomic age of speed. However, what is most pathetic to say the least, is the failure of the government of Nigeria to put into practice, several Physics education research outcome that are capable of changing the narratives of the nation's fluctuating and put her economy in the right stead in our collective bid to switch from consuming nation to production nation.

## Results

***Table 1*: Share of International / Foreign Students Attracted by Well-Funded Educational Research**

| Category of Education | Switzerland | OECD Average | EU 23 Average | US. | Nig. |
|---|---|---|---|---|---|
| | 2017 | | | | ** |
| Bachelor's or Equivalent | 10% | 4% | 7% | 1.3% | 0.16 |
| Master's or Equivalent | 29% | 13% | 13% | 2.6% | ** |
| Doctoral or Equivalent | 55% | 22% | 22% | 1.6% | ** |
| **All Tertiary Levels of Education** | **18%** | **6%** | **9%** | **5.5%** | **0.16%** |

*NB: ** Not Available*

***Table 2.:* Employment Rate by Educational Attainment**

| Category | Switzerland | OECD Average | EU 23 Average | US. | Nig. |
|---|---|---|---|---|---|
| 2018 | | | | | |
| Short-Cycle Tertiary | *** | 82% | 82% | 73% | ** |
| Bachelor's or Equivalent | 88% | 84% | 84% | 78% | ** |
| Master's or Equivalent | 88% | 88% | 88% | 83% | ** |
| Doctoral or Equivalent | 92% | 92% | 93% | 83% | ** |
| All Tertiary Levels of Education | 89% | 85% | 86% | 78% | ** |

*NB: ** Not Available*

***Table 3:* Employment, Unemployment and Inactivity Rates of 25-34-Year-Oldswith Upper Secondary, Post-Secondary and Non-tertiary Education**

| Category | Switzerland 2018 | OECD Ave. (2018) | EU 23 Average (2018) | US. | Nig. |
|---|---|---|---|---|---|
| Employment Rate | 86% | 78% | 79% | 78% | ** |
| Unemployment Rate | 5% | 7% | 8% | 6% | ** |
| Inactivity Rate | 10% | 16% | 14% | 12% | ** |

*NB: ** NotAvailable*

*Table 4:* **Accessible Research Agencies in US, Switzerland and Nigeria**

| Category | US | Switzerland | Nig. | Total | Distribution by Countries |
|---|---|---|---|---|---|
| **Public** | 43 | 13 | 4 | 60 | **US (71.7%): Swiss (21.7%): Nig. (6.60%)** |
| **Private** | 38 | 9 | ** | 47 | **US (80.9%): Swiss (19.1%): Nig. (0.00%)** |
| **Total** | **81** | **22** | **4** | **107** | **US (75.7%): Swiss (20.6%): Nig. (3.70%)** |
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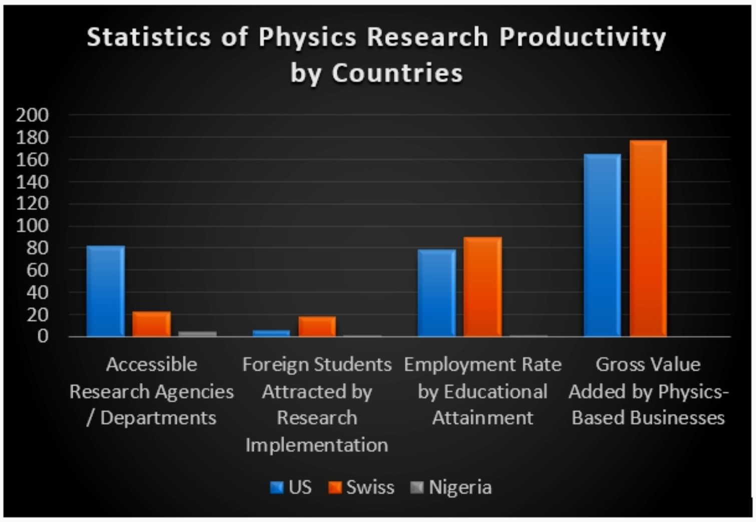


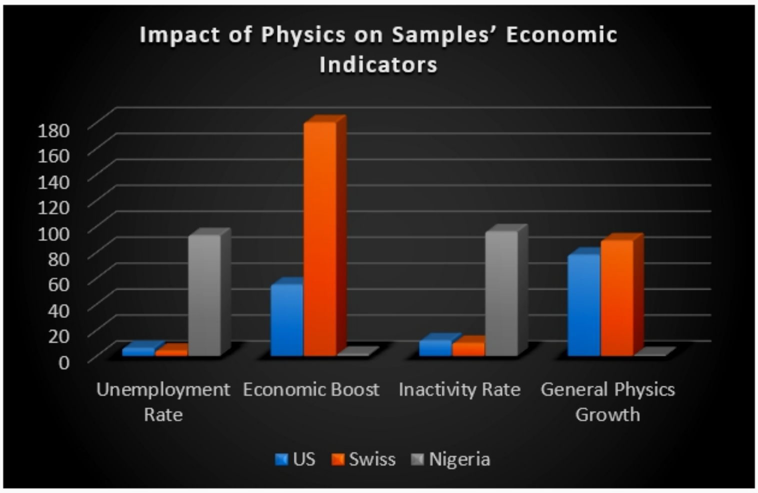


**Implementation Levels**

| Countries | Average Physics Research Implementation |
|---|---|
| **United States** | **11 %** |
| **Switzerland** | **18 %** |
| **Nigeria** | ******** |

*NB: **** Not Available*

**Discussion**

There's no gainsaying the fact that in research and development, the amount of funding determines the level of implementation. This is because, no development-driven government or private organization / agency will continue to invest in research that would not be put to use, whether directly or indirectly. As portrayed in table 4.0, the United States of America with a population of 335,893,238 has 73% of its attention dedicated to research and development compared to Switzerland whose population is put at 8,796,669 and dedicating 24% to research while Nigeria, with a population of 227,149,302 gives less than 3% of its attention to issues bothering around research and development. This is found in (Alagbe, 2022) who submitted that science research projects in Nigeria are not truly and objectively funded by any reputable research council.

Apart from the TETFUND, which lacks explicit guidelines guiding research in Nigerian universities, other research institutes established by the Federal Government has a designated area of research focus. Examples of such are the Nigerian Institute for Oil Palm Research (NIFOR); Nigerian Institute for Rubber Research (NIRR), the Nigerian Institute for Social and Economic Research (NISER). Looking at the above names, it readily comes to mind for one to conclude that each of these institutes already has a specific set of researchers they look forward to. With the above state of research focus, one is right to claim that the attention given to individual Physicist's attempt at proffering practical solutions to Nigerian economic challenges through several physics education researches is close to nothing before the Federal Government of Nigeria, which is the single body funding research in this part of the world.

This is further reflected in table 4.0 where a woeful 0.04% of Nigerian population is seen to have access to research funding as compared to 27.3% Swiss population. In the same vein, table 1.0 which describes the number of foreign / International students by educational research in Switzerland also attests to this. In the table, the number of undergraduates, master's and doctoral students attracted by educational research is seen to double the average number attracted by the entire European Union in 2017. In the same vein, the United States, with 5.5% international students numbering 1,094,792 according to Washington DC, 2018 contributed $44.7 billion USD to the nation's economy. This is compared to Nigerian setting where foreign / International students to local students' ratio is put at 1 : 610; a meager percentage of 0.16. This conforms to the findings of Abolade, (2019) where Nigeria has been found to perform woefully on the internalization index.

In August 2019, the nation's tertiary institutions committee under the leadership of the immediate past INEC boss, Professor Attahiru Jega lamented that out of 194 institutions surveyed, Nigeria can only boast of 1,856 foreign students out of a total of 1,132,795 students in enrollment. In addition to this, the survey submitted that in Nigerian universities, polytechnics, and colleges of education, the percentage of international students is 0.18 percent, 0.29 percent, and 0.04 percent, respectively. Succinctly put, this implies that far fewer international students service the Nigerian economy with their country's currencies, when compared to the mass exodus of Nigerian citizens who daily travel abroad in search of well-funded academic / industrial research. To further corroborate this, Alagbe (2022) in his study of the Nigeria Market Motivations Report noted that out of every ten Nigerian student, nine are currently seeking to completely quit schooling in their home country for a better school where research is funded, and its outcome is being implemented abroad.

**Conclusion**

From the review, it was observed that effective implementation of Physics research outcome is key to the growth and development of any nation's economy. It is noted that in order for the scholars and average citizens of a country to develop positive perception and venture into mind-blowing research, it is imperative for the Nigerian government to establish an objective research institute in every sector of the country's economy. It is also observed that the degree of research implementation will not just bring about satisfaction but also encourage an average Nigerian scholar to venture into more creative scientific research which will help to place the Nigerian economy in an enviable position within the comity of all nations. This is observed in the attitudes of Nigerian scholars who continue to venture into various scientific research in spite of the close to zero motivation on the part of their government. Thus, it is concluded that effective funding and implementation of Physics research outcome is key to rescuing our nation Nigeria from this present economic quagmire.

**Recommendations**

Some of the recommendations derived from the review include:

- **i.** The need to assemble or compile all physics/physics education research outcome for immediate implementation.
- **ii**. The need for the establishment of a separate Science/Science Education Research department at the Federal and State levels.
- **iii**. The need to as a matter of urgency, stop all importations of Physics-derived equipment/appliances and saddle the Nigerian physicists/physics education experts with the responsibility of locally manufacturing same with immediate alacrity.
- **iv.** The need to engage only qualified science/science education experts in the nation's Ministries of education, science and technology.
- **V.** The need to engage only qualified science/science education experts in the leadership boards of the nation's/state's department of science/science education research.
- **Vi**. It is essential for every physics/physics education department to as a matter of urgency, venture into designing, building, producing and manufacturing of scientific components, equipment, tools and devices.

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# NEED TO RE-EXAMINE THE CURRICULUM OF TEACHER EDUCATION IN NIGERIA: A PANACEA TO NATIONAL DEVELOPMENT

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***Abstract***

*The Nigerian education system plays a pivotal role in shaping the nation's development trajectory. Amidst this backdrop, a critical factor is the teacher education curriculum, which serves as the bedrock for producing competent educators. This study delves into the imperative of re-examining the teacher education curriculum in Nigeria as a potential panacea for fostering national development. The research explores the existing teacher education framework and highlights its strengths and weaknesses in aligning with contemporary national development demands. It addresses the need for pedagogical evolution to address changing educational landscapes and societal challenges. By incorporating modern teaching methodologies, technology integration, and practical classroom exposure, the curriculum can better equip teachers to nurture innovative and critical thinking skills among students. Furthermore, the study emphasizes the significance of contextual relevance in curriculum design. A curriculum tailored to Nigeria's cultural, economic, and social dynamics can enhance the production of educators who are not only academically proficient but also culturally sensitive and community oriented. In conclusion, this research underscores the urgency of re-evaluating the teacher education curriculum in Nigeria to bridge the gap between education and national development goals. A holistic reform, driven by collaboration among educational stakeholders, policymakers, and practitioners, is essential to cultivate a generation of educators capable of steering Nigeria towards sustainable development.*

***Keywords****: Teacher education curriculum, Nigeria, National Development, Re-Examination*

## Background to the Study

In the pursuit of national development, the role of education, particularly teacher education, cannot be overstated. Nigeria, like many other nations, faces significant challenges in achieving sustainable development goals, including economic growth, social equity, and technological advancement. The quality of education and the effectiveness of teacher training programs play a crucial role in addressing these challenges and fostering national development. Therefore, there is a pressing need for a re-examination of the teacher education curriculum in Nigeria to ensure that it aligns with the demands of the 21st-century knowledge economy and contributes effectively to national development.

The current landscape of teacher education in Nigeria is characterized by various shortcomings and inadequacies that hinder its ability to produce competent and innovative educators. For instance, there is a disconnect between the theoretical knowledge imparted in teacher training programs and the practical skills required for effective teaching in real-world classrooms (Obiakor & Akpa, 2021). Additionally, there is a lack of emphasis on critical thinking, problem-solving, and creativity in the curriculum, which are essential competencies for addressing the complex challenges of contemporary society (Adeyemi & Oyebamiji, 2020). Furthermore, the rapid pace of technological advancement and globalization has transformed the nature of education and the demands placed on teachers. In today's digital age, educators must be equipped with the skills and knowledge to integrate technology into their teaching practices effectively (Ofoegbu & Njoku, 2020). However, the current teacher education curriculum in Nigeria often fails to adequately prepare teachers for the challenges and opportunities presented by technology-enabled learning environments. Moreover, the socio-economic and cultural diversity of Nigeria's population necessitates a more inclusive and culturally responsive approach to teacher education. Many educators lack the cultural competence and sensitivity needed to work effectively with diverse student populations, resulting in inequities in educational outcomes (Owoseni & Olugbara, 2021). Therefore, there is a need to re-examine the curriculum to ensure that it addresses issues of diversity, equity, and inclusion in education.

In light of these challenges, a re-examination of the teacher education curriculum in Nigeria is imperative to address the evolving needs of the education sector and contribute to national development. Such a re-examination should involve a comprehensive review of the existing curriculum, with a focus on identifying gaps, integrating new pedagogical approaches, and aligning with global best practices in teacher education (Ugwuanyi & Nwankwo, 2021). Furthermore, there is a need to engage stakeholders from across the education sector, including policymakers, educators, students, parents, and community members, in the curriculum review process. By incorporating diverse perspectives and expertise, the re-examination of the teacher education curriculum can ensure its relevance, effectiveness, and sustainability in addressing the challenges of national development (Ezeudu & Ibe, 2020). The re-examination of the teacher education curriculum in Nigeria is essential for advancing national development goals and ensuring the quality and relevance of education in the 21st century. By addressing the shortcomings of the current curriculum and embracing innovation, inclusivity, and cultural responsiveness, Nigeria can build a more robust and equitable education system that empowers teachers and students to thrive in an ever-changing world.

**History of Teacher Education Curriculum in Nigeria**

The history of teacher education curriculum in Nigeria is a story of evolution and adaptation to the changing needs and priorities of the education sector. Since gaining independence in 1960, Nigeria has recognized the critical role of education in national development and has made significant efforts to improve the quality of teacher training programs. However, the journey towards developing a robust and effective teacher education curriculum has been marked by various challenges and reforms.

During the colonial era, teacher education in Nigeria was primarily focused on training indigenous teachers to serve the needs of the colonial administration. The curriculum at that time was heavily influenced by British educational policies and emphasized the transmission of basic literacy and numeracy skills, as well as Christian religious instruction (Obanya, 2010). The training of teachers was largely conducted in missionary-run institutions, which played a central role in the provision of education in Nigeria. Following independence in 1960, Nigeria embarked on a series of educational reforms aimed at addressing the disparities and inequities inherited from the colonial era. One of the key initiatives during this period was the establishment of teacher training colleges (TTCs) across the country to provide pre-service training for primary school teachers. The curriculum in these institutions was designed to equip teachers with the pedagogical skills and subject knowledge necessary for effective classroom instruction (Adesina, 2017).

In the 1970s and 1980s, Nigeria witnessed a significant expansion of teacher education programs in response to increasing demand for qualified teachers. This period saw the establishment of colleges of education (COEs) and universities offering degree programs in education. The curriculum in these institutions evolved to incorporate a broader range of subjects and pedagogical approaches, reflecting changing trends in education theory and practice (Ogunyemi & Imogie, 2018). However, despite these efforts to improve teacher education, the quality and relevance of teacher training programs remained a major concern. Many teachers graduated from training institutions with inadequate subject knowledge and pedagogical skills, leading to low academic achievement and poor learning outcomes among students (Adeyemi & Oyebamiji, 2020). Additionally, there was a lack of alignment between the curriculum taught in teacher training institutions and the needs of the rapidly changing education sector. In response to these challenges, the Nigerian government embarked on a series of curriculum reforms aimed at enhancing the quality and relevance of teacher education. One of the notable initiatives in this regard was the introduction of the National Policy on Education (NPE) in 1977, which provided a framework for the development of teacher education curriculum (Federal Republic of Nigeria, 2004). Subsequent revisions of the NPE in 1981, 1998, and 2013 reflected changing priorities and emerging trends in education.

In recent years, there has been a growing recognition of the need to modernize and internationalize the teacher education curriculum to meet the demands of the 21st-century knowledge economy. This has led to efforts to integrate new pedagogical approaches, such as technology-enabled learning and experiential learning, into teacher training programs (Ofoegbu & Njoku, 2020). Additionally, there is a renewed emphasis on equipping teachers with the skills and competencies needed to promote critical thinking, problem-solving, and creativity among students (Owoseni & Olugbara, 2021). Despite these efforts, challenges remain in ensuring the quality and relevance of teacher education curriculum in Nigeria. Issues such as inadequate funding, outdated infrastructure, and a shortage of qualified teaching staff continue to hinder the effectiveness of teacher training programs (Ugwuanyi & Nwankwo, 2021). Furthermore, there is a need to address issues of equity and inclusion in teacher education, particularly in remote and marginalized communities.

The history of teacher education curriculum in Nigeria reflects a complex interplay of historical, political, and socio-economic factors. While significant progress has been made in expanding access to teacher training programs and improving the quality of education, there is still much work to be done. Moving forward, it is essential for policymakers, educators, and stakeholders to continue working together to address the challenges facing teacher education and ensure that Nigeria's teachers are adequately prepared to meet the needs of students and contribute to national development.

**Need for Re-examination of Teacher Education Curriculum in Nigeria as a Panacea to National Development in the 21st Century.**

In the 21st century, the role of education in driving national development has become increasingly critical, with countries around the world recognizing the pivotal role of teachers in shaping the future of their societies. In Nigeria, the need for a re-examination of the teacher education curriculum has emerged as a pressing imperative to address the evolving challenges and opportunities of the modern era. This discussion explores the key reasons why such a re-examination is essential for fostering national development in Nigeria, drawing on recent research and scholarly insights.

First and foremost, the rapid pace of technological advancement and globalization necessitates a re-evaluation of the teacher education curriculum to ensure that Nigerian teachers are equipped with the skills and knowledge needed to thrive in the digital age. As highlighted by Ofoegbu and Njoku (2020), emerging trends in technology integration in education require teachers to be proficient in leveraging digital tools and resources to enhance learning outcomes. Therefore, there is a need to integrate new pedagogical approaches, such as technology-enabled learning and digital literacy training, into the teacher education curriculum to prepare educators for the challenges and opportunities of the 21st-century classroom.

Furthermore, the increasing complexity of global challenges, such as climate change, economic inequality, and social unrest, underscores the importance of equipping Nigerian teachers with the competencies needed to foster critical thinking, problem-solving, and creativity among students. Adeyemi and Oyebamiji (2020) emphasize the need for a shift away from traditional rote learning approaches towards more student-centered and inquiry-based methods of instruction. Therefore, a re-examination of the teacher education curriculum should prioritize the development of pedagogical strategies that promote active learning, collaborative problem-solving, and interdisciplinary thinking.

Moreover, the socio-economic and cultural diversity of Nigeria's population calls for a more inclusive and culturally responsive approach to teacher education. As Owoseni and Olugbara (2021) argue, culturally responsive teaching practices are essential for promoting educational equity and social justice in diverse classroom settings. Therefore, the curriculum should incorporate training in cultural competence, sensitivity, and diversity awareness to enable teachers to effectively engage with students from different backgrounds and experiences. Additionally, the changing needs and priorities of the labor market require a re-evaluation of the subject-matter content and specialization areas within the teacher education curriculum. With the emergence of new industries and job roles, there is a growing demand for teachers with expertise in STEM (science, technology, engineering, and mathematics) fields, as well as vocational and technical education. Ogunyemi and Imogie (2018) highlight the importance of aligning the curriculum with industry demands to ensure that teachers are adequately prepared to meet the needs of the evolving job market.

The re-examination of the teacher education curriculum in Nigeria is essential for fostering national development in the 21st century. By integrating new pedagogical approaches, promoting cultural responsiveness, and aligning with industry demands, the curriculum can ensure that Nigerian teachers are equipped with the skills, knowledge, and competencies needed to prepare students for success in an increasingly interconnected and dynamic world.

**Holistic Pedagogical Integration Theory: Advancing Teacher Education Curriculum for 21st Century Learning**

The Holistic Pedagogical Integration Theory (HPIT) is a theoretical framework proposed by educational scholars and experts in the field of teacher education. While there may not be a single individual who can be credited with originating this theory, it represents a culmination of research, discussions, and insights from various contributors in the field. HPIT aligns with the broader trends and paradigms in education that advocate for a more comprehensive and integrated approach to teacher preparation. Scholars and researchers from diverse backgrounds, including pedagogy, curriculum development, educational technology, and teacher training, have contributed to the conceptualization and refinement of HPIT over time. Therefore, HPIT is a collaborative effort that draws upon the expertise and insights of multiple scholars and practitioners in the field of education. Its development and evolution reflect the ongoing dialogue and engagement within the educational community to address the complex challenges and opportunities of modern teaching and learning environments.

In response to the evolving landscape of education and the demands of the 21st century, there arises the need for a comprehensive theory that guides the development and implementation of teacher education curriculum. The Holistic Pedagogical Integration Theory (HPIT) aims to address this need by providing a framework that emphasizes the

integration of diverse pedagogical approaches, subject-matter content, and educational technologies to prepare teachers for the complexities of modern classrooms.
Key Components of HPIT.

i. **Integration of Pedagogical Approaches:** HPIT posits that effective teacher education curriculum should integrate a diverse range of pedagogical approaches, including but not limited to, traditional lecture-based instruction, active learning strategies, inquiry-based learning, project-based learning, and experiential learning. By incorporating multiple pedagogical approaches, teachers are equipped with a versatile toolkit that enables them to adapt their teaching methods to meet the diverse learning needs of their students.

ii. **Holistic Subject-Matter Content:** HPIT advocates for a holistic approach to subject-matter content within teacher education curriculum. Rather than focusing solely on the transmission of factual knowledge, the curriculum should emphasize critical thinking, problem-solving, and interdisciplinary connections. Additionally, HPIT emphasizes the importance of teaching relevant and up-to-date subject-matter content that is aligned with the needs of the 21st-century workforce.

iii. **Integration of Educational Technologies:** Incorporating educational technologies into the teacher education curriculum is a key component of HPIT. Technology-enhanced learning tools and resources, such as interactive whiteboards, multimedia presentations, virtual reality simulations, and online learning platforms, can enhance teaching and learning outcomes by providing opportunities for personalized instruction, collaborative learning, and real-world application of concepts.

iv. **Reflective Practice and Professional Development:** HPIT emphasizes the importance of reflective practice and ongoing professional development for teachers. Reflective practice involves critically examining one's teaching practices, identifying areas for improvement, and implementing changes based on feedback and reflection. Additionally, HPIT encourages teachers to engage in continuous professional development activities, such as attending workshops, conferences, and online courses, to stay abreast of emerging trends and best practices in education.

**Application of HPIT**

The application of HPIT in teacher education curriculum design involves several key steps:

i. **Needs Assessment:** Conduct a comprehensive needs assessment to identify the learning needs and preferences of teacher candidates, as well as the requirements of the 21st-century classroom.

ii. **Curriculum Design:** Develop a curriculum that integrates diverse pedagogical approaches, subject-matter content, and educational technologies, while also incorporating opportunities for reflective practice and professional development.

iii. **Implementation:** Implement the curriculum using a variety of instructional methods, including lectures, workshops, hands-on activities, and online learning modules. Provide opportunities for teacher candidates to practice and refine their teaching skills in authentic classroom settings.

iv. **Evaluation and Revision:** Continuously evaluate the effectiveness of the curriculum through feedback from teacher candidates, mentor teachers, and other stakeholders. Use assessment data to identify areas for improvement and make revisions to the curriculum as needed.

The Holistic Pedagogical Integration Theory (HPIT) offers a comprehensive framework for advancing teacher education curriculum in the 21st century. By emphasizing the integration of diverse pedagogical approaches, subject-matter content, and educational technologies, HPIT prepares teachers to meet the complex challenges of modern classrooms and effectively support student learning and development. Through thoughtful application and continuous refinement, HPIT has the potential to revolutionize teacher education and contribute to positive educational outcomes for learners around the world.

**Challenges of Teacher Education Curriculum in Nigeria**

Teacher education curriculum in Nigeria faces a myriad of challenges that hinder its effectiveness in preparing educators for the demands of the 21st-century classroom. These challenges stem from various factors, including outdated pedagogical approaches, inadequate resources, and systemic issues within the education system. This discussion delves into some of the key challenges facing the teacher education curriculum in Nigeria, drawing on recent research and scholarly insights.

One of the primary challenges is the disconnect between the theoretical knowledge taught in teacher training programs and the practical skills required for effective teaching in real-world classrooms. Many teacher education institutions in Nigeria still rely on traditional pedagogical approaches that prioritize rote memorization and lecture-based instruction overactive learning and experiential learning methods (Adeyemi & Oyebamiji, 2020). As a result, teachers often graduate with limited practical experience and struggle to translate theoretical concepts into meaningful classroom practices.

Furthermore, the rapid pace of technological advancement poses significant challenges for teacher education in Nigeria. While technology has the potential to enhance teaching and learning outcomes, many teacher training programs lack adequate resources and infrastructure to integrate technology effectively into the curriculum (Ofoegbu & Njoku, 2020). This digital divide exacerbates inequalities in education and leaves many teachers ill-prepared to leverage digital tools and resources in their teaching practices. Additionally, the quality and relevance of subject-matter content within the teacher education curriculum are often called into question. As highlighted by Ogunyemi and Imogie (2018), there is a lack of alignment between the curriculum taught in teacher training institutions and the demands of the modern workforce. Many teachers graduate with outdated subject knowledge and struggle to teach relevant and engaging lessons that prepare students for success in the 21st-century economy. Moreover, teacher education in Nigeria faces systemic issues related to funding, governance, and accountability. Adequate funding for teacher training programs is often lacking, leading to overcrowded classrooms, outdated instructional materials, and a shortage of qualified teaching staff (Ugwuanyi & Nwankwo, 2021). Additionally, there is a lack of coordination and coherence in the governance of teacher education, with multiple agencies and stakeholders involved in curriculum development and implementation.

Furthermore, the socio-economic and cultural diversity of Nigeria's population poses unique challenges for teacher education. Many teachers lack the cultural competence and sensitivity needed to work effectively with diverse student populations, leading to inequities in educational outcomes (Owoseni & Olugbara, 2021). Moreover, issues such as language barriers, ethnic tensions, and religious differences further complicate efforts to promote inclusive and culturally responsive teaching practices. Addressing these challenges requires a comprehensive and systemic approach to reforming teacher education in Nigeria. Adeyemi and Oyebamiji (2020) advocate for the adoption of student-centered and inquiry-based learning approaches that prioritize critical thinking, problem-solving, and creativity. Additionally, there is a need for increased investment in technology infrastructure, professional development, and curriculum reform to ensure that Nigerian teachers are adequately prepared to meet the demands of the 21st-century classroom.

**Conclusion**

Re-examination of the teacher education curriculum in Nigeria stands as a critical imperative on the path to national development. Throughout this discussion, it has become evident that the challenges facing the existing curriculum are multifaceted and deeply entrenched within the educational system. However, by addressing these challenges and implementing comprehensive reforms, Nigeria can unlock the potential of its teachers to drive positive change and contribute meaningfully to the nation's development agenda.

One of the key takeaways from this discussion is the urgent need to bridge the gap between theoretical knowledge and practical skills within teacher training programs. As highlighted, many teachers graduate with a limited understanding of how to apply pedagogical concepts in real-world classroom settings. By adopting student-centered and inquiry-based learning approaches, as advocated by Adeyemi and Oyebamiji (2020), Nigeria can empower teachers to foster critical thinking, problem-solving, and creativity among students, thereby laying the foundation for a more innovative and dynamic workforce. Moreover, the integration of technology into the teacher education curriculum emerges as a crucial priority for Nigeria's educational system. As emphasized by Ofoegbu and Njoku (2020), technology has the potential to enhance teaching and learning outcomes, but many teachers lack the necessary training and resources to leverage digital tools effectively. Therefore, investing in technology infrastructure, professional development, and curriculum reform is essential to ensure that Nigerian teachers are equipped with the digital literacy skills needed to navigate the complexities of the modern classroom.

Furthermore, addressing the systemic issues of funding, governance, and accountability within teacher education is essential to driving meaningful change. Adequate funding for teacher training programs, coupled with effective governance structures and mechanisms for accountability, can help ensure that resources are allocated efficiently and transparently. Additionally, there is a need for greater coordination and coherence in curriculum development and implementation to ensure that the curriculum reflects the needs of both teachers and students. Another critical aspect of the re-examination of the teacher education curriculum is the promotion of inclusivity and cultural responsiveness. As highlighted by Owoseni and Olugbara (2021), Nigeria's diverse population poses unique challenges for teacher education, requiring teachers to be culturally competent and sensitive to the needs of their students. Therefore, integrating training in cultural competence and diversity awareness into the curriculum can help ensure that Nigerian teachers are equipped to work effectively with students from different backgrounds and experiences.

The re-examination of the teacher education curriculum in Nigeria holds immense promise as a panacea to national development. By addressing the challenges outlined in this discussion and implementing comprehensive reforms, Nigeria can build a more robust and effective teacher education system that empowers teachers to drive positive change in their classrooms and communities. Ultimately, investing in teacher education is an investment in the future of Nigeria, laying the groundwork for a more prosperous, equitable, and sustainable society.

**Suggestions of way forward towards enhancing teacher Education Curriculum in Nigeria for National Development**

Enhancing teacher education in Nigeria is crucial for national development, as educators play a pivotal role in shaping the future of the country. Here are some suggestions on the way forward:

i. **Curriculum Review and Alignment:** Update the curriculum for teacher education to align with modern educational standards, emphasizing practical teaching skills, pedagogical techniques, and the integration of technology in the classroom.

ii. **Professional Development Programs:** Implement regular training programs and workshops for teachers to enhance their teaching skills, classroom management techniques, and subject knowledge.

iii. **Recruitment and Retention:** Develop strategies to attract high-quality individuals into the teaching profession by offering competitive salaries, benefits, and career advancement opportunities. Additionally, implement measures to retain experienced teachers through incentives and recognition programs.

iv. **Infrastructure Improvement:** Invest in modern infrastructure and facilities in teacher training institutions, including well-equipped classrooms, libraries, and technology labs to facilitate effective teaching and learning.

v. **Technology Integration:** Integrate technology into teacher education programs to enhance instructional delivery, assessment methods, and resource accessibility. Provide training for teachers on how to effectively utilize educational technology tools in the classroom.

vi. **Partnerships and Collaboration:** Foster partnerships between teacher training institutions, government agencies, non-governmental organizations, and private sector organizations to share resources, expertise, and best practices in teacher education.

vii. **Research and Innovation:** Encourage research and innovation in teacher education by supporting faculty research projects, promoting collaboration with international educational institutions, and incentivizing the development of innovative teaching methods and approaches.

viii. **Quality Assurance Mechanisms:** Implement robust quality assurance mechanisms to ensure that teacher education programs meet established standards of excellence. This could involve accreditation processes, regular evaluations, and feedback mechanisms from stakeholders.

ix. **Inclusive Education**: Promote inclusive education practices in teacher education programs to equip teachers with the skills and knowledge needed to address the diverse learning needs of students, including those with disabilities and special educational needs.

x. **Community Engagement:** Foster closer ties between teacher education institutions and local communities to ensure that teacher training programs are responsive to the needs and priorities of the communities they serve. This could involve community outreach initiatives, service-learning opportunities, and collaborative projects.

xi. **Continuous Monitoring and Evaluation:** Establish mechanisms for continuous monitoring and evaluation of teacher education programs to identify areas for improvement and track progress towards enhancing the quality of teacher education in Nigeria.

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# ASSESSMENT OF THERAPEUTIC LIFESTYLE CHANGES (TLC) IN LOWERING HIGH BLOOD CHOLESTEROL AMONG ACADEMIC AND NON-ACADEMIC STAFF OF UNIVERSITY OF LAGOS

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***Abstract***

*High Blood Cholesterol is prevalent among academic and non-academic staff of University of Lagos from previous data assessment. The purpose of this study was to assess the effect of Therapeutic Lifestyle Changes (TLC) in lowering High blood cholesterol and to investigate the knowledge and practice of Therapeutic Lifestyle Changes among the staff of University of Lagos. Two research methods were adopted in this study; Experimental research method and Descriptive research method using a total sample of one hundred and seventy-nine participants.162members of staff both academic and nonacademic participated in the descriptive survey study while 17 participants (male and female) randomly selected from among the academic and non-academic staff from five faculties of the university participated in the experimental study. The experimental group was divided into two groups (study and control) by randomization 9 participants comprised the study group while 8 participants comprised the control group. The blood samples were taken, and the lipid profile was measured in the University health service laboratory by a qualified medical laboratory scientist using spectrophotometer optima 300 machine. The pre-test of the lipid profile of participants measured before the commencement of the TLC intervention of six weeks was compared with the post test lipid result after the six weeks both among each group and between the two groups using paired sample T-test at a p-value of less 0.05 level of significance. The result obtained revealed that there was a significant improvement in the lipid profile of the study group who went through a six-week TLC intervention while there was not any improvement in the lipid profile of the control group who did not receive any TLC intervention. Hence it is ascertained in this study that Therapeutic lifestyle changes has a lowering effect on high blood cholesterol.*

**Keyword:** *Assessment, Therapeutic, Cholesterol, Academic, Non-Academic.*

**Background to the Study**

High Blood cholesterol or Dyslipidemia as it is medically called is a major risk factor for cardiovascular disease. It is a state that arises as a result of abnormalities in the plasma lipids which could be quantitative, qualitative or both. High Blood Cholesterol occurs qualitatively when there is an elevated plasma total cholesterol (TC), elevated Low-density lipoprotein cholesterol (LDL-C) elevated Triglycerides (TG) and a reduced high-density lipoprotein cholesterol (HDL-C) Levels, occurring singly or in combinations. Qualitatively, high blood cholesterol implies changes in composition of LDL-Cholesterol or increased electro negativity of LDL-Cholesterol (Oguejiofo*et al.*, 2012). High blood cholesterol is a common disorder, but most patients are not diagnosed and therefore not treated because it usually does not have any symptoms, until a sudden breakdown in the heart functions which could also go ahead to affect the brain.

Data are scanty on the prevalence and pattern of high blood cholesterol in Nigeria. However, some studies on the subject are now becoming available and have revealed that the burden of the condition is very high in terms of morbidity, mortality and medical cost. High Blood Cholesterol or Dyslipidemia is the second most prevalent cardiovascular risk factor. World Health Organisation (WHO) estimates in 2002 showed that dyslipidemia accounted for 18% of ischemic heart disease, 56% of stroke and more than 4 million deaths per year globally. High Blood Cholesterol is one of the major risk factors for Coronary heart disease, Heart attack and stroke which are leading causes of death for both men and women of all races and ethnicities in the United State of America. In Nigeria, studies conducted among apparently healthy Nigerians by Oguejiofor et al have shown a very high prevalence values with consistent pattern of low HDL Cholesterol and high LDL Cholesterol. The results of the findings conducted revealed 60% in 2008, 60.5% and 59.3% respectively in 2010.While many of the studies which were carried out in urban locations did not adduce reasons for this high prevalence values, some postulated that this may be closely linked to rapidly urbanization and western diet with most urban cities saturated with fast food outlets and increasing sedentary lifestyle (Oguejiofor*et al.*, 2012.).

Therapeutic Lifestyle Changes (TLC) is an effective lifestyle therapy targeting low density lipoproteins cholesterol (LDL-C) which is a risk a factor for coronary heart disease.TLC is the lifestyle component of the third report of the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III guidelines, that focuses on diet, weight management and increased physical activity. TLC is a comprehensive lifestyle approach that includes specific dietary recommendations (TLC diet) Weight management, increased physical activity, smoking cessation and alcohol intake reduction. The findings of this study and recommendations of this research work will equip individuals, management, authority and university community as a whole in achieving the following a better understanding of how to prevent, accept or control high blood cholesterol and other heart diseases risk. The study will also be useful to the management and authority of University of Lagos in understanding the various types of intervention to be adopted towards the reduction of high blood cholesterol and cardiovascular diseases in the community. Finally, the study will also contribute to the body of knowledge by creating further enlightenment on several lifestyle practices and behaviours that could be a predisposing factor to high blood cholesterol and cardiovascular diseases and how to avoid them.

**Statement of the Problem**

The relationship between increased level of both total cholesterol and LDL cholesterol and the risk of coronary heart disease as well as other cardiovascular diseases is well established in the literature (Law et al., 1994). It has been demonstrated that every 10mg/dl increase in total or LDL cholesterol triggers 10 percent increase in risk of cardiovascular disease especially coronary heart disease (CHD). Also, for 5mg/dl increase in HDL cholesterol, there is a corresponding 10 percent reduction in the risk of cardiovascular disease (Brown & Browner, 1996). From the data obtained in a personal survey conducted,953 out of the 2,920 participants in a medical screening which was inclusive of Blood Cholesterol were discovered to have either of elevated levels of Triglycerides (150mg/dl and above), Total cholesterol (240mg/dl and above), Low Density Lipoprotein(LDL 160mg/dl and above) and low levels of High Density Lipoproteins (HDL less 40mg/dl).Also from the medical records survey obtained from the health services unit of the university, cholesterol related diseases such as Hypertensive Heart Disease, Diabetes and High Blood Pressure are part of the Ten major diseases that are prevalent in the community.(Health services record, 2012). In view of the aforementioned, the study therefore aims to assess the lowering effect of Therapeutic Lifestyle Changes on high blood Cholesterol and to investigate the knowledge, attitude and practice of therapeutic lifestyle changes among the staff of University of Lagos as a recommended way of lowering High Blood Cholesterol according to the National Cholesterol Education Program (NCEP) Adult Treatment Panel (ATP) III guidelines.

**Purpose of the Study**

The purpose of this study was to assess the lowering effect of Therapeutic lifestyle changes on high blood cholesterol and other related diseases among the academic and non-academic staff of University of Lagos. It will also seek to achieve the following objectives:

1. Assess the effect of therapeutic diet on lowering High Blood Cholesterol among Academic and Non-academic staff of University of Lagos
2. Assess the effect of therapeutic exercise on lowering High Blood Cholesterol among Academic and Nonacademic staff of University of Lagos
3. Assess the effect of reduction in Alcohol consumption on lowering High Blood Cholesterol among Academic and Nonacademic staff of University of Lagos
4. Assess the effect of weight reduction on lowering High Blood Cholesterol among Academic and Nonacademic staff of University of Lagos
5. Assess the effect of smoking cessation on lowering High Blood Cholesterol among Academic and Nonacademic staff of University of Lagos

**Theoretical Framework**

**The study hinges on the Health Belief Model (HBM) Theory of Health Education**

The Health Belief Model theory represents the connection of how new information (TLC Practice guidelines) can lead to a change in outcomes (Individual's lifestyle leading to lowered blood cholesterol level and decreased incidence of CHD). The Health Belief Model was developed in the 1950s and proposed by social psychologists Godfrey Hochbaum, Irwin Rosenstock and Kirscht who were seeking to explain why some people do not use health services such as immunization and screening. The theory argues that for people to adopt recommended physical activity behaviours, their perceived threat of disease and its severity and benefits of action must outweigh their perceived barriers to action. The model is still in common use. The basic elements of Health Belief Model include a Perceived Susceptibility, Perceived Severity, Perceived Benefits of Action, and Perceived Barriers to Action, Cues to action and Self Efficacy.

Perceived Susceptibility (or perceived vulnerability) is the individual's perceived risk of contracting the disease if he or she were to continue with the current course of action. Perceived Severity refers to the seriousness of the disease and its consequences as perceived by the individual. Perceived Benefits refer to the perceived advantages of the alternate course of action. It is an assessment of the value of efficacy of engaging in a health promoting behavior to decrease risk of disease by an individual. Perceived Barriers (or perceived costs) refers to the perceived disadvantages of adopting the recommended action as well as perceived obstacles, inconveniences, expenses, danger and discomfort that may prevent or hinder its successful performance. These factors are commonly assumed to combine additively to influence the likelihood of performing the behaviour. Thus, High Susceptibility, High Severity, High Benefits and Low Barriers are assumed to lead to a high probability of adopting the recommended action. Other elements that are frequently mentioned in connection with the HBM are Cues to action (events that trigger behaviour) and Self efficacy which is an individual's perception of his or her competence to successfully perform the behaviour.

**Methodology**

The study adopted the experimental research method and descriptive research method. The target population comprised all academic and non- academic staff of University of Lagos between the ages of 30-65 years, 165 members of staff randomly selected across the eight faculties of Akoka Campus participated in the descriptive survey study through the use of validated questionnaires while 17 participants randomly selected from five faculties in the six weeks experimental study. The experimental group was nine participants comprised the study group. The experimental group was divided into groups (study and control by randomization nine participants comprised the study group while eight participants comprised the control group. A verbal and informed consent of the participants were obtained having gotten the approval of the University of Lagos, Human Kinetics and Health Education Department Ethics and Research Committee Research Instrument comprised of a professional column scale with height rod which was used to obtain the height and weight, a digital Omron blood pressure machine that obtained the systolic and diastolic blood pressure and a spectrophotometer optima 300 machine was used to analyze the blood cholesterol levels by a professional medical laboratory scientist in the University health services department. The pre-test lipid-profile result of the participants before the commencement of the six weeks TLC intervention was compared with the post-test lipid profile result after the six weeks. The intervention between the two groups using paired sample T-test at a P-value of less 0.05 level of significance through a statistical package SPSS 15.0 Version. Under the descriptive study, Chi squares an analysis was adopted in testing all stated hypothesis at a P-value of less 0.05 level of significance.

**Study Setting and Study Team**

The study team consists of a Medical Laboratory Scientist, A dietician, a health information officer, and a Medical Laboratory Technician. The researcher, a Health Educator is also part of the team. The University of Lagos Health Services Department Laboratory and the Human Kinetics and Health Education high performance Laboratory were used as sample collection and health counselling centre respectively.

**Result**

**Table 1: Demographic Data of Subjects**

| | N (N=17) | Percentage | Study N=9 | Percentage | Control group | Percentage |
|---|---|---|---|---|---|---|
| **Sex** | | | | | | |
| Male | 7 | 41.2% | 5 | 55.56 | 2 | 25.00 |
| Female | 10 | 58.8% | 4 | 44.44 | 6 | 75.00 |
| | 17 | 100% | | 100.0 | | 100 |
| **Age** | | | | | | |
| 30-39 | 2 | 11.76% | 1 | 11.11 | 1 | 12.5 |
| 40-49 | 6 | 35.29% | 2 | 22.22 | 2 | 25.00 |
| 50-59 | 7 | 41.20% | 5 | 55.56 | 4 | 50.00 |
| 60 and above | 2 | 11.76% | 1 | 11.11 | 1 | 12.50 |
| Total | 17 | 100% | | 100.00 | | 100.00 |
| **Emp. status** | | | | | | |
| Academic | 5 | 29.4% | 3 | 33.33 | 2 | 25.00 |
| Non academic | 12 | 70.6 | 6 | 66.67 | 6 | 75.00 |
| Total | 17 | 100.0 | | 100.0 | | 100 |
| **Research status** | | | | | | |
| Study | | | | | | |
| Control | 9 | 52.9 | 9 | 100 | 0 | - |
| Total | 8 | 47.1 | 0 | - | 8 | 1 |
| | 17 | 100 | | 100.00 | | 100.00 |

The demographic characteristics of the studied population in general and the study and control groups in specific were summarized in Table 1. 41.2% of the studied population were male 58.8% were female, indicating more female than male 11.76% were within the age range of 30-39, 35.29% within age range of 40-49, 41.20% fell within the age of 50-59 and 11.76% within 60 years and above indicating age range 50-59 as the highest in the study. Also 29.4% were academic while 70.6% were nonacademic 52.9% of the studied population fell within the study group and 47.1% fell within the control group.

**Table 2: Physical Characteristics of Subjects**

| Variable | All subjects (N=17) mean ±SD | Study group (N=9) Mean ±SD | Control group (N=8) mean ± SD |
|---|---|---|---|
| Age (years) | 49.53 ± 8.46 | 50.44 ± 9.761 | 48.50 ± 7.25 |
| Height (m) | 1.63 ± 0.08 | 1.63 ± 0.08 | 1.62 ± 0.07 |
| Weight (kg) | 80.94 ± 3.99 | 79.67 ± 14.07 | 82.38 ± 19.67 |
| BMI ($m^2$kg) | 33.56 ± 12.60 | 35.45 ± 16.33 | 31.44 ± 6.95 |
| SBP | 128.06 ± 14.58 | 131.89± 14.590 | 123.75 ± 14.25 |
| DBP | 78.71 ± 10.32 | 80.88 ± 10.08 | 76.25 ± 10.69 |
| ExerciseNo: Yes | 6:11 | 2:7 | 4:4 |
| SmokingNo: Yes | 17:0 | 9:0 | 8:0 |
| Alcohol No: Yes | 15.2 | 7:2 | 8:0 |
| Family story of HHD No: Yes | 13:4 | 7:2 | 6:2 |
| Hypertension No: Yes | 12:5 | | |
| Diabetes No: Yes | 17:0 | 9:0 | 8:0 |

SD - Standard Deviation
SBP - Systolic blood pressure (Upper)
DBP - Diastolic blood pressure (lower)
HHD - Hypertensive heart disease
BMI - Body mass index

Table 2 summarize the physical characteristics of the subjects. The mean age, height, and weight of all the subjects were 49.53 + 8.46 years, 1.63 0.08 meter and 80.94 3.99kg respectively. The mean body mass index (BMI) was 33.56 12.60, indicating on overweighted population. With regard to cardiovascular risk factors 29.4% of the population were hypertensive, 35.3% were not physically active, 23.5% had a family history of hypertensive heart disease, 5.9% were smokers and none of the participants were diabetic.

**Table 3: Comparison of lipid profile among the study group**
**Paired sample Statistics**

| | | Meant ± SD | percentage | Diff. in % |
|---|---|---|---|---|
| Pair 1 | Pre HDL<br>Post HDL | 55.88 ± 11.569<br>53.50 ± 8.734 | 51.08%<br>48.72% | 2.77 |
| Pair 2 | Pre LDL<br>Post LDL | 110.00 ± 30.086<br>99.75 ± 19.819 | 52.44<br>47.56 | 4.88 |
| Pair 3 | Pre TC<br>Post TC | 190.13 ± 28.623<br>177.00 ± 21.514 | 51.79<br>48.21 | 3.58 |
| Pair 4 | Pre TG<br>Post TG | 120.13 ± 27.158<br>112.63 ± 8.274 | 51.62<br>48.38 | 3.24 |

Table 3 shows a comparison between the pre and post test among the study group. The average value for pre-HDL was 55.88 while for post HDL was 53.53 indicating a 2.77% reduction in HDL value after the intervention period. Also the pre LDL mean value was

110.00 while the post LDL mean value was 99.75. This indicated a 4.88% reduction in LDL over the period of intervention. The pre total cholesterol (TC) value was 190.13 while the post TC was 177.00. This also shows a 3.58% reduction in total cholesterol. Also the pre triglycerides (TG) was 120.13 while the post TG was 112.63, this revealed a 3.24% reduction in the triglycerides level over the period of intervention.

**Table 4: Comparison of lipid profile among control group.**
**Paired sample statistics**

| | | **Meant ± SD** | **percentage** | **Diff in %** |
|---|---|---|---|---|
| Pair 1 | Pre HDL | 54.71± 12.257 | 54.48 | 8.96 |
| | Post HDL | 45.71 ± 7.111 | 45.52 | |
| Pair 2 | Pre LDL | 111.29 ± 13.829 | 47.52 | 4.96 |
| | Post LDL | 122.86 ± 16.597 | 52.48 | |
| Pair 3 | Pre TC | 191.43 ± 20.759 | 48.87 | 2.26 |
| | Post TC | 200.29 ± 24.350 | 51.13 | |
| Pair 4 | Pre TG | 131.57 ± 35.113 | 48.91 | 2.18 |
| | Post TG | 137. 43 ± 31.837 | 51.69 | |

Table 4 shows a comparison between pre and post test lipid profile result of the control group. The HDL average for pre test was 54.71 and that of post test 45.71 indicating 8.96 % reduction in HDL value over a period of six weeks without any TLC intervention. Also, the LDL average for pre test was 111.29 and post test 122.86 showing 4.94% increase in the LDL value. The total cholesterol average at pretest was 191.43 and at post test 200.29 indicating 2.26% increase in the Total cholesterol value. Also, the triglycerides average at pre-test was 131.57 and at post test was 137.43 showing 2.18% increase in the triglycerides value.

**Table 5: Comparison of lipid profile between the study group and control group**
**Paired Sample T – Test**

| **Study group** | | N | Mean ± SD | t. value | Df | p- value | Remark |
|---|---|---|---|---|---|---|---|
| Pair 1 | Pre lipid profile – post lipid profile | 8 | 8.312 ± 7.053 | 3.333 | 7 | 0.013 | significant |
| **Control group** | | | | | | | |
| Pair 1 | Pre lipid profile – post lipid profile | 7 | -4.321 ±13.636 | -0.838 | 6 | 0.434 | Not significant |

Table 5 shows a comparison between the lipid profile of the study group and that of the control group before and after the intervention period. At 0.05 level of significance, with a t-score of 3.333 and a df of 7, the p-value equals 0.013 for the study group, indicating that among the study group for a period of six weeks of TLC, there was a significant lowering effect on blood cholesterol. Also, at 0.05 level of significance, with a T score of -0.838 and a df of 6, the p-value equals 0.434 for the control group, indicating that among the control group there was no any significant lowering effect on blood cholesterol profile for the period of 6 weeks of normal lifestyle.

**Discussion**

The key role played by cholesterol in essential pathophysiologic processes that lead to the occurrence of cardiovascular events is well established in the literature and the individual cardiovascular risk definition incorporates among other factors, the lipid profile, including total cholesterol, LDL cholesterol, HDL cholesterol and Triglycerides. It has also been demonstrated that every 10mg/dl increase in total or LDL cholesterol triggers 10 percent increase in risk of cardiovascular disease especially coronary heart disease (CHD). Also, for 5mgl/dl increase in HDL cholesterol, there is a corresponding 10 percent reduction in the risk of cardiovascular disease (Brown & Browner, 1996).

The findings for this study that lipid profile (LDL, HDL, TC and TG) significantly improved among the study group that went through the TLC intervention over a period of six weeks while there was no any significant improvement among the control group that did not go through a TLC intervention over the same period of six weeks strongly supported the assertion that therapeutic lifestyle changes (TLC) is an effective therapy in reducing coronay heart disease risk. Findings from the analysis of the lipid profile in the pre and post test results showed 5% reduction in LDL cholesterol, 4% reduction in total cholesterol 3.24% reduction in Triglyceride and 2.8% reduction in HDL among the study group. While among the control group, there was 5% increase in LDL cholesterol, 2.26% increase in total cholesterol, 2.18% increase in triglycerides and 9% reduction in HDL cholesterol.

Comparing the two groups, there was a reduction in LDL cholesterol, Total cholesterol and triglycerides among the study group but with a reduction in the HDL cholesterol. While there was an increase in the LDL, total cholesterol and triglycerides of the control group with a higher reduction in HDL (9%) compared with the study group (2.8%). This strongly aligned with the National cholesterol Education program (NCEP) Adult treatment panel III (ATP III) recommendation of Therapeutic lifestyle changes (TLC) in lowering High blood cholesterol. The ATP (III) guidelines specifically target LDL cholesterol due to its strong positive correlation with CHD risk (Ncep circulation, 2002). However, it has also been established in previous studies as well as this study that TLC diet positively affect LDL cholesterol, total cholesterol and serum triglyceride levels but with little or no effect on HDL cholesterol (Nowson, 2005). For a significant improvement to be seen in the HDL cholesterol, there is need for adequate exercise which is also part of the component of TLC. When an adequate exercise complements the TLC diet, there will be a remarkable improvement in all the lipid profiles.

**Section B**

The study under this section investigated the knowledge, attitude and practice of therapeutic lifestyle changes (TLC) among the staff (Academic and non-academic) of University of Lagos. The study is a descriptive survey study with Questionnaire. It examined other stated objectives of the study, and all stated hypotheses were tested with the study.

## Methods

A total of one hundred and eighty participants were involved in the study but only one hundred and sixty-two participants responded and submitted the questionnaire used as instrument of the study. The Questionnaire was distributed across the eight faculties of the University and five non-faculties through a simple random sampling technique. All the data obtained was processed using SPSS 15.0 version and all stated hypotheses were tested using chi-square analysis at a p-value of less 0.05.

## Result

Table 1: **Demographic Data of Respondents**

| | **No of respondent** | **Percentage of respondent** |
|---|---|---|
| **Sex** | | |
| Male | 90 | 55.9 |
| Female | 72 | 44.1 |
| **Total** | **162** | 100.0 |
| **Age** | | |
| 30 - 39 | 55 | 34.9 |
| 40-49 | 59 | 36.2 |
| 50 – 59 | 39 | 24.3 |
| 60 and above | 9 | 4.6 |
| **Total** | **162** | |
| **Marital Status** | | |
| Single | 30 | 18.5 |
| Married | 124 | 76.5 |
| Divorced/separated. | 7 | 4.3 |
| Widow /widower | 1 | 0.6 |
| **Total** | **162** | 100.0 |
| **Religion** | | |
| Islam | 29 | 17.7 |
| Christianity | 129 | 79.7 |
| Others | 4 | 2.5 |
| **Total** | **162** | 100.0 |
| **Employment Status** | | |
| Academic | 55 | 33.8 |
| Non-Academic | 107 | 66.2 |
| **Total** | **162** | 100.0 |

Table 1 shows that 55.9% of the respondents are male while 44.1% are female. 34.9% fall within the age group of 30-39years. 36.2% within the age group of 40-49, 24.3% in the age group of 50-59 and 4.6% in the age group of 60years and above underrating of group 40-49 as the highest representative. Also 18.5 of the sample is single 76.5% married 4.3% divorced or separated while 0.6% were widow/widower. The table also reflected the religion of the respondents showing that 17.7% are Islam 79.7% Christianity while 2.5% fall under others. Under the employment status 33.8% of the respondent were academic while 66.2% were non academic, reflecting the non-academic as those with the highest number based on the quota sampling method used by the researcher.

**Analysis of Research Questions**

**Research Question 1:** Will knowledge and practice of therapeutic diet have an influence on lowering high blood cholesterol among the staff of University of Lagos.

**Table 2**

| S/N | | Yes | No | Not sure | Missing info |
|---|---|---|---|---|---|
| 1. | Have you heard about high blood cholesterol before. | 102 (88.7) | 10 (8.7) | 6.3 2.6) | |
| 2. | Do you know the causes of high blood cholesterol? | 79 (48.4) | 57 (35.6) | 24 (15.0) | |
| 3. | Can you tell when your blood cholesterol is high or low? | 31 (21.1) | 76 (51.7) | 40 27.2) | |
| 4. | Do you know the things you can do by yourself to prevent high blood cholesterol. | 47 (32.2) | 65 (44.5) | 34 (23.3) | 16 |
| 5. | Have you heard your blood cholesterol measured in the last one year? | 66 (42.9) | 85 (55.2) | 3 (1.9) | 8 |

Table 2 shows that 88.7% of the respondents have heard about HBC, 8.7% have not heard and 2.6% were not sure. Also 49.4% had the knowledge of the causes of HBC, 35.6% did not have while 15.0% were not sure. Furthermore 21.1% of the respondents could tell when their blood cholesterol is high or low, 51.7% could not tell whil 27.2% were not sure. Also 32.2% had the knowledge of how to present HBC by themselves 44.5% do not have while 23.3% were not sure. In addition, 42.9% have heard their blood cholesterol measured in the last one year, 55.2% have not heard it measured while 1.9% were not sure.

**Table 3: Therapeutic diet knowledge and practice**

| | | Yes (%) | No (%) | Not sure (%) | Missing info |
|---|---|---|---|---|---|
| 6. | Do you know if the foods you eat can affect your blood cholesterol level? | 87 (78.4) | 14 (12.6) | 10 (9.0) | 51 |
| 7. | Do you know the types of diet that can increase your blood cholesterol level? | 91 (60.3) | 48 (31.8) | 12 (7.9) | 11 |
| 8. | Do you know the type of diet that can lower your blood cholesterol level? | 64 (42.7) | 69 (46.0) | 17 (11.3) | 12 |
| 9. | Have you been educated by your doctor or any health professional on the foods that help prevent high cholesterol in the body? | 53 (36.6) | 81 (55.9) | 11 (7.6) | 17 |

Table 3 reveals that 78.4% of the respondents had the knowledge that the food they eat can affect their blood cholesterol level 12.6% did not have the knowledge while 9.0% were not sure. Also 60.3% had the knowledge of the type of diet that can increase their blood cholesterol level 31.8% did not have while 7.9% were not sure. Furthermore 42.7% of the respondents had the knowledge of the type of diet that could lower their blood cholesterol level, 46.0% did not have while 11.3% were not sure. Moreover 36.6% have been educated by their doctor or health professionals on the food that can present HBC, 55.9% have not received any education while 7.6% were not sure.

**Table 4: Physical Exercise Knowledge and Practice**

| | | Yes (%) | No (%) | Not sure (%) | Missing info |
|---|---|---|---|---|---|
| 10. | Do you know if physical exercise can regulate blood cholesterol? | 98 (66.2) | 28 (18.9) | 22 (14.9) | 14 |
| 11. | Do you engage in physical exercise at least three 93) times in a week? | 68 (43.0) | 76 (48.1) | 14 (8.9) | 4 |
| 12. | While at work, do you usually prefer to sue the stairs? | 90 (64.3) | 21 (15.0) | 29 (20.7) | 22 |
| 13. | If physical exercise period is introduced for staff during working how, will you be willing to participate? | 111 (77.1) | 28 (19.4) | 5 (3.5) | 18 |

Table 4 shows that 66.2% of the respondents had the knowledge that physical exercise can regulate cholesterol level. 18.9% did not have the knowledge while 14.9% were not sure. Also 43.0% of the respondents engaged in physical activities at least 3 times a week, 48.1% did not while 8.9% were not sure. Moreover 64.3% preferred to use stairs while at work to using elevators while 15.0% preferred to sue elevator while at work instead of stairs 20.7% were not sure. Furthermore 77.1% of the respondents declared that they would be willing to participate if physical exercise period is introduced for staff during working hour 19.4% declared they would not while 3.5% were not sure.

**Table 5: Alcohol Consumption Knowledge and Practice**

| | | Yes (%) | No (%) | Not sure (%) | Missing info |
|---|---|---|---|---|---|
| 14. | Do you know if alcoholic drinks have any relationship with blood cholesterol? | 97 (64.2) | 27 (17.9) | 27 (17.9) | 11 |
| 15. | Do you take alcoholic drinks such as beer stout, wine. | 45 (29.2) | 91 (59.1) | 18 911.7) | 8 |
| 16. | If you are told that your blood cholesterol is high, will you be willing to stop taking alcohol. | 97 (71.3) | 22 (16.2) | 17 (12.5) | 26 |

Table 5 shows that 64.2% of the respondents had the knowledge that alcoholic drinks have any relationship with blood cholesterol level, 17.9% did not have the knowledge while 17.9% were also not sure. Furthermore, 29.2% consume alcoholic drink 59.1% did not while 11.1% declared not sure moreover 71.3% declared they would be willing to stop taking alcoholic drinks if they are told that their blood cholesterol is high while 16.2% were not willing and 12.5% declared not sure if they would stop.

**Table 6: Weight reduction knowledge and practice**

| | | Yes (%) | No (%) | Not sure (%) | Missing info |
|---|---|---|---|---|---|
| 17. | Do you know if being overweight can increase your blood cholesterol level | 97 (71.3) | 22 (16.2) | 17 (12.5) | 26 |
| 18. | Do you know you weight? | 115 (77.2) | 21 (14.1) | 13 (8.7) | 13 |
| 19. | Do you know how to check by yourself if you are overweight or underweight? | 97 (65.1) | 38 (25.5) | 14 (9.4) | 13 |
| 20. | Does your work require longer time of sitting? | 62 (42.2) | 56 (38.1) | 29 (19.7) | 15 |
| 21. | Have you been told recently by health professionals or discovered by yourself that you are overweight? | 16 910.6) | 124 (82.1) | 11 (7.3) | 11 |

Table 6 shows that 71.3% of the respondents had the knowledge that overweight can increase blood cholesterol level, 16.2% did not have the knowledge while 12.5% were not sure. Also 77.2% of the respondents knew their weight 14.1% did not know while 8.7% were not sure. Furthermore 65.1% of the respondents had the knowledge of detecting by themselves of the they are overweight or underweight 25.5% did not have the knowledge while 94% were not sure. In addition, 42.2% declared that their nature of job required longer time of sitting while 38.1% declared that their nature of job required longer hour of standing and 19.7% longer how of walking. Moreso 10.6% indicated that they have been told recently that they are overweight 82.1% declared they have not been told while 7.3% revealed they were not sure of their weight.

**Table 7: Smoking Knowledge and Practice**

| | | Yes (%) | No (%) | Not sure (%) | Missing info |
|---|---|---|---|---|---|
| 22. | Do you know if smoking has any relationship with blood cholesterol level. | 62 943.4) | 41 (28.7) | 40 (28.0) | 19 |
| 22. | Do you smoke? | 16 (10.6) | 124 (82.1) | 11 (7.3) | 11 |
| 23. | If you smoke, and you are told that your blood cholesterol is high, will you be willing to quit smoking? | 41 (44.1) | 50 (53.8) | 2 (2.2) | 69 |

Table 7 shows that 43.4% of the respondents had the knowledge that smoking affects blood cholesterol level, 28.7% did not have the knowledge while 28.0% were not sure. Also 10.6% of the respondent's smoke, 82.1% did not smoke while 7.3% declared they were not sure. Furthermore 44.1% declared that if they are told that their blood cholesterol is high, they would be willing to quit smoking 53.8% declared they were not willing to quite while 2.2% were not sure.

**Testing of hypotheses**

Five hypotheses were stated in the study to be tested and they were run on the SPSS 15.0 version using chi square data analysis.

**Hypotheses 1**

Therapeutic diet will have no significant influence on lowering high blood cholesterol among academic and non academic staff of University of Lagos.

**Table 8: Chi square analysis on influence of therapeutic diet on High blood cholesterol**

**Hypothesis 1:** Therapeutic diet has no significant effect on lowering high blood cholesterol among academic and non academic staff of University of Lagos

| Variables | N | df | $X^2$cal | $X^2$tab(0.05) | P-value | remark |
|---|---|---|---|---|---|---|
| Therapeutic diet knowledge | 162 | 4 | 25.569 | 9.487 | 0.000 | Significant |

**P < 0.05**

Table 9 shows that the calculated chi-square value of 25.569 is greater than table value of 9.487. Therefore, the null hypothesis which states that knowledge and practice of therapeutic diet will have no significant influence on lowering high blood cholesterol among academic and non-academic staff of University of Lagos is rejected while the alternate hypotheses accepted. This implies that knowledge and practice of therapeutic diet will have significant influence on lowering high blood cholesterol among the staff of University of Lagos.

**Hypothesis 2:** Therapeutic exercise has no significant effect on lowering high blood cholesterol among academic and non academic staff of University of Lagos.

**Table 10: Analysis on therapeutic exercise influence on high blood cholesterol**

| Variables | N | df | $X^2$cal | $X^2$tab(0.05) | P-value | remark |
|---|---|---|---|---|---|---|
| Therapeutic exercise | 162 | 4 | 15.052 | 9.487 | 0.005 | Significant |

**P < 0.05**

Table 10 shows that the calculated chi-square value of 15.052 is greater than tabulated value of 9.487, therefore the null hypothesis which states that knowledge and practice of therapeutic exercise will have no significant influence on lowering high blood cholesterol among academic and non academic staff of University of Lagos is rejected while the alternate hypothesis is accepted. This implies that therapeutic exercise will significantly reduce high blood cholesterol among academic and non academic staff of University of Lagos.

**Hypothesis 3:** Reduction in alcohol consumption has no significant effect on lowering high blood cholesterol.

**Table 11:** $X^2$ Analysis on alcohol intake reduction influence on high blood cholesterol.

| Variables | N | df | $X^2$cal | $X^2$tab(0.05) | P-value | Remark |
|---|---|---|---|---|---|---|
| Alcohol reduction | 162 | 4 | 8.424 | 9.487 | 0.077 | Insignificant |

**P < 0.05**

Table 11 shows that calculated Chi-square value of 8.424 is less than tabulated value of 9.487, therefore the null hypothesis which states that alcohol intake reduction will have no significant influence on lowering high blood cholesterol is accepted while the alternate hypothesis is rejected. This implies that alcohol intake reduction will not influence lowering high blood cholesterol at a significant level among the staff of University of Lagos.

**Hypothesis 4:** Weight reduction has no significant effect on lowering high blood cholesterol among academic and non academic staff of University of Lagos.

**Table 12:** $X^2$ Analysis on weight reduction influence on high blood cholesterol.

| Variables | N | df | $X^2$cal | $X^2$tab | P-value | Remark |
|---|---|---|---|---|---|---|
| Weight Reduction | 162 | 4 | 13.716 | 9.487 | 0.008 | Significant |

**P < 0.05**

Table 12 shows that the calculated Chi-square value of 13.716 is greater than the tabulated value of 9.487. Therefore, the null hypothesis which states that knowledge and practice of weight reduction will have no significant influence on high blood cholesterol is rejected while the alternate hypothesis is accepted. This implies that weight reduction will have significant influence on lowering high blood cholesterol among academic and non academic staff of University of Lagos.

**Hypothesis 5:** Smoking cessation has no significant influence on lowering high blood cholesterol.

**Table 13:** $X^2$ analysis on smoking cessation influence on high blood cholesterol.

| Variables | N | df | $X^2$cal | $X^2$tab | P-value | Remark |
|---|---|---|---|---|---|---|
| Weight Reduction | 162 | 4 | 24.021 | 9.487 | 0.000 | Significant |

**P < 0.05**

Table 13 shows that the calculated Chi-square value of 24.021 is greater than tabulated value of 9.487, therefore the null hypothesis which states that smoking cessation knowledge and practice, will have no significant influence on lowering high blood cholesterol is rejected while the alternate hypothesis is accepted. This implies that knowledge and practice of smoking cessation will significantly lower high blood cholesterol among academic and non academic staff of University of Lagos.

**Discussion**

The first hypothesis which states that therapeutic diet has no significant effects on lowering high blood cholesterol among the staff of University of Lagos was rejected while the alternate hypothesis was accepted. This implies that therapeutic diet has a significant effect in lowering high blood cholesterol among the academic and non academic staff of university of Lagos. It simply implies that lowering high blood cholesterol among the staff of University of Lagos depends on their practice of therapeutic diet. This finding is in line with the Ncep final report circulation, 2002 which submitted that the primary goal of the TLC diet is to achieve as much LDL cholesterol lowering as possible as this can be achieved through "maximal dietary therapy. The cumulative effect of the therapeutic diet can reduce LDL cholesterol by 25% compared with a typical U.S. diet. This submission is also supported by the findings in the experimental study of this research where there is a 5% reduction in the LDL cholesterol of the study group over a period of six weeks of TLC intervention, whereas there is a 5% increase in the LDL cholesterol of the control group over a period of six weeks of no TLC intervention.

Hypothesis two which states that therapeutic exercise has no significant effect on lowering high blood cholesterol among academic and non academic staff of university of Lagos was rejected while the alternate hypothesis was accepted. This implies that lowering high blood cholesterol among the staff of University of Lagos will depend on their practice of therapeutic exercise. This finding was corroborated with the findings of Osaretin, 2003 which stated that physical activity or excise reduces the risk of cardiovascular disease because it reduces blood pressure and reduces serum cholesterol levels and body weight. Also, Williams & Blanche, 2005 observed that HDL cholesterols often, are increased with sustained aerobic exercise that results in an expenditure of above 1,200 calories/week. The greater the exercise volume (and caloric expenditure) the more likely an exerciser will achieve a significant increase in HDL cholesterol, however based on the study the effect may be genetically predetermined and the evidence for exercise alone reducing LDL cholesterol and total cholesterol was less conclusive.

Hypothesis three stated that reduction in alcohol consumption has no significant effect on lowering high blood cholesterol among the academic and non academic staff of University of Lagos. This was not significant and therefore the hypothesis was accepted while the alternate hypothesis was rejected. This implies that reduction in alcohol consumption actually has no significant effect on lowering high blood cholesterol. This finding deviates from the popular findings that reduction in alcohol consumption will lower high blood cholesterol. However, the finding could be associated with the American Heart Association (AHA) which acknowledges the research findings that pointed out that reasonable intake of alcohol may result in greater HDL levels with reduction of LDL oxidation in case of red wine which contains tannies, which inhibit a type of LDL oxidation due to free radicals damage. (cholesterol menu.com, 2015). Because alcohol is considered to be of no effect on blood cholesterol when it is taken moderately at one or two bottles of bear per day the subjects of this study might have fallen into the moderate group, hence the finding was insignificant.

Hypothesis four states that weight reduction will have no significant effect in lowering high blood cholesterol among academic and non academic staff of university of Lagos is rejected while the alternate hypothesis is accepted. This implies that weight reduction practice will have significant effect in lowering high blood cholesterol among academic and non academic staff of university of Lagos. This finding is in line with Dattilo A.M. &Kris Etherton 1992, who submitted that the TLC diets lowering effects on LDL cholesterol can be further enhanced by weight reduction in overweight individuals. A meta analysis of 70 studies found weight loss to be associated with a significant decrease in LDL cholesterol. The study estimated that a 10-pound weight loss is associated with 4mg/dl decrease in LDL cholesterol. Also in addition to reducing LDL cholesterol, weight loss in important for other CHD related risk factors such is elevated TG and low HDL levels (NCEP, 2002).

Hypothesis five which states that smoking cessation will have no significant effect on lowering high blood cholesterol among academic and non academic staff of university of Lagos is rejected while the alternate hypothesis was accepted. This implies that smoking cessation practice will have a significant effect in lowering high blood cholesterol among academic and non academic staff of University of Lagos. This is in line with Wyatt Myers article in 2011titled the cholesterol–smoking connection, where it was submitted that smoking directly lowers the HDL cholesterol, though smoking has not been shown to directly impact levels of LDL, it was observed that it could have dangerous indirect effects through the toxins produced and inhaled which could modify the existing LDL, leading to higher levels of oxidized LDL within the bloodstream, to make it more likely to cause inflammation. Smoking also raises total cholesterol and triglycerides numbers due to its effect on lipid metabolism as submitted by Wyatt Myers.

**Conclusion**

The objectives of this study were to assess the effects of Therapeutic Lifestyle Changes (TLC) through its components of therapeutic diet, therapeutic exercise, alcohol reduction, smoking cessation and weight management on lowering High Blood Cholesterol among Academic and Nonacademic staff of University of Lagos. From the experimental study conducted, it was discovered that therapeutic lifestyle changes through therapeutic diet, therapeutic exercise, smoking cessation and weight management significantly lower high blood cholesterol among academic and non academic staff of university of Lagos. Also from the descriptive survey study, the findings revealed the knowledge and practice of therapeutic lifestyle changes among the academic and non academic staff of university of Lagos will lower the rate of High blood cholesterol incidence among the staff of University of Lagos. The findings of this study are therefore in consistent with the American National Cholesterol Education Program (NCEP) guidelines third report of the expert panel on detection, evaluation and treatment of high blood cholesterol in adults (ATP III) which recommended therapeutic lifestyle changes as background therapy for the treatment of high blood cholesterol.

**Recommendations**

Based on the findings from the two studies adopted in this research work, The following recommendations were made.

1. The University of Lagos authority should take a proactive measure in sensitizing and educating its staff (both academics and non academics) on the need to imbibe a therapeutic lifestyle.
2. A Health Education and promotion unit should be included in the University Health Services Department where issues on preventive health and lifestyle would be handled by qualified health educators.
3. The university of Lagos authority should include in its working period exercise time that will officially permit all interested staff to participate.
4. A central parking space should be constructed few kilometers to the main campus so as to enforce all staff to embrace walking or cycling few distances to and fro their offices as being practiced in some developed countries universities.
5. Fruit vendors should be officially permitted in all department/faculties of the university and fruits should be included in all official servings for meetings and conferences.

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# IMPACT OF PHONEMIC AWARENESS INSTRUCTIONAL STRATEGY ON THE READING PERFORMANCE OF PRIMARY FOUR STRUGGLING READERS IN MINNA, NIGER STATE

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***Abstract***

*The purpose of this study was to investigate the impact of phonemic awareness instructional strategy on the reading performance of primary four struggling readers in Minna. The study examined effects of phonemic awareness instructional strategy on the reading ability of primary four struggling readers in public primary schools in Minna to identify sounds and decode words. Quasi-experimental design was adopted. Two schools were randomly selected as the control and experimental groups. among the twenty-eight (28) public primary schools in Minna. A 2-month phonemic awareness instructional strategy was designed and implemented for the experimental group and the normal traditional method for the control group and their performance on reading test was compared with their pre-intervention performance. The findings revealed that the phonemic awareness instructional strategy had a positive impact on the reading performance of the sample participants. The results further revealed that there was a statistically significant difference between the pre-intervention and post-intervention reading performance level of both the sample participants. The study concluded that phonemic awareness instructional strategy is more effective in improving the decoding ability of primary four struggling readers in Minna. Based on the study's findings, it was recommended that further research be conducted to explore the long-term impact of phonemic awareness instructional strategy on reading performance.*

***Keywords:*** *Phonemic Awareness, Reading Performance, Struggling Readers*

**Background to the Study**

Reading disability is a common problem experienced among public primary school pupils, especially those in primary four pupils in Minna, Niger state. Many pupils still struggle to read at a stage they are supposed to have learnt to read and began reading to learn in other aspects of their educational endeavours. Reading is one of the four basic language skills. A receptive skill that is central to academic and intellectual development. The ability to read is essential in learning other subjects and is the cornerstone for children's success in school and indeed, throughout their lives. As children learn to read, they are armed with the keys for unravelling the mysteries of this world and for unlocking the doors of success. In addition, reading can be a fun and imaginative activity for children, which opens doors to all kinds of new worlds for them. On the other hand, if a child could not read well in this contemporary world, he would face many life challenges and opportunities for personal development, success in life and job will be lost. Lack of a consistent and easy instruction in teaching reading is constantly breeding struggling readers in our primary schools. According to a National Adult Literacy Survey (2003) by National Centre for Education Statistics (NCES), U.S. Department of Education, "children who have not developed some basic skills by the time they enter school are 3-4 times more likely to drop out in later years." Similarly, Committee on Preventing Reading Difficulty observed that, "the education of 25 – 40% of American children is imperiled because they don't read well enough, quickly enough or easily enough. Reading is the first step children should take in their move towards literacy. The importance of reading in all learning situations makes it very essential for child to learn it and it forms the basis of all language skills, particularly writing, since the ability to write to some extent is dependent on the ability to read and what is written can only be meaningful if it can be read (Stahl, 2004:57). Today, poor reading is one of the major challenges among the pupils in public primary schools. It is common to find children of primary four and above who are supposed to have learnt to read still struggling to do so. This is because the Nigerian education system has failed to develop an efficient literacy acquisition programme, especially for pupils in public primary schools. Observations and experiences by the researcher, teachers, parents as well as some studies conducted reveal that most primary and secondary school leavers are either illiterates or semi – literates (Oyetunde, 2002 & Dahl, 1981). This is evident in the fact that many of such pupils cannot cope with the reading demands of the curriculum and with what the society demands from them as literates.

Fromkin, Rodman & Hyams (2007) state, "reading requires specific instruction and conscious effort". Similarly, Oyetunde, (2009:4) comments that children do not learn to read by chance; they have to be taught to read. Pupils, therefore, can learn to read when exposed to meaningful literary or literacy activities constantly. Reading has to be systematically taught using effective methods by teachers and / or parents by preparing the children to be ready to acquire the skill, motivating them, showing and engaging them within a social context, to which the school and teachers are central (Lyon, 2000:14; Cunningham &Allington, 2007: 59). This is where adopting explicit method such as phonemic awareness instruction comes in. Phonemic awareness is the ability of the pupils to hear and understand that words are composed of sounds and the ability to manipulate these sounds. One of the basic objectives of primary education in Nigeria is to teach pupils to read as stated in the

Nigerian policy on education, "to inculcate permanent literacy, numeracy and ability to communicate effectively" (Nigerian Educational Research and Development Council, 2013:21). It is therefore the right of every child in primary school not a privilege to learn to read in order to function effectively in the society.

**Statement of the Problem**

Reading skill is no doubt, a very necessary tool that must be acquired by pupils to achieve academic excellence. The better the reading skills children have and the earlier they have them determine rapidly and how well they will achieve in school. Most children begin school with the hope to learn to read. Unfortunately, today in our public primary schools' pupils are not developing likeness for reading. A lot of them struggle painstakingly as they try to decode words. Such difficulty pupils encounter in the process affects their interest, motivation, self-confidence and subsequent reading achievement, especially at primary four when they are supposed to start learning to read in other subjects.

Weakness in PA development is seen as the commonest cause of reading difficulty. This is because the development of PA in pupils in our public schools has received little or no attention. Most schools have very little idea about PA and they attach more importance to other literacy skills such as verbal and book reading skills. Consequently, children who are delayed in phonological awareness tasks are unable to make sense of phonics or phonemic patterns resulting in a deficiency in critical knowledge skills of reading and comprehension (Mather et al., 2001).

**Purpose of the Study**

The purpose of this study was to:

1. Determine the impact of phonemic awareness instructional strategy on the performance of primary four struggling readers to identify sounds in Minna, Niger State.
2. Examine the impact of phonemic awareness instructional strategy on the performance of primary four struggling readers to decode words in Minna, Niger State.

**Research Questions**

The following research questions were asked:

1. What is the difference in the mean ability score to identify sounds between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger State?
2. What is the difference in the mean ability score to decode words between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger State?

**Hypotheses**

The following null hypotheses were generated from the research questions to guide the study and tested at $p \leq 0.05$.

1. There is no significant difference in the mean ability score to identify sounds between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger State.
2. There is no significant difference in the mean ability score to decode words between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger State.

**Literature Review**

**Phonemic Awareness (PA)**

In alphabetic languages such as English, words are composed of small units of sounds known as phonemes. These phonemes are the units of speech that are represented by the letters of the alphabetic language. Although there is no one definition of phonemic awareness, it is described as an insight about oral language and in particular about the segmentation of sounds that are used in speech communication (IRA, 1998). In other words, it is the understanding that spoken words consist of a series of individual sounds (Ball &Blachman, 1991; Yopp, 1992) which linguists refer to as phonemes. Phonemes are smallest parts of sound in a spoken word that makes a difference in word's meaning. Phonemic awareness or PA, as it will occasionally be referred to, is literally "sound" awareness. PA is a cognitive skill which involves three elements – the phonological units known as phoneme, explicit and conscious awareness of these linguistic units and the the ability to explicitly manipulate such units (Hoover, 2002). First and foremost, phonemes are the most basic units of speech that speakers and listeners unconsciously combine and contrast to produce and perceive words in spoken language. Then to be phonemically aware requires explicit and reflective knowledge about the linguistic unit underlying language (Hoover, 2002). The last element of PA involves the ability to blend, segment and manipulate sounds in the spoken words. Children who have control over the smallest units of speech are considered phonemically aware (Yopp, 1992). It is primarily an auditory skill of distinguishing and recognizing the sound structure of language (Gagen, 2006; Partnership for Reading, 2015). PA is the aspect of metalinguistic knowledge that has received most attention in relation to literacy acquisition. However, other aspects of metalinguistic awareness can be linked to literacy acquisition, such as syntactic awareness, semantic awareness, morphological awareness and pragmatic awareness.

PA helps children understand and use alphabetic principle – an insight that there are systematic and predictable relationships between letters in printed words (or graphemes) and sounds in spoken words (phonemes) and requires an understanding that spoken words can be analysed into their constituent phonemes. Children who are conscious about phonemes can deliberately separate individual sounds in words and associate them with the written letters of the alphabet whereas children without PA may only memorize isolated letter-sound relationships by rote. In addition, PA also serves as an indicator of reading disability (Yopp, 1988).

According to IRA (1998), studies and findings in the area of PA are not new to the field of literacy acquisition as many people may think, although it is only in the recent time that it started gaining wide attention. For over fifty years, discussions have continued regarding the relation between a child's awareness of the sounds of spoken words and his or her ability to read. An on-going discussion in the field of literacy is whether PA is a conceptual understanding about language or whether it is a skill. Some scholars were of the view that it is both an understanding and a skill. For example, in order to identify the phoneme in a word, students must understand that there are sounds at the beginning, middle and end that must be manipulated. They must also possess some skills to be able to complete PA tasks, such as phoneme isolation, phoneme identification, categorization, blending and segmentation.

**PA Instruction and Struggling Readers or Dyslexic**

According to some data from recent research by Planty et, al. (2009), since 1980-81 in the United States a larger percentage of children and youth aged 3 – 21 have received special education services for specific learning disabilities than for any other disability type (e.g. autism or developmental delay). A specific learning disability is defined as "a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or to do mathematical calculation" (Planty et, al., 2009: 20). Among these disorders are conditions such as perceptual disabilities, developmental aphasia and dyslexia. In 2006-2007, about 40% of all children and youth receiving special education services in the U.S. had specific learning disabilities (Planty, et, al., 2009).

Furthermore, statistics have shown that approximately 80% of children with language disorder have reading disabilities (Dollaghan, 2009). This data is of great interest to this study as further evidence of the crucial role played by phonological awareness, together with such phonological skills as verbal memory and naming can be found in experimental studies of English-speaking disabled or poor readers. Though, no specific data regarding the area of study in particular and Nigeria as a whole was available for this study. One approach to reading disorders has investigated the PA abilities of children identified as having dyslexia, often by comparing measures of their skills to those of their peers who are good readers. Most studies have been carried out with English-speaking population. Findings from Fawcett & Nicholson (1995) have shown that the PA achievement of older children who have specific difficulty in reading and / or spelling is significantly inferior to that of their peers. In general, experimental research conducted with English speaking children has demonstrated weak performance in PA in poor readers on a variety of tasks (Gillon, 2004).

**Research Methodology**

The design used in this research is quasi-experimental design using non-equivalent control groups measures of pre-test and post-test. The experimental group was compared with the control group. Test was administered to the two groups before the treatment (pretest) and after the treatment (posttest) to determine the same entry point. The experimental group was given treatment using phonemic awareness tasks, while the control group was taught using the conventional method of instruction to see whether the treatment has any effect on the reading ability of the pupils or not. All the primary four pupils enrolled in public primary schools in Minna town constitute the population for this study. The total population of primary four pupils across the 28 schools is 5,139. The total number of males is 2,536, while the total number of females is 2,603.

This study sampled two classes from the two selected primary schools that were randomly selected. The two schools are 123 Primary school and IBB Primary school. Purposive sampling was adopted to select the two classes from each school, since students were assigned to classes based on their performance and these two classes were the ones considered to have reading problems. Primary four pupils were used because in that grade, any pupil who could not read well enough or fast enough is considered to be a struggling reader. The experimental group has a total number of 39 participants and the control group has 45 participants. In total, there are 84 participants out of 5,139 pupils. The difference in the number of participants in the two groups was because these are the numbers of pupils in each class and the researcher wishes to use a whole class in each of the selected schools.

The study used Early Grade Reading Assessment (EGRA) to test some of the cognitive components of Phonemic Awareness. EGRA is a tool used to measure pupils' progress towards learning to read and has been used to examine the gaps in reading competencies among the students and is a well-known example of reading assessment in developing countries like Nigeria (Wagner, 2011).This study adapted tests in sound identification and word decoding out of the ten (10) EGRA sub tasks. Data for this study were analysed qualitatively and quantitatively. Analysis of the research question was conducted using descriptive statistics while the hypotheses were tested using independent sample of student's-test at significance level of $P \leq 0.05$.

## Results

**Research Question One:** What is the difference in the mean ability score to identify sounds between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Niger state?

**Table 1 Means and Standard Deviations on Ability Scores to Identify Sounds for Experimental and Control Groups**

| Treatment group | N | Mean | SD | Std. Error Mean | Mean difference |
|---|---|---|---|---|---|
| 1 experimental | **39** | **51.03** | **33.400** | **5.348** | **30.292** |
| 2 control | **45** | **20.73** | **14.1622.111** | | |
| **Total** | **84** | | | | |

Result presented in Table 1 shows that the mean ability score to identify sounds for experimental group was (M=51.03, SD=33.400) and that of control group was (M=20.73, SD=14.162). The mean difference between the groups was 30.292 in favour of experimental group. Therefore, it is evident that there is a difference between the mean ability scores to identify sounds between pupils at the experimental and control groups in Minna, Niger state.

**Research Question Two**: What is the difference in the mean ability score to decode words between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger state?

**Table 2 Means and Standard Deviations on Ability Scores to Decode Words for Experimental and Control Groups**

| Treatment group | N | Mean | SD | Std. Error Mean | Mean difference |
|---|---|---|---|---|---|
| 1 experimental | 39 | 28.23 | 17.530 | 2.807 | 18.075 |
| 2 control | 45 | 10.16 | 11.119 | 1.658 | |
| **Total** | **84** | | | | |

Result presented in Table 4.4 shows that the mean ability score to decode words for experimental group was (M=28.23, SD=17.530) and that of control group was (M=10.16, SD=11.119). The mean difference between the groups was 18.075 in favour of experimental group. Therefore, it is demonstrated that there is a difference between the mean ability scores to decode words between pupils at the experimental and control groups in Minna, Niger state.

**Testing Null Hypotheses**

**Null Hypothesis One:** There is no significant difference in the mean ability score to identify sounds between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Minna, Niger state. The independent samples t-test result analyses are presented in Table 3 below:

**Table 3 Independent Samples t-Test on Mean Ability Score to Identify Sounds Between Experimental and Control Groups**

| Treatment group | N | Mean | SD | T | df | p-value | Remark |
|---|---|---|---|---|---|---|---|
| 1 Experimental 39 | 51.03 | 33.400 | 5.540 | 82 | .000 | Significant | |
| 2 Control | 45 | 20.73 | 14.162 | | | | |
| **Total 84** | | | | | | | |

The results shown in Table 3 indicates that there was a significant difference in the mean ability score to identify sounds between the experimental and control groups. The result was supported by t82=5.540, p=.001, which showed a statistically significant difference between the mean scores of experimental and control groups in ability to identify sounds. Therefore, the null hypothesis which stated no significant difference was rejected.

**Null Hypothesis Two**: There is no significant difference in the mean ability score to decode words between the pupils taught reading using phonemic awareness instructional strategy and those taught using the conventional teaching method among primary four struggling readers in Niger state. The independent samples t-test result analysis is presented in Table 4 below:

**Table 4 Independent Samples t-Test on Mean Ability Score to Decode Words Between Experimental and Control Groups**

| Treatment group | N | Mean | SD | T | | Df | p-value | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 Experimental 39 | 28.23 | | 17.530 | | 5.718 | 82 .001 | Significant | |
| 2 Control | 45 | 10.16 | | 11.119 | | | | |
| **Total** | **84** | | | | | | | |

The results presented in Table 4.8 indicated that there was a significant difference in the mean ability score to decode words between the experimental and control groups. The result was supported by t82=5.718, p=.001, which showed a statistically significant difference between the mean scores of experimental and control groups in ability to decode words. Therefore, the null hypothesis which stated no significant difference was rejected.

**Summary of Major Findings**

The following are the major findings of this study:

1. Phonemic awareness instructional strategy had made a remarkable impact on the ability of struggling readers to identify sounds. The strategy had enabled pupils realize that sounds are associated with each letter, otherwise known as alphabetic principle in alphabetic language like English language.
2. The result had also shown that phonemic awareness instructional strategy has helped the struggling readers recognize familiar words and decode new words through activities such as phoneme blending and phoneme segmenting.

## Discussion

The major concern of this study is to examine the impact of phonemic awareness instructional strategy on the reading performance of primary four struggling readers in Minna, Niger state. The findings from this study indicated that the participants/pupils, especially those in the experimental group showed development and improvement in all assessment areas during the post-test. The greatest improvement was recorded in sound identification task. This is consistent with scholars' view that sound identification is the basic phonemic awareness skill to develop. This is because skills related to phonemes are more difficult to acquire and key to reading success. The amount of time spent on teaching sounds during the experiment appears to have yielded a positive effect on the performance of the pupils and consequently on their scores. Additionally, sounds were practiced during instruction in other segments or tasks. Therefore, it is obvious that the duration spent in teaching sounds was directly proportionate to their ability to identify sounds. This is consistent with scholars' view that sound identification is the basic phonemic awareness skill to develop. This is in consonant with the view of RTI (2009) and Klein (2012) that knowledge of sounds, especially how they correspond with letters is very critical skill learners must master to become successful readers.

At the post-test, after the pupils were taught sounds, the experimental group had shown improvement in sounds identification. This is because the result shown on table 1 has indicated the development by the pupils in identifying sounds. However, even after learning the sounds, some pupils still pronounced some sounds wrongly by adding vowels to them. For example, pa for /p/, la for /l/, di for /d/, ma for m/ and ha for /h/. The pupils also found it difficult to pronounce some sounds, such as the glottal sound /h/ and the semi-vowels /w/ and /y/. The result from research question two signifies that the pupils in the experimental group have performed higher with mean score of 28.23 and the standard deviation of 17.530 than the pupils in the control group who had mean score of 10.16 and standard deviation of 12.144 respectively in decoding words. Before the introduction of the phonemic awareness instructional strategy, most of the pupils lacked the knowledge of how sounds work. They were ignorant of the alphabetic principles-the relationship between the letters and sounds. Fact remains that sounds must be blended to form words. After a series of activities in sound manipulation, such as, phoneme addition, phoneme deletion, phoneme substitution, blending and phoneme segmenting, the pupils started to realize how sounds work. They began using blending strategy to decode words. This was successful to some extent, because most of the words used were monosyllabic and regular words. This improvement supports the assertion made by Ehri (2003) that learners may be able to decode unfamiliar words by using their knowledge of letter-sound correspondence to recall the sounds of each letter and then blend them into words. This enables the leaners recognize familiar words accurately and "decode" new words (National Institute of Literacy, 2000; Chard, Pikulski& Templeton, 2000). Nevertheless, the pupils find it difficult whenever they come across longer or irregular words. Given the high percentage of pupils who scored zero in decoding task, especially among the control group, the results indicate a clear gap between children who are not learning to read at all and those who are emergent readers.

**Conclusion**

This As a result of the results obtained from this study, certain conclusions can be drawn. The results have shown that phonemic awareness instructional strategy has a significant effect on struggling readers' ability to read. This conclusion was arrived at based on the improvement in the post-test result of the experimental group that shows better progress compared to the control group. This is because the method helps the pupils to understand letter-sounds correspondence, how sounds work and how sounds are manipulated and blended. This method also engages the pupils in different activities at class level, small groups and individual levels.

**Recommendations**

The study recommends the following:

1. This study recommends teaching of sounds to struggling readers as well as the beginning readers. As learners are learning letter names, the sounds should be taught alongside through pronunciation and teaching of the sounds that represent each letter. This is to enable the learners understand the alphabetic principle which is very vital in learning to read in an alphabetic language like English. Understanding sounds is very crucial in learning to read.

2. This study also suggests teaching learners how to decode words methodically through segmenting word and sound blending. Teaching the learners to segment words into sounds improves their spelling skills while blending sounds into words increases their reading ability.
3. Teachers should spend enough time on phonemic awareness activities until learners are able to decode words automatically without blending the sounds. Teaching reading should be done consciously starting with reading words in isolation to allow learners to get used to and understand words shape and form.

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# HARD AND SOFT SKILLS NEEDED FOR THE PRODUCTION OF FABRIC BAGS BY TECHNOLOGY AND VOCATIONAL EDUCATION GRADUATES FOR SELF-RELIANCE IN LAGOS STATE NIGERIA

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***Abstract***

*This study explored the skills needed in the production of Fabric bags by Technology and Vocational Education Graduates in Tertiary Institutions for Self-Reliance in Lagos State Nigeria. It examined the explicit knowledge, soft skills, and hard skills that Technology and Vocational Education graduates require to succeed as fabric bag producers. A survey research design was adopted for the study. The population of the study comprised of three tertiary institutions offering related Technology and Vocational Education Programme in Lagos State Nigeria. The sample size was 100 respondents selected from the 3 institutions. The research instrument used for the collection of data was a Researcher-made structured questionnaire. The survey covered a cross section of relevant skills and knowledge that successful and self-dependent Fabric bag producer required to become successful in the textile and apparel industry. The data collected was subjected to descriptive analysis using frequency tables and mean score. The results of the findings show that high percentage of the respondents do not have knowledge of the various stages and processes in fabric bag production. It was also revealed that the respondents still require professional training on the necessary skills and experience in fabric bag marketing before they can become successful and self-sufficient. Based on the findings, it was recommended that Bag production unit should be established in technology and vocational institution where production and marketing skills will be learnt and practiced.*

***Keywords:*** *Bag, Fabrics, Production, Self- reliance, Establish.*

## Background to the Study

Fabric bag is any type of bag made from varying materials or fabric that can be carried either by hand or over the shoulder. Also known as a sack in some parts of the world, it is a popular non-rigid container. Bags have been used since before recorded history, with the oldest bags being little more than lengths of animal skin, cotton, or woven plant fibers folded up at the edges and fastened in that shape by strings of the same fabric. Used by both genders, fabric bags may be traced back to ancient Egypt. Also, the 14th century recorded the use of drawstring bags by many who were wary of thieves and pickpockets. Self-reliance indicates a state of independence and good standing. Baumeister (1987), defined self-reliance as the reliance on internal resources to provide life with coherence (meaning) and fulfillment. The question of how best to prepare Technology and Vocational Education students in tertiary institutions for self-reliance and financial independence in the fast-paced and ever-changing clothing and textiles industry is very important because graduates face an increasingly competitive job market in Lagos state and Nigeria as a whole. According to Abusomwan (2019), Home Economics as a related area in Technology and Vocational Education, is a course taught at primary, secondary and tertiary levels, is one aimed at helping students develop desirable social attitudes and skills necessary for the world of work, resourcefulness and ability to adapt to life changing situations for self - reliance. She however highlights that the Nigerian education system is yet to achieve the national goal of producing individuals with high entrepreneurial competencies that can work independently and globally as well as creatively impact sustainable livelihood at micro and aggregate levels. With a significant gap in graduate employment and unemployment rates, the economy of Nigeria continues to suffer little or no positive impact, instead, poverty thrives, forcing the educated and non-educated alike to venture into criminal activities just to make ends meet Oluseyi, (2012). According to the National Bureau of Statistics, Nigeria's unemployment rate as of the Fourth quarter of 2020 totaled at 33.3% indicating that about 33.3 million Nigerians remained unemployed, with youth unemployment highlighting at 42.5%. Records also show that tertiary institutions in Nigeria admit close to 2 million students each academic year, producing an estimate of 600,000 graduates annually – what then happens when 70% of these able-bodied graduates cannot find jobs in the workforce – thus, a case of too many qualified graduates struggling for too few jobs/employment opportunities. The Corona Virus (COVID-19) pandemic that struck the world back in 2019/2020 also exacerbated the country's economic situation, making it even more difficult for employers to create new employment. To reduce expenses and stay financially afloat, the private sector resorted to job slashes, camouflaged as downsizing and right-sizing; again, rendering graduates helpless on high waters. Hence, colleges, universities and polytechnics should not sit back and watch as danger looms in society - the need for students entering the workforce to learn essential skills that stimulate self-sufficiency and financial independence should be emphasized Nwankwo, et a'l (2014). Fabric bag production industry is an industry that continues to expand, as its products are forever in demand; both male and female, young and old make use of bags for various purposes. With most of its consumers being women, the textile industry has worked hard in ensuring steady production of fabric bags for its buyers, with varying creative techniques, stylish designs, and up-to-date trends every season Andrew, (2011).

Alzahrani and Kozar (2017) evaluated the skills and competencies required for female graduates to succeed in the Saudi Arabian apparel production and retail sector; this is the first known study to have been carried out in a developing nation. There has been little emphasis on preparing graduates for the role of fabric bag production in the global textile business. The absence of empirical data regarding the skills and knowledge necessary for graduates to succeed as fabric bag producers in Nigeria warrants research in this field as the labor market issues in Lagos State intensify and the quest for self-sufficiency among young graduates grows stronger. To succeed as fabric bag producer, Technology and Vocational Education graduates need specific abilities that comprise relevant knowledge and skills. Skills are the ability, aptitude, or competency to perform a certain task or work in a standardized way. Skills can be learned or developed through instruction or experience. According to Yorke and Knight (2003), core skills are referred to as profession-specific talents, whereas generic or transferable skills refer to skills that may be applied in a variety of workplace settings, such as communication skills.

Soft skills are character traits or desirable qualities that are transferable from one work or industry context to another. Soft skills are generic skills; they relate more to "who we are than what we know" (Robles, 2012). Soft skills form the basis of people-related skills (interpersonal) and personal attributes (intrapersonal) (Andrews and Higson, 2008; Yorke and Knight, 2003). Scholars have proposed various types of soft skills as essential for professional success. For example, Robles (2012) identified ten types of soft skills consisting of various dimensions important for business executives in the 21st century: communication, courtesy, flexibility, integrity, interpersonal skills, positive attitude, professionalism, responsibility, teamwork, and work ethic. According to Javidan, Teagarden and Bowen (2010), people working in global industries should also have intercultural awareness and diplomacy. Jackson (2013) confirmed the soft skills proposed by Robles (2012) and Javidan et al. (2010) but also added leadership, organizational skills, and self-management and self-evaluation. Soft Skills in the production Context When Muhammad and Ha-Brookshire (2011) examined the responsibilities of producers, they discovered that communication and teamwork were crucial qualities. Due to the reliance on cross-functional and even virtual teamwork, communication is essential for marketing professionals because, marketing is next to production, (Clokie & Fourie, 2016). Goworek (2010) suggested that "vital talents for production sector include the ability to write reports, detailed specifications, budgeting, record keeping, business letters and emails, run meetings, and provide oral presentations. Forging partnerships in the global textile sector across organizational, cultural, and time zone barriers requires effective communication and teamwork (Karpova et al., 2011b). Frazier and Cheek (2016) added that professional conduct, upholding ethics, and leadership were crucial soft skills for production professions. According to an analysis of the available research, the soft skills needed in the general business environment are similar to those needed by specialists in production. Interpersonal and intrapersonal soft skill categories were established. The interpersonal or intrapersonal skill category was then used to group together various soft skills Jacops, (2018).

Dimensions of Soft Skills include, Interpersonal category, Communication, Courtesy, verbal, written, presentation, listening, polite, respectful, considerate, Diplomacy, Leadership negotiation, discretion, resolve conflict, motivates others, coaches/mentors, monitors performance, functions in diverse settings, goal-oriented Professionalism, Social businesslike, well-dressed, pleasant, friendly, sense of humor, intercultural awareness, Teamwork cooperative, collaborative, supportive, helpful, trusts others. Intrapersonal category Flexibility Integrity adaptability, willingness to change, acceptance of new things, honesty, ethical, high morals, does the right thing, Organizational Positive attitude, project management, time management, multi-tasking, prioritizing optimistic, enthusiastic, encouraging Responsibility, Self-management, accountable, reliable, gets the job done disciplined, stress tolerance, work-life balance, independent Self-evaluation, Work ethic, self-efficacy, realistic judgement of abilities, values, and beliefs hardworking, loyal, self-motivated, punctuality, good attendance.

Hard skills According to Robles (2012), are associated with a person's aptitude for technical and cognitive tasks. Robles further pointed out that hard skills can be divided into two groups: thinking or conceptual skills, and technical skills (such as technology use or numeracy). Higher order thinking talents like critical thinking, problem-solving, and information organization for decision-making are related to thinking or conceptual capabilities (Danskin et al., 2005). Thinking or conceptual abilities are hence generic and cross-disciplinary. While some technical abilities, like numeracy or the use of universal software (e.g. Microsoft Office), are equally transferrable, some technical talents are discipline specific. Use of specialist software for patternmaking, bag design drafting and grading, as well as virtual selling, are examples.

Dimension of Hard Skills Technical Category Numeracy Technology mathematical, budgeting, costing, use of information and communication technology, Thinking/Conceptual Category, Critical thinking, Decision making pattern recognition, conceptualization, evaluation, interpretation lateral thinking, information management Innovation creativity, original ideas, resourcefulness, implementation of ideas Metacognition Problem solving self-awareness, lifelong learning, reflection on experiences, analytical reasoning, diagnosing Strategic thinking, planning, visioning Knowledge. The term "knowledge" relates to cognizance, "consciousness, or understanding earned by experience or study". Knowledge is separated into explicit and tacit categories (Nonaka et al., 2000). While tacit knowledge is acquired informally from human experiences through observations and practice, explicit knowledge is obtained formally through scientific labor and findings (Nonaka et al., 2000). Knowledge can be further understood as: (a) how simple or complex it is to codify (how easily it can be shared, communicated, or learned); (b) the degree of simplicity or complexity (amount of information needed to communicate knowledge); and (c) the degree of dependency (dependent/systemic knowledge depends on how fixed it is in the organization/context, whereas independent knowledge can be explained on its own). Explicit knowledge is easy to share and teach (Danskin et al., 2005). It is what graduates have formally learned in a discipline field: the structure or organization of the discipline, the truth criteria of the discipline, and the methods and application used in the discipline (Donald, 1986). Chida & Brown (2011) also stressed the importance of discipline-specific knowledge in the textile industry. Glock et al. (2005) also emphasized the importance of including foundational knowledge about apparel products in all retail programs. These topics include textile science, quality assurance, and apparel construction. The content and subject matter of textiles and apparel were clarified in the 1990s by Kaiser and Damhorst, who made a distinction between three main areas: (a) textile product evaluation (the relationship between the physical properties of the product and consumers' responses to those properties); (b) appearance and social realities (how meaning is created through consumers' interaction with other consumers and products); (c) textile and apparel distribution systems (processes and systems involved in manufacturing, merchandising and distribution of products within a global economy). Therefore, Technology and Vocational Education graduates in Lagos State, when equipped with the necessary skills to operate as fabric bag producers, will not only overcome unemployment barriers but will also enter the Nigerian workforce as self-sufficient and financially independent professionals who will eventually become employers of labour.

**Purpose of the Study**

This study aims to identify fabric bag production and marketing skills needed by Home Economics graduates in tertiary institutions for self-reliance in Lagos state. Specifically, the study will:

1. Determine the Explicit knowledge required for Technology and Vocational Education graduates to succeed as fabric bag producers.
2. Identify the soft skills required by Technology and Vocational Education graduates for fabric bag production in Lagos State.
3. Examine the hard skills required by Technology and Vocational Education graduates for fabric bag production in Lagos State.

**Research Questions**

1. What are the Explicit knowledge required for Technology and Vocational Education graduates to succeed as fabric bag producers?
2. What are the soft skills required by Technology and Vocational Education graduates for fabric bag production in Lagos State?
3. are the hard skills required by Technology and Vocational Education graduates for fabric bag production in Lagos State?

**Methodology**

Survey research design was adopted for the study. The study covered Lagos Mainland Local Government of Lagos State. The target population for this study comprised of all the final-year Technology and Vocational Education students in tertiary institutions in Lagos state. A sample of 100 students were proportionally selected for this study. The institutions sampled include Yaba College of Technology, Federal College of Technical Education Akoka and University of Lagos, Akoka. The research instrument that was used for this study was a structured questionnaire. The Questionnaire consists of a series of 40 closed response items that cover three research questions. The response format used is the Rating scale with the response options; Strongly disagree, Disagree, Neutral, Agree, Strongly Agree. The instrument was validated by three experts, one from university of Nigeria Nnsuka, one from Yaba College of Technology and one from bag production industry. Necessary modifications were then made before distributing to the study participants. The questionnaire was prepared and distributed using an online survey form. The data collected was analyzed using the mean and percentage score.

## Results

### Research Question One (1): What Explicit knowledge do Technology and Vocational Education graduates require for Fabric Bag production in Lagos State?

| S/N | General Textile Knowledge Category | SD | D | N | A | SA | Total |
|---|---|---|---|---|---|---|---|
| 1. | I'm good at styling outfits to suit different occasions **(Fashion)** | 2 | 4 | 18 | 19 | 57 | 100 |
| 2. | I have basic knowledge on how to operate mechanical machineries like sewing and leathermaking machines, using appropriate construction techniques **(Manufacturing)** | 8 | 0 | 20 | 28 | 44 | 100 |
| 3. | I can distinguish between different types of fibers, yarns, and dyes **(Textile)** | 4 | 2 | 24 | 33 | 37 | 100 |
| . | If I was to design a new fabric product, I'd be able to apply the principles and elements of design like contrast, balance and forms. **(Aesthetics)** | 2 | 4 | 17 | 33 | 44 | 100 |
| 5. | I have a strong attention to detail and will be able to identify any non-conformity between an original product and pre-production samples **(Textile product)** | 5 | 3 | 19 | 41 | 32 | 100 |
| 6. | I know how to attach a symbolic meaning to a product through identity creation **(Social Cultural Impact)** | 4 | 4 | 20 | 39 | 33 | 100 |
| 7. | I always avoid excessive waste of materials, littering and the use of unrecyclable products. whenever I engage in creative work **(Sustainability)** | 0 | 2 | 15 | 46 | 37 | 100 |
| | **Merchandising knowledge Category** | | | | | | |
| 8. | If given the opportunity, I'd be able to formulate solid marketing strategies for branding and advertisements **(Marketing)** | 2 | 7 | 20 | 37 | 33 | 100 |
| 9. | I'll be able to effectively plan and implement strategies to deal with the suppliers who may not be willing to partner with me **(Sourcing)** | 2 | 2 | 26 | 37 | 33 | 100 |
| 10. | It will be easy for me to manage sales and maintain healthy competition among competitors within the textile industry **(Business)** | 0 | 9 | 16 | 43 | 32 | 100 |
| | **Mean score** | **2.9** | **3.7** | **19.5** | **37.6** | **38.4** | |

The data gotten from this table indicates that a greater percentage of students with the mean score of total value **76,** are in agreement to possessing the relevant Explicit knowledge that will enable them to become self-reliant fabric bag producers. The mean scores for the students who fell under the "Neutral", "Disagree", and "Strongly disagree" categories were significantly lower totaling at **26.1**. This means that a handful of students have little or no knowledge regarding textiles and bag production.

**Research Question Two (2): What Soft Skills do Technology and Vocational graduates require for Fabric Bag production in Lagos State?**

| S/N | Interpersonal Category | SD | D | N | A | SA | Total |
|---|---|---|---|---|---|---|---|
| **1.** | **Good Communication skill** | 2 | 2 | 7 | 39 | 50 | 100 |
| **2.** | I'm likely say please and thank you when asking for assistance from colleagues and subordinates **(Courtesy)** | 2 | 0 | 2 | 26 | 70 | 100 |
| **3.** | I know how to initiate conversations with customers and have a strong sense of humor **(Social)** | 0 | 0 | 13 | 37 | 50 | 100 |
| **4.** | I am able to cooperate and work well with entrepreneurs from different backgrounds to achieve a common goal **(Diplomacy)** | 2 | 2 | 17 | 33 | 46 | 100 |
| **5.** | As a businessman/woman, I would feel a strong sense of responsibility towards the society **(Professionalism)** | 2 | 3 | 15 | 30 | 50 | 100 |
| | **Intrapersonal Category** | | | | | | |
| **6.** | To keep myself accountable, I like to share my business targets and goals with others **(self-management)** | 11 | 11 | 22 | 30 | 26 | 100 |
| **7.** | If a proffered solution doesn't work, I would seek an alternative rather than give up quickly **(Flexibility)** | 4 | 0 | 7 | 35 | 54 | 100 |
| **8.** | People can count on me to deliver on my promises and to follow through on my commitments **(Integrity)** | 4 | 0 | 6 | 32 | 59 | 100 |
| **9.** | I will rather take responsibility for my mistakes as well as my teams' and proactively try to fix/learn from them than point blame. **(Responsibility)** | 0 | 0 | 5 | 32 | 63 | 100 |
| **10.** | I know how to stay organized working on multiple business projects **(Organizational)** | 2 | 0 | 20 | 37 | 41 | 100 |
| | **Mean Score** | **2.9** | **1.8** | **11.4** | **35.1** | **50.9** | |

From the above data, it can be deduced that the Strongly agree category has the highest mean score with a value of 50.9 followed closely by the Agree category with a value of 35.1, indicating a high level of self-perceived competence in the possession of relevant soft skills among majority of the students. A relatively smaller subset of students with a total mean value of 16.1, however expressed their uncertainty or disagreement with their possession of the relevant soft skills.

**Research Question Three (3): What Hard Skills do Technology and Vocational Education graduates require for Fabric Bag Production in Lagos State?**

| S/N | Technical Category | SD | D | N | A | SA | Total |
|---|---|---|---|---|---|---|---|
| **1.** | I can do solid calculations that involve costing and budgeting (Numeracy) | 4 | 0 | 11 | 41 | 44 | 100 |
| **2.** | I know how to make use of the internet to source information without assistance (Technology) | 1 | 2 | 2 | 26 | 69 | 100 |
| **3.** | I am skilled in the use of Microsoft Word, Excel and spreadsheets and will be able to incorporate it for data analysis in my business (Technology) | 7 | 5 | 15 | 30 | 43 | 100 |
| | Thinking/Conceptual Category | | | | | | |
| **4.** | I apply foresight in planning and anticipate problems before they occur (Strategic thinking) | 2 | 4 | 9 | 46 | 39 | 100 |
| **5.** | I figure out original ways to do things as well as actively adapt and improve on existing ideas (Innovation) | 0 | 0 | 11 | 37 | 52 | 100 |
| **6.** | I often draw vision boards so that I am able to visualize and achieve my set goals (Strategic thinking) | 3 | 0 | 17 | 37 | 43 | 100 |
| **7.** | I constantly reflect on past experiences to evaluate my strengths and weaknesses (Metacognition) | 2 | 0 | 13 | 50 | 35 | 100 |
| **8.** | I have an inquiring mind and am eager to learn from those who are more knowledgeable than I am (Metacognition) | 2 | 4 | 11 | 35 | 48 | 100 |
| **9.** | If I was a team head, it would be easy for me to identify and deploy members who will contribute effectively to certain tasks (Decision making) | 0 | 2 | 11 | 37 | 50 | 100 |
| **10.** | When faced with a complex situation, I know how to identify the problem and make justifiable evaluation (Critical thinking) | 2 | 0 | 11 | 43 | 44 | 100 |
| | **Mean score** | **2.3** | **1.7** | **11.1** | **38.2** | **46.7** | |

Findings from the above data, shows that the Strongly agree category has the highest mean score with a value of 46.7 and the Agree category has a mean value of 38.2, indicating that majority of the students are confident in their possession of relevant hard skills needed for fabric bag merchandising and autonomy in Lagos state. A smaller subset of students with a total mean value of 15.1, however expressed their uncertainty or disagreement with their possession of the relevant hard skills.

**Discussion of the Findings**

Based on the presented, analyzed and interpreted data, the researcher was able to gather the following result. The findings reveal that majority of final year students in the selected tertiary institutions in Lagos state have acquired a reasonable amount of the necessary soft skills, hard skills and explicit knowledge that will enable them to become self-reliant fabric producers in Lagos state. In line with Arnold and Forney (1998), graduates need specific abilities that comprise relevant skills and knowledge to succeed as Fabric bag producers. However, only a handful of these students have secured the professional experience/tacit knowledge that will equip them with valuable insight and expertise to be successful. Such skills and information cannot be gotten from theoretical application or textbooks, instead is taught through observation and apprenticeship. Self-management being a necessary skill for professional success in Fabric bag production which will play a significant role in impacting the students and enforcing discipline amongst them. This is confirmed by Jackson (2013) who emphasized the addition of leadership, organizational, self-management and self-evaluation skills to the proposed soft skills required of business executives in the 21st century by Robles (2012) and Javidan et al. (2010). Finally, Chida & Brown (2011) accentuated the importance of discipline-specific knowledge in the textile industry.

**Conclusion**

This study was carried out to identify and analyze the fabric bag production skills needed by Technology and Vocational Education graduates in tertiary institutions for self-reliance in Lagos state. It examined the soft skills, hard skills and explicit knowledge that Technology and Vocational Education graduates require to succeed as fabric bag producers. It can be deduced that the respondents still require professional training on the prerequisite skills and experience in fabric bag production before they can become successful and self-sufficient graduates. In conclusion, this research highlights the importance of equipping Technology and Vocational Education graduates with the necessary skills to succeed in the fabric bag production industry. The findings of this research underscore the potential for self-reliance and entrepreneurship within the fabric bag sector, particularly in a densely populated and economically vibrant region like Lagos State. By providing Technology and Vocational Education graduates with the relevant skills, knowledge, and resources, they can tap into this growing market and create sustainable livelihoods for themselves. The study identifies key areas where these graduates can enhance their skills, such as designing, marketing, sourcing materials, production techniques, and business management. It emphasizes the need for practical training, internships, and mentorship programs to bridge the gap between theoretical knowledge and real-world application. By addressing the skills gap in fabric bag production, the research suggests that tertiary institutions in Lagos State can play a crucial role in empowering graduates to pursue self-employment and contribute to the local economy. Furthermore, it highlights the significance of collaborations between educational institutions, industry stakeholders, and government agencies to establish supportive frameworks and initiatives that foster entrepreneurial success. Overall, this research provides valuable insights into the fabric bag production industry and the skills required for Technology and Vocational Education graduates to become self-reliant. By investing in the development of these skills and creating an enabling environment, we can empower graduates to thrive in the business world, promote sustainability through eco-friendly alternatives, and contribute to the economic growth of Lagos State.

**Recommendations**

Institutions should advocate for the inclusion of fabrics bag production textbooks and integration of entrepreneurship education in the Technology and Vocational Education curriculum.

1. To effectively address the challenges that may be encountered by Technology and Vocational Education graduates in setting up their Fabric bag production businesses, the government should make provision for mentorship programs and business incubation centers.
2. Compulsory internships in bag production should be included in the required course work for Home Economics students who is interested and want to specialize in this aspect.
3. Collaboration of educational institutions, industry stakeholders, and government agencies is encouraged to establish supportive frameworks, funding and initiatives that foster entrepreneurial success among Home Economics graduates.
4. Business agencies like SMEDAN (Small and Medium Enterprises Development Agency of Nigeria), NEPC (Nigerian Export Promotion Council), Manufacturers Association of Nigeria (MAN), should set up and implement policies that promote a conducive environment for Fabric bag production and merchandising among graduates with little or no capital.
5. Digital educational training bodies like Coursera, Jobber man, Udacity, and Udemy are encouraged to collaborate with institutions to bring about the training of students in vital soft skills and hard skills through online or physical mentorships.
6. Bi-annual training programs should be organized to enhance fabric bag production skills among Technology and Vocational Education graduates.






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# SAND MINING, SUSTAINABLE ENVIRONMENT AND NATURAL RESOURCES AS SDGs DRIVER IN SUB-SAHARAN AFRICA

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***Abstract***
*The concept, sustainable development, an offshoot of which is the global effort at ensuring global improved living conditions denoted Sustainable Development Goals, SDGs is all-encompassing. Sustainable development connotes development that satisfies the demand of the present without compromising the future generation's capacity in meeting their needs. Prominent pillars of sustainable development has been documented to include socio-economic development in line with environmental consideration, the principle of needs warranting reorganization of natural resources in ensuring quality life for all, resilience with environmental preservation undertone; and concern for future generations with emphasis on the utilization of resources in a way that is devoid of jeopardizing future generations' standard of living. The foregoing is an indication that the place of environment and natural resources coupled with the way such are handled goes a long way in determining the level of development of any nation. Achieving the SDGs 17 goals and 169 Targets therefore is a function of environmentalism. Africa and indeed, Nigeria is blessed with diverse natural resources and viable environment with the continent representing 20% of the earth surface containing 60% of the world's arable lands, 30% of the worlds' reserve of minerals with Nigeria accounting for about half of the West Africa's population which positions her as the key player in West Africa. Similarly, Nigeria is noted for abundance of natural resources acclaimed as Africa's biggest oil exploitation with the largest natural gas reserves. One of such valuable resources that is development-driven is avalanche of sand which constitute one of the foremost resources in construction activities, be it industrial or domestic. Thus, sand mining which is the removal of sand from their natural location to areas of utility has become a lucrative economic activity in Nigeria. This however is not without concomitant economic consequences on sustainable environment,*

*natural resources and development, hence, its influence on the attainment of SDGs. Sand mining despite economic contributions to household income, domestic and industrial usage as well as the Gross Domestic Product, GDP, the astronomical demand for sand mining occasioned by housing insufficiency, infrastructural development, construction among others, the environmental and resource impact keeps on unabated which is inimical for the quality of environment, natural resources and sustainable development. To be SDGs compliant in the 21st century therefore calls for a rethink on a number of activities that are not environmentally friendly resulting from illicit, illegal and lack of requisite concern for the environment. It is against this background that this study examined sand mining, sustainable environment and natural resources as a driving force for SDGs attainment in Nigeria Sub-Saharan Africa.*

***Keywords:*** *Environment; Natural resources; Sand mining; SDGs; Sustainable development*

**Introduction**

Development albeit, sustainable developments constitute the hub of growth and development the world over. It therefore follows that nations of the world must of necessity ensure that concerted efforts are directed at bringing about growth and development to facilitate all round breakthroughs. This perhaps ranked tallest especially among the orchestrated developed worlds/nations in driving their economy. Thus, sustainable development which ensures satisfaction of the present generation in terms of resource utilization in generating optimum results without affecting the unborn and future generations has become household concept. Reiterating the place of sustainable development, Omeluzor and Ogo (2018) Citing WCED averred that meeting the demand of the present time in satisfying the plethora of needs and wants without hindering the future generations' ability to meet their needs constitute sustainable development. In the word of Oladiti (2023), sustainable development is all-encompassing phenomenon that requires sustainable resources that can be utilized both in the present and the future without one adversely affecting the other. Three pillars of development have been canvassed for explaining vividly, the concept of sustainable development. The said pillars according to Asemah and Imafidon in Adeniji and Hundo (2023) relates to i. Socio-economic development having environmental considerations undertone; ii. Principle of needs with focus on the reorganization of national resources that guarantees quality of life for all; and iii. Resilience with focus on the preservation of the environment. The third pillar encapsulate focus on the future generations' right from the present one in the use of resources in such a way that the usage will not affect the future generations, their standard of living inclusive. Arising from the peculiarity of sustainable development to the overall attainment of national goals and objectives as well as pave way for nations of the world to collaborate in ensuring the needed development across all strata of economies, developed, developing and third world countries, the global effort emerged captioned Sustainable Development Goals, SDGS. As a fall out of the expiration of the previous global development effort encapsulated in Millennium Development Goals

Strategy (MDGS), Omolewa (2019), Oladiti (2022) described SDGs as a global response to problems facing human society in the 21st century such as poverty, food insecurity, gender inequality, unemployment, security related issues to mention few. It was the contention of Klarin (2018) that SDGs as driver of sustainable development address among others, issues relating to social justice pursuance, environmental preservation, social fairness, climate change issue, cultural diversity promotion. Capturing the ideals of the SDGs, Adeniji and Hundo (2023) summed up the SDGs'17 goals and 169 Targets vis: End poverty; Zero hunger; Healthy living; Quality education; Gender party; Access to water and sanitation service; Sustainable energy; Inclusive and sustainable economic growth; Equitable and sustainable industrialization; Lower inequality among nations; Inclusive cities and human settlements; Sustainable production and consumption habits; Tackling climate change; Protections of oceans, seas and minerals resources; End biodiversity loss; Encourage inclusive and peaceful society for long term development and Global cooperating. These goals and their associated target speak volume about sustainable development at large especially in the 21st century. Little wonder the choice of this year's conference theme of addressing development challenges among African economies in the 21st century. The task of achieving SDGs in a task for all and as such, all hands must be deck.

Secondly, Africa as a continent and Nigeria as a nation are confronted with a lot of development challenges which tend to scuttle their efforts at attaining the SDGs goals. For instance, Tetfund (2023) while identifying opportunities for innovation and challenges especially for Nigeria, exposes the continent and the nation's situational analysis as follows: Africa is expected to witness more than half of the world population growth by 2050. Africa ranked second world largest and most populous continent; 20% of the entire earth surface inhabited by Africans with 60% of the world's arable lands and 30% of the minerals reserve. Nigeria is credited a key regional player in West Africa as it account for about half of West Africa's population, one of the world's largest population of youth, abundant natural resources and Africa's biggest oil exporters and noted for largest natural gas reserve the world over. In spite of the foregoing natural gifts, the continent paradoxically under performs economy-wise with just 3% of Global GDP, less than 3% of international trade noted for primary commodities and natural resources. African bears 25% of the global disease burden. Obviously, this kind of development index can neither drive sustainable development nor promote SDGs attainment in Sub-Saharan Africa and Africa in general. Sustainable development as a term is said to gain popularity in the second phase of 20th century (Putra & Purnaweni, 2018) occasioned by the rapid economic growth across the globe with intensive use of natural resource underpin. Hence, a fall out of the activities of the World Commission on Environment and Development, WCED to stem illicit use of resources, sustainable development concept relating to development that meet the needs of the present without compromising the ability of the future generations in meeting their own needs was conceived (Dubinsky, 2013). Earlier position of the ideals of sustainable development by Keraf (2010) is to synchronize, integrate and assigning some weight to the three major aspects of development in terms of economic, social, culture and environment.

Attesting to the foregoing, Oladiti (2023) affirmed that sustainable development in any nation is a function of available resources and how such are being handled. This perhaps underscores Dubinsky (2013)'s three pillars of sustainable development of economy with respect to technical activities that guarantee economic growth; ecology with respect to activities that guarantee natural resources and environment protection; and social responsibility relating to employees are in work place and miming environment. Similar view was the one credited to Absmah and Imadifon (2021) in Adeniji and Hundo (2023) who identified socio-economic development with environmental focus; principles of needs with regards to the re-organization of natural resources that guarantees quality life for all; and resilience which relate to environment preservation that ensures judicious utilization of resources in the present without affecting future generations and their living standard. The corollary of the above is the place of environment and national resources generally in driving sustainable development. One of the prominent environmental resources that have attracted attention in the environment is sand which might not be unconnected with its plenitude and economic importance of both domestic and industrial purposes. Natural resources according to Rais, Abdullah, Malik, Mahmuda, Pardana, Abdullah, Dja'wa, Suriadi, Naping and Manuhutu (2019) is everything given by the nature for the purpose of meeting human needs which could be in form of biotic components like animals, plants, micro-organism as well as abiotic components like petroleum, natural gas, metal, water, soil, to mention few. For the purpose of utility, sand excavation has become lucrative job. Sand miming thus is like a double edge sword for the environment, resources and human beings as well as sustainable development and SDGs. This study therefore focuses on the extent to which sand miming could inhibits or serves as drivers of SDGS attainment in sub-Saharan Africa.

**Conceptualizing Sand Miming**

'The earth is the Lord and the fullness therein' is a biblical injunction that depicts natural endowment on the planet earth meant for the satisfaction of numerous wants confronting human beings. Thus, human beings as higher animal always create utility from the abundance of resources. Reiterating this fact, Johnbull and Brown (2018) were of the view that natural resources are all life supporting elements bestowed on the mother earth for the good of mankind, hence, dependency on the environment (Oladiti, 2019). Giving a vivid description of natural resources, Rais et al, (2019) enthused that everything that comes from the nature which can be used to meet the needs of human life in terms of biotic and abiotic components constitute natural resources. Basic in the said components is sand, a variant of soil which is prevalent in the environment. Sand according to Putra and Purnaweni (2018) is soil component extractable for both domestic and industrial use. It constitutes underground geological sources that are formed from the eroding mountain rocks that are being carried by rivers. Sand has also been described as low-priced readily available natural resource emanating from weathering as well as constituent parts of other minerals and rock associated with deserts and seashores (Saviour, 2012; Nwangi, 2007).

Miming generally belong to the primary sector of the nation's economy which entails extraction of raw materials from their source or location. Thus, miming sites according to Devi and Prayogo (2013) are usually located in areas characterized by significant biological and environmental features in small islands and tropical rainforests, they can as a result of development found in populated areas. Sand mining constitutes business activity in the field of extraction of natural resources. Rais, et al (2019) opined that sand mining operates under agrarian law, the basic law of laws that have areas of processing earth bodies, water, space and natural resources. The law is an offshoot Article 33 paragraph 3 of 1945 constitution which stipulated that all activities involving the earth, water, space, and natural resources must be beneficial for the prosperity of the people. Sand mining entails activities involved in the process of harvesting sand from an open pit as well as such areas such as rivers, streams, lakes, to mention few. It entails the removal of sand from their natural configuration (Adedeji, Adebayo & Sotayo, 2014) which occurs at both small and large scale in major parts of Nigeria. Describing sand mining from the perspective of a study carried out on socio-economic consequences of sand mining, Johnbull and Brown (2017) averred that sand mining relates to processes involved in the mining of sand over open pits that often takes place around island dunes, river bed, as well as along beaches. Sand mining according to UNEP (2023) involve removal of sand from rivers and marine ecosystem which may be for individual, domestic and industrial usage.

**Prevalence, Typologies and Trends of Sand Mining**

In a bid to satisfy a number of needs, human beings as a social animal have used his native intelligence in obtaining the best from the environment in a quest to finding solution and clarifications to problems being confronted in the course of interacting with fellow beings and the environment. Subscribing to this, Oladiti (2023) asserts that human beings has transformed the environment to their advantage and thus, proofed not to be a slave to the environment. One of such action is the extraction and conversion of mineral resources to further domestics and economic uses. Confirming this stance, Putra and Purnawemi (2018) indicated that land entails all resources which are domicile both inside as well as above its surface being utilized by human beings in satisfying their needs. Prominent in such resources is sand and by extension, sand mining activities. Tracing the debut of sand mining among other resources being extracted as primary sector of the nation's economy, Semarang (2013) associated pan cosmism and anthropocentrism to the origin of the rise of nature for satisfying their wants with the former relating to sacred nature of relationship between human and nature while the latter secluding human beings from nature associated with increasing number of people and their needs which must be met. Thus, sand mining as one of such necessities increase in leaps and bounds which thus underscores the prevalence of sand mining and mining and associated activities, Hemalatha (2005) adduced further that the use of sand and gravel, a product of sand mining have been used in construction sector of the economy for thousands of years.

Commenting on the prevalence of sand mining in Nigeria, studies have shown that sand mining has become a regular activity exemplified by both pit and river sands being ferry by tippers, trucks of different sizes across different parts of the environment. This includes uncontrollable sand mining activities taking place around rivers and open field generally. The said activity is a global phenomenon relating to the extraction of natural resources which has constituted income streams across its value chain strata which starts from extraction to its haulage and made available to the end users which could be domestic or industrial (Aromolaran, 2012; Johnbull and Brown, 2017; Adedeji, Adebayo & Sotayo, 2018). The value chain includes a number of ample processes of head cutting which produces channel incision as well as hungry water techniques especially in excavation of in stream sand, skimming of bars and pit excavation (Stebbings, 2006).

In a description of nature and prevalence of sand mining generally, Draggan (2008) indicated the existence of worldwide intensive sand mining, a common phenomenon in a number of unindustrialized as well as industrialized nations noted for processing of sand as raw materials especially in the construction as well as other industries. For instance, Stebbings (2006) affirmed that the United States of America top the list of industrialized nations engaging in sand mining and its production and usage with great concern for the ecological impact compared to African countries such as Nigeria, Kenya with emerging economies characteristic of intensive sand mining and the associated environmental impacts. Adedeji, Adebayo and Sotayo (2014) also affirmed that sand mining at both small and large scale is a major occurrence in major parts of Nigeria. This claim is buttressed by the day to day activities of sand mining and associated activities taking place at increase pace on daily basis across the whole nation with haulage being witnessed in virtually all roads, trunk A,B and C inclusive. Further asserting the prevalence of sand mining phenomenon, Johnbull and Brown (2017) adduced intricacies surrounding the activity by stating that excavation of natural resources, sand mining inclusive especially in the Global North developing countries have become a knotty issue over the years especially on the issues of implementation of laws on the issue. This notwithstanding, Draggan (2008) while establishing the prevalence of sand mining averred that the nature of sand as available construction material, its mining constitute the foremost raw materials prevalent in most African societies which might not be unconnected with avalanche of sand as natural resources in the continent.

Typology-wise, as there are different resources imbued in both in-depth and outer surface of land as resources, so also are the different raw materials being obtained from sand mining. As a component of soil characterized by colour, texture, feature (Oladiti, 2019) among others, sand generated from mining are of different types such as sand, gravel, river sand, silt, gutter sand, sharp sand, laterrites among others. As such, sand, gravel, river sand, allied derivatives from sand mining which are a product of their sources as well as the use to which such are subjected (Devi, 2013; Kori 2012).

Sand mining as an important component of mining sector since its inception continues to experience various dimensions arising from the increased industrialization and urbanization activities. As such, the demand both at domestic and industrial level has improved and promoted sand mining activities including the method of extraction, number of processes involved, the use of technology and innovation right from extraction to haulage, distribution and eventual end users. This perhaps informed the assertion of Devi (2013) that the rapid development era has led to the exploration of rivers and flood pains in search of sand, gravel and other allied resources imbued therein. Similarly, the issue of concentration of development in the urban centres in Africa as an emerging economy has resulted in mining of sand at an alarming rate, all in a bid to meet up with the sand required by the construction sector (Johnbull & Brown, 2017). The earlier submission of Lupande (2012) that the sand mining especially in Harare in Zimbabwe was not as popular as it is today until year 2009. Adedeji, et al (2014) capped it all by fingering rapid urbanization as the sole factor responsible for incessant and continuous sand excavation culminating in many illegal in land sand mining cutting across the length and breadth of the country.

**Sustainable Development Indicators of Sand Mining**

It is instructive to state at this juncture that sand is a foremost valuable resource driving socio-economic development especially in the construction parlance which could be domestic, commercial or industrial in nature. Thus, sand mining as a significant component of the primary sector provides a number of sustainable economic and development indicators such as exploration and exploitation of the natural resources to facilitate economic growth and sustainable development at large. For instance, generation of household income and reduction of poverty and hunger which are akin to the SDGs and its targets is made possible through sand mining. Its employment generation prowess is also one of its outstanding development indicator coupled with indirect socio-economic benefits to hosts and neighbouring communities. Sand mining cannot be over-emphasized in terms of industrial and infrastructural development with concomitant potentials for tourist attraction which can invariably enhances generation of income as well as foreign exchange earnings. Subscribing in the same vein, Kori (2012) advanced that sand mining do impact on the local economy with sand and gravel as well as their allied materials contributing in both developed and developing economies. Putra and Puraweni (2018) also identified sand mining as a means of meeting human needs. Relating sand mining to sustainable development, Dubinsky (2013) presented sustainable development as a function of three infallible pillars of economic growth, protection of the national resources of the environment and social responsibility. These are major drivers of sustainable development and part of the 17 goals of SDGs. In terms of urban and infrastructural development, sand mining do enhance urban and city development. Attesting to this, Madyise (2013) identify global city spaces enhancement through sand mining since sand so extracted coupled with their allied derivatives constitute major constituent of infrastructural and physical development and the resultant developed economies. Similar view is credited to Adedeji, Adebayo and Sotayo (2014) who described sand generally as a valuable resource as well as one of the major input in the construction sector the world over.

Sand has also been described as useful and easily available construction material. Giving a vivid posture of sand mining as a strong indicator of economic growth and sustainable development, Johnbull and Brown (2017) gave the following analysis:

> Sand mining assists in riverbeds and waterways clearance of silt and sediments useful in grading waterways, control the degree of inundation and stabilizes the river. This invariably made waterways more navigable as well as economizes inland water transport system, development of tourism potentials, revenue generation to the government and communities, employment creation and reduction of social vices coupled with the reduction of economic hardship (p.4)

The foregoing among others are sustainable development drivers. Little wonder the submission of Adedeji et al, (2014) that sand mining multiplier economic significance include among others, industrialization and urbanization which culminates in expansion manifesting in infrastructural growth, road construction, building commercial malls as well as construction of residential areas. Without mincing words, sand mining as an appendage of environmental resource utilization is sine-qua-non of sustainable development.

**Sand Mining and Sustainable Development Interplay**

As could be observed, sand mining as a component of environmental resources is akin to construction sector of the economy that cannot be over-emphasized in terms of its significant contributions to the economy. The activity surrounding sand mining however, is like a double-edged sword, corollary of which is its environment impact and sustainable development attainment implications. The largess from sand mining and the allied materials notwithstanding, literature is replete on the ills associated with the practice which invariably impinges on some of the SDGs goals. For instance, sustainable environment, health as well as quality water are tangential to SDGs goals which are constantly being affected by sand mining activities across the globe. Subscribing to the foregoing, the UNEP (2023) adduced that sand mining which could be from rivers and marine ecosystem is capable of generating among others, erosion, salination of aquifers, loss of protection against storm surges with concomitant impacts on bio-diversity thereby posing threat to livelihoods such as water supply, food production, fisheries as well as tourism as industry. Closely associated with the foregoing is the turning of burrow pits to ponds with attendant menace to people living in such areas such as waste dumping, noise and offensive odours (Adedeji, Adebayo & Sotayo, 2014).

Other SDGs related impact of sand mining is the peace and justice as well as clean environment. For instance, studies such as Willis and Garrod (1999), Abdus-saleque (2008) identified among others, issues of conflicts with regards to both environmental and social issues of noise, truck traffick, dust, quality of stream water, reclamation, biodegradation, pollution as well as landscapes that are unpleasant to behold. Other issues include waste management, biodiversity and habitat impact, deforestation and subsequent elimination of the vegetation coupled with pollution of all sort. The negative stance of sand mining capable of affecting attainment of the SDGS goals is the youth involvement in the act. Berating the impact of sand mining on youths, Johnbull and Brown (2017) advanced that in most communities where the act is taking place is bereft of active age population expected to be at their peak of productive cycle that are not being constructively engaged in mining activities which by extension, degenerated into the emergence and institutionalization of urban and rural gangs that in most cases, aggravate inter and intra- community conflicts, loss of precious life inclusive.

Advocating the detritus nature of sand mining to sustainable environment and development, Johnbull and Brown (2017) revealed that despite the short term practice of sound mining in the area of their study of less than 15years, the intensity and resultant consequences on the communities will take more than 30years to find recourse to. Similar posture was reported by Lawal (2014) in some Northern parts of Nigeria which were not devoid of environmental consequences as well as impending ecological disaster. All these attest to the intricacies surrounding sand mining and its potential debacle to sustainable environment and development. The more reason why Aromolaran (2012) adduced that the adverse sand mining outcomes in terms of economic consequences of the act by no means overweighs its positive impact. This might not be unconnected with the assertion of Oladiti (2023) that human beings in attempt to find solution to one problem tend to create more problems in the environment. Johnbull and Brown (2017) also indicated that sand mining has catastrophic ecological consequences that do displace the flora and fauna as well as distortion of ecosystem balanced. Furthermore, sand mining is associated with a number of environmental issues, physical and social inclusive while excessive mining is hazardous as it constitute potential non-reversible impacts on the environment as well as increased risk of natural disaster. More so, sand mining also contribute significantly to environmental devaluation manifesting in distorted topography, unproductive agricultural terrain, deforestation, degradation and pollution among others (Putra & Purnaweni, 2018; Koro & Mathada, 2012; Purnaweni, 2014).

Sand mining is also noted for potential damage to private and public poverty as well as constituting threat to aquatic life, water quality, and damage of water sheds which has been described as a common feature of developing countries. Lending their voice in this direction in the socio-economic consequences of sand mining, Rais, et al (2019) stated that dreading of sand continuously over a long period of time is capable of generating decrease in the stacks of river sand which can result in deeper river bed, changes in the physical environment of the active river, widening of river surface, movement of rivers and collapse of river banks that can lead to erosion which is detrimental to resident on the cliffs. It also generates change in surface of the land, nesting site for mosquitoes, disease and eventual death. Such situation portends grave consequences for sustainable environment and development at large. Considering the way and manner by which sand mining is being carried out especially in most developing countries, Subagia and Sutrisno (2013) advanced that illegal activity associated with sand mining is a potential threat in terms of the deterioration especially in the carrying capacity of the river against the life of the surroundings biotic environment. Summing up the pros and cons of sand mining and its deterioration effects on the environmental resources and sustainable development, Abdullah, Malik Prativvi, Abdullah and Sulili (2019) advanced that despite the lucrativeness of sand mining business, sand mining is noted for its threat of disaster such as disruption to the preservation of environmental ecosystem and surrounding buildings. The more reason why Astraran (2014) submitted that sand mining is one of the serious environmental problems around the globe in recent years in terms of exploitation of rivers for river bed materials like sand in the quest for satisfying human beings insatiable needs with associated effect such as land degradation, land aesthetic beauty loss, agricultural land loss, degradation of river bed as well as riparian habitants. The foregoing among others is inimical to sustainable environment and development.

**Concluding Remarks**

At this juncture, it is obvious that arising from the unquantifiable contributions of sand in infrastructural development coupled with increased industrialization, urbanization and population growth, sand mining will continue to increase. This might be as a result of insufficient housing infrastructural development, construction, and employment and income generation, tourism, among others. These reasons are also important for development and achievement of sustainable development goals generally. The foregoing notwithstanding, it is instructive to state that sand mining on its own is by no means economically irrelevant but the associated factors that are of grave consequences to environment and environmental resources that tends to affect sustainable environment and development especially in the third world countries rift with illegal sand mining, little or no concern for environmental impact, lack of requisite laws governing sand mining as well as enforcement of the available ones. Selfishness and self aggrandizement is also one of the factors affecting sustainable sand mining. Illegality, insecurity, gangsterism as well as unproductive engagement of youth who are of active age, a requisite for sustainable labour force is inimical for achieving sustainable development at large.

It is therefore incumbent for the nation to work towards achieving environmentally friendly sand mining that is guided by laws and regulations. Consequently, to be SDGs compliant in the 21st century therefore calls for a rethink on a number of activities that are not environmentally friendly resulting from illicit, illegal and lack of requisite concern for the environment. Efforts must therefore be garnered in ensuring sustainable sand mining to serve as a driver of sustainable environment, development and attainment of SDGs.

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# DEVELOPING ENTREPRENEURSHIP SKILLS AMONG UNDERGRADUATES IN BUILDING AND WOODWORK TECHNOLOGY EDUCATION FOR SELF-EMPLOYMENT AND ECONOMIC GROWTH IN THE 21ST CENTURY

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***Abstract***

*Building and woodwork technology education are among the most incredible facilitators of change in any developing nation due to their impact on skill acquisition and a panacea for self-employment and economic growth. This study focused on developing entrepreneurship skills among undergraduates in building and woodwork technology education (BWTE) for self-employment and economic growth in the 21st century in Lagos state, Nigeria. The study adopted survey research design. The population for the study consisted of 75 participants, comprised of 28 building and woodwork facilitators, 22 Entrepreneurship Education Studies Experts and 25 registered building and woodwork technology entrepreneurs from the study areas. Sampling was unnecessary as the population was small enough to be managed. A self-structured instrument developed by the researchers' title: Developing Entrepreneurship Skills among Undergraduate for Self-employment and Economic Growth Questionnaire (DESUSEGQ), validated by three experts and with reliability co-efficient of 0.87, obtained through Cronbach alpha method, which was used for data collection. Data collected were analyzed using mean and standard deviation to answer the research questions. The study's findings revealed 15 entrepreneurship skills required, among undergraduates in building and woodwork technology education, 11 prospects of entrepreneurship skills required among undergraduates in building and woodwork technology education, and 12 strategies for developing entrepreneurship skills among undergraduates in building and woodwork technology education for self-employment and economic growth. The study recommended among others that BWTE facilitators should incorporate training on digital tools for design (CAD, 3D modeling), project management, and digital marketing and educate undergraduates on the legal aspects of starting and running a business, including permits, licensing, and industry-specific regulations for self-employment and economic growth in the 21st century*

***Keywords:*** *21st century, Building and woodwork technology education, Development, Economic growth, Entrepreneurship skills, Self-employment, Undergraduates*

**Introduction**

Amidst Nigeria's persistent economic recession and the alarming prevalence of unemployment, particularly among tertiary institution graduates, and youth demographics, urgent measures are necessary to mitigate the socio-economic ramifications of this crisis for fostering entrepreneurship skills among undergraduates within the realm of Building and Woodwork Technology Education (BWTE) has become increasingly apparent. This imperative arises from the growing recognition among policymakers, scholars of BWTE and entrepreneurship experts as a catalyst for sustainable employment and economic advancement. Similarly, the rapid pace of technological advancement and the ever-changing landscape of the building construction and woodworking industries further accentuate the significance of fostering entrepreneurship skills acumen among BWTE undergraduates. Moreover, existing educational paradigms within BWTE often fall short in adequately preparing undergraduates for the entrepreneurship challenges and business opportunities inherent of today's dynamic market. Miller and Davis (2020) highlighted this discrepancy, underscoring the need for a curriculum that integrates comprehensive entrepreneurship skills tailored to the demands of the building construction and woodworking sectors, while this can be acquired through BWTE programmes in Nigeria.

Building refers to the process of constructing physical structures, such as houses, commercial buildings, or infrastructure, which involves planning, design, procurement of materials, and the actual construction activities. Madrazo, Leandro, and Elst (2017) defined building as the act of erecting or fabricating structures, which includes activities such as site preparation, laying foundations, framing, and finishing, in order to meet specific functional, aesthetic, or regulatory requirements. Robert and Clayton (2013) stated that building technology education is the pedagogical approach aimed at equipping undergraduates with the knowledge, skills, and competencies necessary to engage in the planning, designing, and executing of building projects, while incorporating advancements in construction technology and sustainable practices. In this study, Building Technology Education is a specialized field of technology education focused on teaching students about the technologies and techniques involved in modern building construction, including structural systems, environmental considerations, construction management principles, and incorporating intricate woodwork that adds character to interior space.

Woodwork refers to the craft or practice of working with wood, encompassing various skills such as carpentry, joinery, carving, and other woodworking techniques, to create functional and decorative objects. Bruce (2012) noted that woodwork is an art and a technique, involving the shaping, carving, or manipulation of wood to produce items such as furniture, sculptures, and architectural elements, utilizing hand tools or power tools. It stands as a testament to the intricate relationship between human creativity and the natural world, offering a medium through which both functional and decorative objects are brought. Gail and Phyllis (2014) emphasized that woodwork technology education is a specialized area focusing on wood as a primary material. It covers topics wood properties, processing, joinery, finishing, and applications in contemporary design and manufacturing. Therefore, woodwork technology education integrates woodworking principles with modern technology, educating undergraduates about techniques, tools, and materials in the context of contemporary technological advancements.

Building and Woodwork Technology Education (BWTE) is a component of technology education programme that integrates instruction in building technology with woodworking techniques. It fosters practical skills, creativity, and an understanding of sustainable construction practices among students preparing for careers in the building trades (Roger & Leo, 2013). Emphasizing the promotion of sustainable practices in building construction and woodworking, Miller, Johnson, Smith, and Brown (2016) highlighted the importance of empowering undergraduates about eco-friendly materials, energy-efficient construction techniques, and waste reduction strategies. This approach according to Mark and Dave (2018) underscores the importance of hands-on experiences for careers in building and woodworking trades. It also emphasizes the significance of soft skills such as digital literacy, networking, problem-solving, and critical thinking, which are essential for success in entrepreneurship.

Entrepreneurship encompasses the practice of recognizing opportunities, mobilizing resources, and undertaking calculated risks to develop innovative solutions or ventures that meet market demands and add value. According to Peter (2014), entrepreneurship embodies both a mindset and skillset characterized by a willingness to embrace uncertainty, pursue opportunities with fervor, and take risks, often resulting in the establishment of new enterprises or the rejuvenation of existing ones, thereby driving economic growth. Skills, as defined by Angela (2016), refer to the ability to execute specific tasks or activities proficiently, typically honed through education, training, or hands-on experience, and comprising both technical and interpersonal proficiencies. Timmons and Spinelli (2017) contended that entrepreneurship skills comprise a blend of competencies necessary for identifying opportunities, managing resources, taking calculated risks, and innovating within the business landscape. These entrepreneurship skills, as identified by Olateju (2013), include innovative thinking, strategic planning, problem-solving, effective communication, self-motivation, financial literacy, confidence, and leadership. Therefore, entrepreneurship skills empower undergraduates, with the ability to recognize and seize opportunities, navigate risks, and create value in dynamic and competitive business environments.

Undergraduates are individuals pursuing tertiary education at the undergraduate level, characterized by their foundational coursework, exploration of academic interests, and preparation for future careers or advanced studies (Arum & Roksa, 2014). Undergraduates as observed by Snyder and Dillow (2015), are students undertaking a bachelor's degree programme at a higher education institution, typically spanning three or four years and aimed at providing fundamental entrepreneurship skills in various academic disciplines. The authors further state that when undergraduates acquire entrepreneurship skills, it becomes easier to stand alone and be independent of government white-collar jobs. In other words, entrepreneurship skills are essential, if appropriately developed, for undergraduates in tertiary institutions seeking to navigate the prospects of starting and growing successful ventures.

Prospect refers to the anticipated economic environment, comprising upcoming conditions, market trends, and potential opportunities for progress within a specific sector, region, or business domain (Garcia, 2022). Prospects in the opinion of Chen (2018) entail potential enhancements in efficiency, productivity, and effectiveness within building and woodwork technology education through the utilization of technological advancements. The development of entrepreneurship skills within these sectors, as highlighted by Chen, is anticipated to not only elevate the individual career trajectories of undergraduates, but also significantly contribute to the broader innovative economic and technological development within the building construction and woodworking industries.

Development is the process of expanding the fundamental freedoms that people enjoy, encompassing not only economic growth but also improvements in human capabilities and social freedoms (Amartya, 2013). Development according to Muhammad (2017) is nurturing and enhancing the capabilities, resources, and opportunities within a system or entity to achieve greater efficiency, effectiveness, or prosperity. However, the prospects for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth demand appropriate 21st-century strategies to thrive.
Strategies encompass a wide array of techniques educators employed to enhance learning outcomes, whether through classroom management, instructional design, or assessment methodologies (Smith, 2020). Strategies refer to the various pedagogical approaches or methods to facilitate effective teaching and learning. These pedagogical strategies by Jones and Brown (2017) are designed to engage undergraduates, cater to diverse learning styles, and promote deep understanding of concepts. Effective strategies for developing entrepreneurship skills among undergraduates in BWTE, as identified by Smith and Lim (2020), include incorporating project-based learning (PBL) and real-world problem-solving scenarios into the curriculum.

This approach encourages undergraduates to apply theoretical knowledge to practical challenges, fostering critical thinking, creativity, and innovation. Additionally, Reid and Moore (2021) stated that partnerships with industry stakeholders can provide undergraduates with mentorship opportunities, internships, and exposure to real-world business operations and sustainable practices within the building and woodworking sectors. The importance of such collaborations for bridging the gap between academic preparation and industry expectations, thereby enhancing the entrepreneurship readiness of undergraduates. In the context of this study, strategies represent the incremental advancement of freedoms designed to empower undergraduates in BWTE with entrepreneurship skills, enabling them to navigate the complexities of starting and growing successful ventures for self-employment and economic growth in the $21^{st}$ century.

Self-employment involves individuals pursuing economic activities through operating their businesses or working independently, often characterized by autonomy, flexibility, and the potential for greater financial rewards and personal fulfillment. According to David (2018), self-employment entails being one's employer and assuming full responsibility for work, income generation, and business operations, contributing to economic growth. Economic growth in the opinion of Charles (2013) refers to the sustained increase in the production and consumption of goods and services within an economy, typically measured by changes in Gross Domestic Product (GDP), employment rates, and living standards. Robert and Xavier (2012) defined economic growth as the expansion of an economy's capacity to produce goods and services over time, driven by technological innovation, capital investment, productivity gains, and favorable government policies in the 21st Century. Thomas (2016) described the 21st Century as an era marked by significant technological advancements globalization, and societal transformations, shaping new paradigms, challenges, and opportunities across various domains. This suggests that undergraduates in BWTE are experiencing and adapting to the technological, global, and societal changes. This involve working for oneself rather than being employed by others and contributing to economic growth in 21st Century Nigeria.

**Statement of the problem**

In the evolving economic landscape of the 21st century, entrepreneurship plays a vital role in driving sustainable employment and economic growth, especially within BWTE. However, there exists a notable gap in educational approaches, with insufficient emphasis placed on cultivating essential entrepreneurship skills among undergraduates. Observation according to Miller and Davis (2020) reveals the need for a curriculum that integrates comprehensive entrepreneurship skills aligned with global market demands, including business management and financial planning tailored to the construction and woodworking sectors. Additionally, rapid technological advancements and the dynamic nature of the construction and woodworking industries underscore the necessity for adaptive and innovative entrepreneurship strategies. Williams, Thompson, and Patel (2021) note that existing BWTE programme models inadequately prepare undergraduates for entrepreneurship challenges in the digital era. This disconnect between educational outcomes and necessary entrepreneurship competencies necessitates a reevaluating of curriculum design and teaching methodologies. Addressing this shortfall is critical for equipping the next generation of building and woodwork entrepreneurs with the skills required to thrive in the modern economic landscape and combat youth unemployment. Therefore, this study aimed at developing entrepreneurship skills among BWTE undergraduates to foster self-employment and contribute to economic growth in the 21st century.

**Purpose of the study**

The primary purpose of this study was to develop entrepreneurship skills among undergraduates in building and woodwork technology education (BWTE) for self-employment and economic growth in the 21st century in Lagos state, Nigeria. Specifically, the study determined:

1. The entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century.
2. The prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century.
3. The strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth n the 21st century.

**Research Questions**

The following research question guided this study.

1. What are the entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century?
2. What are the prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century
3. What are the strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century?

**Methodology**

The study adopted a descriptive survey research design. The area of the study was Lagos, South-Western Nigeria. The study was conducted in three tertiary institutions offering building and woodwork technology education programmes, namely, the University of Lagos; Yaba College of Technology, Yaba; and Federal College of Education (Technical), Akoka. Additionally, selected registered building and woodwork technology industries in the Yaba Local Government Area of Lagos State were included. The population for the study consisted of 75 participants, comprising 28 building and woodwork facilitators, 22 entrepreneurship education studies experts, and 25 registered building and woodwork technology entrepreneurs from the study areas. Sampling was deemed unnecessary as the population was small enough to be managed in its entirety.

A self-structured instrument titled: Entrepreneurship Skills among Undergraduates for Self-employment and Economic Growth Questionnaire (ESUSEGQ) was developed by the researcher. It utilized a four-point Likert scale with nominal values of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD), assigned numerical values of 4, 3, 2, and 1, respectively. The ESUSEGQ underwent face validation by three experts, and a reliability coefficient of 0.87 was obtained using the Cronbach Alpha method to determine the internal consistency of the ESUSEGQ items.

All 75 copies of the ESUSEGQ were administered directly to the respondents by the researcher with the assistance of three research assistants. All administered ESUSEGQ surveys were duly completed, retrieved, and returned, resulting in a 100% response rate.

Mean and Standard Deviation were employed for analyzing the research questions. Any item with a Mean score of 2.50 and above was deemed Agreed, while any item with a mean score below 2.50 was deemed as Disagreed.

## Results

**Research Question 1:** What are the entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century?

**Table 1**

Mean and Standard Deviation on Entrepreneurship Skills required among Undergraduates in BWTE For Self-employment and Economic Growth in the 21st Century. N=75

| S/N | Entrepreneurship Skills Required among Undergraduates | $\bar{X}$ | SD | Remarks |
|---|---|---|---|---|
| 1. | Digital literacy skills | 3.18 | 0.60 | Agreed |
| 2. | Networking and relationship building skills | 3.02 | 0.55 | Agreed |
| 3. | Innovative thinking skills. | 3.18 | 0.60 | Agreed |
| 4. | Technical proficiency skills | 2.91 | 0.54 | Agreed |
| 5. | Market research and analysis skills | 3.07 | 0.59 | Agreed |
| 6. | Business planning and strategy skills: | 3.14 | 0.52 | Agreed |
| 7. | Financial management skills | 3.13 | 0.61 | Agreed |
| 8. | Marketing and Branding Skills | 3.32 | 0.54 | Agreed |
| 9. | Sales and negotiation skills | 3.05 | 0.57 | Agreed |
| 10. | project management skills | 2.70 | 0.43 | Agreed |
| 11. | Risk assessment and management skills | 3.23 | 0.65 | Agreed |
| 12. | Legal and regulatory compliance skills | 3.23 | 0.65 | Agreed |
| 13. | Sustainability and environmental awareness skills | 2.98 | 0.53 | Agreed |
| 14. | Adaptability and resilience skills | 3.04 | 0.78 | Agreed |
| 15. | Leadership and Team Management Skills | 3.14 | 0.68 | Agreed |

The data analysis presented in Table 1 showed that all 15 items had their Mean values above 2.50 cut-off point. The Mean values of the items ranged from 2.70 to 3.32, while the Standard Deviation ranged from 0.43 and 0.54 showing closeness in opinions of the respondents. This implies that the respondents agreed to all the items as entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century.

**Research Question 2:** What are the prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century?

**Table 2**
Mean and Standard Deviation on Prospects of Entrepreneurship Skills among Undergraduates in BWTE for Self-employment and Economic Growth in the 21st Century. N=75

| S/N | Prospects of Entrepreneurship Skills among Undergraduates | $\bar{X}$ | SD | Remarks |
|---|---|---|---|---|
| 1. | Empower undergraduates to innovate and design new building materials, construction techniques, and woodwork products that meet modern needs and standards. | 3.31 | 0.48 | Agreed |
| 2. | Enable undergraduates to launch their start-up ventures focused on construction, woodworking, sustainable architecture, or related services. | 3.69 | 0.49 | Agreed |
| 3. | Enable undergraduates to contribute to economic growth through job creation, innovation, and increased productivity. | 3.46 | 0.52 | Agreed |
| 4. | Enable undergraduates to incorporate sustainable practices into their projects, promoting environmental responsibility and resilience in the face of climate change. | 2.52 | 0.62 | Agreed |
| 5. | Equip undergraduates to compete globally, leveraging technology and digital platforms to reach customers worldwide. | 3.53 | 0.44 | Agreed |
| 6. | Enable undergraduates to contribute to community development through infrastructure projects, affordable housing solutions, and revitalization efforts. | 3.62 | 0.51 | Agreed |
| 7. | Facilitate the integration of technology into building and woodworking processes, leading to advancements in automation, efficiency, and safety. | 3.54 | 0.52 | Agreed |
| 8. | Enable undergraduates to provide creative solutions to complex challenges, such as urbanization, housing shortages, and disaster resilience. | 2.77 | 0.83 | Agreed |
| 9. | Enable undergraduates to offer value-added services such as interior design, landscaping, and smart home integration, enhancing the overall customer experience. | 3.62 | 0.51 | Agreed |
| 10. | Empower undergraduates to adapt to changing market demands and technological advancements. | 3.77 | 0.44 | Agreed |
| 11. | Enable undergraduates to address social issues such as homelessness, poverty, and inequality through innovative building and woodworking solutions | 3.85 | 0.38 | Agreed |

The data analysis presented in Table 2 showed that all 11 items had their Mean values greater than 2.50 cut-off point. The Mean values of the items ranged from 2.52 to 3.85, while the Standard Deviation ranged from 0.62 to 0.38, showing closeness in opinions of the respondents. This explains that the respondents agreed to all the items as prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century.

**Research Question 3:** What strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century?

**Table 3:** Mean and Standard Deviation on Strategies for Developing Entrepreneurship Skills among Undergraduates in BWTE for Self-employment and Economic Growth in the 21st Century. N=75

| S/N | Strategies for Developing Entrepreneurship Skills among Undergraduates | $\bar{x}$ | SD | Remarks |
|---|---|---|---|---|
| 1. | Practical, Hands-on Projects<br>▪ Encourage undergraduates to undertake real-world projects that require them to design, plan, and execute tasks as they would in their business.<br>▪ Partnerships with local businesses for internships or project based learning can provide practical experience. | 3.24<br>- | 0.61 | Agreed |
| 2. | Use of Technology and Digital Tools<br>▪ Incorporate training on digital tools for design (CAD, 3D modeling), project management, and digital marketing.<br>▪ Encourage using emerging technologies (e.g., virtual reality) for innovative building and woodworking designs. | 3.10 | 0.56 | Agreed |
| 3. | Entrepreneurship Mindset Workshops<br>▪ Organize workshops and seminars focusing on developing an entrepreneurial mindset, resilience, and adaptability.<br>▪ Guest lectures from successful entrepreneurs in the building and woodwork sectors to share insights and inspire students. | 3.25 | 0.60 | Agreed |
| 4. | Business Plan Competitions<br>▪ Host or participate in business plan competitions that challenge students to develop innovative business ideas and present them to a panel of judges.<br>▪ Provide mentorship and feedback during the competition process to refine their business acumen. | 3.11 | 0.57 | Agreed |
| 5. | Networking Events<br>▪ Create opportunities for students to network with industry professionals, potential mentors, and fellow entrepreneurs.<br>▪ Alumni networking events can facilitate connections and provide role models for undergraduates. | 3.16 | 0.59 | Agreed |
| 6. | Mentorship Programmes<br>▪ Pair students with experienced entrepreneurs and professionals in the building and woodwork industry for mentorship.<br>▪ These mentors can provide guidance, advice, and practical insights from their own experiences. | 3.02 | 0.51 | Agreed |
| 7. | Encourage Teamwork and Collaboration<br>▪ Promote collaborative projects that mimic real -world business scenarios requiring teamwork, leadership, and communication skills.<br>▪ Use team assignments to teach negotiation, conflict resolution, and project management. | 3.01 | 0.53 | Agreed |
| 8. | Research and Innovation Support<br>▪ Support undergraduates-led research and innovation projects new materials, sustainable practices, or construction technologies.<br>▪ Provide access to labs, workshops, and funding for promising projects. | on<br>3.19 | 0.62 | Agreed |

| S/N | Strategies for Developing Entrepreneurship Skills among Undergraduates | $\bar{x}$ | SD | Remarks |
|---|---|---|---|---|
| 9. | Foster a Culture of Entrepreneurship<br>▪ Develop an on -campus incubator or accelerator specifically for undergraduates in building and woodwork technology.<br>▪ Offer resources, workspace, and access to a network of advisors to help turn innovative ideas into viable businesses. | 3.20 | 0.66 | Agreed |
| 10. | Financial Literacy and Resource Management<br>▪ Teach students the basics of financial literacy, including how to read financial statements, budgeting, and financial planning.<br>▪ Simulation games or software can provide hands -on experience with financial decision-making. | 3.15 | 0.58 | Agreed |
| 11. | Regulatory Knowledge and Compliance<br>▪ Educate undergraduates on the legal aspects of starting and running a business, including permits, licensing, and industry - specific regulations.<br>▪ Workshops on intellectual property rights, contracts, and negotiations are also valuable. | 3.47 | 0.61 | Agreed |
| 12. | Sustainability and Social Entrepreneurship<br>▪ Integrate principles of sustainability and social entrepreneurship into projects and courses, highlighting their importance in modern business practices.<br>▪ Encourage initiatives that address community needs through innovative building and woodwork solutions. | 3.37 | 0.69 | Agreed |

The data in Table 3 indicated 12 items with their Mean values above 2.50 cut-off point. The Mean values of the items ranged from 3.01 to 3.47, while the Standard Deviation ranged from 0.53 to 0.61, showing closeness in the respondents' opinions. This indicated that all the items were agreed upon by respondents as strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century.

## Discussions of Findings

The results in Table 1 indicated 15 items of entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century. The entrepreneurship skills required include digital literacy skills, networking and relationship building skills, innovative thinking skills, technical proficiency skills, market research and analysis skills, among others. These agreed with the view of Timmons and Spinelli (2017), who contended that entrepreneurship skills comprise a blend of competencies necessary for identifying opportunities, managing resources, taking calculated risks, and innovating within the business landscape. These findings also alignd with the work of Olateju (2013) who identified entrepreneurship skills to include innovative thinking, strategic planning, problem-solving, effective communication, self-motivation, financial literacy, confidence, and leadership. The findings and the opinions of the authors above helped to justify the findings of this study on the entrepreneurship skills required among undergraduates in BWTE for self-employment and economic growth in the 21st century.

The results of the findings in Table 2 disclosed that all 11 items were agreed upon as prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century. These prospects include empowering undergraduates to innovate and design new building materials, construction techniques, and woodwork products that meet modern needs and standards; enabling undergraduates to launch their start-up ventures focused on construction, woodworking, sustainable architecture, or related services; enabling undergraduates to contribute to economic growth through job creation, innovation, and increased productivity; enabling undergraduates to incorporate sustainable practices into their projects, promoting environmental responsibility and resilience in the face of climate change; equipping undergraduates to compete in the global market, leveraging technology and digital platforms to reach customers worldwide; among others. These findings agreed with the opinion of the Chen (2018), who asserted that prospects entail potential enhancements in efficiency, productivity, and effectiveness within BWTE through the utilization of technological advancements. These findings also agreed with the work of Thompson and Jones (2019) who argued that incorporating entrepreneurship skills can significantly enhance the employability and innovative capacity of undergraduates, positioning them as leaders in sustainability efforts and technological development in the construction and woodworking sectors. The findings and the views of the authors above helped to add value to the study's findings on the prospects of entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century.

The findings of the study in Table 3 revealed the 12 items as strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century. These strategies for developing entrepreneurship skills include encouraging undergraduates to undertake real-world projects that require them to design, plan, and execute tasks as they would in their own business; incorporating training on digital tools for design (CAD, 3D modeling), project management, and digital marketing; organizing workshops and seminars that focus on developing an entrepreneurial mindset, resilience, and adaptability; host or participating in business plan competitions that challenge undergraduates to come up with innovative business ideas and present them to a panel of judges; alumn networking events can facilitate connections and provide role models for undergraduates; among others. The findings agreed with the view of the Jones and Brown (2017) who contended that strategies refer to the various pedagogical approaches or methods teachers used to facilitate effective teaching and learning and promote deep understanding of concepts. The findings were also in consonance with the study of the Reid and Moore (2021) who stated that partnerships with industry stakeholders can provide students with mentorship opportunities, internships, and exposure to real-world business operations and sustainable practices within the building and woodworking sectors. The findings and agreement of the authors above gave credence to the result of the study's findings on strategies for developing entrepreneurship skills among undergraduates in BWTE for self-employment and economic growth in the 21st century.

**Conclusion**

Based on the findings of the study, it was established that this study has shed light on the critical need to incorporate entrepreneurship skills development within BWTE programmes to prepare undergraduates for self-employment and contribute to economic growth in the 21st century. Through an extensive review of the literature, it became evident that while there is a growing recognition of the importance of entrepreneurship skills, there remains a significant gap in integrating such training into BWTE curricula. This gap limits the entrepreneurship potential of BWTE undergraduates and undermines their ability to thrive in the rapidly evolving economic landscape. Therefore, the findings underscore the necessity for a paradigm shift in BWTE. As the global economy becomes increasingly driven by innovation and entrepreneurship, it is imperative that educational institutions must equip undergraduates with not only technical skills but also the entrepreneurship mindset and competencies required to navigate the complexities of the modern marketplace. Failure to address this gap risks, leaving BWTE undergraduates ill-prepared to capitalize on self-employment opportunities and contribute meaningfully to economic growth in the 21st century, Nigeria.

**Recommendations**

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

1. BWTE facilitators should incorporate training on digital tools for design (CAD, 3D modeling), project management, and digital marketing for undergraduates' self-employment and economic growth in the 21st century.
2. BWTE facilitators should host business plan competitions that challenge undergraduates' to develop innovative business ideas and present them to a panel of judges for self-employment and economic growth in the 21st century.
3. BWTE facilitators should educate undergraduates on the legal aspects of starting and running a business, including permits, licensing, and industry-specific regulations for self-employment and economic growth in the 21st century.

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# EXPLOITING THE ELECTROLYSIS INDUSTRY FOR SUSTAINABLE CLIMATE AND NATIONAL ECONOMIC GROWTH: EXPLORING THE SCIENCE CLASSROOM PRIVILEGES.

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***Abstract***

*This research explores the potential of the electrolysis industry as a catalyst for sustainable climate practices and national economic growth, with a focus on leveraging science classroom privileges. The study recognizes electrolysis as a pivotal process for mining and refining many of Nigeria's endowed under-utilized mineral resources such as bauxite, copper, and lead and also for producing hydrogen, a clean and versatile energy carrier with applications in various sectors. The investigation aims to bridge the gap between theoretical knowledge in science classrooms and real-world applications within the electrolysis industry. It delves into the science behind electrolysis, emphasizing its role both in the refining of these mineral resources which in turn drive economic growth and in green hydrogen production and its potential to mitigate climate change. The research also analyzed the economic advantages of harnessing electrolysis for a nation's energy portfolio via an interdisciplinary approach, between the science education sector and the electrolysis industry. It also examined the need for educational reforms that align the science curricula with the evolving needs of sustainable technologies.*

***Keywords**: Electrolysis, sustainable climate, curricula, clean energy, economic growth, greenhouse emissions.*

**Background to the Study**

Nigeria, a richly endowed nation on the African continent characterized by its abundant solid mineral deposits but plagued by numerous developmental challenges which have forced it to remain in financial deterioration. At the fore of these predicaments are climatic and environmental degradation, erratic energy and power systems and economic and revenue crises (Yusuf A., 2023 & Kemi, A.O. 2019). Despite its abundant deposits of naturally occurring solid mineral resources, it has continued to suffer the impacts of the paucity of the techniques and skilled manpower required to transform these resources into economic commodities, produce sufficient renewable energy and power, symbiotically leading to a sustainable environment and climate through reduced fossil fuel induced-carbon emissions. According to U.S Energy Information and Administration (EIA) (2021), the global energy-related carbon emissions has increased from 32.3 billion metric tons in 2012 to 35.6 billion metric tons in 2020 and is projected to reach 43.2 billion metric tons by 2040 (Anwar et al., 2023). In Nigeria, the increased reliance on fossil fuel energy and poor investment in renewable energy resources has significantly increased the carbon emission level in Nigeria, proliferating diseases , destroying farmlands and livestock, thereby hindering income generation from agriculture (Haruna et al.,, 2023). However, the application of electrolysis has remained a major technique through which many developed nations have cautiously and judiciously industrialized the value chain of these mineral resources for the enormous benefit of their environment and economies. Electrolysis refers to the chemical change or decomposition reaction which occurs when electric current is passed through an electrolyte. (Turner et al.,., 2023 & Chai et al.,., 2019). It is a science concept stipulated to be taught at the senior secondary school level , then subsequently at the tertiary levels of education according to the Nigerian science curriculum. It represents a dynamic body of knowledge with potential for driving positive economic growth through its application in the extraction and refining of some natural resources such as bauxite, lead, copper etc. It is also utilzed extensively in the production of green hydrogen from water. Green hydrogen is produced through the electrolysis of renewable water and in this process water is split into hydrogen ($H_2$) and oxygen ($O_2$) under the influence of electricity with zero carbon emissions (Carmo et al.,.. 2013). This process of energy production serves as a viable alternative in mitigating the effects of fossil fuel burning on climate change and instrumental to achieving a decarbonized planet (Kumar & Lim 2022).

However, research shown that the quality of Science education is always a sine qua non for the economic advancement and prosperity of any nation. A nation which recognizes the essence of education as being a tool for national development sets up itself for exponential socioeconomic growth (Ogbonnaya 2020). A scientifically literate workforce is essential for innovation and technological advancements, which will engender economic prosperity (National Research Council 2012). The technological development of nations has always been positively correlated with the quality of their science classrooms. Thus, the optimum exploitation of electrolysis industry in Nigeria depends to a large extent, on the efficacious teaching and learning of electrolysis in science classrooms across the country. This article also seeks to justify the need to reinvent pragmatic instructional methodologies and approaches in the teaching of electrolysis in schools while explicating the roles of the different stakeholders in producing the next generation of technically skilled human resources required for optimum exploitation of this industry.

**Exploiting the Electrolysis Industry**

The industrial application of electrolysis is one with many potential benenfits for driving economic growth through renewable energy creation, natural resources extraction and refining. Gobally, the industrialization of electrolysis has gained moementum and many countries have continued to adopt this science in especially in the decarbonization of the planet (Cavaliere, 2023), production of green hydrogen, wet-cell batteries, refined copper and zinc, extraction of aluminium from bauxite and electrolplating. Production of green hydrogen: Green hydrogen is now becoming the world's most sought after energy resource. It is now the focus of many countries across the globe in transistioning into a carbon-free energy era, with many countries seting a decarbonaization target by 2050 in response to prevailing global climate change (Hassan et al.,, 2024). Many countries such as Japan, China, Germany, USA, France, Canada, India, Australia and others are already commiting large financial resources in developing green energy infrastructures (Braga et al., 2024). Research has shown that on the African continent, South Africa, Nigeria, Morroco and Kenya are also developing a number green hydrogen projects to be included in their national energy portfolios (Yohannes & Diedou, 2022).

Studies have revealed that green hydrogen, in the next three decades will approximately supply up to 20% of the global energy needs, while up to generating USD2.5 trillion in revenues. By 2050, it is estimated that green hydrogen will substitute up to 10.4 billion barrels of oil equivalent, with a projected producing capacity of close to 530 million tons of green hydrogen. It is forecasted that the globally, green hydrogen industry will worth USD300 billion in value annually and will 42 million jobs worldwide by 2050 (Braga et al., 2024).

Green hydrogen serves as both an energy carrier and a versatile industrial feedstock, fostering the development of intricate and resilient economic value chains. In Addition, green hydrogen can be processed into consumable commodities such as renewable fertilizers and chemicals, while effectively decarbonizing highly polluting and challenging-to-abate sectors, including cement, steel and glass production (Barigozzi et al., 2024, & Kamil et al.,. 2024). Green hydrogen as fuel in fuel cell vehicles also plays an important role in decarbonizing the transportation sector (Wang & Li 2023).

Countries on the African continent have rapidly began to develop green hydrogen projects in the recent years, marking a significant step towards sustainable energy innovations. Countries like Egypt, Namibia, South Africa, Mauritania, Algeria and Morroco are already on the bandwagon of global producers of green hydrogen production ( Kamil et al.,, 2024).

However, Nigeria stands to earn a competitive economic advantage over a wide range of countries in the production and exploitation of green hydrogen in two major ways which are identified below:

1. Abundance of Seawater bodies: Water electrolysis for the production of green hydrogen in commercial quantities is usually produced through Proton Exchange Membrane Electrolyzers. (Stiber et al.,. 2022 & Kim et al., 2022). This procedure heavily requires a very large volume of freshwater to produce green hydrogen in commercial quantities, costing enormous financial resources in

achieving and inhibiting the sustainability of green hydrogen technology, making Seawater, which accounts for 96.5 % of the total water on Earth, is the most suitable resource for electrolysis (Zhao et al.,. 2024). Given that Nigeria is a coastal nation stretching an approximately 853 km with 9 out of its 36 states sharing the Atlantic Ocean coastline (Olaoye & Ojebiyi 2018), it stands a better chance in utilizing the vastly abundant seawater surrounding it in producing green hydrogen for complementing its current hydroelectric energy portfolio.

2. High Solar Energy Profile. Nigeria is endowed with a high solar energy radiation potential, receiving an abundance of sunshine and irradiance, with average daily sunshine hours of 6.3hours/day and average daily irradiance ranging between 3.7kWh/m2 day in the coastal regions to 7.0kWh/m2 day in the northern arid regions (Ojosu & Salawu 1990). In a study conducted to estimate the quantity of green hydrogen produced through Solar energy in Pakistan, a country whose solar potential mirrors closely with Nigeria's getting an average daily irradiance of 5.3kWh/m2 (Sheikh, 2009), it revealed an annual production capacity of 2.8 million tons of green hydrogen (Irfan et al.,. 2018). This shows the close competitive advantage Nigeria stands to gain in green hydrogen production capacity. Sister African nations like Mauritania (Sow et al.,. 2024) and Niger (Bhandari, 2022) have developed clean energy projects harnessing their solar potentials for green hydrogen production. Nigeria stands at a competitive advantage in harnessing its abundant solar potential in powering the electrolyzers for green hydrogen production. This will in combination with its existing hydroelectric power generating capacity, further boost the energy portfolio of the country

Extraction of Aluminum from Bauxite: Nigeria is endowed with a vast amount of bauxite, the raw mineral from which aluminum is extracted Aluminum is versatile for its low density and its resistance to corrosion, while its alloys are majorly used in the production of aircrafts, automobiles, beverage containers, and used in both transportation and building industries (Olade, 2021). According to Schwarz (1997), Nigeria has an abundance of over one million tons of bauxite deposits in its Mambila Plateau region only. Despite this enormous quantity of bauxite deposits, Nigeria still remains a big import market for aluminum. As at 2022, available statistics reveal a net value of USD 367,000. (Observatory of Economic Complexity, 2024).

By leveraging on the industrial application of electrolysis in refining aluminum, Nigeria can pitch a strong hold in the global aluminum export market, creating a more job opportunities for its growing population, Increasing the country's GDP leading to rapid economic growth and development.

**Copper and Lead Refining:** Copper and Lead are versatile metallic minerals, majorly used in the production of electric cables, plumbing pipes and sheet metals. Nigeria has a vast amount of both mineral deposits. Copper deposits, spread across six states of the nation namely, Plateau, Zamfara, Nassarawa, Kano, Bauchi, Yobe, while lead deposits are located in eight states namely; Cross River, Ebonyi, Imo, Benue, Nassarawa, Plateau, Taraba, Zamfara (Olade, 2019). Electrolysis is largely deployed in the refining of copper (Nguyen et al.,. 2023) and lead (Arkhipov et al.,. 2017). This serves as a promising opportunity for the Nigeria's economic growth, by utilizing the potentials of the electrolysis industry in refining copper and lead.

**Science Education as a catalyst for Growth and Development**

Growth and development are both outcomes of combined critical thinking, logical problem identification, assessment of available resources for potential solutions, meticulous observation of experimented solutions, and taking deliberate but careful rational and evidence-based action in solving the identified challenges. These are the gains of scientific literacy in an individual, organization or nation. Science education offers a holistic approach in developing a skilled workforce which have the required resources to proffer solutions to challenges impeding the country's economic growth and development (Isiksal &Sahbaz, 2014). Science education also plays a vital role in addressing global challenges, it helps individuals become responsible and informed citizens who can actively participate in scientific discussions and activities necessary to drive growth and development of the society (Jolaoluwa et al., 2024). It could be viewed as a process of teaching or training especially in school to improve one's knowledge about the environment and to develop one's skill of systematic inquiry. Science education affords the individual the knowledge as well as skills that help them to solve economic, political, and social and the numerous emerging issues in the environment (Obi and Obiadazie 2015). In essence, science education can be said to be a catalyst in achieving the economic growth and political aspiration of any nation (Ekpa et al., 2022).

**Teaching and Learning electrolysis in Nigerian Science Classrooms: Issues and Challenges**

Electrolysis is an interdisciplinary science concept which feature in both the Physics and Chemistry curriculums in Nigeria. According to the Nigerian Educational Research and Development Council (NERDC), (2018), Nigerian science students are expected to learn electrolysis in Chemistry during their second year under the chemistry and the industry theme. On the other hand, it has also been stipulated to be taught in Physics in the third year of secondary education under the physics in technology theme. This shows the relevance of building a reliable and self-sufficient workforce through effective teaching and learning, capable of applying electrolysis for industrial processes and nation building.

However, the current state of the electrolysis industry in Nigeria characterized by insignificant exploitation and application can be said to be a function of ineffective teaching and learning of the concept in the science classrooms Many studies have reveled the relationship between industrial transformation and quality of science education in that society. Mogbo (2002) justified the level of technological transformation of any human society to be directly dependent on the level of science education learned, derived and applied in that society.

For instance, China, a nation at the top index of the electrolysis industry, erns billions of dollars annually from trading in electrolysis derived commodities. China International Marine Containers Group Co. (CIMCG) in 2023, generated about USD132 million in sales for trading green hydrogen, a single commodity derivative of electrolysis (Economic Times 2024).

The science curriculum in China is on which is prioritizes teaching science by practice emphasizing on the need to develop learners' hands-on skills and problem-solving skills (Ma, 2016).

In order to build a scientifically literate workforce that will engender the optimum industrial exploration of the electrolysis industry for the economic benefit of Nigeria, leveraging on the nation's peculiar advantages in terms of abundant varying solid mineral deposits, and geo-climatic resources, there is a need to pay attention to certain issues which underscores the teaching and learning of electrolysis in Nigerian classrooms, some of which are highlighted below:

**Curriculum**: The Nigerian science curriculum is rather outdated and doesn't provide relevance with the emerging needs of the science and technology industry. Adeyemi and Soyemi (2016) pointed that the science curricula in Nigeria are often obsolete, teacher-focused and majorly theory-based, which results in poor learner participation and limited application of scientific concepts.

**Instructional strategies**: This is another serious challenge bedeviling the effective teaching and learning of electrolysis in Nigerian science classrooms. Instructional strategies mostly adopted by teacher are majorly those which are teacher-centered, inhibiting students' active participation and motivation in their lessons. Experts in science education have always called for the use of various innovative strategies that will align with the needs of the learners. Obi and Obiadazie (2015) in their study called for use of Innovative teaching strategies such as inquiry, discovery, project and many more which would stimulate creativity in the students produce a generation of skilled scientists required for industrial take off and national transformation. For instance, Saricayir (2010) revealed that dramatization was effective in teaching water electrolysis to middle school learners.

**Instructional materials**: Many teachers fail to adopt the use of instructional materials in teaching electrolysis. Instructional materials are meant to stimulate learners' interest in the knowledge content by appealing to their sensory organs (Olumorin et al., 2010).

**Lack of Laboratory equipment:** Lack of laboratory equipment has been identified to be another prominent challenge confronting the teaching and learning of electrolysis in science classrooms. Generally, electrolysis like other science concepts requires conducting practical which is meant to stimulate observation and inference skills in the learners. Oyelade and Dapiap (2019) in their study revealed that in Nigerian secondary schools, inadequate laboratory equipment was detrimental to achieving science education goals.

**Exploring science classroom privileges as a way forward**

To achieve desirable economic growth and a sustainable climate in Nigeria through leveraging on the potentials abound in the electrolysis industry, there is a need to re-align the science education and its curriculum with the evolving sustainable technologies whilst focusing on improving the quality of teaching and learning in science classrooms to match global science education standards. The following are some of the identified strategies to be considered in achieving the above:

1. Curriculum reforms: The Nigerian science curriculum needs to be revised in order to accommodate emerging technologies and align with global trends. It should also promote hands-on learning and inquiry-based learning approaches in science education, where students actively engage in experiments, field trips and projects related to electrolysis and renewable energy. This fosters a deeper understanding of the concepts and encourages critical thinking and problem-solving skills (Ojo, 2019).
2. Research institutions and Industrial Partnership: Partnerships and collaborations between schools, and research institutions involved in electrolysis industry, such as the Nigerian Institute of Mining and Geosciences. This will facilitate knowledge exchange, research collaboration, and internship opportunities for students (Abbas et al., 2020).
3. Science teachers' training and capacity building: Government should organize specialized training and professional development opportunities for science teachers in line with current technologies in the global electrolysis industry. This will result in capacity development in the teaching of topics related to electrolysis in both theory and practical application in the classroom.
4. Career fairs and exhibition: Extra-curricular activities such as career fairs will avail students with direct exposure to companies and professionals working in the electrolysis industry and related fields. It helps them appreciate the relevance of their science education to real-world application. This exposure can inspire students to pursue careers in these sectors and thereby creating strong workforce competent to maximize the benefits of the industry for economic advantage.
5. Integration of Entrepreneurship Education: Entrepreneurship education should be integrated into the science curriculum to foster innovation and entrepreneurship in the field of electrolysis and sustainable technologies. This could involve teaching students about the economic prospects and market opportunities, abound for the electrolysis industry.

**Conclusion**

Leveraging on the science classroom privileges for the optimum exploitation of Nigeria's electrolysis industry potentials represents a promising pathway towards achieving desirable economic growth and sustainable development. Through science curriculum alignment with evolving technologies, enhancing the quality of teaching and learning in science classrooms, and incorporating extra-curricular strategies such as exhibitions and career fairs, Nigeria can empower its workforce with relevant skills and knowledge, stimulate innovation and entrepreneurship in the electrolysis industry, and contribute to both economic growth and climatic sustainability. These efforts not only ensure that Nigeria remains competitive in the global economy and sustainable environment, paving way for a prosperous and environmentally resilient future.

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# HARNESSING THE IMPACT OF ENERGY CONSERVATION IN RESCUING NIGERIA FROM ECONOMIC CRISIS

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***Abstract***

*In the context of Nigeria's economic crisis, characterized by inflation, unemployment, and environmental degradation, particularly worsened by climate change, this study explores the potential of harnessing the laws of conservative energy to address these complex challenges. The intertwining factors of waste generation, unsustainable environmental policies, and limited scientific research exacerbate Nigeria's economic challenges and environmental degradation. The principles of conservation of energy and mass provide a conceptual framework for developing effective waste management strategies and promoting sustainable development practices. Central to this framework is the recognition that energy cannot be created nor destroyed but can be transformed from one form to another. Leveraging renewable energy sources and implementing recycling programs align with these principles and offer avenues for optimizing resource allocation and minimizing environmental impact. Nigeria's heavy reliance on fossil fuels and the accumulation of non-biodegradable waste underscore the urgency of transitioning towards sustainable energy solutions and enhancing waste management practices. By adhering to the principles of conservative energy, investing in renewable infrastructure, and promoting eco-friendly initiatives supported by scientific research, Nigeria can achieve sustainable economic growth and environmental stability. This thesis seeks to elucidate the theoretical underpinnings of conservative energy laws and propose actionable strategies for policymakers and stakeholders to navigate Nigeria's economic challenges while fostering long-term sustainability and resilience.*

***Keywords**: Energy, conservation, crisis, economy, Nigeria*

**Background to the Study**

Since its emergence in the United States in the years 2008-2009, the economic crisis has been a recurrent phenomenon for research and discussion due to its multifaceted effects globally and locally (Ngwube & Ogbuagu, 2014, p.2). The phenomenon spans different nations manifesting in diverse progressive forms, depending on the individual country's cyclicity, economic growth and declines (Slusarczyk & Sowa, 2017, p.42) and impinging upon socio-economic proclivity and evaluation of prevailing economic paradigms (Slusarczyk & Sowa, 2017, p.42). Within the Nigerian economic context, it has demonstrated much vulnerability impeding sustainable development trajectory and goals based on a nexus of determinants. Nigeria's over-dependency on crude oil, adopted by its flourishing population dynamics, unemployment, governance maladies, inflation, climate change and environmental degradation constitutes pivotal determinants underpinning its economic crisis. These underpinnings pose a great challenge in achieving 13 of 17 sustainable development goals in Nigeria including no poverty (1), no hunger (2), good health and well-being (3), clean water and sanitation (6), affordable and clean energy (7), decent work and economic growth (8), industry, innovation and infrastructure (9), sustainable cities and communities (11), responsible consumption and production (12), climate action (14), life below water (14), and life on land (15). To begin with, the ratio of the country's population to its employment opportunities and standard of living is severely imbalanced leading to poverty and unsustainable development goals. Similarly, the petroleum sector in Nigeria accounts for 80% of the national revenue and foreign exchange earnings, alienating any possibility of exploiting other resources for revenue generation and limiting the establishment of other industries in the Nigerian economic system (Ngwube & Ogbuagu, 2014, p.2). Adegbite (2014) contends that achieving a positive climate change is indispensable for fostering sustainable development. However, despite this imperative, Nigeria grapples with entrenched behavioural patterns and ecological impacts stemming from poverty-driven activities. These activities, including crude oil theft, illegal pipeline breakage, deforestation, oil spillage, illegal oil bunkering, and environmental degradation, collectively contribute to the deterioration of the planet's health and ecosystem. Consequently, these detrimental practices perpetuate a cycle of regressive development leading to unsustainable goals within the Nigerian context. Ihimodu (1986) presents solutions to the crisis stemming from Nigeria's over-reliance on crude oil and gas, acknowledging the persistence of the crisis despite previous attempts to address it. He divides the solutions into short-term and long-term measures, aiming to prevent future recurrences and address immediate challenges. Similarly, Omotor (2011) advocates for diversifying the Nigerian economy away from oil and gas dependence, boosting sectors like agriculture, minimizing inflationary fiscal and monetary policies, and resolving power supply failures. On the other hand, Emovon et al. (2018) identify low power generation, caused by inadequate plant maintenance, outdated equipment, and gas pipeline vandalism, as a key factor in Nigeria's economic stagnation. They propose a structured maintenance methodology and increased funding as solutions. Despite the relevance of these solutions, they have failed to adequately mitigate the crisis. Therefore, this research aims to build upon previous studies, identifying their gaps and offering new insights into addressing the issue from a physicist's perspective. This perspective emphasizes the adoption of the Law of Conservation of Energy to manage the crisis effectively, mitigate climate change, and achieve sustainable development goals.

Various researchers have delved into the causes and consequences of the economic and energy crises in Nigeria. Kennedy-Darling et al. (2008) outlines the complexity of Nigeria's energy crisis, suggesting strategies to mitigate its effects. Olatunji et al. (2018) emphasise the hindrance posed by power sector challenges to Nigeria's development and economic prosperity, advocating for renewable energy sources as a solution. Oyedepo (2012) explores efficient energy utilization for sustainable economic development, while Oyedepo (2013) discusses energy consumption patterns and ways to enhance efficiency across industries. Umbu and Agada (2022) propose legal reforms for a democratized energy system, while Somoye (2023) presents possible factors responsible for the energy crisis in Nigeria recommending renewable energy sources and policy improvements. However, despite these insights, none of the studies anchored solutions using the Laws of Energy Conservation or provided actionable strategies and policies to address the economic crisis effectively.

**Statement of Problem**

Given Nigeria's abundant resources, burgeoning population, and diverse energy options, the pressing challenges posed by the economic crisis demand urgent attention. Despite the plethora of proposed solutions by various researchers, these challenges persist unabated. Therefore, this study seeks to address these persistent gaps by proposing an integrative solution that amalgamates principles from physics and economic strategies to effectively mitigate the crisis.

**Purpose of Study**

The purpose of this study is to harness the laws of conservation of energy to address the economic crisis in Nigeria. Specifically, the research aims to satisfy the following.

**Objectives of Study**:

1. To determine the factors impeding the advancement of Nigeria's economic system, especially renewable energy.
2. To discover the viable sources of energy in Nigeria
3. To use this viable energy sources to improve Nigerian economy
4. To use the conservation of energy resources through the application of the law of conservation of energy and actionable economic strategies to foster sustainable development.

This study will explore the purposeful use of viable and renewable energy resources such as solar, hydroelectric, biomass and wind which have abundance of sources in Nigeria and look into the conservation of these energy resources in order to tackle the economic crisis in the most populous African nation.

**Research Questions**

I. What are the viable sources of energy in Nigeria?
II. What factors impede the advancement of Nigeria's economic system, especially renewable energy?
III. How can these resources be conserved through the application of the Law of Conservation of Energy and actionable economic strategies to foster sustainable development?

**ANOVA**

This would be used to analyze the variance in economic indicators across different energy conservation strategies. This would enable the determination if there are significant differences in economic performance based on the energy conservation practices that are being practiced in Nigeria. This could bring up recommendations on what more can be done to use the Law of Conservation of Energy to tackle the Economic Crisis facing Nigeria.

**Pearson Correlation Coefficient**

The Pearson correlation coefficient would be calculated to measure the strength and direction of the relationship between energy conservation practices and economic indicators. This analysis will provide insights into the level of association between energy conservation and economic stability in Nigeria.

**Expected Outcome**

Based on the data analysis using ANOVA and Pearson correlation coefficient, we expect to find a significant relationship between Using the Law of Conservation of Energy and the economic crisis in Nigeria. We anticipate that certain energy conservation strategies will positively impact economic indicators, thereby providing a potential solution to the economic crisis in the country.

**Theoretical Framework**

The research anchors its analysis on the Law of conservation of energy espoused by actionable economic strategies to identify energy efficiency, renewable energy sources in Nigeria and the economic implication of energy conservation measures in Nigeria. The application of the Law of Conservation of Energy in this research helps to identify viable energy in Nigeria, and how these sources of energy can be conserved or converted from one form to another through recycling. Such sources of energy can be converted in various forms, for instance, electrical to mechanical to product; steam to mechanical to electrical to product; wind to turbine to mechanical to electrical energy; or water/oil hydraulic to conserve steam to produce tyres and plastic. To highlight and discuss the factors that impede the conservation of these sources of energy to foster sustainable development and economic growth, this research will employ the Energy-Economy-Environment model(E3). This model helps to identify the aggregate and disaggregated variables to be considered in this paper. The aggregate variables consider the analysis of macroeconomic indicators like inflation rate, Gross Domestic Product, Unemployment rate, Government Budget, and so on using econometric techniques to examine the impact of energy consumption on economic growth. These variables determine the demand for energies across different sectors such as transportation, electricity, residential, commercial industrial and so on; as well as the energy supplies including petroleum, gas, coal, hydro, nuclear, renewables, or geothermal (Nakata, 2004). Disaggregated variables, on the other hand, consider technological options or climate change mitigation policies (Nakata,2004). These variables help to determine the conversion efficiency, operating load factors, plant running time, and capital/ operating cost (Nakata, 2004). Possible constraints that might impede energy conservation will be determined from the analysis of these variables considering the ecological footprints.

**Research Methodology**

**Data Source and Data Sampling Method**

The data for the study will be sourced from the University of Lagos, Yaba. With special consideration to the population of students in the institution, the samples were randomly selected and limited to 100 students. These data were collected through meticulous observation of the ecological footprints of Nigerians, and how their environmental habits and practices can help or hinder conservation of energy.

**Justification for Data Sampling Method**

These data were collected through meticulous observation of the ecological footprints of Nigerians, and how their environmental habits and practices can help or hinder conservation of energy.

**Data Collection and Analysis**

The present study employed a quantitative and qualitative approach through the collection of data from the respondents. The quantitative analysis will involve data collection and econometric modelling to assess the economic impact of energy conservation measures and renewable energy deployment. To achieve this, a set of well-structured questionnaires will be used as the research instrument. Descriptive statistics will be used to provide answers to the research questions while ANOVA and Pearson correlation. Lastly, qualitative research methods, such as case studies and interviews, will be utilized to gather insights from stakeholders and experts in the field.

Reliability coefficient of the instrument used is 0.84.

**Presentation of Results**

**Research Objectives**

I. To determine student's level of energy conservation awareness.
II. To unravel the barriers to energy conservation in Nigeria.
III. To harness the probable impact of these energy sources to Nigerian economy

**Research Questions**

What is the student's level of energy conservation awareness?

**Table 1: Mean of Students' Level of Energy Conservation Awareness**

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
|---|---|---|---|---|---|
| Mean | 3.7000 | 2.5800 | 2.5300 | 3.3100 | 3.8500 |
| N | 100 | 100 | 100 | 100 | 100 |
| Std. Deviation | .88192 | 1.34975 | 1.38866 | 1.07021 | 1.02863 |

Table 1 above shows the general awareness level of students on energy conservation. As indicated above, the mean of their awareness level is slightly below average (mean score = 3.19). This means that in spite of the low implementation status of energy conservation in the Nigerian state, considerable percentage of the Nigerian Senior Secondary School students are aware of the concept.

What are the barriers to energy conservation in Nigeria?

**Table 2: Barriers to Energy Conservation in Nigeria**

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
|---|---|---|---|---|---|
| Mean | 3.7300 | 3.4400 | 3.8100 | 3.7700 | 3.8000 |
| N | 100 | 100 | 100 | 100 | 100 |
| Std. Deviation | 1.07172 | 1.13991 | 1.07021 | .94125 | .89893 |

Table 2 shows the barriers to energy conservation in Nigeria. As found in the table, students agreed that nearly all the items listed on the questionnaire are huge barriers militating against energy conservation in Nigeria, however, items 3, unavailability of resources and 5, lack of willingness (mean = 3.81 and 3.80 respectively) seem to constitute the largest barriers to energy conservation in Nigeria, according to the respondents.

What are the probable impacts of energy conservation to Nigerian economy?

**Table 3: Independent Samples Test on Impacts of Energy Conservation to Nigerian Economy**

| | | Levene's Test for Equality of Variances | | t-Test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference Lower | Upper |
| Item 1 | Equal variances assumed | 2.952 | .089 | -1.125 | 98 | .263 | -.22000 | .19556 | -.60809 | .16809 |
| | Equal variances not assumed | | | -1.125 | 90.823 | .264 | -.22000 | .19556 | -.60847 | .16847 |
| Item 2 | Equal variances assumed | .046 | .831 | .343 | 98 | .732 | .06000 | .17485 | -.28698 | .40698 |
| | Equal variances not assumed | | | .343 | 97.985 | .732 | .06000 | .17485 | -.28698 | .40698 |
| Item 3 | Equal variances assumed | 2.525 | .115 | -.692 | 98 | .490 | -.12000 | .17332 | -.46395 | .22395 |
| | Equal variances not assumed | | | -.692 | 94.690 | .490 | -.12000 | .17332 | -.46410 | .22410 |
| Item 4 | Equal variances assumed | .703 | .404 | -.250 | 98 | .803 | -.04000 | .15974 | -.35701 | .27701 |
| | Equal variances not assumed | | | -.250 | 97.942 | .803 | -.04000 | .15974 | -.35701 | .27701 |
| Item 5 | Equal variances assumed | .002 | .960 | 2.817 | 98 | .007 | .28000 | .15413 | 1.02586 | 1.58586 |
| | Equal variances not assumed | | | 2.817 | 97.023 | .012 | .28000 | .15413 | 1.02590 | 1.58590 |

**Table 3a: Mean of Energy Conservation Awareness Based on Gender**

| GENDER | | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
|---|---|---|---|---|---|---|
| M | Mean | 3.9600 | 2.3600 | 2.5200 | 3.4000 | 4.0400 |
| | N | 50 | 50 | 50 | 50 | 50 |
| | Std. Deviation | .78142 | 1.52208 | 1.43200 | 1.17803 | .87970 |
| F | Mean | 3.4400 | 2.8000 | 2.5400 | 3.2200 | 3.6600 |
| | N | 50 | 50 | 50 | 50 | 50 |

**Table 3b: Potential Impacts of Energy Conservation on Nigerian Economy**

| | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
|---|---|---|---|---|---|
| Mean | 3.9700 | 4.0100 | 3.9800 | 4.2640 | 4.3040 |
| N | 100 | 100 | 100 | 250 | 250 |
| Std. Deviation | .97913 | .87033 | .86433 | .72416 | .78361 |

As seen in table 3 above, items 1 to 4 are found to be insignificant to energy conservation in Nigeria. However, item 5 ($t = 2.817 >$ critical table value 1.984 for $df = 98$ at .05 level of significance). In the same vein, the p-value of item 5 ($.007 < .05$ level of significance) shows that the item "lack of willingness" is the greatest barrier to energy conservation in Nigeria. The willingness can be political, eduon, or any other. However, the interval between the lower and upper 95% confidence interval of respondents' agreement also corroborated this as it interval is seen to cross zero on the Levene's test for equality of variances table 3.

Table 3a shows the mean of energy conservation awareness of respondents based on gender. As indicated in the table, the male (mean = 3.26) level of awareness is found to be slightly higher than that of their female counterpart (mean = 3.13). Succinctly put, the results show that the male students in the Senior Secondary schools have more awareness of the concept of energy conservation than their female counterparts, however, the difference in their levels of awareness is found to be statistically insignificant.

Table 3b shows the potential impacts that energy conservation is capable of contributing to Nigerian economy. As indicated on the table, students strongly agreed that if ventured into, energy conservation is capable of boosting the Nigerian economy by 81% (mean = 4.11). The above general mean is found to be the largest among all other computed means from the analysis of respondents' results. This means that in spite of students' relative fair level of general awareness of the concept of energy conservation, they can easily relate the potential benefits inherent in energy conservation based on their average daily sense of relevance of energy conservation to their lives.

**Table 4: Mean of Awareness Level between Science and Non-Science Students**

| COHORT | | Item 1 | Item 2 | Item 3 | Item 4 | Item 5 |
|---|---|---|---|---|---|---|
| Science | Mean | 3.8929 | 2.5714 | 2.3571 | 3.3750 | 3.8393 |
| | N | 56 | 56 | 56 | 56 | 56 |
| | Std. Deviation | .86715 | 1.46296 | 1.57744 | 1.08816 | 1.15643 |
| Non-Science | Mean | 3.4545 | 2.5909 | 2.7500 | 3.2273 | 3.8636 |
| | N | 44 | 44 | 44 | 44 | 44 |
| | Std. Deviation | .84783 | 1.20692 | 1.08102 | 1.05354 | .85156 |
| Total | Mean | 3.7000 | 2.5800 | 2.5300 | 3.3100 | 3.8500 |
| | N | 100 | 100 | 100 | 100 | 100 |
| | Std. Deviation | .88192 | 1.34975 | 1.38866 | 1.07021 | 1.02863 |

As indicated in table 4.0 above, the mean of Science Students' Awareness is found to be slightly higher (mean = 3.2) than that of their counterparts who are non-science students (mean = 3.18). Flowing from the above, it is evident that the issue bordering around energy conservation has gone beyond mere science to becoming a general as far as the Nigerian context is concerned. This is because, even those who are non-science by profession seem to have almost similar level of awareness / interest in energy conservation as Nigerian scientists, owing to the urgent relevance and daily need of energy conservation by every Nigerian.

**Awareness Level**

i. I know the concept of renewable energy very well.
ii. Nigeria has quite a number of renewable energy sources.
iii. We always use renewable energy in our home or work.
iv. There is adequate awareness of energy conservation in Nigeria.
v. Businesses and industries have a significant responsibility in promoting energy conservation.

**Barriers to Energy Conservation**

i. There is inadequate energy conservation information in Nigeria.
ii. Insufficient funding constitutes a major obstacle to implementation of energy conservation in Nigeria.
iii. Unavailability of resources is a barrier to energy conservation in Nigeria.
iv. Absence of substantial demand for energy conservation in Nigeria is a major setback to energy conservation exploration in the country.
v. Lack of willingness is a barrier to energy conservation in Nigeria.

**Impacts of Energy Conservation**

i. Energy conservation is very important to Nigerian economic recovery.
ii. Energy conservation can help to reduce fuel consumption in Nigeria.
iii. Energy conservation can lead to employment generation.
iv. Energy conservation can promote national security.
v. Energy conservation can help to reduce carbon emission in Nigeria.

Insufficient funding constitutes a major obstacle to implementation of energy conservation in Nigeria. Businesses and industries have a significant responsibility in promoting energy conservation. Absence of substantial demand for energy conservation in Nigeria is a major setback to energy conservation exploration in the country.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .860 | .844 | 15 |

A_5, B_7, B_8, B_9 and I_11 were expunged to obtained the above reliability

**Conclusion**

By harnessing the laws of energy conservation, Nigeria can potentially address its economic crisis and achieve sustainable economic growth. Efficient use of the Law of Conservation of Energy could bring about a total turnaround to the economic woes Nigeria is facing (Tajudeen, 2015). This data analysis will lay the foundation for further research and policy recommendations in this area.

**Recommendation**

Based on the thorough analysis and insights presented in the paper, several recommendations can be made to address the economic crisis in Nigeria by harnessing the laws of energy conservation:

i. **Diversification of Energy Sources**: Nigeria should focus on diversifying its energy sources away from heavy reliance on crude oil. This can be achieved by investing in renewable energy sources such as solar, hydroelectric, biomass, and wind energy. By tapping into these abundant resources, Nigeria can reduce its vulnerability to fluctuations in oil prices and enhance energy security.

ii. **Promotion of Energy Efficiency:** Implementing energy efficiency measures across various sectors, including transportation, residential, commercial, and industrial, can significantly reduce energy consumption and costs. This can be achieved through public awareness campaigns, incentives for energy-efficient technologies, and stringent energy efficiency standards for buildings and appliances.

iii. **Enhanced Waste Management:** Improving waste management practices, particularly in the recycling and conversion of waste to energy, can contribute to both environmental sustainability and energy conservation. By implementing effective waste management strategies, Nigeria can mitigate environmental degradation while harnessing the energy potential of organic waste materials.

iv. **Policy Reforms:** Nigeria should enact and enforce policies that support sustainable energy development and conservation efforts. This includes establishing renewable energy targets, providing incentives for investment in renewable energy projects, and phasing out subsidies for fossil fuels.

Additionally, regulatory frameworks should be put in place to promote energy efficiency and incentivize businesses and industries to adopt sustainable practices.

v. **Investment in Research and Development:** There should be increased investment in research and development to innovate new technologies and solutions for energy conservation and sustainable development. Collaborations between academia, government, and the private sector can drive technological advancements and facilitate the adoption of renewable energy technologies in Nigeria.

vi. **Education and Awareness:** Public education and awareness campaigns should be conducted to promote the importance of energy conservation and sustainable practices. This includes educating individuals, businesses, and policymakers about the benefits of renewable energy, energy efficiency, and waste management strategies. By fostering a culture of sustainability, Nigeria can mobilize collective action towards addressing the economic crisis and achieving long-term environmental stability.

vii. **Stakeholder Engagement:** Collaboration and partnership between government, industry, civil society, and international organizations are essential for driving sustainable development initiatives. Engaging stakeholders in dialogue and decision-making processes can ensure that policies and interventions are inclusive, effective, and sustainable in the long run.

In conclusion, by adopting a holistic approach that integrates principles of energy conservation with strategic economic policies, Nigeria can overcome its economic challenges, promote sustainable development, and build resilience against future crises. The recommendations outlined above provide a roadmap for policymakers and stakeholders to chart a sustainable path towards economic recovery and environmental stewardship.

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# SECURING DECENTRALIZATION: AI-ENABLED APPROACHES FOR TRUSTWORTHY BLOCKCHAIN SYSTEMS

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***Abstract***

*This research investigates the intersection of artificial intelligence (AI) and blockchain technology to enhance the security and trustworthiness of decentralized systems. Decentralization is a fundamental principle of blockchain, but it introduces challenges related to trust, security, and scalability. Traditional security measures are often insufficient in fully addressing these challenges. The integration of AI techniques offers promising solutions to bolster the security of blockchain systems. This paper explores various AI-enabled approaches such as machine learning for fraud detection, natural language processing for smart contract auditing, and predictive analytics for anomaly detection. Through case studies and examples, we demonstrate the effectiveness of these AI-driven security measures in ensuring the integrity and trustworthiness of blockchain networks. Furthermore, we discuss future directions and the potential impact of AI in securing decentralized systems, highlighting the importance of ongoing research and innovation in this field.*

***Keywords**: Decentralization; Blockchain Technology; Artificial Intelligence (AI); Security; Trustworthiness*

## Introduction

The convergence of artificial intelligence (AI) and blockchain technology represents a transformative force that is reshaping industries and sectors worldwide (Bera, B., Das, A. K., Obaidat, M., Vijayakumar, P., Hsiao, K. F., & Park, Y. 2020). AI brings to the table a suite of capabilities, including advanced data analysis, pattern recognition, and decision-making, which have the potential to revolutionize how blockchain-based systems operate (Bagga, P., Sutrala, A. K., Das, A. K., & Vijayakumar, P. 2021). On the other hand, blockchain technology offers a decentralized and transparent framework, addressing some of the inherent limitations and challenges faced by AI applications, such as data privacy concerns and trust issues in centralized systems. This paper seeks to delve into the intricate relationship between AI and blockchain technology, emphasizing the symbiosis that exists between the two (Bokhare, A., & Metkewar, P. S. 2021). By leveraging AI-enabled approaches, the aim is to bolster the trustworthiness and security of decentralized systems, thereby enhancing their overall functionality and effectiveness. Through a systematic exploration of this synergy, the following sections will provide a comprehensive analysis of the current landscape in AI and blockchain integration, (Feng, L., Yang, Z., Guo, S., Qiu, X., Li, W., & Yu, P. 2021) highlighting the challenges encountered, existing solutions, and paving the way for future directions in this rapidly evolving domain, in Figure 1. By dissecting the potential synergies and benefits that AI brings to the table within blockchain ecosystems, this paper aims to shed light on innovative strategies and methodologies that can propel the development of more robust, efficient, and secure decentralized systems (Jogunola, O., Adebisi, B., Ikpehai, A., Popoola, S. I., Gui, G., Gacanin, H., & Ci, S. 2021). The overarching goal is to uncover actionable insights that can drive transformative advancements, shaping a digital landscape characterized by enhanced trust, transparency, and resilience (Krittanawong, C., Rogers, A. J., Aydar, M., Choi, E., Johnson, K. W., & et al. 2020).

Figure 1: Blockchain and AI

**Background on Decentralization and Blockchain Technology**

Decentralization refers to the distribution of control and decision-making across a network of nodes or participants, rather than relying on a central authority (Lisi, A., de Salve, A., Mori, P., Ricci, L. 2020). This concept has gained prominence in various domains, including finance, governance, and information technology, as it offers benefits such as increased resilience, transparency, and democratization. Blockchain technology, initially introduced as the underlying technology for cryptocurrencies like Bitcoin, has become synonymous with decentralized systems (Malhotra, D., Srivastava, S., Saini, P., & Singh, A. K. 2021). A blockchain is a distributed and immutable ledger that records transactions in a chronological and transparent manner. It operates on a peer-to-peer network, where each participant (node) maintains a copy of the entire ledger, ensuring consensus and trust without the need for a central intermediary. The combination of decentralization and blockchain technology has led to innovative applications beyond cryptocurrencies (Mcbee, M. P., & Wilcox, C. 2020). Decentralized finance (DeFi), supply chain management, digital identity verification, and smart contracts are among the many use cases enabled by blockchain networks. These applications leverage the inherent security, transparency, and tamper-resistant nature of blockchains to revolutionize traditional processes and systems (Short, A. R., Leligou, H. C., Papoutsidakis, M., & Theocharis, E. 2020). Understanding the fundamentals of decentralization and blockchain technology is crucial for exploring how artificial intelligence (AI) can complement and enhance these systems. In the following sections, we will delve deeper into the challenges and opportunities in integrating AI with blockchain technology to address security, trustworthiness, and scalability concerns (Schenk, E., Schaeffer, V., & Pénin, J. 2020).

**Challenges in Trust and Security in Blockchain Systems**

To address concerns regarding privacy and efficiency in fog computing, a recent study proposed a novel approach known as FL-Block (Blockchain-enabled Federated Learning). Illustrated in Figure 2, the FL-Block architecture allows for local learning updates by end users, which are then shared through a blockchain-based global learning scheme validated by miners. This model utilized a Proof of Work (PoW) consensus mechanism to enable autonomous machine learning without relying on a central authority (Yang, Q., Liu, Y., Cheng, Y., Kang, Y., Chen, T., & Yu, H. 2020). The study also assessed FL-Block's latency performance and determined the optimal block generation rate, considering factors such as communication delays, consensus delays, and computing costs. The results of the evaluation revealed that FL-Block outperformed alternative solutions in terms of privacy protection, effectiveness, and resistance to poisoning attacks (Butun, I., Sterberg, P., & Song, H. 2020). The authors aimed to further develop the model for broader applications in future research, exploring the use of game theory and Markov decision processes to identify optimal conditions for computing and communication costs while maintaining efficiency and privacy (Kamat, P., Gite, S., & Patil, S. 2021).

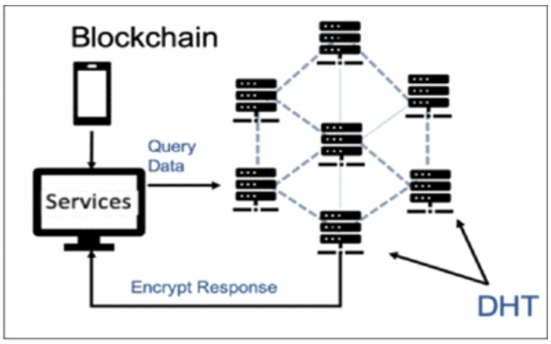


Figure 2: Blockchain for secure and decentralized artificial intelligence in cybersecurity.

Despite the inherent security features of blockchain technology, such as immutability and cryptographic verification, several challenges persist in ensuring trust and security within blockchain systems. These challenges stem from both technical and human factors and must be addressed to realize the full potential of decentralized networks. Some of the key challenges include. As blockchain networks grow in size and transaction volume, scalability becomes a significant concern (Yun, J. J., Zhao, X., Jung, K., & Yigitcanlar, T. 2020). The scalability challenge manifests in longer confirmation times, higher transaction fees, and potential congestion on the network, limiting its usability for real-world applications. While blockchain transactions are pseudonymous, meaning they are not directly linked to real-world identities, ensuring privacy remains a challenge (Chukwu, E., & Garg, L. 2020). Certain blockchain platforms may expose sensitive information or metadata that can be exploited to identify users or trace transaction histories, compromising privacy. Achieving consensus among network participants is fundamental to blockchain's operation. However, different consensus mechanisms (e.g., proof of work, proof of stake) have their strengths and weaknesses regarding security, energy efficiency, and decentralization. Designing robust consensus mechanisms that balance these factors is an ongoing challenge. Smart contracts, self-executing code stored on the blockchain, automate processes and enable complex functionalities (Ren, K., Zheng, T., Qin, Z., & Liu, X. 2020).

However, vulnerabilities in smart contract code, such as coding errors or logical flaws, can lead to security breaches, loss of funds, or unintended consequences, highlighting the need for rigorous security audits and best practices (Farouk, A., Alahmadi, A., Ghose, S., & Mashatan, A. 2020). The proliferation of multiple blockchain platforms and protocols has resulted in interoperability challenges. Seamless communication and data exchange between disparate blockchain networks are essential for scalable and efficient decentralized ecosystems but require standardized protocols and interoperability solutions. Regulatory uncertainty and evolving legal frameworks pose challenges for blockchain adoption, especially in sectors with stringent compliance requirements (e.g., finance, healthcare). Balancing regulatory compliance with the core principles of decentralization and privacy is a complex yet essential aspect of blockchain governance (Pandey, P., & Litoriya, R. 2020). Addressing these challenges requires collaborative efforts from technology developers, regulators, industry stakeholders, and researchers. Innovative solutions leveraging artificial intelligence (AI) and advanced cryptographic techniques can play a crucial role in enhancing the trust, security, and resilience of blockchain systems. In the subsequent sections, we will explore AI-enabled approaches and best practices to mitigate these challenges and foster a more secure and trustworthy decentralized ecosystem (Hajizadeh, M., Afraz, N., Ruffini, M., & Bauschert, T. 2020.

**Role of Artificial Intelligence in Enhancing Blockchain Security**

Artificial intelligence (AI) is increasingly being integrated into blockchain ecosystems to bolster security measures and mitigate vulnerabilities. The synergy between AI and blockchain technology offers innovative solutions for enhancing the trustworthiness and resilience of decentralized systems (Shamim Hossain, M., Muhammad, G., & Guizani, N. 2020). Here are key roles that AI plays in enhancing blockchain security. AI algorithms, particularly machine learning models, excel at detecting anomalies and patterns in large datasets. In the context of blockchain security, AI can analyze transaction histories, network behaviors, and user activities to identify suspicious or fraudulent activities. By flagging anomalies in real-time, AI enhances the early detection of security threats and helps prevent malicious actions (Zerka, F., Urovi, V., Vaidyanathan, A., Barakat, S., Leijenaar, R. T. H., Walsh, S., Gabrani-Juma, H., Miraglio, B., Woodruff, H. C., Dumontier, M., & et al. 2020). AI-driven predictive analytics can assess historical blockchain data to anticipate potential security breaches or vulnerabilities. By analyzing past trends and attack patterns, AI models can provide proactive insights into emerging threats, enabling blockchain networks to implement preemptive security measures and strengthen defenses against cyberattacks. (Lisi, A., de Salve, A., Mori, P., Ricci, L., & Fabrizi, S. 2021) These systems leverage advanced algorithms and data analytics to distinguish between legitimate and malicious transactions, reducing the risk of financial fraud or data manipulation. Smart contracts, while offering automation and transparency, are susceptible to coding errors or vulnerabilities that can be exploited by attackers. AI-based smart contract auditing tools can analyze contract code for potential bugs, vulnerabilities, or logic flaws, enhancing the overall security and reliability of smart contract deployments (Kashif, H., Sarwar, B. I., Nadeem, S., Waheed, A., Zaigham, M., & Tayyaba, R. 2021).

AI-driven authentication mechanisms, such as biometric recognition, behavioral analysis, and anomaly-based access control, can strengthen user authentication within blockchain networks. By continuously monitoring user interactions and authentication patterns, AI systems can detect unauthorized access attempts or identity theft, mitigating security risks. AI-powered network security monitoring tools can monitor blockchain network traffic, node activities, and data flows in real-time. These tools can identify and respond to suspicious network behavior, DDoS attacks, or network anomalies promptly, reducing downtime and enhancing overall network security. AI and cryptographic techniques can be combined to develop privacy-preserving solutions for blockchain networks (Lu, Y., Huang, X., Zhang, K., Maharjan, S., & Zhang, Y. 2020). Techniques such as homomorphic encryption, zero-knowledge proofs, and differential privacy enable secure data sharing and computation without compromising data privacy or confidentiality. By leveraging AI capabilities in anomaly detection, predictive analytics, fraud prevention, smart contract auditing, authentication, network monitoring, and privacy-preserving technologies, blockchain ecosystems can significantly enhance their security posture. Integrating AI-driven security solutions into blockchain frameworks contributes to a more resilient, trustworthy, and secure decentralized infrastructure (Peng, Y., Chen, Z., Chen, Z., Ou, W., Han, W., & Ma, J. 2021).

**AI-Enabled Approaches for Trustworthiness in Blockchain Systems**

Machine learning (ML) plays a crucial role in enhancing trustworthiness within blockchain systems, particularly in the domain of fraud detection. ML algorithms analyze transactional data, identify patterns, and detect anomalies that may indicate fraudulent activities (Gupta, R., Shukla, A., & Tanwar, S. 2020). By leveraging historical data and continuously learning from new transactions, ML models can adapt and improve their accuracy in detecting various types of fraud, such as unauthorized access, identity theft, or malicious transactions (Wang, J., & Wu, Q. 2020). This approach not only enhances security within blockchain networks but also fosters trust among network participants by providing real-time fraud prevention mechanisms, in Figure 4.

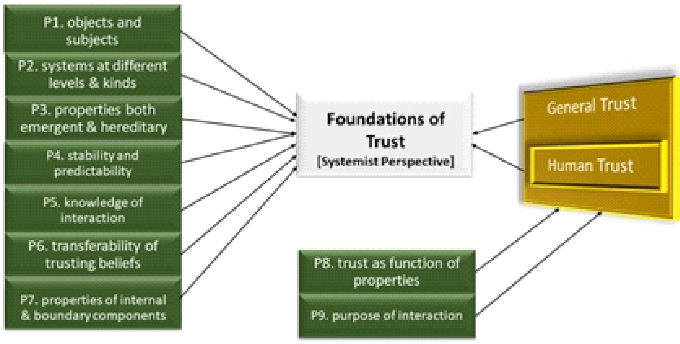


**Figure 3:** Trust in artificial intelligence

Natural language processing (NLP) is another AI-enabled approach that contributes to trustworthiness in blockchain systems, specifically in the context of smart contract auditing (Bouras, M. A., Lu, Q., Dhelim, S., & Ning, H. 2021). NLP techniques are used to automatically parse and analyze the code of smart contracts, identifying potential vulnerabilities, logical errors, or security risks. By applying NLP-driven auditing processes, blockchain platforms can ensure the integrity and security of smart contracts, reducing the risk of contract-based exploits or vulnerabilities that could compromise trust among users (Qu, Y., Pokhrel, S. R., & Garg, S. 2020). NLP enhances the efficiency and accuracy of smart contract audits, leading to a more trustworthy and reliable blockchain ecosystem. Predictive analytics is yet another AI-enabled approach that strengthens trustworthiness in blockchain systems by focusing on anomaly detection. Predictive analytics models leverage historical data and advanced algorithms to predict and detect anomalous behaviors or deviations from expected patterns within the blockchain network (Yang, Q., Liu, Y., Cheng, Y., Kang, Y., Chen, T., & Yu, H. 2020). By proactively identifying potential security threats or suspicious activities, predictive analytics contribute to maintaining network integrity, reducing the risk of fraud or malicious attacks, and enhancing overall trust among stakeholders. Predictive analytics-driven anomaly detection ensures timely responses to security incidents, bolstering the trustworthiness and resilience of decentralized systems (Shukla, A., Bhattacharya, P., Tanwar, S., Kumar, N., & Guizani, M. 2020).

**Case Studies and Examples of AI-Enabled Security Solutions**

**XYZ Blockchain Network:** Implemented machine learning algorithms to detect and prevent fraudulent activities in real-time, resulting in a significant reduction in fraudulent transactions and increased trust among network participants (Wang, J., & Wu, Q. 2020). ABC Cryptocurrency Platform: Utilized machine learning models to analyze transaction patterns and detect anomalies, leading to enhanced security and reduced instances of transactional fraud.

**DEF Smart Contract Auditing Tool:** Leveraged NLP techniques to automatically analyze smart contract code and identify vulnerabilities or inconsistencies, thereby ensuring the integrity and security of smart contracts deployed on the blockchain (Wang, S., Sun, S., Wang, X., Ning, Z., & Rodrigues, J. J. P. C. 2020). Integrated NLP-based auditing processes to evaluate the compliance and security of smart contracts, facilitating a more transparent and trustworthy environment for blockchain-based transactions. Employed predictive analytics algorithms to monitor network activities and detect anomalous behaviors or suspicious transactions in real-time, enabling proactive measures to mitigate security threats and maintain network integrity (Yang, Q., Liu, Y., Cheng, Y., Kang, Y., Chen, T., & Yu, H. 2020). Utilized predictive analytics frameworks to identify potential security breaches and predict future attack vectors, enabling preemptive actions to strengthen the overall security posture of the blockchain network. These case studies illustrate how AI-enabled security solutions such as machine learning, natural language processing, and predictive analytics can be effectively applied to enhance the trustworthiness, reliability, and security of blockchain systems, thereby instilling confidence among users and stakeholders in adopting decentralized technologies (Dhelim, S., Ning, H., Farha, F., Chen, L., Atzori, L., & Daneshmand, M. 2021).

**Future Directions and Potential Impact of AI in Securing Decentralized Systems**

AI will continue to evolve in its ability to detect and mitigate sophisticated threats in decentralized systems. This includes the development of AI-driven threat intelligence platforms that can proactively identify and respond to emerging security risks, such as zero-day vulnerabilities and novel attack vectors (Yeh, T.-Y., & Kashef, R. 2020). AI algorithms will be harnessed to develop privacy-preserving solutions for blockchain networks, ensuring data confidentiality while still allowing for efficient data sharing and analysis. Techniques like federated learning and differential privacy will play a crucial role in preserving user privacy in decentralized environments. AI-driven self-healing mechanisms will become integral to decentralized systems, enabling networks to autonomously identify and mitigate security incidents in real-time (Azzaoui, A. E., Singh, S. K., Pan, Y., & Park, J. H. 2020). This includes adaptive security policies, automated incident response, and self-repairing infrastructure to enhance resilience against cyber threats. As AI algorithms become more complex, the need for explainable AI (XAI) in decentralized governance will rise. AI systems must be transparent and accountable, especially in decision-making processes related to security policies, resource allocation, and risk management within decentralized networks (Atlam, H. F., Azad, M. A., Alzahrani, A. G., & Wills, G. 2020). AI technologies will contribute to enhancing interoperability and standardization across different blockchain platforms and networks. AI-driven interoperability solutions will facilitate seamless data exchange and communication between disparate decentralized systems, promoting scalability and efficiency. AI will play a pivotal role in shaping governance models for decentralized systems, particularly in areas such as consensus mechanisms, identity management, and regulatory compliance. AI-powered governance frameworks can improve decision-making processes, ensure fairness, and enhance the overall governance structure of decentralized networks. AI-powered cybersecurity education and awareness programs will become essential in decentralized ecosystems (Alqaralleh, B. A. Y., Vaiyapuri, T., Parvathy, V. S., Gupta, D., Khanna, A., & Shankar, K. 2021). AI-driven training platforms, simulated attack scenarios, and personalized security recommendations will empower users and stakeholders to better understand and mitigate security risks in decentralized systems.


**Figure 4:** Artificial Intelligence, Blockchain, And the Future of The World

The potential impact of AI in securing decentralized systems is profound, promising to revolutionize how we approach security, governance, and privacy in the era of decentralized technologies (Yun, J. J., Zhao, X., Jung, K., & Yigitcanlar, T. 2020). By leveraging AI's capabilities, decentralized systems can achieve higher levels of trustworthiness, resilience, and adaptability, paving the way for a more secure and inclusive digital future.

## Conclusion

The intersection of artificial intelligence (AI) and blockchain technology presents a promising landscape for enhancing the trustworthiness, security, and efficiency of decentralized systems. Through AI-enabled approaches such as machine learning for fraud detection, natural language processing (NLP) for smart contract auditing, and predictive analytics for anomaly detection, significant strides have been made in mitigating security risks, ensuring compliance, and improving overall network resilience (Alrubei, S., Ball, E., & Rigelsford, J. 2021). These AI-driven solutions have demonstrated their efficacy in real-world scenarios, contributing to a more transparent, reliable, and secure blockchain ecosystem. AI-enabled approaches, particularly machine learning and predictive analytics, have proven effective in detecting and preventing fraudulent activities, reducing security risks, and maintaining network integrity. Natural language processing (NLP) techniques have facilitated efficient smart contract auditing, ensuring compliance with security standards and minimizing vulnerabilities. Predictive analytics models have enabled proactive anomaly detection, leading to timely responses to security threats and minimizing their impact on decentralized systems. The integration of AI with blockchain, as demonstrated by FL-Block architecture, has enhanced privacy protection while maintaining efficiency, resilience, and resistance to attacks. Further research is warranted to explore the potential of AI-driven governance models, privacy-preserving techniques, and interoperability solutions to address evolving challenges and enhance trustworthiness in blockchain systems.

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# 21ST CENTURY OF DEMOCRATIC PRACTICE IN AFRICA; CHALLENGES AND SOLUTIONS

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***Abstract***

*The objective of this research is to examine the 21st Century of Democratic Practice in Africa: Challenges and Solutions. The paper addressed three basic concerns: the 21st century of democratic practice in Africa, the challenges of democratic practice in Africa, and the solutions to the challenges of democratic practice in Africa. The researcher adopted the secondary method of data collection via books, journals, articles, and newspapers in order to understand the 21st century of democratic practice in Africa and the challenges and solutions. The study findings on the challenges of 21st century democratic practice in Africa, including digital authoritarianism, third-termism, electoral violence, corruption, and power abuse. To address these issues, African leaders should adopt exemplary practices, uphold the rule of law, hold free, fair elections, and enhance state institutions. They should focus on removing cronyism and following the constitutional term limit culture. Instead of limiting competition, encourage diverse opinions and tolerance, allowing residents to actively engage in decision-making. Free online and offline speech is essential for this. Digital resource recognition and protection are crucial for civic engagement and capacity development. Leaders should be held accountable and eliminate corruption and power abuse. The African Union must condemn military coups and establish institutions to extend democracy and prosperity across the continent. Democracy will prosper in Africa if Africans learn to reject politicians who think voters can be deceived into giving up their rights and votes.*

***Keywords**: Africa, Democracy, Democratisation, Practice, African Union, Coup d'état*

## Introduction

The state of democracy on a global scale is perpetually confronted with pessimistic challenges. Democratic backsliding (Bermeo, 2016; Karolewski, 2021), democratic rollback (Diamond, 2008), democratic reversal (Anderson, 2019), democratic erosion (Hartmann & Thiery, 2022; Silva-Leander, 2021), and democratic recession (Diamond, 2015; Loanda, 2010; Zamfir, 2021) are some of the terms used to describe this phenomenon. These terms all indicate a distinct degree of democratic decline and the rise of autocratization, regardless of the terminology employed. It delineates a series of challenges within one or more of the principles and indicators of the democratic system. Democratic recession is a global phenomenon that does not discriminate against any particular region or country.

Undoubtedly, Africa is witnessing a resurgence of authoritarianism and illiberal democracy (Salih, 2021; EIU, 2022). The degree to which democratic recession occurs on a global scale is debatable (Anderson, 2019). Regrettably, African governments have encountered the challenge of suspended liberal democracy in recent times, despite their noteworthy efforts to institutionalise democratic reforms and reject autocracy and military rule in their quest for second independence. This is demonstrated by the following, according to Tar (2010): an identity-based political culture, a feeble civil society, repeated military intervention, a lack of viable opposition, and the absence of regime transition.

Akinyetun and Bakare (2020) analyse the ongoing conflicts, emphasising the significance of ethnic, religious, and cultural divisions. When elites promote primordial identification among antagonistic and opposing groups, political instability is exacerbated and democratic consolidation is harmed. Simultaneously, communities that lack sufficient democratic institutions exhibit greater divisions along lines of identity (Diamond, 2015). As per the findings of Loanda (2010), numerous countries have come to regard the democratic process as a mere formality, attributing its inability to effect substantial change to the pervasive corruption, deception, and violence that permeates the electoral system. In light of Africa's historical experience under authoritarian rule, it appears that the widespread zeal for the democratisation movement across the continent was exaggerated. Given the circumstances, Gyimah-Boadi (2021:6) argues that remnants of authoritarianism continued to exist, notably in Togo, Guinea-Bissau, and the Gambia. The reason for this is that democratic politics in the region continue to be influenced negatively by the "divide and conquer" strategy of colonial rule, which had calamitous effects on nations such as Sierra Leone, Nigeria, Cote d'Ivoire, and Liberia.

## Aim of the Study

To examine the 21st century of Democratic practice in Africa; Challenges and Solutions.

## Research Questions

i. What is the 21st century of democratic practice in Africa?
ii. What are the challenges of democratic practice in Africa?
iii. What are the solutions to challenges of democratic practice in Africa?

**Methodology of the Study**

The study used a qualitative methodology to gather data and achieve its objectives. Secondary sources play a crucial role in the qualitative data gathering methodology. It involves examining a completely unrelated topic utilising data that was previously collected for a different researcher. This research field has the potential to provide new and unique insights on the original objective or additional goals of the study. The data sources include a variety of materials such as artefacts, observations, journals, books, reports, newspapers, published documents, focus group, artifact, case studies, recordings and libraries.

**Review of Literature**

**i. Democracy**

From the Greek terms DEMOS (people) and CRATOS (power) or CRATEIN (power) derives the word democracy. Thus, democracy is fundamentally understood as the power of the people (Buccola, 2016). The fundamental source of the initial misunderstanding is as follows. Are you aware of the power that people possess? Should we maintain the notion that people hold power, or is it more practical to acknowledge that power ultimately resides with individuals?

By "people's power," we refer to a form of government in which the interests and concerns of the people are truly represented. It is evident that the people have a say in significant decisions in a democracy. In other words, the people choose their leaders voluntarily and submit to the m; they also choose their laws voluntarily and choose to abide by them. For democracy to exist is not to absolve oneself of responsibility; on the contrary, it is a regulation that must be upheld. Only in this context can the significance of the contract as stated by Rousseau in the SOCIAL CONTRACT (Medina, 1986) be comprehended. Democracy is the maturation of people who self-discipline, (Rousseau, More, Bacon, and Campanella, 1901).

We refer to the period in which governance is based on the will of the people as a democracy. A state that protects the rights of its minority people while encouraging greater participation of the majority in state governance. Democracy is the greatest option if we want more people to have an opinion on how their state is governed, as demonstrated by the definition above.

Rather than merely a political system or a collection of laws, democracy is a way of life based on the conviction that human beings are inherently decent and capable of making logical decisions when presented with favourable conditions. In order to reside in a democracy, one must have faith in the capacity to resolve disputes through nonviolent means.

Instead of being "something external and institutional," as Dewey (1916) contends, democracy is an individual way of life. To live in a democracy, we must have rights protections and the conviction that disagreements can be resolved amicably. To put it another way, a democratic environment should be created in which communication is unimpeded and a "cooperative undertaking" is pursued, as opposed to one group repressing the other through overt or covert violence or intimidation.

**ii. Democratization**

The transition from an authoritarian to a democratic political system is referred to as "democratisation" in many situations. Building a long-lasting democracy and overthrowing authoritarian control are the main goals of this transition. As stated by Nwabueze (1993), the goal of democratisation is to instill a belief in social justice, freedom, and democracy in the people. Nwabueze (1993) provided more detail by outlining twelve factors that must be present for a democracy to take root:

(i) A system of multiple parties based on a democratic constitution;
(ii) A total overhaul of the guards and the exclusion of specific groups from democratic politics and governance;
(iii) Real and substantial public engagement in these areas;
(iv) A robust civil society;
(v) A society characterised by democracy;
(vi) Freedom;
(vii) Justice; and
(viii) The rule of law.

The process of democratisation is defined by Osaghae (1999) as the strengthening, expansion, or growth of democratic ideals, institutions, and systems. Another perspective is offered by Potter (2000) who defines democratisation as "a political progression from governments that are less accountable to those that are more accountable; from elections that are less competitive or non-existent to those that are more comprehensive and equitable in nature; and from limited or non-existent civil and political organisations to more extensive and continuous organisations in civil society." Democratisation refers to the process by which democracy is developed. Based on these ideas, democratisation is moving towards a transitional or stable democracy. Whether or not democratisation succeeds depends on how well it builds these characteristics; it's crucial to remember that the goal of democratisation is to create a democratic government. An empire's transition from a military or authoritarian rule to a democratically elected one is known as democraisation.

**iii. Democratic Governance**

According to Bevir (2006), Ingrams (2019), and Strebel et al. (2019), democratic governance occurs when the state and citizens or civil society collaborate to establish partnerships, networks, coordinate, negotiate, compromise, reach a consensus, and involve everyone in the formulation and implementation of public policies.

In recent years, a substantial amount of scholarly literature has surfaced, exploring democratic governance through a multitude of theoretical and methodological lenses. Numerous studies have investigated the relationship between democratic governance and different political concepts, such as the state, organisations, regimes, elections, and democracy (Petracca, 1989; Cohen & Rogers, 1992; Bohman, 1999; Pottie, 2001; Bevir, 2006; Tusalem & Pe-Aguirre, 2013; Aliye, 2020). The technical implications of information and communication technologies, artificial intelligence, big data, and geographic information systems in relation to democratic governance have been emphasised by scholars such as Haque (2001), Kakabadse et al. (2003), Falch (2006), Flyverbom et al. (2019), and Clarke & Dubois (2020). Scholars in the domain of public administration, including Coston (1998), Terry (1999), S. E. Clarke (2001), Ayee (2013), Vecchione & Parkhurst (2015), and Bamidele & Ayodele (2018), have underscored the importance of public policy, public administration, and public management in the context of democratic governance. Additionally, there are ties between democracy research in Indonesia and the nation's politics, regional development, and technological progress. In his study, Winengan (2018) investigated dimensions of democracy that concern power, legitimacy, authority, and democratic governance. Modern democratic society, according to Utami (2019), is afflicted by the dissemination of false information facilitated by social media. Based on a study by Kusumasari et al. (2018), the integration of ICT and effective governance has the potential to improve health-related public services. Indroyono et al. (2018) present a vision for community unity governance to assist people in rural areas in enhancing their economic situation and safeguarding the environment.

Despite this, conceptual maps of literature on democratic governance are rarely compiled by scholars. Democracy, theory, epistemology, and democracy were the topics of Haque's (2016) investigation into democratic governance. Chan (2016) endeavoured to formulate the notion of democratic governance through the lens of modernist and interpretive social science. A regulatory and legal examination of politics, institutions, multiculturalism, and democracy was conducted by Schuck (2018).

**21st century of Democratic Practice in Africa**

A political system in which citizens are afforded the opportunity to express their viewpoints and collaborate for the collective good through the democratic process is one definition of democracy (Loada, 2010). Election-based governance and majority authority are frequently misconstrued to imply democracy. Holding people accountable, defending human rights, and abiding by the law are all part of it. Repucci and Slipowitz (2022) posit that a democratic system permits internal and external balances in addition to safeguarding the autonomy of the media and civil society. The success of a democracy is rarely guaranteed through the mere conduct of elections. Authoritarian states have worked out how to conduct elections without actually instituting democracy. As Diamond (2008) more effectively put it, elections are confrontations between parties that are corrupt and clientelistical. Municipal and parliamentary administrations do not provide services to substantial populations. Constitutions and constitutionalism are not synonymous in existence.

A tide of democratisation swept across Africa in 1990, when President Mathieu Kerekou was compelled to convene a sovereign national convention in response to a demonstration by Benin's students and members of civic society. From 1990 to 1993, sovereign national conferences were convened in the neighbouring countries of Mali, Niger, Guinea, and Togo, all of which were influenced by the pro-democracy demonstrations. In order to accommodate the opposition, the Cote d'Ivoirean government amended its constitution; Ghana, meanwhile, implemented multiparty democracy (Gyimah-Boadi, 2021).

Several African nations, including Sierra Leone, Cabo Verde, and Nigeria, had implemented democratic constitutions and undergone democratic transitions by the turn of the 21st century. Despite undergoing significant transitions that brought about improvements such as increased parliamentary powers, freedom, peace, economic performance, and social development, Africa has experienced a recent period marked by an asymmetric trend in which authoritarianism has gained ground and democracy has declined (Zamfir, 2021).

The state is unable to uphold democratic principles such as the rule of law, free and fair elections, the legitimacy of the state, the rights of minorities, fundamental human rights, and press freedom during a democratic recession. According to Bermeo (2016:5), it is "the debilitation or eradication of the political institutions that support an established democracy through state-led means." Such a dysfunctional state of democracy, according to Salih (2021), is indicative of cronyism within the government and corrupt politicians supported by a similarly corrupt political elite. State institutions are shackled by elected officials who frequently support the state's superiors instead of the people who elected them and do not heed to their constituents. The decline of democracy can be seen as an indication of an underlying crisis in the legitimacy of the state (Salih, 2021). According to Jinadu (2010), some of the challenges that African democracies face in the 21st century include: a lack of faith in electoral bodies to hold fair elections; abuse of power by incumbents; manipulation of electoral processes; falsification of results; manipulation of the electoral process; and electoral violence.

Controlling corruption and abuse of power is the greatest practice confronting the 21st century of democratic practice in Africa, (Diamond, 2015). Without a doubt, the abuse of power hinders democratic advancement. The main reasons why democratic progress is being turned back are diminished political freedom, an unclear division of powers, and a weakened rule of law (Hartmann & Thiery, 2022).

Zamfir (2021) identifies insufficient socioeconomic development and instability, alongside inadequate institutions, as the primary factors contributing to democratic recession in confronting the 21st century of democratic practice in Africa. Loanda (2010) is the originator of the notion that the democratic recession in Africa can be attributed to both internal and external factors. Internal forces originate in the mechanisms of the government and economy. In the wake of the democratic revolutions of the early 1990s, a hybrid regime devoid of an independent press and separation of powers came into existence.

Iliberal democracy is a system distinguished by its authoritarian environment and provocation of political challenges. Proximity for progress, pervasive corruption, and the pursuit of usurp state resources obstruct democratic development, hinder effective governance, and contribute to the economic challenges. The contends that economic and political undercurrents underlie the external variables. Constraints over the democratic processes of other countries spread constitutional anarchy, which has a contagious political effect throughout the continent. The success of a constitutional coup in one country is directly proportional to the likelihood that such a coup will occur in another country. From an economic standpoint, the resource-grabbing ambitions of powerful foreign countries present challenges to democratic practice in Africa. Many people believe that corruption and inefficiency are the root causes of the democratic recession. Hartmann and Thiery (2022) provide support for the notion that corruption impedes the evolution of democracy and the enhancement of governance. Conversely, corruption and despotism are inextricably linked to the 21st century of democratic practice in Africa.

The predominance of flawed democracies also contributes to the dwindling democracy in Africa. There are several forms of flawed democracy, which Wolfgang (2004) discussed at length. Unrooted democracies fail to provide citizens with opportunities to participate, hold their government accountable, exercise their civil freedoms, and choose their representatives. The other side of the coin is democracies that fail to uphold the Constitution. Patrimonial and post-autocratic nations are more likely to have democracies that aren't perfect. They are influenced by the aforementioned elements, which include economic trends, civil society, nation-building, political institutions, social capital, the degree and trajectory of modernization, and the sort of authoritarian government that came before them. In her analysis of flawed democracies, Merkel identifies four main types: exclusive democracy, illiberal democracy, delegative democracy, and illiberal democracy. These forms can be further classified as domestic democracy, illiberal democracy, and delegative democracy. On one hand, devolutionism and veto power are used to weaken the authority of democratically elected representatives, guerrillas, the military, and the government. On the other hand, the freedom of the people, legal systems, and the judiciary are undermined when used in opposition to or outmoded by devolutionism and veto power, respectively. On the other hand, according to Merkel (2004), the flawed type of democracy that is most common is illiberal democracy.

Worldwide, military coups, executive degradation, human rights violations, acts of violence, military rebellions, political instability, election fraud, executive abuse, parliamentary suspensions, a decline in adherence to the rule of law, and breakdowns in electoral processes are among the numerous manifestations of democracy breakdown identified (Diamond, 2015).

The challenges that the Coronavirus epidemic undoubtedly presented were also those to democracy. Voter participation was inadequate in the countries that held elections; in Ethiopia, elections were even rescheduled. Electoral violence experienced a notable surge in Guinea and the Central African Republic, while the concomitant limitations imposed by the pandemic further complicated matters regarding the Burundi election (Alizada et al., 2021). Undoubtedly, the epidemic amplified the prevalence of autocratization through the reduction of public spaces (Silva-Leander, 2021).

**Challenges of Democratic Practice in Africa**

Democracy was confronted with a variety of challenges in this 21st century, some of which were long-standing issues and others that were more recent.

**i. Coup d'état and Third-term Virus**

Many African rulers have shown a complete and utter lack of respect for the limitations placed on presidential terms. In an effort to stay in power for as long as possible, some African rulers have attempted or admitted to attempting to rig elections or weaken democratic institutions. The leaders of Guinea, Mali, Togo, Tanzania, and Côte d'Ivoire are all present. September 2021 saw a military coup as President Alpha Conde sought to alter the constitution to grant himself a third term. Many scholars have argued that the rise in human rights violations in Guinea has turned the nation from partially free to non-free (Gyimah-Boadi, 2021; Hartmann and Thiery, 2022; Repucci and Slipowitz, 2022). A growing number of individuals are participating in what David Landau terms "abusive constitutionalism," an effort to undermine democracy via constitutional change, namely through modification and replacement (Landau, 2013). It is possible that totalitarian control has become less harsh and noticeable in different parts of the world. There are ongoing worries about the rise of military coups and the ways authoritarian governments exploit constitutional revisions to strengthen their grip on power and weaken democracy (Zamfir, 2021).

It has been usual practice for purportedly democratic governments to include authoritarian measures into their institutions in order to create hybrid regimes that are either electoral autocracy or competitive authoritarianism (Landau, 2013).

In order to legitimise the government and provide the illusion of democracy, some African countries' constitutions were amended in a way that is anti-democratic. To put that in perspective, the Egyptian constitution was crafted. Under this constitution, Egypt has become a competitive authoritarian state where elections do not ensure a shift in power. In 2021, President Kai'ed Sai'ed suspended parliament, annulled portions of the constitution, and instituted rule by decree and new judicial powers; as a result, Tunisia fell into a partially free democratic status, despite the country's attempts to establish a secure democracy (Hartmann and Thiery, 2022; Repucci and Slipowitz, 2022). On March 30, 2022, due to what he termed as a "unprecedented failed coup attempt," former law professor Kai Sai'ed dissolved parliament, charging its members of "conspiring against state security" (Deutsche, 2022).

According to the data presented by Siegle and Cook (2021), sixteen African presidents have removed term limits. The heads of state are as follows: Museveni, Conte (Guinea, 2001), Eyadema, Bongo, Museveni, Uganda (2005), Deby, Chad (2005), Biya, Cameroon (2008), Bouteflika, Algeria (2008), Guelleh, Djibouti (2010), Nkurunziza, Burundi (2015), Kagame, Rwanda (2015), Nguesso, Republic of the Congo (2015), Kiir, South Sudan (2015), Kabila, Democratic Republic of the Congo (2016), Azali, Comoros (2018), Sisi, Egypt (2019), Akinyetun, (2022). Regardless, Guinea-Bissau, the Gambia, Eswatini, Morocco, Libya, Ethiopia, Eritrea, Somalia, and Lesotho are among the eight states that do not have a constitution. Because of this, corruption is more likely to occur throughout the continent and the efficacy of government is threatened.

The problem of sit-tightism, in which presidents serve consecutive terms in office, is relevant here. The longest reign a king has been in power in Africa is 43 years. This, according to Reuters (2021) includes Teodoro Obiang of Equatorial Guinea who has spent about 43 years in office; Paul Biya (Cameroon; 39 years), Denis Sassou Nguesso (Congo Republic; 38 years); Yoweri Museveni (Uganda; 36 years), King Mswati III (eSwatini; 36 years); Idriss Deby (Chad; 31 years); Isaias Afwerki (Eritrea; 28 years); Ismail Omar Guelleh (Djibouti; 22 years); King Mohammed VI (Morocco; 22 years); and Paul Kagame (Rwanda; 22 years) (Akinyetun, 2022). Currently, elections are being conducted in a number of these countries in a very undemocratic manner, if they are held at all.

In contrast, two family dynasties have ruled for almost half a century, and ten presidents have served terms of twenty years or more (Siegle & Cook, 2021). Among the persons currently holding the office of short-term president are Paul Kagame, Ismail Omar Guelleh, Denis Sassou-Nguesso, Yoweri Museveni, Paul Biya, Idriss Deby, King Mswati III, Teodore Obiang, Isaias Afwerki, and King Mohammed VI (Siegle & Cook, 2021).

**ii. Military Coup**

The enduring threat of military coups must be considered in any global effort to advance democracy. During the 1960s and 1970s, for example, the military ruled all Latin American nations with the exception of two (Landau, 2013). The democratic progress that had been made in West Africa in 2021 was promptly reversed. The current upsurge in military coups throughout Africa heralds a new era defined by coup culture. The number of coup attempts in 2021 was higher than in the preceding decade. After the military took over Myanmar in 2020 via rigged elections in November, the coup d'état swiftly moved to Sudan in 2021, where the military proclaimed a state of emergency and suggested that fresh elections wouldn't be conducted until 2023.

In April 2021, following the demise of Idriss Deby, the military took over governance of Chad (Repucci & Slipowitz, 2022). Additionally, a coup attempt transpired in Niger in March 2021 (Zamfir, 2021). On the contrary, Mali has experienced two coups within the past decade. Malian military forces reclaim power in May 2021, subsequent to the withdrawal of troops from numerous strategic offices by the civilian authorities of an interim government. Less than a year after the overthrow of Ibrahim Boubacar Keita's government, the president and prime minister selected by an interim government were removed from office. Both coups were orchestrated by Colonel Assimi Goita, the president of the transition government (Gyimah-Boadi, 2021). Fears of a new surge of coups in the region were exacerbated by coups that occurred in Guinea and Sudan as well (EIU, 2022).

In contrast to Burkina Faso, which experienced two military coups in 2022 (in February and September) (Africa News, 2022), Mohamed Bazoum, the president of Niger, was deposed on July 26, 2023, by members of the presidential security. In 2021, Bazoum was elected to office. General Abdourahamane Tiani currently serves as the leader of the presidential security (Africa News, 2023).

### iii. Technocratic Domination

The internet has played an essential part in democratisation, that much is certain. The impact of social media on political rallies in the US during #BlackLivesMatter, #Istandwithhongkong, OccupyWallStreet, Zimbabwe, and the Endsars protests in Nigeria, when youths denounced police brutality and bad leadership, is evident. We can't ignore the critical role that internet technologies play in bringing people together for political conversation, campaigns, action, and participation. A lot of people are worried that the government is trying to use technology to foster digital authoritarianism (Zamfir, 2021).

This has been rationalised in an attempt to decrease the occurrence of violent threats, polarisation, misinformation, and rumours. Suppressing both independent and conventional media, spreading misinformation via digital platforms, and polarising political opponents are common tactics used by governments to undermine democracy and promote autocracy (Alizada et al., 2021). It is becoming more and more clear that the government is using digital technology for censorship and monitoring. Gyimah-Boadi (2021) claims that Nigeria, Ghana, and Benin are all involved. In order to keep tabs on journalist Ignace Soussou, who was supposedly seen as a rival to the president of Benin, the authorities allegedly used spyware. The purchase of Pegasus, an Israeli spyware capable of surveilling a mobile device's microphone and camera, led to the conviction of three former high-ranking Ghanaian government officials. It has been alleged in the interim that the Nigerian government plotted to weaken the #EndSARS demonstrators via the coercion of their systems through malware penetration.

Recent times have seen an increase in authoritarian governments' attempts to control social media. There has been a dramatic increase in the number of protests and elections, which has led to more frequent internet disruptions. The Republic of the Congo, Chad, Burundi, Gabon, and Uganda are mostly responsible for internet disruptions in Africa. In one case, Chad had a 16-month social media ban. Internet access and major social media sites like WhatsApp, Facebook, and Twitter were also restricted by the governments of the Republic of the Congo and Uganda, respectively, in the lead-up to the January 2021 and March 2021 elections.

Furthermore, some African countries have implemented complex regulations that limit online dissent and freedom of expression. As an example, taxes controls social media use in Uganda, content providers are required to have a licence in Tanzania, and law criminalises criticism of the government in Zimbabwe, Tanzania, and Egypt (Cheeseman, 2018; Zamfir, 2021). President Muhammadu Buhari of Nigeria as of June 1, 2021, Twitter ban went into effect. The ban, according to Anyim (2021), is a sign of growing digital authoritarianism in the nation and a barrier to people's ability to freely express themselves online and use the internet for other purposes.

**iv. Electoral Violence**

Elections are necessary for a democracy to operate, and they must occur. This platform enables the people to take part in the democratic process and choose their own leaders. Election quality is declining (Gyimah-Boadi, 2021) in every African country. There is evidence to suggest that African elections are seen as little more than regular exercises to preserve the state's legitimacy and democratic appearance, and as competitions in which the winner takes it all. According to Loanda (2010), during African elections, there is a lot of hatred and vitriol aimed at destroying the opponent. African elections are characterised by a lack of a democratic culture and an independent electoral administration body.

Still, political groups would rather use violence than go to court to settle their differences, and the public has little faith in the legal system. Political turmoil has marred every election in Nigeria since the country gained its independence. Elements of these elections include conspiracies including deceit, intimidation, harassment, and property destruction. Elections with a winner-takes-all mentality are often marred by widespread violence and arbitrary behaviour. Akinyetun (2021) reports that the elections have been followed by bloodshed and prolonged instability. It is far more common for the present leader in Africa to arrest anyone who oppose them. Three prime examples are the Bobi Wine from Uganda, the Hama Amadou from Niger, and the Ousmane Sonko from Senegal. Uncertainty and fear surrounding prominent opposition personalities in the Tigray area impacted the June 2021 elections in Ethiopia (Silva-Leander, 2021; Zamfir, 2021).

**v. Problems with the Economy and Society**

The African people must enjoy great economic prosperity if the improvements gained in the practice of democratic governance are to continue. Economic change based on demonstrable leadership talents must immediately replace such internal and foreign mismanagement or the economy would collapse again, as happened to many African countries in the first 30 years after independence. Economic independence and self-reliance are the main challenges to achieving this economic goal, according to Rawlins (2008). Many African countries became consumer societies and economic shackles to a select few wealthy nations as soon as they gained political independence, completely ignoring their prior experiences.

The second economic and social obstacle to the emergence of democracy in Africa is the lack or inadequate social and economic infrastructure. Building power plants, water systems, roads, railroads, and communication networks is an integral part of the continental agenda for infrastructure development. There is a severe lack of human capital as well as the economic and technical know-how that would allow the continent to negotiate fair trade terms with more developed countries.

Lastly, the failure to decisively empower certain powerful economic players across African nations is a major economic obstacle to the long-term viability of democracy across the continent. The mass of the population is still mired in poverty, illiteracy, hunger, and misery, which makes the establishment and maintenance of democracy and economic development seem like a mirage, as it does in many African states. The only way to give people economic power is to invest directly in their production and marketing capabilities as a collective. African countries must guarantee the survival of a larger portion of their population by the implementation of efficient healthcare, economic, and administrative policies.

**Solutions to Challenges of Democratic practice in Africa**

**i. Condemn and Oppose any Alterations to the Constitution.**

By demanding that governments only change via established democratic procedures, the African Union (AU) supports democracy and good governance throughout the continent, which will help to overcome challenges to democracy.

A successful democracy requires swift ratification of papers, political will to follow conventions, and the ability to reelect governments in accordance with the constitution. Consider what would happen if the African Union's institutions worked together more effectively and vehemently opposed any attempt to change their constitutions in order to provide officials with longer terms of office.

**ii. Democracy needs to fulfil its promises**

Democracies must be able to follow through on their promises of development and other changes if they want to succeed, as International IDEA has discovered via its support of global democracy efforts since 1996. Beyond the basic ability to cast a ballot every five or four years, people have high expectations of democracy. Being able to meet the aspirations of the people is what gives a democracy its strength and longevity.

**iii. Make human development inclusive and sustainable for all**

Unfortunately, only a few African countries with strong economic growth have achieved inclusive and sustained human development. Certain development strategies have been criticised of prioritising economic growth over democratic values and sustainable progress. Long-term implications of that policy include environmental deterioration and civil upheaval as people seek more from democracies than economic growth. People want democracy in countries without it despite economic growth. The growth of social movements is an indication of development in nations where people have democracies but lack development.

**iv. Reduce poverty and promote inclusive, representative politics.**

Extreme poverty is one of the oldest and most archaic challenges to democracy. The struggle against poverty should involve proactive development, gender equality, and global market access. Political democracy assures underrepresented groups' participation in decision-making and policymaking at all levels to achieve a fairer distribution of resources and power. Increased democratic representation and engagement might empower ordinary people to change and make a living. Conflict-torn nations are not exempt.

However, socioeconomic gaps might hinder people's ability to hold decision-makers responsible. The democratic process is damaged when political actors fail to address the root causes of political, economic, social, and political inequality and reflect the people's needs.

**Conclusion**

Many democratic challenges were discussed in this paper. The first is digital authoritarianism; the second is third-termism, in which leaders change the constitution to enable a third-term coup or gain an extended term; and the third is electoral violence, which is common in Nigeria and involves animosity, rigging, ballot box snatching, bloodshed, and property destruction.

Based on this research, African leaders should adopt the following Exemplary Practices. Civic development and democratic sustainability are hindered by the political system's lack of public interaction, rights, and inclusion. These conditions make good governance the only way to stop Africa's democratic decline. Governance mechanisms must uphold the rule of law, public involvement, rights, and inclusiveness, and legislative oversight and legitimacy must be allowed time to take effect. We must hold free, fair, credible elections and accept their outcomes. We should enhance state institutions like the legislature and courts, not create cult figures or elevate the executive branch. These institutions must emphasise cronyism removal to restore governmental legitimacy and follow the constitutional term limit culture.

Instead of limiting or eliminating competition, it's important to foster an environment that encourages many opinions and tolerance so residents may actively engage in decision-making. For such an open and participatory role, online and offline speech must be free. Civic engagement, capacity development, and action depend on digital resource recognition and protection. Internet freedom matters most here. To hold leaders accountable, we must eliminate corruption and power abuse. The African Union must condemn the rise of military coups throughout the continent.

African governments must establish institutions to extend democracy and prosperity across the continent. Reforming and strengthening the civil service, parliament, and judiciary will make it tougher for politicians and political leaders to damage our laws and institutions. African nations require better anti-corruption and justice systems. Africans must rethink their view of underperforming leaders. The people must reject leaders' dishonesty and lawlessness. Democracy will prosper in Africa until African people learn to reject politicians who think voters can be duped into giving up their rights and votes. Leaders will influence elections, steal from the public money, and commit fraud.

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# THE ROLE OF INFRASTRUCTURE FOR RURAL INDUSTRIALISATION IN NIGERIA

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***Abstract***

*Most rural areas are characterised with lack of access to clean water, health care facilities, education and businesses. Poor rural people continue to live in the vicious circle of poverty. The study identifies lack of basic infrastructure like roads, transport, power, water supply and sanitation, irrigation, telecommunication, education and health services, etc. in rural villages to the reasons for persistent rural poverty. The importance of industrialisation as a driver of the Nigerian rural sector, cannot be overstressed. It is key to achieving rural transformation. This study aims to examine role of infrastructure for rural industrialization in Nigeria. Data are obtained from secondary sources and analysed using content analyses. The observed that the absence of functional infrastructure is the result of migration of people to urban areas to engage in functional economic activities and this constitutes high-level imbalance to such areas. To enhance economically and improve the quality of life of rural dwellers, basic infrastructures must be developed. Doing this requires large capital investments. Private sector partnership can supplement the infrastructure deficit as well as sustainable development of rural areas.*

***Keywords**: Infrastructure, Poverty, Rural Industrialisation*

## Introduction

Infrastructure is one major driver of economic activities in rural areas is the availability of physical, social and economic infrastructures. They facilitate economic activities and improve the country's industrial performance. Researchers have discovered that in developing countries, the spatial distribution of services and facilities has great influence on the health and well-being of the people (Lotfi and Koohsari, 2009). The absence of functional infrastructure is the result of migration of people to urban areas to engage in functional economic activities and this constitutes high-level imbalance to such areas. Further, it results in poor infrastructure facilities and deteriorating public utilities such as poor drainage and inadequate sanitation, inadequate water supplies, mounds of garbage and other solid waste, constrained mobility because of outdated physical layouts, or no planned layout (Lotfi and Koohsari, 2009).

Infrastructure is essential for the sustainability of human settlement. The imbalances in the provision of rural infrastructure when compared with that of the cities have negatively impacted cities' sustainability. In fact, the rural-urban imbalance in development provides an explanation for the unprecedented growth of urban centers and slums (Srinivasan, 1997). Therefore, improving accessibility to basic services such as safe water, electricity, sanitation, and social infrastructural facilities for residents has been acknowledged as one of the principal ways of promoting sound human settlements, good health, and appropriate and decent living conditions (Eziyi, 2012).

The absence of these economic substructures is one of the problems of persistent rural poverty in Nigeria. Hodge and Monk (2005) explained that "poor rural people often lack roads that link them to markets where they can buy agricultural inputs and sell their agricultural products, or to health centers. Schools are often out of reach, preventing children from getting a primary education and taking advantage of the economic opportunities in the future". In some rural areas, they maintained that "lack of access to clean water means that people continue drinking water from streams, with dire consequences on their health and as a result, poor rural people continue to live in the vicious circle of poverty" (Hodge and Monk, 2005).

To attain rural development, therefore, infrastructure plays an important role and acts as a catalyst for economic growth and development. Its provision can reduce the health burden suffered by the rural community and encourages increasing productivity, thereby attracting enterprise and reducing the level of poverty. Nigeria's infrastructure challenge is huge. Recent reports suggest that the country requires between US$12 billion to $15 billion annually for the next six years to meet the infrastructure requirements (Adejoh and Sule, 2013). It is obvious that the government alone cannot meet this need and therefore the need to involve the private sector becomes necessary. This paper is therefore designed to examine the state of infrastructure on the Nigerian rural sector and its effect on rural development. It goes on to identify measures of improving rural infrastructure to ensure economic viability and rural development. The paper argued on the need for public-private investment in the provision of rural infrastructure in Nigeria. It adopts an historical descriptive analytical research method which helps to examine the focus of the study. The study utilized secondary sources of data collection such as journals, textbooks, internet services, and newspapers.

**Theoretical framework**

The efficiency school is used to explain the role of government, especially at the third tier in providing infrastructures for rural development. The main thrust of this school of thought is that it believed that the existence of local government as a tier of government can only be justified when and if it provides services to the public. It also strongly emphasizes that the mere provision of such services notwithstanding is not the issue but the effectiveness and efficiency of the provision. As viewed by Mill (1975), local governments are able to efficiently provide close services that are essentially local in nature. He further observed that ―if local government did not exist; it would have had to be created. Local government's role as an efficient provider of services is gradually emerging as the most important justification for its present-day existence (Bello-Imam, 2010).

The local governments in Nigeria were created as drivers of local and rural development. Part of their responsibility is the provision of basic infrastructure which provides enabling social and economic conditions for rural dwellers. It becomes easy to uphold the argument of the efficiency services thoughts, as a reliable framework for the analysis of local government performances, even though it has its own lapses, which can be located within the issue of autonomy and fiscal jurisdiction.

**Infrastructures and industrialisation of the Nigerian Economy**

About 70 per cent of the population of eastern Nigeria lives in rural areas (Anam, 2015). However, this number has no corresponding impact on the level of economic activities and development. The underdevelopment rural life and work attractive, has become the reason why so many generations will decide to leave the rural area to the urban centers. There are varying approaches to promoting accelerated development of rural people. This span from promoting integrated rural development programmes addressed to the socio-economic development of all sectors within a given spatial system to the felt need or the participatory approach designed to involve residents in the selection and pursuance of specific social and economic goals (Okorafor, John, Nwazue, and Ukpabi, 2014). The concern of developing rural infrastructures forms part of the ongoing debates. It is argued by Eziyi (2012) that the provision of infrastructure facilities is capable of self-generation.

Infrastructures are assets needed to provide people with access to economic and social facilities and services. In general, infrastructure facilities are fixed in place, are expensive and time-consuming to plan and build, are durable and have low operating costs, and are often networks. Infrastructures are seen as social overhead capital by development economists as Arthur Lewis, Rosenstein-Rodan, Ragner Nurkse and Albert Hirschman. Lewis included public utilities, ports, water supply and electricity as infrastructure (Lewis, 1955) whereas Hirschman outlined four conditions that characterize infrastructure or social overhead capital:

i. the services provided to facilitate or are basic to economic activity;
ii. the services are usually public goods because of economic externalities;
iii. these services cannot be imported;
iv. these investments tend to be indivisible or 'lumpy' (Hirschman, 1958).

Later, in the sixties, besides the above, emphasis was laid on agricultural research, extension and rural financial institutions as important elements of infrastructure, due to increasing recognition of the role of agriculture in economic development and the vital role that infrastructure plays in generating agricultural growth (de Vries, 1960; Ishikawa, 1967).

The World Development Report of 1994 included the following in its definition of infrastructure. There are,

i. Public utilities - power, telecommunications, piped water supply, sanitation and sewerage, solid waste collection and disposal and piped gas.
ii. Public works - roads, major dam, and canal works for irrigation and drainage.
iii. Other transport sectors-urban and inter-urban railways, urban transport, ports and waterways, and airports (World Bank, 1994).

The provision of rural infrastructure is crucial for rural economic growth and development and the overall social and economic development of rural areas. In agriculture, adequate infrastructure raises productivity and lowers production costs, but it has to expand fast enough to accommodate growth. While the precise linkages between infrastructure and development are yet to be firmly established, it is estimated that infrastructure capacity grows step by step with economic output - a 1 percent increase in the stock of infrastructure is associated with a 1 percent increase in gross domestic product (GDP) across all countries (Summers and Heston, 1991).

Rural infrastructure plays a key role in reaching the large mass of rural poor. When rural infrastructure has deteriorated or is non-existent, the cost of marketing farm produce can be prohibitive for poor farmers. Poor rural infrastructure also limits the ability of the traders to travel to and communicate with remote farming areas, limiting market access from these areas and eliminating competition for their produce. Construction of rural roads almost inevitably leads to increases in agricultural production and productivity by bringing in new land into cultivation or by intensifying existing land use to take advantage of expanded market opportunities (IFAD, 1995).

In an empirical survey on the impact of infrastructural on agricultural productivity, Fan et al. (1998) reported that rural infrastructure is not only an important driver for total factor productivity growth (TFP) but also directly contributes to a substantial reduction in rural poverty. Based on an econometric model and state-level data for 1970-93, they find that the productivity-enhancing investments offer a win-win strategy for reducing poverty while at the same time increasing agricultural productivity. If the government were to increase its investment in roads by Rs. 100 billion (at 1993 constant prices), the incidence of rural poverty would be reduced by 0.87 percent and TFP would increase by 3.03 percent. A similar investment in agricultural research extension would contribute to 6.08 percent growth in TFP and 0.48 percent reduction in rural poverty (Fan, Shenggen, Peter, Hazell and Haque, 1998).

Rahman (1993) added that functional infrastructure also leads to expansion of markets, economies of scale and improvement in factor market operations. The development of rural infrastructure helps to enlarge markets with greater access to factors of production. The female labour participation rate increases as traditional taboos against it are overcome. Easier access to market allows an expansion of perishable and transport-cost intensive products. It can also lead to a conversion of latent demand into effective commercial demand.

There are several perspectives to assessing the Nigerian rural sector. The commonest are cultural, traditional and economic perspectives. Judging from the existence of infrastructures and economic opportunities, most rural areas in Nigeria are underdeveloped. The Nigerian rural sector is characterized by;

a) Specific open landscape;
b) A relatively low population density;
c) The greater part of the population being associated with agriculture and forestry;
d) Traditional (close to nature) lifestyles and habits;
e) Extensive (first and foremost agricultural and forest-related) use of land;
f) A scarcity of built-up areas and settlement that is dispersed; and
g) A preponderance of inhabitants considering themselves Country-dwellers (Anam, 2015).

The basic difference between rural areas from its urban counterpart is the infrastructure. The absence of proper roads, nonavailability of electricity, poor communication and connectivity, lack of education facility, medical facilities, among others in rural areas affect the economic viability of the sector in Nigeria. An increasing number of studies has questioned the effect of rural infrastructure on agricultural growth and poverty reduction following several failures of earlier investments in agriculture-led development, increased recognition of the importance of non-farm activities in rural livelihoods, and increased difficulties in the global environment for sustaining pro-poor agricultural growth (e.g., decreasing agricultural prices, trade liberalization, and the spread of HIV/AIDS) (Summers and Heston, 1991).. Despite the significant potential contribution of agricultural growth to overall economic development through its direct and multiplier effects, a combination of market failures, inadequate infrastructure to facilities the expansion of small and agro-industries with poor policy environments in many developing countries has lead to failures of agriculture-led development.

Several econometric studies have estimated the effects of infrastructure investment on agricultural output and productivity. Most of these studies find a positive and significant effect (Antle 1984; Binswanger, Fan and Zhang 2004). A key concern in these studies is the implication of these set back on rural development. Rural development is a comprehensive term. It essentially focuses on the action for the development of areas outside the mainstream urban economic system. The planned actions of rural development must find ways to improve rural lives with the participation of rural people themselves, so as to meet the required needs of rural communities. To create the enabling environment for a well-functioning capital market in rural areas, public investment in infrastructure is needed. However, publicly-financed or managed financial institutions have a very poor track record. Fortunately, infrastructure improvements tend to attract private financial institutions to rural areas.

**Public-Private Investment in rural infrastructural Development**

Public-Private Investment (PPI), otherwise known as Public-Private Partnerships (PPPs), are increasingly popular in the field of international development cooperation and sustainable development. Though PPPs are not a new phenomenon (Linder 1999), their popularity in policy circles has steadily augmented since the late 1980s (Entwistle and Martin 2005) to a point where their promotion seems to have become a dominant 'development narrative' (Roe 1991). PPPs are promoted as the most logical solution to a variety of service delivery and development problems and are often presented as 'technical', politically neutral solutions (Ferguson 1990).

Proponents of PPPs present them as a new generation of management and governance reforms, developed in the late 1980s, which are 'especially suited to the contemporary economic and political imperatives for efficiency and quality' (Linder 1999). The roles of public and private-sector investment in rural infrastructure are very important.

With limited public resources, developing countries adopt private investment in the provision of infrastructure. Increasing emphasis is being placed on the role of private-sector investment in rural service provision, especially for services related to agricultural production, processing, and marketing. Fan and Zhang (2004) argued that public-sector investment mostly in the rural sector have a significant impact in boosting economic activities in the area. They emphasized that it is an investment which should have a significant return on investment. So, this boosts private sector investment and economic activities in the area. Private investment ensures proper design, utilization, management and maintenance of infrastructure.

**Conclusion and Recommendation**

From the arguments presented above, there is lack of basic infrastructure like roads, transport, power, water supply and sanitation, irrigation, telecommunication, education and health services, etc. in rural villages. To enhance economically and improve the quality of life of rural dwellers, basic infrastructures must be developed. Doing this requires large capital investments. Private sector partnership can supplement the infrastructure deficit as well as sustainable development of rural areas.

The government acknowledges and encourage this partnership in areas such as education, health, transport, power, water supply and sanitation, irrigation, telecommunication and other related infrastructure services to underpin both accelerated sustainable infrastructure development and improved service delivery. This will also mean providing an enabling business environment for investment so that the private sector, which is largely driven by profit, will be able to predict their returns on such investment.

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# POLITICAL PARTIES, DIALECTICS OF INTEREST AND IDEOLOGICAL MISSING LINK IN NIGERIA'S DEMOCRACY

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***Abstract***

*Ideological disposition is one the essential elements of political party which helps in driving democratic process. It is the philosophical embodiment of its beliefs, reasons and programmes of action which are catalyst capable of stimulating political, economic and social development of the society. In Nigeria, this element seems to be messing at the altar of personal interest. The main objective of this paper is to locate the place of ideology in Nigeria's political parties, dialectics of interests among the political elites and its consequences on democratic consolidation. The paper is a qualitative research that engaged the used of secondary source of data generated through textbook, journal, internet and newspaper. The paper adopted elite theory as a theoretical framework for analysis. The paper findings reveals that Nigeria democracy is at the crossroad convulsing and gasping for bread as a result of dialectics of interest by the political class stemmed from ideological bareness by political parties that are mere creation of elites to maintained and sustained themselves in power as reflected in our democratic practices that are branded by dollarization of parties primaries, lack of internal democracy within political parties, and cross carpeting of politicians to other sister parties, lack of purposeful government policies anchored on the party belief system, recruitment of political thugs to creates social unrest and other pro that are unhealthy for democratic consolidation. The paper recommended that ideology should be enshrine in the curriculum from primary to tertiary levels to be learn, inculcated and socialize as part of our cultural value system that should be upholds by all and sundry.*

***Keywords:*** *Political Party, Dialectic of Interests, Ideology, Democracy*

## Introduction

One of the threats to Nigerian democracy is nothing rather than ideological bareness by political parties who control the machineries of government. Ideological disposition is a very essential precept and recipe which drives the operation of political parties. It provides some explanation of how things have come to be as they are and some indication where they are heading to provide a guide to action. This is a democratic ideal that is contrary to other dictatorial regime where individual's idiosyncrasies create and dictates established values of how such society should be administered.

According to Anene, & Theodore, (2020 p.1), political party ideology is a significant vehicle through which political parties communicates the philosophical embodiment of its beliefs, reasons and programmes of action. In an ideal situation there is no political party devoid of conviction of its cherished values which translates into ideology. This justified the position of Mbah, & Nwangwu, (2014 p.139) that political parties by the formation and emergence, they represent a distinctive idea both regionally and nationally. However, African continent witnessed the emergence of modern system of governance in what Huntington (1991) regarded as the 'third wave' of democratization to Africa, which led to unprecedented resurgence of numerous political parties in Nigeria. The facture fact is that the proliferation of this parties does not translate to automatic advancement of democracy without institutionalization of some institutional values to sustain an ideal practices Bratton and Van de Walle, 1992; 1997; Sorensen, 1993 as in Omotola, 2009).

Pertinent to note that one of the complex and essential elements of democracy is political party, it is the soul, the engine oil and the wheels that drives democracy through formulation of public opinion on government policies and programmes, checkmating government action and inaction as well as aggregating and articulating citizen's demands to the government. Political party is a fundamental political institution in the actualization of democratic regime. From all indication, it presupposes that, political parties are capable of stimulating political, economic and social development of the society. These functions carried out by political parties can only be effectively performed when it is ideologically well structured.

In the same vein, Olanrewaju (2015) maintained that political parties are not just serving as platform for electing public office holders but also performing the roles of opposition as well as watchdog to the government of the day. They don't only perform functions that are government related, such as making government accountable and exercising control over government administration; and electorate related functions such as political representation, expression of people's demand through interest articulation and aggregation as well as structuring of electoral choices; but also, linkage related functions, playing an intermediary and mediatory role between the government and the electorates. Stressing further, Omotola (2005) and Egwu (2005), Saliu & Omotola (2006) as in Omotola (2009) have pointed out that political parties can only cope effectively with these responsibilities to the extent of their political institutionalization in terms of structure, internal democracy, cohesion and discipline, as much as their autonomy.

It appears Nigerian political parties are structurally and completely deficient in ideological disposition, to perform their traditional function, what we have witnessed over the years, is a mere individuals paper written manifestos that is not heart reflected neither an iota of institutional reflection compare to what is obtainable in civilized democracies such as the United States of America, France, Britain etc. where the dispositions of their political culture is strongly enshrined in their constitution, political parties and belief system. Leveraging on this argument, ideology is a core of any political party aspiring for governance. The success of any political party is determined by the degree of political ideology especially in advanced democracy (Dilly, 2005:12). But the experience in Nigerian has demonstrated that political parties are merely powers seekers without recourse to the ideological undertone.

Corroborating the above assertion, former President Obasanjo in addressed to the People's Democratic Party (PDP) in its 3rd national convention in Abuja on March 31, 2001 stressed the fact that the party lack ideology. According to him, the ever-called largest political party in Africa, the ''PDP is no more than a dynamic of amalgam of interest groups''. He further, what has held us together, if anything at all, is that of our party is in power and there is strong expectation of patronage, our party lack cohesion'' Itemizing the properties of a political as “cohesiveness, organization propelled by strict discipline, ideology-based human ideas and solidarity and socially motivated unity of purpose, “he asked his PDP members; “can we in all honesty say that we are such a party?” (Guardian, 2001 as in Ademola, 2014).

The absence of these shared values in our heart and institutions explains the reason for uncivilized attitude that has led to dialectics of interests amongst the politicians in Nigeria which has occasioned massive defection or cross carpeting witnessed among political parties all over the country. The only language understood and spoken by Nigerian political class is winning election hence, when individuals failed to secure the party ticket at the primaries to fly the flag of the party in an election, he or she finds reasons to paint the party black and moves to sister parties to pursue his personal ambition in the name of fighting for equity, fairness and justice. Nonexistence of ideology has seldom political parties' campaign to rain of abuses on individual personality, opposition political parties, and declarations by parties' men of how formidable their parties are in place of issues-based campaign. Okoli (2014) echoes this view when he stated that, the buildup to 2015 general election witnessed the emergence of intra-party opposition within the PDP and subsequent defections of members to an alternative platform is a climax of long clandestine wrangling in the party which imamate from overambitious, lack of ideological attachment to party system and crass partisan opportunism which always result in heating up Nigerian polity. It is on this premise that this paper seeks to understand the place of ideology in Nigerian political parties, factors responsible for ideological emptiness and how it has affected democratic consolidation in Nigeria. In doing this, the paper is being divided into sections, with first section dealing with introduction followed by conceptual analysis, theoretical framework, the place of ideology in Nigeria political parties, ideology and formation of political parties in Nigeria the nexus, dialectics of interest, ideology and democratic consolidation in Nigeria summary and conclusion.

## Conceptual Elucidation

### Political Parties

Political parties are very fundamental in every democratic system; hence they offer citizens the platforms to make their choices for the kind of leadership they deserved. They are one of the critical vehicles for the citizens to give their participation in democracy. What then are political parties? What functions do political parties perform in any democratic system? In an effort to answer these questions, Heywood (2007) defined Political Party as a group of people that is organized for the purpose of winning government power by electoral or other means. Furthermore, Woll (1989) cited in Bello (2008) defined Political Party as an organized group of citizens with the common interest usually manifested in a political ideology whose aim is to capture public office in an electoral competition with one or more other similar organized groups in their struggle to capture or retain government powers or authority with the ultimate goal of manipulating and controlling the mode of distribution of the country's economic resources. Similarly, Alapiki (2004) cited in Nnamdi & Ogan (2019) defined political party as a group of people with common ideas and interests acting together for the political purpose of controlling the machinery of government. Finally, Hardy (2012) cited in Nnamdi & Ogan (2019) defined political parties are groups of people with shared interests, understanding and principles which articulate for nomination of candidates for public offices in order to win elections for control of government and set public policy. Notwithstanding, what is central from the above definitions is that political parties are seen as organized groups of people with a common interest of winning government power through elections. The interest of winning government power through election is the sole and core driver of political party. Meanwhile, political parties perform some critical functions in every country which include articulation of people's views, aggregation of interests, agenda setting for the government, national integration, leadership recruitment, political socialization, constructive criticism of the government and mobilization for election and development as enunciated by Nwankwo (2008). All these functions epitomized the political parties as the heart of democracy and democratic institutionalization in any political system.

### Dialectic of Interests

Conceptualizing dialectic of interests is very difficult because it has not been fixed. However, dialectic of interests is derived from Karl Marx idea of dialectical materialism. Dialectic of interests is the predominant elite interests which contradict and contravene the party interest. The trending situation among political parties is such the religion, ethnicity and money politics have become the dominant factors as against the party's interest of winning and controlling the government power.

### Political Ideology

Political ideology is fundamental for the growth and survival of political parties all over the entire world. It is fundamental in the sense that it is the first and most important features of political parties. Parties with ideological deficiency hardly survive for a long time without fizzling out. How important is ideology to political parties? According to Gauba (2003) in Ogunnoiki (2018) ideology has two dimensions which encapsulate as a set of ideas which are accepted to be true by a particular group, party or nation without further examination and as the science of ideas which examines as to how different ideas are formed, how truth is distorted, and how we can overcome distortions to discover true knowledge.

Ideology is that ideas conceived by political parties which they intend to replicate in the polity if elected into public or government power. Political parties are what they are for what they believe. There is no two ways about political parties and political ideology. They are what they are because of ideology. Therefore, ideology is that belief, doctrine or blueprint that directs and defines political parties. As posited by Seliger (1976) in Ogunnoiki (2018) an ideology is a set of ideas by which men posit, explain and justify ends and means of organized social action, and specifically political action, irrespective of whether such action aims to preserve, amend, uproot or rebuild a given social order. While buttressing on it, Hamilton (1987) in Ogunnoiki (2018) defined ideology as a system of collectively held normative and reputedly factual ideas and beliefs and attitudes advocating a particular pattern of social relationships and arrangements, and/or aimed at justifying a particular pattern of conduct, which its proponents seek to promote, realize, pursue or maintain. In the words of Ball & Dagger (2002) an ideology is "a fair coherent and comprehensive set of ideas that explains and evaluates social conditions, help people understand their place in the society and provide a program for social and political action. Best describes an ideology or political ideology is a set of agreed ideas, belief or doctrine embedded in a people, groups or political parties, which direct and guide them in their social actions, programmes and policies.

**Theoretical Framework**

A theoretical framework consists of the concepts, together with their definition and existing theory that is used for a particular study. The theoretical framework must demonstrate an understanding of theories and concept that are relevant to the topic or study Mbah, (2014, P. 130). Chinn and Kramer (1999) also opine that a theoretical framework is a structure that presents the theory which explains why the problem under study exists. In view of this, the paper adopts 'Elite Theory' as a theoretical tool in providing explanation to political parties, dialectics of interest and ideological missing link in Nigeria's democratic system. Elite theory expounded by Vilfredo Pareto, Geateno Mosca Roberto Michels, and Jose Ortega Gasset in 1939. The central premise of the theory is that every society is made up of two broad categories of the people, who are: i) The selected few capable and therefore have the right to supreme leadership; ii.) The large masses of people who are destined to governed (Varma, 1975: p44 as cited in Akanu 2013)

In the same connection Karl Max opined that in all societies there are two classes of people, the "elites and the masses". The elite which constitute the minority class has the power, owns and controls the means of production and distribution of resources, the masses though constitute majority Odigbo, Nbeife, & Nwokak (2019). Ari (2015) believed that elite approach to politics comes in when there are conscious effort and practice to exercise exclusive decision making as a prerogative of social class. By this categorization, elite determined what happen in the society because of their status and influence in such society and most often they engage on policies that places them at the advantage side. Elite in its broadest understanding means those positions in society which are the pinnacles of social structure, the higher positions in government, economy, politics, religion etc. (Hara Das & Chouldbury 1997 in Mbah 2014 P. 119). Pareto accepted that every society is ruled by minority groups that possess the qualities essential for its ascension to full social and political power. Those who get on echelon are always the best. The elites consist of those successful people who rise to the top in every profession and stratum of society (Pareto, 1939)

Gaetono Mosca (1939) is also an exponent of the elite theory, opined that "in all societies, from societies that are meagerly developed and have barely attained a downing of civilization, down to the most advanced and powerful societies, two class of people surface, a class that rules and a class that is ruled. The first class, refers to the few with some distinct qualities who carried out all political functions, colonizes power and enjoy all the benefits that such power brings. While, the second, the large class, is been controlled by the first class in a way that is more of less legal less arbitrary and violent and supplies the first in attendance at least, with instrumentalities that are essential to the vitality of the political organism" (Akanu, 2013). However, Mosca was more concerned with elite who exercise directly or indirectly political power in society. By this, it implies that in every society the government elite tries to find a moral and legal basis for being in the citadels of power to represent it as "the logical and necessary consequence of doctrines and beliefs that are generally recognized and accepted. Mosca reiterate that the configuration of the elite mean various party organizations into which political class is divided and which have to compete for garnering electoral support of the more numerous class.

**Application of the Theory**

This theory is apt in providing a suitable explanation on the dialectics of interests in the Nigeria political space and ideological missing link among the political parties in Nigeria's democracy. The structure of political parties in Nigeria is dominated and influence by the elite class who creates their values that determine the module operandi of political parties at the expense of ideology. Again, the quest for relevancy and domination have sets these elites against one another creating the higher traffic in political space which characterized the gale of cross carpeting across the country among the two major political parties of APC and PDP. The manipulations of ethnicity, religion and regionalism have been deployed by same class of people to achieve the desire of ascending to power, sustaining and consolidating power. However, conflict of interest among these elitists can be minimize if political parties are firmly rooted in set of ideas rather than mere assembling of men of narrow like minds.

**Nexus of Ideology and Political Parties Formation in Nigeria**

The trajectory of relationship of ideology and political parties in Nigeria is traceable to the stage of state formation. Nigeria like most state, if not all the countries in Africa, are product of British inherent ideology of domination anchored by capitalist class who emphasizes an economic system that is anchored on the individual's ownership of the means production, distribution and exchange (Ogunnoiki,2018). The 18th century transformation occasioned by industrial revolution in Europe according to political economist scholars on imperialism, Great Britain sought for foreign outlets that would serve as market for excess manufacture goods, an investment avenue for the surplus profit as well as source of raw materials for their home industries. However, when these imperialists realized that their mission will be a mirage and futile adventure if they don't established control over the political institutions of those foreign countries, led to the scramble and partition of African among themselves in 1884/1885 for sphere of influence organized by the German Chancellor, Otto von Bismarck in Berlin, Germany (Fadakinte and Amolegbe, 2017; Heaton and Falola, 2018 as in Ogunnoiki 2018).

This period heralded the administration of colonialism in Africa and Nigeria in particular; it also witnessed the capture of Lagos as a Crown Colony of the Britain. In 1866, Lagos, being part of the British West African Settlements was subjected under the Governor of Sierra Leone. But in 1874, it was under the Gold Coast until 1886 when it became a separate colony again with its own Governor, Legislative and Executive Council (Nwabueze, 1982; Eluwa et al., 1988). Shortly after Lagos regained its status as a separate colony, the British sacked the Benin Kingdom in the 1897 Benin Voyage. In the Niger Delta region, the British created in 1885 the Oil Rivers Protectorate which later became the Niger Coast Protectorate in 1893.

This event was climaxed with Amalgamation of Southern and Northern protectorates in 1914 that produced what is kwon as Nigeria today. The discrimination ensued in governance and exploitation of natural resource that characterized the colonial rule informed some few educated elites like Dr. Nnamzi Azikwe, Chief Obafemi Awolowo, Sir Tafawa Balewa, Sir Ahmadu Bello Hebert Marculey etc. to championed agitation for inclusion in the affairs of government and governance of their country which resulted in the creation of representation slots for indigenous Nigerians for the first time under the sir Clifford constitution of 1922.This significant milestone promoted nationalism fillings among Nigerians elites and subsequently attainment of independence in 1960. According to Professor Adele Jinadu, the foundational "developmental circumstance" of party in Nigeria is colonial rule and the opposition to it by the country's nationalist movement, which transmuted into political associations to contest for legislative elections" (Jinadu, 2011:2).

Sir Hugh Clifford, who was the Governor of Nigeria eventually constituted a new Legislative Council in Lagos that replaced the mere consultative/advisory Nigerian Council created by Sir Frederick Lugard in 1914. Based on the Clifford Constitution of 1922, the elective principle introduced was limited franchise to adult males in Lagos and Calabar who had resided there for at least 12 months and earned £100 per annum. The new Legislative Council had 46 members in total – 27 official members and 19 unofficial members, 4 of the said 19 unofficial members were to be elected Nigerians (3 for Lagos and 1 for Calabar) who would occupy the seats for a 5-year period. This paved way for the formation of political parties and the adoption of a multiparty system in colonial Nigeria (Ogunnoiki, 2018).

It is apposite to clearly state that the issue of ideological bareness had it foundational development during this period of state formation. The nationalists were more concerned in taking over the realm of government and evictions of the colonial power and even after the political independence, all the political parties formed to champion the conduct of elections was based on one or the other form of regional domination and inclination. For instance, National Council of Nigeria and Cameroon (NCNC) was seen as representing the interest of the Eastern part, the Northern People's Congress (NPC) was seen as representing the interest of Northern Nigerian while, Action Group (AG) was seen as pro West. Interestingly, the present crops of political parties in Nigeria are just replica and reincarnation of earliest political parties, 'a new wine in an old bottle'. Omotola (2009) echoes this position when he accepted that the parties of the first republic share common elements of ethno-religious ideology, seeking to take over and consolidate power in their respective region.

**Dialectics of Interests, Ideological Missing Link and Democratic Consolidation in Nigeria**

Modern democracy has come to be accepted as the best forms of government because it allows people's participation in the affairs of governance through elected representative by means of the political party. Meanwhile, political party is a fundamental political institution in the actualization of democratic government. As an institution, political party is expected to operate based on a set idea or principles capable of stimulating transformation of the entire political system. The emergence of true democracy, putting forth ideas about power of the people and the general will, increasing the representation of the people within their governments, and creating a society of equals in which all have access to the same opportunities (National Democratic Institute for International Affairs 2008)

The nature of Nigeria political parties tends to barricade the political space of the country. The absence of ideology has promoted personal interest at the expense of national interest. Political parties cannot be said to represent the interest of all Nigerians. This is owing to the fact that most often, the process and the formation of these parties are dominated by the well to do few that controlled the means to power and the desires of the Nigerian poor are not minded in their agenda. The primary motive of our political class has been the promotion of their respective ethnic groups. The emphasis is not on developing economic infrastructures that will benefit the entire country but rather, it is on which ethnic group will produce the next president (Ademola, 2014). This assertion has been strong in the preparation to political party's primary elections in 2022, when the current president Bola Ahmed Tinubu the then presidential candidate of the APC ascribed to himself the title of king maker back up with the a mantra ''Emilokan'' translated as, ''it is my turn''. Thus, Omotola, (2013:12) holds that, with the absence of ideological based party in Nigeria as well unprecedented resurgence of multiparty politics, there is no controversy about the fact that the mere adoption of party pluralism with no clear ideology will not automatically advance the cause of democracy in Nigeria.

Suffice to note that Nigerian democracy is at the cross-road gasping for breath to survive as result of dialectics of interests by the political class. Nigeria political parties lack credential to stimulate development capable of consolidating her democracy which explains reason the country has been enmeshed in myriad of security, economic and political threats capable of truncating our 24$^{th}$ year's uninterrupted democratic journey. According to Abubakar (2013) cited in Fagge, Danguguwa, & Mohammad (2021), Nigeria today, politics is militarized and violence is used as an electoral instrument, leading to the inculcation of culture of violence in the society. Violence and clashes between and among different political party's aspirants and supporters becomes enduring phenomenon due to the kinds of armed thugs used by politicians to manipulate elections results. These plethora of security threats to national security from non-state armed groups such as Boko Haram terrorism, Banditry, kidnapping, cultism, Niger Delta militant, Indigenous People of Biafra (IPOB) and many others finds expression in the inability of government to meet the expected needs of the citizens. This failure is deliberately orchestrated by elitist class who control the machineries of government. This scenario is not a good recipe for any democracy because it does not allow room for development.

**Conclusion and Recommendations**

The paper has attempted to unravel the ideological bareness of political parties in Nigeria democratic journey traced to the state formation stage and this has a far-reaching effect on the democratic consolidation in Nigeria. The dialectics of interests by the political class as a result of ideological emptiness does not promote virile democratic process that can marshal development of the country. This explains cross carpeting of politicians from one political party to another that has become a hallmark of Nigeria's democracy. The paper therefore recommended that ideology should be enshrine in the curriculum from primary to tertiary levels to be learn, inculcated and socialize as part of our cultural value system that should be upholds by all and sundry.

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# INVESTIGATION ON *SCHISTOSOMA HAEMATOBIUM* INFECTION AND ENVIRONMENTAL FACTORS IN DONGA LOCAL GOVERNMENT AREA, TARABA STATE, NIGERIA

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***Abstract***

*There is association between schistosomiasis infection and environmental factors. An overall prevalence of 8.94% (21) was recorded out of the 235-urine examined. Chi- square analysis showed insignificantly association of the infection with the various schools ($\chi^2$= 6.192, P = 0.185). Males were more infected 13.33% (16) than females 4.50% (5) with a significant difference (P=0.020) revealed. However, there was no statistically significant difference in their mean egg intensities (30.3 eggs/10ml of urine in male and 17.6 eggs/10ml of urine in female) (p = 0.27). The age-related prevalence was higher 11.82% (13) in 10-15 years' children than that in 1-9 years 5.65% (7), while children aged 16-20 had the least prevalence 0.01% (1). Chi-square showed statistically significant association between infection and age ($\chi^2$=12.964, P=0.002). But there was a statistical insignificant difference between their mean egg intensities; 10-15, 4-9 and 16-20 (31.08, 23.4, 5 eggs/10ml of urine respectively) with p=0.462. With regards to water contact activities, children who fish had the highest prevalence 16.67% (4), Children that swimmed/bathed, participate in all activities, washed from freshwater bodies (ponds, rivers, and streams) had a low prevalence of 13.95%, 10% and 4.76% respectively. Children that do not partake in any of these activities had no case of infection 0% (64). Chi-square revealed a statistically significant association between participant's water contact activities and infection ($\chi^2$ =11.21; p = 0.024). The findings of this present survey indicate that urinary Schistosomiasis has a low endemicity in this area. It was concluded that the overall low prevalence in this area could be attributed to factors such as reduced human contact with infested waters, and improved environmental hygiene among others. Despite the low prevalence, it is recommended that more studies should be carried out in the area to identify other possible risk factors that could be useful for total control of the infection.*

***Keywords:*** *Investigation, Schistosoma Haematobium, Infection, Environmental Factors*

**Background of the study**

In Nigeria, an infection caused by *Schistosoma haematobium* has been known to be endemic especially among residents along Rivers, and it is responsible for considerable public health problems especially in inhabitants of rural areas. Globally, *Schistosomiasis* is a Neglected Tropical Disease (NTD) and is caused by dioecious blood fluke (digenetic trematodes) of the genus *Schistosoma* (Atalabi *et al.*, 2018). It is ranked as the second most socioeconomically destructive parasitic disease after malaria (Saidu *et al.*, 2023). Reports of the World Health Organization (WHO) estimated that at least 251.4 million people required preventive treatment for *Schistosomiasis* in 2021, out of which about 75.3 million people were reported to have been treated. It also estimated that at least 90% of those requiring treatment for *Schistosomiasis* live in Africa (WHO, 2023). The heavy burden is carried by sub-saharan Africa where an estimate of 224 million suffer the malignant effects of the disease with an estimated 280,00 death occuring every year mostly among the rural inhabitants (WHO, 2016).

Nigeria is one of sub-saharan African's most heavily impacted countries with respect to both urinary and intestinal *Schistosomiasis*, accounting for almost 14% of the disease worldwide (Hotez, *et al*., 2012; Onyekwere *et al*., 2022). The disease, urinary *Schistosomiasis* is caused by *Schistosoma haematobium (S. haematobium)*, and it is a water-based parasitic disease transmitted by fresh water-snails of the genus *Bulinus*, while humans of all age groups (especially pre-school and school-aged children) act as the definitive host (Saidu *et al*., 2023; Pukuma and Musa, 2007). Urinary *Schistosomiasis* is a significant cause of clinical morbidity and disability in the endemic countries of Africa and the Middle East, where more than 110 million people are infected (Agere *et al.,* 2010). The disease is most prevalent in low-income rural communities without access to potable water proper sanitation, and adequate healthcare facilities. People are infected during routine agriculture, domestic, occupational and recreational activities which expose them to infested water (WHO, 2023). Risk factors include persons living in or travelling to areas where *Schistosomiasis* occurs, and those who come in contact with fresh water where the intermediate host is present (Houmsou *et al*., 2012). Associated risk factors include illiteracy, poor socio-economic standard, poor hygiene, and inadequate healthcare facilities (Mafe *et al*., 2005).

Taraba state is well-known for its diverse relief made of mountainous and plain areas. Many of these plain areas are places of intense agriculture activities that are surrounded by streams, rivers, and ponds where inhabitants depend on ignorantly neglecting the health implications. The indigenous people in the state rely on fishing and other agricultural activities such as rice farming, irrigation etc. with complete dependence on the existing natural water resources (Houmsou *et al*., 2016). There is dearth of epidemiological data on *Schistosoma haematobium* infection in Donga LGA communities. This lack of epidemiological data can adversely affect adequate management and control programmes. This study therefore investigated the level of *Schistosoma haematobium* infection, infection intensity and factors associated with the infection among elementary pupils in some selected areas of Donga Local Government. The result of this study can be used to plan strategies for control programmes for the infected areas in accordance with WHO recommendations. *Schistosomiasis*, ranked as the second most socioeconomically destructive parasitic disease after malaria, occurs in remote areas where most people depend on natural freshwater bodies and rainwater for their daily water needs. Since most of the inhabitants of Taraba State rely on this natural freshwater bodies for their agricultural, domestical, occupational and recreational activities, a need to survey the disease in the area has become imperative hence, the survey of *Schistosoma haematobium* among elementary pupils in five selected schools in Donga LGA Taraba state.

Urinary *Schistosomiasis* is a persistent health burden among Nigerian children. It has been associated with risk of bladder cancer, impairment of growth in children and congenital developments (Carter, 2008). Despite the public health significance of the disease and several studies conducted in different parts of the State, information on *Schistosomiasis* and possible epidemiological factors are lacking in some areas such as Donga. This study was conducted in an attempt to establish the prevalence and intensity of urinary *Schistosomiasis* in relation to some epidemiological factors among elementary pupils in Donga Local Government Area, Taraba State, Nigeria. These informations are required by stake holders if total eradication of the infection is to be achieved. The survey therefore determined the prevalence and intensity of urinary *Schistosomiasis* and the association of the disease with some risk's factors among elementary pupils in five selected schools of Donga LGA in Taraba State, Nigeria.

## Materials and Methods

### Study Area

The study was carried out in Donga Local Government Area, Taraba State, Nigeria. Donga has it headquarter in the township of Donga. Geographically, it lies within latitude 70˙43"N of the equator and longitude 10E of the meridian with the land area of approximately 58 square kilometers. It is located in the southern Taraba, bounded on the Northeast by Kurmi Local Government Area, by the Northwest by Bali Local Government, to the Southwest by Wukari Local Government Area, while to the Southeast by Takum Local Government Area. Donga has approximately 177,900 populations with the conglomeration of different tribes but mainly; the Fulani; Tiv; Chamba; Itchen; and the Hausa, with Hausa language popularly spoken (Donga-Local Government Area, Nigeria-Population Statistics, Charts, Map, and Location. citypopulation.de.retrieved 2022). The occupations of most inhabitants are farming, hunting, fishing, cattle rearing and trading (Donga Local Government Area. www.manpower.com.ng.Retrieved 2022). Their sources of water are rivers, streams and ponds.

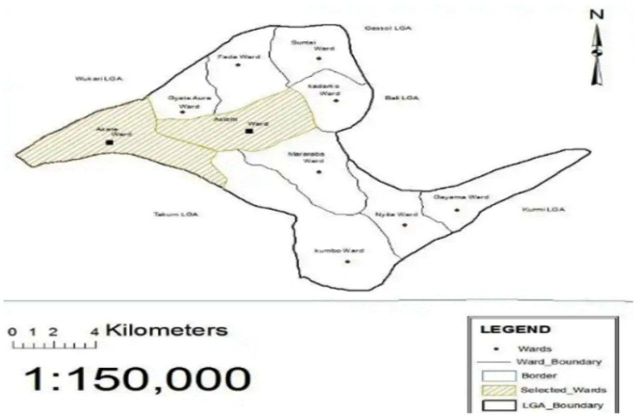


**Fig.2: Map of Donga LGA Showing the Selected Wards** (GIS and Remote Sensing Lab, Kwararafa University, Wukari).

**Research Design**

The participants of this school-based cross-sectional study, conducted in October 2023, were selected by simple random sampling from amongst pupils of five selected schools within Donga Local Government Area, Taraba state, Nigeria to investigate the current status of urinary *Schistosomiasis* among elementary pupils of the area. Urine filtration technique using polycarbonate membrane filters was employed to determine presence of *Schistosoma haematobium* eggs in urine. Structured questionnaires were used to collect information on LGA, years of residence, sex, age, occupation, and water-contact activities

**Study Population**

Prior to the commencement of the research, permission was sought from the Local Government Educational secretary (ES) of Donga after presenting an introductory letter obtained from the Head of Department (HOD) Biological Sciences Federal University Wukari. The study was designed to target a total number of 250 pupils aged 3-16 years, who are attending school and permanent residents of the selected areas for at least two years to be enrolled in the study. Out of 250 pupils to be recruited from five primary schools (50 pupils each from five schools randomly selected), a total of 235 pupils, aged 4-20 years, participated in this study due to the lack of pupils in some schools.

**Materials Used**

Urine specimens, 10ml syringe, tweezers, filter holder (13mm diameter), polycarbonate membrane filters (12  m porosity), microscope, clean grease free slide, beaker, hand grooves, masking tape. questionaire.

**Data Collection**

**Sample Size and its Determination**

The sample size of 250 elementary pupils was estimated using the formula for cross-sectional surveys as described by Creswell (2007). In each of the selected schools, the total number of pupils per class was obtained from the head teacher's office so as to help calculate the representatives or number of pupils to be enrolled for the study.

**Questionnaire Administration**

A well-structured questionnaire was employed to collects informations on socio-demographic data such as sex, age, years of residency, and water contact behaviors of the participating pupils.

**Urine Samples Collection**

From each of the participating primary school pupils, urine samples were collected after the filling of the questionnaire. The pupils were given a 30-ml sterile wide mouth, screw-capped plastic container carrying their identification number to collect their terminal urine and were instructed on how to collect the urine. Urine samples were collected between 10:00am hours and 2:00pm hours which is the optimum time for *S. haematobium* egg passage.

**Urine Samples Processing**

The collected urine samples were check for macrohaematuria by their color whether there is visible hematuria or none after then, it was immediately transported to Donga First Referral Hospital for laboratory analysis.

**Laboratory Analysis of Urine**

Each universal bottle was assigned a serial number which corresponded to the number on every questionnaire. The urine samples were examined for the presence of *S. haematobium* eggs using urine polycarbonate membrane filter, the urine filtration technique as recommended by WHO for the detection of *Schistosoma haematobium* eggs (Ngasala, *et al*., 2020; WHO, 2002). In every sample, briefly, a 10 ml of a urine was aspirated into a syringe containing a few drops of Lugol's iodine solution and agitated for about 15 seconds to stain any *S. haematobium* eggs present. The sample was then gently forced through a 12-μm pore size polycarbonate membrane filter that was placed in a swinnex filter holder. Remnants of urine were removed by forcing air through the filter membrane using an empty syringe. The filter holder was unscrewed and the filter membrane removed with the aid of forceps, placed on a microscope slide, and viewed at ×40 magnification. In case of positive, the Schistosome eggs were seen as orange oval shaped bodies, characterized with a terminal spine and the egg counts/10 ml of urine were documented. Egg counts were recorded as the number of eggs per 10ml of urine and categorized according to WHO guideline of light intensity, ≤50 eggs/10mls or heavy intensity, ≥ 51 eggs/10ml of urine (WHO, 2002).

**Data Analysis**

All data obtained were analyzed using SPSS statistical version 25. Statistically significant associations between gender, age, water contact activities and Schistosome infection were evaluated using Pearson's Chi-square. The intensity of the infection was estimated using ANOVA. Statistically significant difference was considered at 95% confidence level with p-value ≤0.05 in regards to have association.

**Results:**

**Table 1: Prevalence and Intensity of Urinary *Schistosomiasis* in the study area.**

| Primary school | Number examined | Number infected | Prevalence (%) | No. of eggs | Mean intensity±SE |
|---|---|---|---|---|---|
| Kapye pri. sch. | 32 | 3 | 9.38 | 85 | 28.33±14.88 |
| Dozomga pri. sch. | 55 | 3 | 5.45 | 144 | 48.00±10.21* |
| D/kwancha pri. sch. | 53 | 8 | 15.09 | 235 | 29.38±7.43 |
| Sheilk Abubakar Gumi pri. sch. | 38 | 5 | 13.16 | 64 | 12.80±7.96* |
| Akate Nomadic pri. sch. | 57 | 2 | 3.51 | 45 | 22.50±20.50 |
| Total | 235 | 21 | 8.94 | 573 | 27.29±4.77 |

$\chi^2 = 6.192$, df =4, $p$ =0.185. ($p = 0.293$). * = Significant association. S.E. (Standard Error)

Of the 235 urine samples, 8.94% (21) were found infected. D/Kwancha primary school had the highest prevalence of the infection 15.09% (8), Sheilk Abubakar Gumi primary school 13.16% (5), Kapye primary school 9.38(3), Dozomga primary school 5.45% (3), and Akate Nomadic primary school had the least prevalence of 0.04% (2). Chi square analysis showed statistically insignificantly association between infection and the schools ($p$ = 0.185; df = 4 Table 1). On the other hands, the highest mean egg intensity was recorded among subjects in Dozomga primary school (48 eggs/10ml of urine), followed by subjects in D/Kwancha primary school (29 eggs/10ml of urine), Kapye primary school (28 eggs/10ml of urine), Akate Nomadic primary school (22.5eggs/10 of urine), while Sheilk Abubakar Gumi primary school had the lowest mean egg intensity of 12.8 eggs/10 of urine. Analysis of Variance (ANOVA) shows no significant difference in the mean egg intensity among the schools ($p$ = 0.293; df = 4 Table 1).

**Table 2: Association and Intensity of Urinary *Schistosomiasis* in Relation to Sex in the study area.**

| Gender | Number examined | Number infected | Prevalence (%) | Number of eggs | Mean±SE intensity |
|---|---|---|---|---|---|
| **Male** | 122 | 16 | 13.33 | 485 | 30.32±5.57 |
| **Female** | 113 | 5 | 4.50 | 88 | 17.60±5.89 |
| **Total** | 235 | 21 | 9.09 | 573 | 27.29±4.77 |

$\chi^2 = 5.439$; df =1; $p$=0.020*, ($p$ =0.27), *=Significant difference, S. E. (Standard Error)

Out of the 122 male pupils examined, 13.33% (16) were infected while 4.50% (5) of the 113 female pupils were also infected with urinary *Schistosomiasis*. Chi square analysis showed that, the impact of sex on the prevalence of infection was statistically significant ($p$ = 0.020*; Table 2). Similarily, male recorded the highest mean egg intensity of 30.3

eggs/10ml of urine, whereas female recorded the lowest mean egg intensity of 17.6 eggs/10ml of urine. However, ANOVA revealed no statistically significant difference in the mean egg intensity among gender (*p* = 0.27)

**Table 3: Prevalence and Intensity of Urinary *Schistosomiasis* in Relation to Age**

| Age of pupil | Number examined | Number infected | Prevalence (%) | Number of eggs | Mean±SE intensity |
|---|---|---|---|---|---|
| **4-9** | 124 | 7 | 5.65 | 164 | 23.43±7.70 |
| **10-15** | 110 | 13 | 11.82 | 404 | 31.07±6.35 |
| **16-20** | 1 | 1 | 0.01 | 5 | 5.00 |
| **Total** | 235 | 21 | 8.94 | 573 | 27.29±4.77 |

$\chi^2 = 12.964$; df = 2; $p = 0.002$* ($p = 0.462$), *= Significant difference. S. E. =Standard Error

Among the 235 urine samples (from pupils aged 4-20 years) examined, pupils aged 10-15 years had the highest prevalence of the infection 11.82% (13), followed by those with age 4-9 5.65% (7), whereas subjects aged 16-20 had the lowest prevalence 0.01% (1). Chi square analysis showed that, the association between prevalence of infection and age of the participants was statistically significant ($p = 0.002$*; df = 2, Table 2). Similarly, pupils aged 10-15 had the highest mean egg intensity of 31.08 eggs/10ml of urine, followed by subjects with age 4-9 years (23.4 eggs/10ml of urine, while subjects age 16-20 had the lowest mean egg intensity (5 eggs/10ml of urine). Although, there was no statistically significant difference between the mean egg intensity for the various age groups ($p$ =0.462).

**Table 4: Prevalence and Intensity of Urinary *Schistosomiasis* Based on Subject's Water Contact Activities in the study areas.**

| Activity | Number examined | Number infected | Prevalence (%) | Number of eggs | Mean±SE intensity |
|---|---|---|---|---|---|
| **Swimming or bathing** | 86 | 12 | 13.95 | 406 | 31.83±6.63 |
| **Fishing** | 24 | 4 | 16.67 | 231 | 29.25±10.56 |
| **Washing** | 21 | 1 | 4.76 | 2 | 2.00 |
| **Participating in all activities** | 40 | 4 | 10.00 | 91 | 18.00±9.96 |
| **None** | 64 | 0 | 0.00 | | |
| **Total** | 235 | 21 | 8.94 | 573 | 27.29±4.77 |

$\chi^2 = 11.209$; df = 4; $p = 0.024$*, ($p$= 0.486), *= Significant difference S. E. (Standard Error)

A high infection rate of 16.67% (4) was found amongst participants who engaged in fishing, 13% (12) found amongst those who responded participating in swimming or bathing, pupils that were said to be involved in all activities had a prevalence of 10%(4), Those responded washing in freshwater bodies had a prevalence of 4.76% (1), while subjects who do not participate in any of these activities had the least prevalence of 0%(64). Chi square analysis showed a statistically significant association between participant's water contact activities and the occurrence of the infection ($p = 0.024$*). On the other hands, participants who swimmed/bathed had the highest mean egg intensity (31.83 egg/10ml of urine), followed by those that fished (29.25 egg/10ml of urine), 18.00 egg/10ml of urine observed in those that participates in all of the activities, participants that washed had a low mean egg intensity of 2.00 egg/10ml of urine, while those who do not involved in any of the activities recorded no mean egg intensity (0egg/10ml of urine). ANOVA showed no statistically significant difference in the mean egg intensity among these activities ($p = 0.486$ Table 4).

**Table 5: Prevalence of Urinary *Schistosomiasis* based on Combi-9® Medi-Test in the study area.**

| Primary School | Number examined | Number positive | Prevalence (%) |
|---|---|---|---|
| **Kapye pri. sch.** | 32 | 5 | 15.63 |
| **Dozomga pri. sch.** | 55 | 7 | 12.73 |
| **D/kwancha pri. sch.** | 53 | 11 | 20.75 |
| **Sheilk Abubakar Gumi pri. sch.** | 38 | 8 | 21.05 |
| **Akate Nomadic pri. sch.** | 57 | 3 | 5.26 |
| **Total** | 235 | 34 | 14.47 |

$\chi^2 = 8.00$; df = 4; $p = 0.092$.

Out of the 235 urine samples examined using urinalysis dipstick (Combi-9® Medi-Test), 14.47% (34) were found infected. Sheilk Abubakar Gumi primary school had the highest prevalence of the infection 21.05% (8), D/Kwancha primary school 20.75% (11), Kapye primary school 15.63% (5), Dozomga primary school 12.73% (7), and Akate Nomadic primary school had the least prevalence of 5.26% (3). Chi square analysis showed statistically insignificantly association between infection and the schools ($p$ = 0092; df = 4 Table 5).

**Table 6: Comparison between chemical reagent strip and microscopy test**

| Variables | Positive | Negative | χ2 | *p*-value |
|---|---|---|---|---|
| Microsopy | 21(8.94%) | 214(91.1%) | 0.69 | 0.4 |
| Microhaematuria | 34(14.5%) | 201(85.5%) | | |
| Microscopy | 21(8.94%) | 214(91.1%) | 22.8 | 0.1 |
| Proteinuria | 80(34.0%) | 155(65.9%) | | |

$\chi^2$: chi-square value, $p$-value: Significant value

As a secondary reference, urinalysis dipstick (Combi-9® Medi-Test) was also performed on all the 235 urine samples to evaluate the chemical reagent strip performance in testing for microhaematuria and proteinuria. For microhaematuria, there was no significant difference ($\chi2$=0.69, p=0.4) between the efficacy of the two methods, 34(14.5%) pupils were tested positive using strip while 21(8.94%) were positive using polycarbonate filter membrane. However, the two methods were significantly different ($\chi2$=22.8, p=0.01) in proteinturia outcome, 80(34.0%) tests were positive using strip (Table 6).

**Discussion**

Several authors have reported the endemicity of Urinary *Schistosomiasis* in many parts of Nigeria with varying degree of prevalence. Houmsou *et al.* (2012) reported prevalence of 41.5% in two Local Government Areas in Benue State, Atalabi, *et al.* (2016) reported 22.7% prevalence among Junior High School Students in two LGAs around Zobe Dam in Katsina State, Balogun *et al*. (2022) reported a prevalence of 65.7% in school pupils in Jidawa and Zobiya communities of Jigawa State, Nigera. The prevalence 8.94%, recorded in this present study therefore appears relatively low especially when compared with the above studies carried out in the other parts of Nigeria. Also, the finding of this present study contradicts the findings of other researchers in Taraba State where; Monday, *et al*. (2015) reported 15.5% in Bali LGA. Agere *et al.* (2010) reported a prevalence of 28.8% in Jalingo and Ardokola Local Government Areas. However, the prevalence of 8.94% obtained in this present study supported reports of earlier researchers in other parts of Taraba state: Houmsou *et al.* (2016) reported 10.1% in Gashaka LGA, Federal Ministry of Health which found low endemicity of *Schistosomiasis* (5.6%) in nine LGAs of Taraba State FMoH (2015) and Nse *et al*. (2020) in Ikwo and Ohaukwu Communities of Ebonyi State, Nigeria who also revealed a relatively low prevalence of *S. haematobium* infection (8.0%) in the rural area with no statistical significant association of the infection ($p = 0.24$). The low egg mean intensity (27.29eggs/10 ml of urine) obtained in this present study is in line with the 25.05 eggs/10ml of urine reported by Atalabi *et al*. (2016). However, this contradicts with findings of Sunday *et al.* (2018) who showed 61.9 eggs/10ml of urine. This disparity in both prevalence and intensity of the infection could be due to a function of the interplay of various factors ranging from ecological to socio-economic which in turn took toll on the water contact activities of the study population. These factors limit the network of freshwater bodies and ensure that the few available become characteristically infested with *S. haematobium* infections.

Furthermore, a statistically significant association was recorded ($p$=0.020) between the rate of infection in male and female (male had 13.33 % and female 4.50 %). This result is in tandem with previous studies wherein; Atalabi *et al.* (2016), demonstrated that male (19.5%) were more prevalent to the infection than female (3.2%) with a $p$ valup; e = 0.0001, again, Sunday *et al.* (2018) in a research on the distribution of human urinary *Schistosomiasis* in Kwara State showed that, males (20.6%) were more prevalent to the infection than females (14.3%) with a $p$ value < 0.0001. The higher prevalence recorded among males is suggestive of more water contact activities in males like swimming, playing with shallow water and fishing, in addition to the normal duty of fetching water and washing which are peculiar to both sexes. On the other hands, this present finding confined the consistently high egg intensity in males (17.6eggs/10 ml of urine) compared to females (30.31 eggs/10 ml of urine). This agreed with previous studies; Dawuda *et al.* (2019) (males 2.76 eggs/10 ml; girls: 2.12 eggs/10 ml), Atalabi *et al*. (2016) (males: 19.5 eggs/10 ml; females: 3.2 eggs/10 ml of urine). However, the intensity of the disease as indicated by the number of eggs per 10 ml of urine, in this study, and others, showed that intensity is not sex dependent, an indication that both sexes carry equal worm burden.

Prevalence increased with age as shown by this survey. However, the highest prevalence of 11.82% was recorded in the age group 10-15 years. This quite agrees with previous similar findings such as that of Abdullahi and Saicki (2011), who reported high prevalence of 48.75% among 10–15 years old children and Nafiu *et al.* (2016), where children aged 12–14 had the highest prevalence (28%). The association could be due to the fact that the children of school-age and young adults are often involved in more activities that bring them in contact with infested water bodies, such as swimming, irrigation, fetching of water, bathing and fishing. Moreover, egg mean intensity decreased with age, the highest egg mean intensity (31.07 eggs/10ml of urine) found in this present study was among 10-15 years old children. This finding is in consonance with previous findings of Abdullahi and Saicki (2011) who reported highest egg mean intensity (16.0 eggs/10ml of urine) among 10-15 years old children but disagree with the findings of Sunday *et al.* (2018) who demonstrated 412.25 eggs/10ml of urine among 16-20 years old children. This could be explained by reduction in the frequency of water contact activities among older students as a result of maturity and acquisition of knowledge about the disease by formal education.

The relationship between the prevalence of Urinary *Schistosomiasis* and contact with freshwater bodies infested with cercariae is well established (Ugbomoiko *et al.*, 2010; Gbonhinbor and Abah, 2019). In collaboration with the above, frequent contact with freshwater bodies infested with cercariae, like contact when collecting water for domestic use, swimming, washing and fishing was associated with urogenital *Schistosomiasis*. This is somewhat logical since Urinary *Schistosomiasis* is directly linked to exposure to contaminate freshwater.

As far as infection category was concerned, 8.94% (21) infected of the whole 235 surveyed accounted for low endemicity and the light eggs mean intensity of 27.29 eggs/10 ml of urine. Results from the urinalysis dipstick (Combi-9® Medi-Test) shows that, 34 (14.57%) pupils were positive for microhaematuria and 80(34.0%) for proteinuria. The two msethods considered in this study were not significantly different in diagnosis for urinary *Schistosomiasis* ($p$=0.4) but different when detection base on proteinuria ($p$=0.01). There were 13 positive samples detected by chemical reagent strip but appeared negative to microscopy. Therefore, this made prevalence by strip (34%) higher than that of the microscopy (8.94%) and this was in consonance to the findings of Fatiregun *et al.* (2005) and Krauth *et al.* (2015) where strip had higher prevalence outcome than microscopy. Since 1980s, haematuria and proteinuria have been a major disease biomarker for urinary *Schistosomiasis* but Taylors *et al*. (1990) and Eltoum *et al.* (1992) considered microhaematuria to be more sensitive and specific than proteinuria.

**Conclusion**

In conclusion, the findings of this survey showed that children are mostly unaware of the risk factors for the transmission of Urinary *Schistosomiasis* through cercaria penetration in infested freshwater bodies, while the disease ranked as second most socioeconomically destructive parasitic disease only after malaria. The occurrence of Urinary *Schistosomiasis* is location-dependent. Such variations could be attributed to the difficulties in estimating the national prevalence and is compounded by the relatively slow pace of progress towards control of the disease, despite the availability of Praziquantel as an effective chemotherapy. It is, therefore, important to continue to expand surveillance for the disease, especially in those areas as yet unsurveyed. The prevalence of urinary *Schistosomiasis* in Donga Local Government Area, Taraba State as established in the current study can be described as Low endemicity. Sex, age, and water contact activities appear to the major risk factors that influenced the prevalence of the disease while those factors do not seem to have association with the intensity of the disease in the area. The disease also appeared to location (schools) independent both in terms of prevalence and intensity. The presence of the disease in this area confirmed that the river Donga was infected. Perhaps, the prevalence and intensity of the disease observed in the survey indicates the interplay between many of the water contact activities.

**Conflict of Interest**

All contributing authors declared no conflict of interest

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# THE EFFECTS OF NIGERIA'S FINANCIAL CRISIS ON JOB INSECURITY

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***Abstract***

*This qualitative research explores the effects of financial crises on job insecurity in Nigeria, given its heavy reliance on oil exports. It examines the psychological and societal consequences of job insecurity, sets specific objectives to assess its extent, contributing factors, and government policy effectiveness. The study aims to inform policymakers, raise public awareness, and contribute to academic discussions on labor market dynamics during economic downturns. The research methodology involves a comprehensive review of literature and documentary reports to analyze the impact of financial crises on job insecurity. It employs a systematic and rigorous approach to explore historical and contemporary data, revealing sector-specific trends in job layoffs during various crises, including the 2008 global financial crisis, the 2014-2016 oil price crash, and the 2020 COVID-19 pandemic. Notably, the Oil and Gas sector displayed resilience, while the Agricultural and Manufacturing sectors suffered significant job losses. Layoffs also affected the Service, Construction, Real Estate, and Transport sectors, highlighting the need for economic diversification. These findings underscore the importance of tailored policies for different sectors and the urgency for Nigeria to diversify its economy, reduce oil reliance, and build resilience against future economic shocks, providing insights into Nigeria's economic landscape and avenues for economic strengthening. In Conclusion- diversifying the economy, supporting vulnerable sectors, and implementing targeted policies Nigeria can enhance its resilience and build a more stable and sustainable economic future for its citizens. The recommends among other things that Reducing over-reliance on a narrow range of exports, especially in oil, can mitigate the impact of global market fluctuations on the Nigerian economy. Monitoring: Regularly monitor economic indicators and labor market trends to detect early signs of economic stress and respond proactively proffer solutions.*

***Keywords****: Job Security, COVID 19, Financial Crises, Economic Instability*

**Background of the Study**

Since gaining independence in 1960, Nigeria's economy has been marred by a series of financial crises that have had profound impacts on its economic landscape. One of the most significant instances of economic turmoil occurred during the 1980s with the oil price shock. Nigeria, heavily reliant on oil exports, experienced a sharp decline in oil prices, leading to severe economic recession and substantial job losses. Another major crisis struck in the late 2000s during the global financial crisis. This crisis resulted in a contraction of Nigeria's economy due to reduced global oil demand and falling prices. These crises serve as stark reminders of the country's vulnerability to external shocks and its overdependence on oil exports.

The effect of the financial crisis on emerging markets was both internally and externally induced (Adamu 2009, Dean 2010). It began with a fall in major stock market prices in 2007, and then the collapse of Lehman Brothers in September 2009, thereafter the contagion effect took it across advanced, emerging and developing economies, including Nigeria. Avgouleas (2008) enumerated the causes of the crisis as follows: (a) breakdown in underwriting standards for subprime mortgages, (b) flaws in credit rating agencies assessment of subprime Residential Mortgage Backed Securities (RMBS), Collaterized Debt Obligations (CDOs) and Asset Backed Securities (ABS), (c) risk management weaknesses at some large US and European Financial institutions, and (d) regulatory policies, including capital and disclosure requirement failed to mitigate risk management weaknesses. Again, the culminating causes were: (a) liberalization of global financial regulation, (b) boom and burst of the housing market speculations, (c) new financial architecture, (d) poor credit rating, (e) high risk loans and (f) government policies. Bank and financial institutions particularly in the US and UK repackaged their debts with other risk debts and sold them to worldwide investors creating financial instruments called Collateralized Debt Obligations (CDOs). These financial innovations in the market generally called financial derivatives or Mortgage Backed Securities (MBS) which derived their value from mortgage loans, spread the risk to financial institutions and investors around the world.

A central concern that emerged during these financial crises is job insecurity. Job insecurity refers to the uncertainty individuals face regarding the continuity of their employment. Financial crises amplify this concern, as companies grapple with revenue challenges and cost-cutting pressures. Consequently, layoffs, reduced hiring, and the prevalence of temporary employment arrangements become common strategies for businesses to cope with economic downturns. Research conducted by Adebayo and Adeyeye (2018) highlighted that employers tend to prioritize cost reduction over employee welfare during economic downturns, leading to heightened job insecurity. The global financial crisis began in the USA and UK as the global credit market came to a standstill about July 2007 and up till the middle 2008 (Avgouleas, 2008). The World stock markets fell, large financial institutions collapsed and even governments in the wealthiest nations have to come up with rescue packages to bail out their financial systems. The dust is yet to settle in the cases of Greece, Italy, and Ireland, even after the implementation of the rescue packages.

With an estimated GDP of $14 trillion, the US contributes about twenty-five percent of the world's output. And if, for any reason the US economy contracts by one percent, it implies a direct output loss of approximately $140 billion which is about one half of Nigeria's GDP in 2011. The impact of the financial crisis on the African economy has thus far been limited as most commercial banks in the region refrained from investing in the troubled assets of the US and other parts of the world. It however, affected Africa and other developing countries in two ways. First, there was a financial contagion for stock market in Africa as a result of the continent's stock market volatility driven by foreign investors' sell-offs. For instance, the Nigerian stock market experienced a continuous downward trend in prices of stocks for months. Similarly, emerging economies stock markets such as Indian stock market dropped by eight percent in one day at the same time as stock market in Brazil plunged. Share prices tumbled between twelve and nineteen percent in the USA, UK and Japan within one week while the MSCI emerging market index fell by twenty-three percent. This includes stock markets in Brazil, South Africa, India and China, (TeVelde, 2008). The second was an indirect effect of volatility on commodity prices, leading to falling prices of primary products like crude oil, which took its toll on export revenue, capital inflow into the continent, remittance from abroad, foreign aids, foreign direct investment, and portfolio investments.

In Nigeria, the initial response of our policy makers was meek. That was because they either misunderstood the crisis or underestimated its magnitude. Generally, they thought of the crisis as only an aberration, as they imagined that the fundamentals of the financial system were impressive, whereas in reality the capital market was bleeding. When the nation's economic managers declared there was no problem with the capital market, it was a mere paradox because as at that time market capitalization had dropped from N12 trillion to less than N8.5 trillion.

Nigeria's economy, being one of the largest in Africa, has witnessed financial crises that manifest as currency devaluation, inflation, and recessionary periods. These crises not only affect macroeconomic indicators but also trickle down to the micro level, giving rise to concerns about job security. Such crises impact both the formal and informal sectors of the labor market.

The contagion effect of the crisis hit the Nigerian economy about the end of March 2008 beginning with foreign exchange market. This was attributed to the disinvestment and repatriation of capital and dividend by foreign investors, further leading to depletion of assets in the external sector. First, the Nigerian stock market witnessed a continuous drop in the All-share index and volume of traded securities. Second the banking sub-sector was affected by a credit contraction as most foreign banks reduced their credit lines, exchange rate exposures, and the continuous decline in the revenue receipt by the three-tier government, leading to a contraction in the fiscal sector. With the emergence of the global financial crisis, foreign investors began to withdraw holdings in the capital market which in turn led to capital flight.

This study aims to enhance the understanding of the intricate relationship between Nigeria's financial crises and job insecurity. By delving into labor market dynamics, and government policies, this research seeks to illuminate the mechanisms through which financial crises impact job insecurity and actionable recommendations for bolstering the resilience of the labor market during turbulent times. Ultimately, this study contributes to a more comprehensive comprehension of the challenges Nigeria faces in maintaining stable employment amidst a backdrop of economic uncertainty.

**Objectives of the Study**

The primary objective of this study is to examine the effects of Nigeria's financial crises on job security. To achieve this overarching goal, the study aims to accomplish the following specific objectives:

i. Evaluate the extent to which Nigeria's financial crisis have impacted job insecurity in the labor market.
ii. Identify and analyze the key factors that exacerbate job insecurity during financial crises.
iii. Evaluate the effectiveness of government policies and interventions aimed at mitigating job insecurity during financial crises.

**Literature Review**

**Financial Crisis**

A financial crisis is a sudden wide-scale drop in the value of financial assets, or in the financial institutions managing those assets (and often in both). A financial crisis may be triggered by a variety of factors, but the situation is typically aggravated by negative investment sentiment, fear or panic. A financial crisis often sparks a vicious circle where an initial decline sparks fear by investors that other investors will pull their money out leading to redemptions and increasing declines. Financial crisis is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value, (Adamu, 2010). Sanusi (2010) is of the opinion that it is a moment when financial networks and markets suddenly become markedly unable or strained to the point where it may collapse. Eichengreen and Portes (1987) have defined it as a sharp change in asset prices that lead to distress among financial market participants. Eichengreen (2004) noted that it is not very clear where to draw the line between sharp and moderate price changes or how to distinguish severe financial distress from financial pressure. This has remained a major challenge to economies and financial expert alike. Before the arrival of the current global financial crisis, a lot of scholars in the field of economics and finance have predicted the impeding economic doom. Notably among them was Minsky (1995) who was cited in Whalen (1999) to have noted that "Global financial integration is likely to characterize the next era of expansive capitalism. The problem of finance that will emerge is whether the financial and fiscal control and support institutions of national governments can contain both the consequences of global financial fragility and an international debt deflation". Similarly, Warburton (2003, pp.165) reported that "Despite the Basel Capital Accord of 1988 and its planned successor, Central banks have effectively abdicated their roles as guardians of the credit and financial system. They have retained a role as trouble-shooters, and lifeboat providers, as shown in the rescue of Long-Term Capital Management (LTCM) in 1998, but have lost the ability to influence the overall quality of private sector credit decisions, their well-known commitment to preventing the perverse effect of emboldening risk-takers to take even larger risk". Pettifor (2003) explained that as part of the financial sector expansion and growing dominance, it has fuelled and expanded credit. This has helped to create a vast "credit bubble" which has in turn, financed bubble in assets, stocks, shares, property and dot.com companies. The easy availability of credit encouraged consumers, corporations and governments to run up huge debts. Greenhill (2003) on his part opined that the huge growth in the finance sector and the abrogation of control by governments over the supply of credit have not happened by accident. Rather, they are the result of deliberate policy decisions of governments, particularly in the west. Financial globalization has taken place because it is the interests of a small elite of politically and economically dominant people who have done extremely well out of it while ordinary people have found themselves increasingly indebted. While the freedom to innovate has led to the rapid development of the financial markets in major industrialized countries and emerging markets, it has become clear that there is an inherent danger in the manner the markets were developing without proper supervision and moderation (Sanusi, 2010).

The term financial crisis is applied broadly to a variety of situations in which some financial institutions or assets suddenly lose a large part of their value. In the 19th and th centuries, many financial crises were associated with banking panics, and many recessions coincided with these panics. Other situations that are often called financial crises include stock market crashes and the bursting of other financial bubbles, currency crises, and sovereign defaults (Kindleberger and Aliber, 2005, Laeven and Valencia, 2008). Some economic theories that explained financial crises includes the World systems theory which explained the dangers and perils, which leading industrial nations will be facing (and are now facing) at the end of the long economic cycle, which began after the oil crisis of 1973. While Coordination games, a mathematical approach to modeling financial crises have emphasized that there is often positive feedback between market participants' decisions (Krugman, 2008). Positive feedback implies that there may be dramatic changes in asset values in response to small changes in economic fundamentals, Minsky‟s theorized that financial fragility is a typical feature of any capitalist economy and financial fragility levels move together with the business cycle, but the Herding and Learning models explained that asset purchases by a few agents encourage others to buy too, not because the true value of the asset increases when many buy (which is called "strategic complementarily"), but because investors come to believe the true asset value is high when they observe others buying (Cipriani and Guarino, 2008).

**The Global Financial Crisis and the Nigerian Economy**

The current global financial crisis has some important common elements with the previous financial crisis in Asia, Mexico and Russia in terms of causes and consequences. Brief expositions of these crises are presented. The Mexican Peso crisis broke out on December, 1994 when the Mexican government suddenly announced that the Peso was devalued by 15% (Han, Lee and Suk, 2003). The Peso continued to fall as currency traders and investors panicked and sold their peso holdings. At the same tune, there was rapid capital outflow and the Mexican stock market (Mexican IPC) fell by 47.94% in one month. The "tequila effect" spread to neighbouring countries, especially Brazil (Sharma, 2001).

Hence the main symptoms of the Mexican crisis were threefold: exchange rate depreciation fall in stock prices and have capital outflows. The1997 East Asian Financial crisis has been attributed to different factors by different researchers; however, there is consensus that the main causes included large external deficits, property market bubbles and stock market bubbles. The main symptoms were the collapse of the exchange rate and stock prices (Grouzille and Lepetit, 2008) Also, the crisis is attributed to the presence of internal weaknesses in the financial sector, such as traditional banking practices and inadequate bank regulation. Inadequate bank regulation and supervision was rampant to the extent that "new banks and finance companies were allowed to operate without supervision or adequate capitalization" In addition, the crisis is attributed to excessive foreign borrowing mainly by the private sector; "firms borrowed heavily to fund plant expansion and acquired unsustainable debt/equity ratios" (Jackson, 1999). The symptom of the crisis is that countries in the regions, were not directly vulnerable to contagion effects. According to (Murinde (2009), "Countries such as Singapore and Hong Kong escaped the spread of the crisis in the region because they had stronger financial system, including adequate bank regulation". The 1998 Russian Financial crisis broke out in August 1990, approximately one year after the break out of Asian Financial Crisis. Russians" foreign currency reserves fell sharply, the Rouble rapidly depreciated and huge capital outflows followed. The stock market index fell quickly.

The Rouble depreciated further by 34% at the end of December 1998, amidst speculative panics that marked the outbreak of the Russian financial crises to economic fundamentals, such as erosion of federal government revenues and collapse of financial discipline, which forced the government to borrow heavily by issuing bonds. Hence, the current global financial crisis has some important common elements with the previous crisis. First, these crises, especially the 1997 Asian Financial crisis and the current global financial crisis, can be attributed not simply to monetary issues or sub-prime mortgage problems, or any other form of credit crunch, but mainly to the spread of contagion effects due to financial globalization. Second, when the crisis occurred, key financial indicators, such as exchange rates, stock prices, short-term interest rates, asset prices, number of business bankruptcies and collapse of several financial institutions, produced very rapid deprivation in the host countries. However, the crises differ in terms of how quickly and to what extend the nucleus of the crisis has spread to the rest of the world. Third, the Asian financial crisis, Mexican Peso crisis and the Russian financial crisis, which occurred in the emerging economies, were characterized by uncertainty in capital flows. The main reason is "in an emerging market financial crisis, an economy that has been the recipient of large-scale capital inflows stops receiving such inflows and instead faces sudden demands for the repayment of outstanding loans. This abrupt reversal of flows leads to financial embarrassment, as loans fall into default or at least are pushed to the brink of default (Radelet et al, 1998). Taking the views of the various authors into consideration, the current financial crisis is caused by the following: Goodhart (2008) categorizes the reason of the crisis as mix-pricing of risk, new financial structure, poor credit rating agencies and insufficient liquidity. The reasons for this crisis are varied and complex, but largely, it can be distributed to a number of factors in both the housing and credit markets which developed over an extended period of time. Some of these include: the inability of homeowner to make their mortgage payments, poor judgment by the borrower and /lender, speculation and over building during the boom period, risky mortgage products, high personal and corporate debt levels, financial innovation that distributed and concealed default risks, central bank policies and regulation. The impact of the crisis on the Nigerian economy has different implications for the capital market, the banking sector, foreign exchange and the balance of payments, as well as the real sector. Market capitalization fell by 45.8% in 2008, a sharp reversal of growth from 2007, when the market grew by 74.4% (Okereke-Onyiuke, 2009).

The crude oil price (Bonny light) declined precipitously from U.S. and 147 percent per barrel in July 2008 to $47 per barrel in January 2009, prompting the government to seek other sources of financing for the 2009 fiscal year, as it could not rely on earnings from crude oil exports. Eventually, there was a huge budget cut at all tiers of government and social spending, such as on education, health and other millennium development Goals was deeply affected. The Nigerian currency, the naira, has also been depreciating against the U.S. dollar and this has implications for foreign reserves, which dropped from $67 billion in June 2008 to $53 in December 2008 and to about $34billion in 2011. The all share index and the market capitalization of the 233 listed equities capture activities and performance on the Nigerian Stock Exchange (NSE). The index has been growing over the years from a value of 12,137 in 2002 to 66, 371 in March 2008, with a market capitalization of 4998 trillion because of the melt down. By the end of the first week of March 2009, values had declined to 21,893 points, with a market capitalization of 4900 trillion. This value had further declined to 21, 608 points, with a market capitalization of 4836 trillion, by the end of the second week of March 2009. This reveals that between March 2008 and March 2009, the all share index had lost a total share of 67%, while market capitalization had lost 62% of its value (Okonjo Iweala, 2009). There are concerns regarding how rapidly the global financial crisis penetrated the Nigerian Capital Market, especially given that there is hardly any thriving domestic mortgage market. The decline of indicators of activities on the NSE before the escalation of the crisis on the global scene in July 2008 became a source of concern for many. However, the emerging facts reveal that the crisis may have been made evidence in the capital market through various channels (Soludo, 2009). Foreign Portfolio investment withdrawals and withholdings in order to service financial problems at the foreign investors home as well as prospects of reduced FDI are bound to affect investor confidence in the economic health of Nigeria. Evidence on foreign portfolio withdrawals shows that the total financial inflows to Nigeria between 2007 and 2008 increased by 21%, while that between 2008 and 2009 reduced by 38.6%. the adoption of a public-private partnership (PPP) policy platform to implement huge investment plans such as oil and gas (liquefied natural gas – LNG-project), power plants, railways, housing and roads, therefore exposed the country more to FDI uncertainties and vagaries. The credit crunch experienced by lending institutions, affect business that requires short and long term fund including banks" lending to corporate organizations as well as inter-bank short-term lending. In a country like Nigeria, where mortgages and credit card purchases are not well developed, this credit crunch became manifest in weakened risk assets of banks that had given out loans to some investors to invest in other financial instruments (particular secondary market purchase and initial public offerings (IPOs), in the hope of making quick returns through a quick turnaround of their portfolio. This was what was termed otherwise „margin lending". This may also be termed Nigeria's own version of the „Subprime problem", resulting in an exploding domestic stock market and stock prices and astounding returns to both the spectaculars and providers of the margin funds (the banks). Other factors that have had a serious impact on the stock market are what can be called the „intensifiers". These include policy interpretations by the market, which may have been induced by the slow government initial stand on the economy. This also includes interpretation of announcements, proclamations and rumors by the market. Examples include the proposed recapitalization plan of the stock market players (stock broking firms) as well as rumors on the termination of margin lending by banks.

**Financial Crises in Nigeria and Their Causes**

Nigeria, often referred to as the "Giant of Africa," is one of the continent's largest and most influential economies. Despite its immense potential and abundant natural resources, Nigeria has found itself grappling with a series of recurring financial crises over the past decade. These crises have had severe implications not only for the country's economic stability but also for its overall development trajectory. To comprehensively address these issues and pave the way for sustainable growth, it is imperative to delve deep into the root causes that have precipitated these financial crises.

This literature review embarks on an ambitious journey to explore and elucidate the major financial crises that have beset Nigeria between the years 2008 and 2021. In doing so, it aims to cast a spotlight on the underlying factors that can be attributed to these turbulent periods in Nigeria's economic history. By dissecting the causes of these crises, this review seeks to furnish policymakers, economists, financial institutions, and interested stakeholders with a nuanced understanding of the multifaceted challenges that have bedeviled Nigeria's financial sector over this critical timeframe.

Nigeria's economic significance on the African continent cannot be overstated. With a population exceeding 200 million, vast reserves of oil and natural resources, and a diverse and dynamic workforce, Nigeria has the potential to be a formidable economic powerhouse not just within Africa but on the global stage. However, this potential has often been stifled and constrained by a series of financial crises that have rocked the country over the years. The period from 2008 to 2021 represents a particularly tumultuous era for Nigeria's financial sector. This timeframe encompasses the aftermath of the global financial crisis of 2008, a period marked by significant international economic volatility, which reverberated across the globe, affecting emerging markets like Nigeria. Additionally, this period also saw a series of internal and domestic challenges that further compounded the country's financial woes. The consequences of these financial crises have been far-reaching. They have impeded Nigeria's ability to invest in critical infrastructure, provide essential public services, and create employment opportunities for its burgeoning population. Furthermore, they have undermined investor confidence, deterred foreign direct investment, and constrained economic diversification efforts. These crises have not only hindered the nation's development but also exacerbated poverty and social inequality.

As such, understanding the causes of these financial crises becomes paramount. The root causes are often multifaceted and interconnected, encompassing both external and internal factors. Exogenous factors, such as global economic fluctuations and oil price volatility, have played a significant role in destabilizing Nigeria's economy. At the same time, endogenous factors, such as weak regulatory frameworks, corruption, mismanagement, and political instability, have exacerbated the situation.

**Oil Price Volatility**

Nigeria's economy has long been heavily dependent on oil exports as a primary source of revenue. This heavy reliance on oil has made the country particularly vulnerable to fluctuations in global oil prices. The revenue generated from oil exports plays a crucial role in financing various government programs and services, including infrastructure development, healthcare, and education. As a result, any significant changes in oil prices can have far-reaching consequences for the Nigerian economy and its ability to meet its fiscal obligations. Between 2008 and 2021, the global oil market experienced substantial volatility, largely influenced by a combination of geopolitical tensions and economic factors. This period witnessed various events, such as conflicts in oil-producing regions, supply disruptions, and changes in global demand, all of which had a direct impact on oil prices. The fluctuations in oil prices during this time frame were not only frequent but also dramatic, with prices experiencing sharp rises and steep declines. (Ogunmuyiwa, 2018).

**Weak Regulatory Framework**

Weak regulatory framework in Nigeria's financial sector has been a persistent issue, causing various challenges. This deficiency has led to inadequate oversight and supervision of financial institutions, making it easier for them to mismanage their operations. As a result, the sector has been prone to instability and financial crises. The regulatory gaps and shortcomings have allowed some financial institutions to engage in risky practices and dubious activities, ultimately undermining the stability and trust in the financial system. One significant consequence of this weak regulatory framework is the increased likelihood of financial crises. Inadequate oversight means that risky financial activities can go unchecked, potentially leading to market distortions and systemic failures. Investors and depositors may lose confidence in the sector due to concerns about the safety and integrity of their investments and savings. Moreover, poorly managed financial institutions can pose a significant threat to the overall economy, as their failures can have ripple effects on other sectors and the broader economy. Addressing the challenges associated with weak regulation and supervision in Nigeria's financial sector is crucial for ensuring the stability and resilience of the country's economy. Strengthening the regulatory framework, improving oversight, and closing regulatory gaps are essential steps to mitigate the risks posed by poorly managed financial institutions and to create a more secure environment for investors and depositors. These efforts are vital for fostering long-term economic growth and financial stability in Nigeria. (Adegbaju & Odusami, 2016).

**Corruption and Mismanagement**

Corruption and mismanagement have been persistent issues in Nigeria's financial system, causing significant harm to the country's economic stability and public trust in financial institutions. Research by Asongu et al. in 2019 highlighted the severity of these problems. One major consequence of corruption is the improper allocation of resources, where funds are diverted for personal gain rather than being used for the benefit of the nation. This misallocation can lead to a lack of necessary investments in critical sectors such as infrastructure, education, and healthcare, which are vital for long-term economic growth and development.

Furthermore, the misappropriation of funds and embezzlement have had a particularly detrimental impact on the banking sector. When funds are siphoned off or used for fraudulent activities, it undermines the stability and integrity of financial institutions. This, in turn, erodes public confidence in banks and the broader financial system. Investors and depositors become hesitant to engage with banks due to concerns about the safety of their assets, ultimately hindering the sector's growth and its ability to drive economic development. Corruption and mismanagement in Nigeria's financial system have far-reaching consequences, affecting the equitable distribution of resources and eroding trust in financial institutions. The country must address these issues to foster a healthier and more transparent financial environment that can support sustainable economic growth and development. (Asongu et al., 2019).

**Non-Performing Loans (NPLs) and Exchange Rate Fluctuations**

Non-performing loans and exchange rate fluctuations have both been significant factors contributing to financial instability in Nigeria. NPLs have weakened the banking sector's ability to provide credit and support economic growth, while exchange rate fluctuations have added uncertainty and volatility to the country's financial landscape. Addressing these challenges is crucial for fostering a more stable and resilient financial environment in Nigeria. Non-Performing Loans (NPLs) have become a significant concern in Nigeria's banking sector, and their increase has had far-reaching implications. This issue, as highlighted by Ayadi et al. in 2018, has played a pivotal role in contributing to financial instability within the country. NPLs refer to loans that borrowers have defaulted on, and their rising levels have had a detrimental effect on the banking industry. These non-performing loans have gradually eroded the capital base of Nigerian banks, rendering them less capable of providing credit to businesses and individuals. This, in turn, has hindered economic growth and development, as access to credit is crucial for fostering entrepreneurship and investment.

Furthermore, the financial sector in Nigeria has also grappled with the challenges posed by exchange rate fluctuations and currency depreciation. These factors, as emphasized by Akinlo in 2019, have added another layer of complexity to the country's economic landscape. Frequent fluctuations in exchange rates have made it difficult for businesses and financial institutions to plan effectively. They have also had a substantial impact on Nigeria's foreign exchange reserves, which are vital for maintaining economic stability. A decline in foreign exchange reserves can limit the government's ability to stabilize the economy and manage external shocks effectively, potentially leading to further economic challenges.

**Weak Infrastructure**

weak infrastructure has been key factors contributing to Nigeria's financial crises. The unpredictable nature of government changes and inconsistent economic policies has deterred investors, while inadequate infrastructure has hindered economic growth and job creation. Addressing these issues is crucial for the country to achieve financial stability and sustainable economic development. Political instability has been a significant contributor to Nigeria's financial crises. The country has experienced frequent changes in government and inconsistent economic policies, which have created an atmosphere of uncertainty. Investors are often reluctant to commit capital in such an unpredictable environment, leading to a weakened financial system. This instability has hindered Nigeria's ability to attract foreign investment and foster economic growth (Osemene, 2017).

Weak infrastructure, particularly in critical sectors like power supply and transportation, has further exacerbated Nigeria's financial challenges. The inadequate infrastructure has not only hindered economic growth but also posed a threat to financial stability. The power supply issues have led to operational difficulties for businesses, while transportation bottlenecks have increased the cost of doing business. As a result, the expansion of industries and job creation has been limited, perpetuating economic challenges (Budlender, 2016).

**Job Insecurity: Concept and Indicators**

Job insecurity refers to the uncertainty and vulnerability that individuals experience regarding the continuity and stability of their employment. Job insecurity in Nigeria is a pervasive and multifaceted issue that has significant implications for individuals and the broader economy. Job insecurity is influenced by a complex interplay of economic, social, and political factors. In conclusion, job insecurity in Nigeria is a multifaceted issue influenced by economic instability, inadequate labor protection laws, political instability, and a lack of diversified employment opportunities. These factors intertwine and reinforce each other, creating a challenging environment for workers and job seekers. Addressing job insecurity in Nigeria requires comprehensive reforms in labor laws, economic diversification, political stability, and investments in education and skills development to create a more secure and stable job market for the country's workforce. Some of the factors of Job Insecurity in Nigeria are Economic Instability, Inadequate Labor Protection Laws, Lack of Diversified Employment Opportunities the oil price crash of 2014-2016, The COVID-19 pandemic 2020 and Government Policies on the Economy.

**Theoretical Review**

**New Classical Macroeconomics Theory**

Hoover (2013) believes that the New Classical Macroeconomics suggests a rejection of the Keynesian economics and a revival of classical economics, the new classical school began with Lucas (1981) attempts to provide micro foundations for the Keynesian labour market. Lucas applied the rule that equilibrium in a market occurs when quantity supplied equals quantity demanded. This turned out to be a radical step. Because involuntary unemployment is exactly the situation in which the amount of labour supplied exceeds the amount demanded, their analysis leaves no room at all for involuntary unemployment.

**Theories of business Fluctuations**

A business cycle or fluctuation is the upward or downward movement of economic activity, which occurs around the growth trend (Colander, 2004). These fluctuations can be observed in any number of economic variables such as consumption, investment, unemployment and GDP among others. Economists have attempted to develop theories of business fluctuations. These theories had been categorized into two – External and Internal Cycle Theories. The 11 external theories attribute business cycles to forces external to the systematic interactions of the component parts of the economic system (Poindexter, 1981). Historically these external theories have focused attention on events like wars, new discoveries, and major innovations. The second group of cycle theories, the internal theories, attribute fluctuations to endogenous forces, that is, forces within the economy that automatically reverse cumulative expansions and contractions in economic activity. Majority of economists ascribe the major role to movements in investments.

**Methodology**

The research Philosophy adopted here in this study is the qualitative and idiographic methodology. which emphasizes on inferences based on deductive analysis, and also attempts to identify the evidence of validity across various studies which have examined related variables within other contexts using similar tools and statistical techniques. The qualitative method was considered suitable as it offers the study the avenue for cross-assessment of findings alongside the evidence presented in other studies. *The qualitative method of data was collected a to play supportive role in the formulation of conclusion and recommendation*

**Conclusions**

Findings underscore -specific crises to inform targeted policies for economic recovery and job creation. They emphasize Nigeria's imperative to diversify its economy, reduce dependence on oil, and address the unique challenges faced by various sectors to enhance resilience against future economic shocks. In conclusion, the insights drawn from the analysis of job layoffs in Nigeria during various crises offer a roadmap for the nation's economic recovery and resilience-building efforts. By diversifying the economy, supporting vulnerable sectors, and implementing targeted policies, Nigeria can enhance its resilience and build a more stable and sustainable economic future for its citizens.

**Recommendations**

Diversify the Economy: Nigeria must accelerate efforts to diversify its economic base. Reducing over-dependence on oil and promoting other sectors, such as agriculture, manufacturing, and services, can create more resilient and varied sources of income and employment. Sectoral Support: Vulnerable sectors like agriculture and manufacturing should receive targeted support, including investments in infrastructure, access to finance, and market development. This will bolster their resilience during economic crises. Strengthening the Service Sector: Given the sector's significant role in employment, policies should be implemented to bolster its growth and stability, especially during times of economic uncertainty. Infrastructure Development: Adequate infrastructure development, including transportation and logistics, is crucial for supporting economic growth across all sectors. Investments in infrastructure can also help attract foreign investment and boost employment. Promote Export Diversification: Reducing over-reliance on a narrow range of exports, especially in oil, can mitigate the impact of global market fluctuations on the Nigerian economy. Social Safety Nets: Develop and strengthen social safety nets to support workers and their families during economic downturns, particularly in vulnerable sectors.Continuous Monitoring: Regularly monitor economic indicators and labor market trends to detect early signs of economic stress and respond proactively.

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# ANTIMICROBIAL EFFECT OF *ZINGIBER OFFICINALE* ON *ENTEROCOCCUS FAECALIS* ISOLATED FROM URINE SAMPLES IN WUKARI, NORTH-EAST NIGERIA

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***Abstract***

*Urinary tract infections (UTIs) caused by Enterococcus faecalis pose significant challenges due to antimicrobial resistance. This study investigates the potential of Zingiber Officinale (ginger) extracts as an alternative treatment against Enterococcus faecalis-associated UTIs. A stock culture of Enterococcus faecalis, previously isolated from urine samples at the Federal University Wukari, Taraba State, served as the bacterial strain for this research. The purity and viability of the bacterial strain obtained from the stock culture were ensured through sub-culturing and biochemical tests. Ginger extracts were then prepared at various concentrations using both hot and cold-water extraction techniques. Antimicrobial susceptibility testing was conducted using the agar well diffusion method, with nutrient agar plates inoculated with the test organism. The plates were incubated, and zones of inhibition were observed to assess antimicrobial activity. Concentration-dependent antimicrobial efficacy of ginger extracts was observed, with higher concentrations and hot water extraction showing superior activity. At concentrations of 1g/10ml and 2g/10ml, both cold and hot water extracts displayed effectiveness against Enterococcus faecalis, with hot water extracts exhibiting larger zones of inhibition (14mm and 17mm, respectively). Vancomycin demonstrated a zone of inhibition of ≥20 mm. The study highlights the promising potential of ginger extracts in UTI management and combating antimicrobial resistance. Further research and collaborative efforts in public health interventions are warranted to harness the therapeutic benefits of ginger extracts effectively. Expanding on this research could provide valuable insights into alternative treatment modalities for UTIs and contribute significantly to addressing antimicrobial resistance in clinical settings.*

**Keywords:** *Antimicrobial efficacy, Zingiber Officinale, Enterococcus faecalis, Urinary tract infections,*

**Background to the Study**

Urinary tract infections (UTIs) represent one of the most common infectious diseases encountered in clinical practice, affecting millions of individuals worldwide annually (Öztürk & Murt, 2020). UTIs encompass a spectrum of infections involving the urinary system, including the urethra, bladder, ureters, and kidneys, with diverse presentations ranging from uncomplicated cystitis to severe pyelonephritis (Wagenlehner, *et al.,* 2020). The etiological agents responsible for UTIs vary, encompassing a wide array of bacteria, fungi, and viruses, among which *Enterococcus faecalis* stand out as notable contributors (Codelia-Anjum, *et al.,* 2023). *Enterococcus faecalis*, particularly *Enterococcus faecalis* and *Enterococcus* faecium, are prominent members of the urinary microbiota and significant pathogens implicated in UTIs (Codelia-Anjum, *et al.,* 2023). These bacteria are renowned for their robustness and adaptability, capable of surviving and thriving in diverse environments, including the urinary tract (Codelia-Anjum, *et al.,* 2023). The emergence of *Enterococcus faecalis* as opportunistic pathogens in UTIs underscores the importance of understanding their epidemiology, pathogenesis, clinical manifestations, and therapeutic approaches (Cho, *et al.,* 2020). *Enterococcal* UTIs pose a significant burden on healthcare systems worldwide, accounting for a substantial proportion of nosocomial and community-acquired UTIs. Epidemiological data indicate a rising incidence of enterococcal UTIs, particularly among immunocompromised individuals, elderly populations, and those with predisposing factors such as urinary catheterization or underlying urological abnormalities (Öztürk & Murt 2020). *Enterococcus faecalis* exhibit a remarkable ability to colonize and persist in the urinary tract, contributing to recurrent and chronic infections, which further complicates management strategies (Codelia-Anjum, *et al.,* 2023). The pathogenesis of *Enterococcus*-associated UTIs involves a complex interplay of virulence factors, host susceptibility factors, and environmental triggers. *Enterococcus faecalis* possess an array of virulence determinants, including adhesins, biofilm formation capabilities, and immune evasion mechanisms, which facilitate colonization, invasion, and persistence within the urinary tract (Reissier, *et al.,* 2021). Additionally, *Enterococcus*-mediated UTIs often arise secondary to ascending urethral colonization, hematogenous spread, or iatrogenic factors, such as urinary catheterization or instrumentation (Codelia-Anjum, *et al.,* 2023)

*Enterococcus faecalis* is associated with various clinical presentations, ranging from asymptomatic bacteriuria to complicated pyelonephritis (Alvarez-Artero, *et al.,* 2021). Symptoms includes dysuria, frequency in urgency to urinate, suprapubic discomfort, and hematuria. In severe cases, systemic symptoms such as fever, chills, malaise, and flank pain may develop, indicating the progression to pyelonephritis or systemic infection (Alvarez-Artero, *et al.,* 2021). Furthermore, *Enterococcus*-associated UTIs are notorious for their propensity to recur and persist despite antimicrobial therapy, posing significant challenges in clinical management and patient care (Alvarez-Artero, *et al.,* 2021). The presentation of *Enterococcus* UTIs varies depending on the underlying host factors, site of infection, and virulence characteristics of the infecting strain (Codelia-Anjum, *et al.,* 2023).

Managing *Enterococcus*-associated UTIs is challenging due to the bacteria's resistance to multiple antibiotics. Treatment often requires combination therapy or alternative agents like daptomycin, linezolid, or tigecycline, tailored to the strain's susceptibility profile (Paudel & Nepal, 2023) Preventive measures, such as catheter care and antimicrobial stewardship, are vital. Addressing antimicrobial resistance stimulates exploring plant extracts as alternative therapies (Septimus, 2018; Boddu, *et al.,* 2021). Compounds in extracts like cranberry, garlic, and uva-ursi have been discovered to show antimicrobial activity against *Enterococcus*, offering potential solutions (Saiyed, *et al.,* 2023)

The use of ginger in traditional medicine dates back centuries, with historical records documenting its medicinal properties in ancient cultures across the globe (Kurhekar, 2021). This rich historical context provides valuable insights into ginger's role as a therapeutic agent and its enduring significance in healthcare practices. Taxonomically classified as *Zingiber officinale*, ginger belongs to the *Zingiberaceae* family, which includes other aromatic herbs like turmeric and cardamom. Its taxonomic classification underscores its botanical relationship with other commonly used spices and herbs, offering a glimpse into its diverse family of plants with potential medicinal uses (Kurhekar, 2021). Throughout history, ginger has been utilized for a wide range of purposes, extending beyond its culinary applications. Its versatile nature has made it a staple in traditional medicine systems worldwide, where it has been employed to alleviate various ailments, from digestive issues to respiratory complaints (Shahrajabian, *et al.,* 2019). One of the most striking attributes of ginger lies in its potent antimicrobial effects, a subject of extensive research in recent years. Studies have revealed that ginger harbors an array of bioactive compounds, notably gingerol and shogaol, which demonstrate remarkable antimicrobial activity against a diverse spectrum of pathogens (Shahrajabian, *et al.,* 2019). Among these are bacteria such as *Escherichia coli, Staphylococcus aureus,* and *Salmonella spp.,* as well as fungi like *Candida albicans* (Shahrajabian, *et al.,* 2019). These antimicrobial properties position ginger as a promising natural alternative to conventional antimicrobial agents, particularly in light of rising antibiotic resistance.

**Statement of Problem**

Despite its numerous health benefits, ginger is not without its drawbacks. Excessive consumption or certain medical conditions may lead to adverse effects, including gastrointestinal discomfort such as stomach upset, heartburn, or diarrhea (Nikkhah, *et al.,* 2019). Additionally, ginger's blood-thinning properties raise concerns about increased bleeding risk, especially in individuals on blood-thinning medications or with bleeding disorders (Anh, *et al.,* 2020). Moreover, ginger may interact with certain medications, potentially affecting their efficacy or safety (Nikkhah, *et al.,* 2019). Given the escalating challenges posed by antimicrobial resistance, particularly in the context of urinary tract infections (UTIs) caused by *Enterococcus faecalis*, there is a critical need to explore alternative therapeutic options. Focusing on local epidemiology and utilizing natural compounds like ginger aligns with the principles of sustainable healthcare and can offer tailored solutions to combat UTIs in resource-limited settings. Moreover, the pharmacological properties of ginger, coupled with its cultural acceptance and affordability, make it a compelling candidate for further investigation.

**Aim of Research**

This study aimed to investigate the antimicrobial effect of Zingiber Officinale (ginger) on *Enterococcus faecalis* isolated from urine samples in Wukari, North-East Nigeria.

**Methodology**

**Bacterial Strain and Culture Preparation:** A stock culture of *Enterococcus faecalis*, previously isolated from urine samples at the Federal University Wukari, Taraba State, served as the bacterial strain for this research. The purity and viability of the bacterial strain obtained from the stock culture were meticulously ensured through sub-culturing, adhering to standard microbiological protocols as outlined by Aljasham and Almutairi, (2019). This process involved transferring a small aliquot of the culture onto nutrient agar plates and subsequent incubation at 37°C for 24-48 hours, optimal conditions for *Enterococcus faecalis* growth. Following incubation, well-isolated colonies characteristic of *Enterococcus faecalis* were carefully selected and sub-cultured onto fresh agar plates for a second round of incubation under the same conditions. The resulting colonies were subjected to biochemical tests, including catalase, gas production (Gas), methyl red (MR), lactose fermentation (LAC), sucrose fermentation (SUC), glucose fermentation (GLU), and urease (URE), to confirm their identity and ensure consistency with both the original stock culture and a reference strain of *Enterococcus faecalis* ATCC 29212.

**Preparation of Zingiber Officinale Extracts:** Zingiber Officinale roots were purchased from Wukari Market and ground before being weighed. Various concentrations of the extract were prepared as described by Aljasham and Almutairi, (2019). This involved macerating specified amounts (0.25g, 0.5g, 1g, 2g) of the ground roots into 10ml of both hot water (approximately 70-80°C) and cold water (at room temperature, approximately 25°C). The mixtures were stored in well-corked sterile bottles for three days at room temperature. Afterward, the extracts were separated from the residues by filtering through filter paper and funnel into sterile bottles. The filtered extracts were then evaporated to obtain final concentrations of 0.25g-10ml, 0.5g-10ml, 1g-10ml, and 2g-10ml.

**Antimicrobial Susceptibility Testing Using Agar Well Diffusion Technique:** A suspension of the identified organisms was introduced into sterile plates using the pour plate method. Nutrient agar was poured into each plate, mixed homogeneously with the test organism, and allowed to solidify. Wells were made in the agar plates using a sterile cork-borer, with four wells for different concentrations of the extract (0.25g-10ml, 0.5g-10ml, 1g-10ml, and 2g-10ml) and one well for the positive control (Vancomycin 30µg). The extract and control were introduced into the wells using a sterile syringe. The plates were then incubated at 37°C for 24-48 hours, and the zones of inhibition were observed in accordance with the set standards of Bauer, *et al.*, (1966)

## Results

**Table 1: Cultural, Morphological and Biochemical Characteristics of *Enterococcus faecalis* Isolate**

| | Culture Media | Morphological Characteristic | Gram Stain | Biochemical Test | | | | | | | Organism |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CAT | GAS | MR | LAC | SUC | GLU | URE | |
| A | MacConkey Agar | Appear as tiny, pinpoint, colorless or translucent colonies. Given the medium's selectivity for Gram-negative organisms, *Enterococcus* colonies were minimal. | Positive cocci | - | - | - | - | - | + | + | *Enterococcus faecalis* |
| | Nutrient Agar | Appear as small, round, and convex colonies. They typically exhibit a white to greyish coloration and a smooth or slightly rough texture. | | | | | | | | | |

The morphological and biochemical characteristics of isolated and identified bacterial pathogens are presented in Table 1 and Table 2 represents the growth inhibition pattern of the extracts of ginger on *Enterococcus faecalis.* The result of the antimicrobial effects of *Zingiber Officinale* extracts on *Enterococcus faecalis* are summarized in Table 2 below.

**Table 2: Antimicrobial effects of *Zingiber Officinale* on *Enterococcus faecalis***

| Concentration | Cold water extracts | Hot water extracts |
|---|---|---|
| **0.25g-10ml** | NZI | NZI |
| **0.5g-10ml** | NZI | NZI |
| **1g-10ml,** | 8mm | 14mm |
| **2g-10ml** | 12mm | 17mm |
| **Vancomycin (30 µg)** | 20mm | |

**Key:** NZI-No Zone of inhibition, g-grams, ml-milliliters, mm-millimeter

At a concentration of 0.25g/10ml, neither cold water nor hot water extracts exhibited any zone of inhibition (NZI) against *Enterococcus faecalis*. Similarly, at a concentration of 0.5g/10ml, both cold water and hot water extracts showed no zone of inhibition against *Enterococcus faecalis*. However, at a concentration of 1g/10ml, the cold-water extract produced a zone of inhibition of 8mm, indicating some antimicrobial activity against *Enterococcus faecalis*. In contrast, the hot water extract at the same concentration resulted in a larger zone of inhibition, measuring 14mm. Furthermore, at a concentration of 2g/10ml, both cold water and hot water extracts demonstrated antimicrobial activity against *Enterococcus faecalis*. The cold-water extract showed a zone of inhibition of 12mm, while the hot water extract exhibited a larger zone of inhibition, measuring 17mm. Overall, the results suggest that the antimicrobial effects of *Zingiber Officinale* extracts on *Enterococcus faecalis* are concentration-dependent. Higher concentrations and hot water extraction generally resulted in larger zones of inhibition, indicating greater antimicrobial activity.

**Discussion**

The antimicrobial assay of *Zingiber Officinale* (ginger) extracts against *Enterococcus faecalis* offers insights into its therapeutic potential. While some antimicrobial activity is observed, critical analysis reveals key considerations. At lower concentrations (0.25g/10ml and 0.5g/10ml), ginger's effectiveness as a standalone antimicrobial agent against *Enterococcus faecalis* is questioned. Dosage optimization is crucial for therapeutic applications, considering the presence of bioactive phytochemicals such as gingerol, shogaol, and zingerone, which have been implicated in ginger's antimicrobial activity. The disparity in antimicrobial efficacy between cold and hot water extracts is notable, with the latter showing greater activity at higher concentrations (1g/10ml and 2g/10ml). Extraction methods significantly influence bioactivity, likely due to variations in compound extraction, and temperature can affect the extraction process, altering the concentration and activity of phytochemicals (Jha & Sit, 2022). Hot water extraction facilitated the release of more bioactive compounds compared to cold water extraction, potentially explaining the observed differences in antimicrobial efficacy. Ginger's concentration-dependent effects on isolates complicate interpretation. The concentration-dependent effects of ginger on isolates, as observed in this current study, stand in contrast to findings of Nikkhah, *et al.,* (2019) suggesting adverse effects associated with excessive consumption or certain medical conditions. Despite exhibiting antimicrobial activity at higher concentrations (1g/10ml and 2g/10ml), uncertainties persist regarding the practical feasibility and safety concerns, warranting further investigation into the effects of ginger's bioactive components, including their potential cytotoxicity. This highlights the need for a comprehensive understanding of ginger's effects and risks before considering its broader application.

Extending the use of *Zingiber Officinale* extracts to public health interventions presents a promising avenue for addressing antimicrobial resistance (AMR) on a broader scale. *Enterococcus faecalis* shows varying susceptibility to antibiotics like ampicillin, vancomycin, and linezolid. However, recent resistance to these antimicrobial agents by the pathogen has emerged as a significant challenge, complicating treatment (Paudel & Nepal, 2022). Combination therapy, incorporating plant extracts with conventional antibiotics has demonstrated efficacy, presenting a promising avenue for addressing *Enterococcus faecalis* resistance (Murugaiyan & Awaisu 2022). Combining antibiotics with synergistic plant extracts, such as those from garlic or cranberry, has the potential to enhance antimicrobial effects. This approach can overcome resistance mechanisms and improve treatment outcomes. Ginger has been shown to possess antimicrobial properties against various bacterial pathogens, including *Enterococcus faecalis* as observed in these studies and that of (Shahrajabian, *et al.,* 2019; Herman & Herman). Its bioactive compounds, such as gingerol and shogaol, exhibit antibacterial activity and may complement the effects of conventional antibiotics (Shahrajabian, *et al.,* 2019). Formulations containing ginger-derived compounds can augment the antimicrobial activity of conventional products, thereby enhancing their effectiveness in reducing the transmission of resistant bacteria (Álvarez-Martínez, *et al.,* 2020). However, integrating herbal medicine into mainstream healthcare requires rigorous scientific validation and collaboration among traditional healers, scientists, and healthcare professionals.

In the intricate landscape of Nigerian healthcare, regulatory agencies such as the National Agency for Food and Drug Administration and Control (NAFDAC) play a pivotal role in determining the extent to which plant extracts can be incorporated into public health interventions (Balogun, 2022). Regulatory oversight ensures the safety, efficacy, and quality of traditional herbal products, providing a foundation for their integration into mainstream healthcare systems (Jatau, *et al.,* 2021) However, stringent regulations enforced by governmental agencies like NAFDAC may also pose challenges, potentially limiting access to traditional remedies and hindering their utilization in public health initiatives. Moreover, the rivalry between orthodox medicine and traditional medicine reflects broader societal attitudes and cultural perceptions regarding healthcare (Taylor, 2022). Traditional medicine holds deep-rooted significance in Nigerian culture, serving as a primary source of healthcare for many individuals and communities (Abhadionmhen, *et al.,* 2023) In contrast, orthodox medicine, often associated with modernization and Westernization, is viewed with skepticism by significant segments of the population (Taylor, 2022). This skepticism can create barriers to collaboration between healthcare practitioners from both systems, impeding the incorporation of *Zingiber Officinale* extracts into public health strategies.

Despite these challenges, there are opportunities for synergy and collaboration between orthodox and traditional medicine in incorporating *Zingiber Officinale* extracts into public health interventions. Healthcare practitioners from both systems can collaborate to leverage the therapeutic potential of *Zingiber Officinale* extracts in addressing public health challenges like antimicrobial resistance and infectious diseases transmission. Integrating ginger extracts into traditional remedies have shown to enhance its effectiveness in combating AMR particularly in regions where traditional medicine is deeply rooted in healthcare practices (Álvarez-Martínez, *et al.,* 2020) This integration not only capitalizes on the cultural acceptance of traditional medicine but also fosters collaboration between modern healthcare systems and traditional healers. Acknowledging and respecting traditional knowledge systems can enhance the inclusivity and effectiveness of public health interventions in addressing antimicrobial resistance (AMR) within diverse cultural contexts (Mudenda, *et al.,* 2023)

Furthermore, community engagement and empowerment are essential for the successful integration of *Zingiber Officinale* extracts into public health initiatives (Haryanto, *et al.,* 2024) Involving local communities, traditional healers, and healthcare providers in decision-making processes allows public health interventions to be tailored to meet the specific needs and preferences of diverse populations. Community-based interventions provide an opportunity to engage directly with at-risk populations and tailor interventions to their specific needs. Communities can be empowered to take proactive measures against antimicrobial resistance (AMR) through the distribution of ginger-based products and the organization of educational workshops. This approach will raise awareness about the antimicrobial properties of ginger and its potential role in combating AMR. Moreover, community-led initiatives focused on promoting the use of ginger can foster a sense of ownership and collective responsibility for addressing AMR, leading to sustainable behavior change and improved health outcomes in the long term. This inclusive approach not only enhances the acceptability and effectiveness of interventions but also fosters sustainable partnerships for long-term health impact.

Additionally, educational workshops can serve as platforms for disseminating information about the mechanisms of AMR, the importance of prudent antibiotic use, and the potential benefits of using ginger as an alternative or adjunct therapy (Ahmed, *et al.,* 2020). These workshops can be conducted in collaboration with healthcare professionals, traditional healers, and community leaders to ensure culturally appropriate messaging and maximize engagement. Empowering communities with knowledge and access to ginger-based products enables individuals to make informed decisions about their health and take proactive steps to prevent and manage infections without contributing to the spread of AMR. Public health campaigns using Information, Education, and Communication (IEC), materials play a crucial role in raising awareness on the antimicrobial benefits of alternative medicine using plant extract (Qadir & Raja 2021). Moreover, IEC materials can provide detailed insights into the mechanisms of antimicrobial action, empowering individuals to make informed choices about incorporating ginger into their daily routines. Hence, promoting the consumption of ginger and integrating its extracts into community health hygiene and sanitation practices offer a strategic approach to promoting antimicrobial stewardship at the community level and leveraging its antimicrobial properties within public health initiatives. The use of ginger-based hygiene products aligns with sustainable and eco-friendly practices, contributing to overall environmental health (Pushpalatha, *et al.,* 2022). Investing in research and development is essential for advancing the integration of plant extracts with antimicrobial potentials into public health interventions targeting AMR (Majumder, *et al.,* 2020). Rigorous scientific studies are needed to elucidate the mechanisms of action of ginger's bioactive compounds and optimize their efficacy and safety profiles. Standardizing formulations and manufacturing processes will ensure consistency and quality, facilitating the widespread adoption of ginger-based interventions in diverse healthcare settings

**Conclusion and Recommendation**

The antimicrobial testing of *Zingiber Officinale* extracts against *Enterococcus faecalis* highlights its potential therapeutic benefits in management of uropathogenic bacteria. Despite existing challenges like dosage optimization and regulatory hurdles, integrating ginger extracts into community-based interventions presents a promising approach to in the management of UTIs. Collaboration between orthodox and traditional medicine, empowering local communities, and investing in research and development are key avenues to harness the antimicrobial properties of ginger for improved health outcomes and reduced spread of bacteria. Yet, sustained efforts are crucial to surmount barriers and ensure effective implementation of ginger-based interventions across diverse healthcare settings. Through the promotion of antimicrobial stewardship and utilization of ginger's natural properties, we can strive towards a future where AMR is effectively managed, safeguarding public health for generations to come. Importantly, given the limitations associated with using stock culture in this research, future studies can prioritize direct culturing of urine samples for antimicrobial analysis using plant extract. This approach would offer clinically relevant susceptibility information personalized to individual patients, allowing for more precise treatment strategies and antimicrobial resistance (AMR) surveillance.

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# THE REFOCUSING OF NIGERIA'S FOREIGN POLICY IN THE FOURTH REPUBLIC: AN EXPLORATION OF PRESIDENT AHMED TINUBU ADMINISTRATION'S 4-DS FOREIGN POLICY MATRIX

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***Abstract***

*The paper examined the refocusing of Nigeria's foreign policy in the Fourth Republic: An exploration of President Ahmed Tinubu administration's 4-Ds foreign policy matrix. In a complex and globalized international system, nation states have found the instrument of foreign policy as a veritable instrument for advancing or pursuing their national interest and goals. Over the years, revelations have shown that the foreign policy goals of the various regimes and administrations before President Tinubu's administration hardly impacted significantly on the socio-economic lives and welfare of a greater number of Nigerians both at home and in Diaspora. This study was guided by the actor choice theory. Methodologically, this study relied on documentary or secondary means of data collection. The content method was applied in the analysis. The study reveals that the new face of Nigeria's foreign policy by Tinubu administration is aimed at addressing some of the contemporary challenges in the country which the administrations before it failed to tackle successfully. The study recommends the widening of the horizon of Nigeria's foreign policy contact for meaningful assistance by more prosperous countries as well as cooperation with other countries that share similar vision with Nigeria. In conclusion, the study takes a position that the Tinubu's administration should not neglect building a solid domestic base by addressing the persistent hydra headed challenges of insecurity, economic under development and mismanagement as well as the unending threat of centrifugal forces.*

***Keywords***: *Foreign Policy, Administration, Diaspora, Fourth Republic, Economy*

## Background to the Study

On the attainment of political independence on October 1, 1960. Nigeria, just like every other sovereign state made bold in laying a foundation for her foreign policy. Thus, foreign policy has remained a veritable instrument through which nation states pursue their shared goals or objectives beyond their territorial borders (Ojukwu, 2011). As much as possible, nation states see foreign policy as a dynamic policy instrument aimed at attaining set international goals. At Nigeria's independence for example, attention was centred on using foreign policy as a tool for strengthening and consolidating the newly won independence, promotion of world peace and security, decolonization of other colonized states in Africa and above all, making Africa the centre piece of Nigeria's foreign policy (Obi, 2006).

Experience in Nigeria has revealed that several factors have combined to cripple Nigeria's chances of making significant impact in her foreign policy declarations under the various dispensations even with the generally held notion of Nigeria being the giant of Africa. For one thing, Nigeria has not been effectively utilizing the opportunity of her enormous human and material resources to full advantage in the pursuit of her foreign policy. Nevertheless, Nigeria before this time has been keen in fulfilling some of her foreign obligations and commitments especially with respect to her pax Nigeriana initiative or playing her big brother role among her sub regional neighbouring countries (Adedoyin, 2015). For instance, General Gowon's regime (July, 1966-1975) was able to maintain the solidarity of those West African countries that failed to recognize the secessionist Biafra in 1967 by clearing the arrears of salaries owed their public servants immediately after the civil war. Nigeria has also been contributing her troops either at regional or other levels alongside other countries in the various multilateral efforts aimed at restoring peace either in the West African sub region or in the other troubled regions of the world. Some of the military regimes in Nigeria such as that of Generals Gowon, Murtala and Babangida also tried in redefining and refocusing Nigeria's foreign policy for it to be more dynamic and impactful especially in the elimination of the apartheid regime in South Africa and independence struggles in Angola and Namibia. The search for Nigeria's economic development in 1986 led the Babangida regime to introducing an economic component in foreign policy known as "Economic Diplomacy" under General Ike Nwachukwu (Rtd) as External Affairs Minister (Asia, 2000). Following the restoration of democratic rule in Nigeria on May 29, 1999, Nigeria foreign policy posture was further redefined for more impact. This was encapsulated under section 19 of the 1999 constitution (Constitution of the Federal Republic of Nigeria, 1999).

The inauguration of the administration of Nigeria's second Executive President, Chief Obasanjo in May 29, 1999 really marked a watershed in Nigeria's political history after many years of military intransigence in politics. In the area of foreign policy, therefore, the administration set for itself the task of embarking on what is commonly called "shuttle diplomacy" under which the President embarked on series of diplomatic tours across several parts of the globe for the restoration of international confidence on Nigeria and for the country to be launched back among the comity of nations.

Nigerian leaders of the fourth Republic have hardly relented in defining and redefining the nation's foreign policy goals and objectives in order to address the challenges of the 21st century. Although some impressive marks have been recorded over the years in some areas in Nigeria's Afro centric policy posture and other aspects of her national interest, yet, a greater number of the Nigerian populace are yet to feel a positive impact of the gains of foreign policy. Thus, after a careful study of the above scenario, on assumption of office on May 29, 2023, President Tinubu's administration decided to launch a new face of Nigeria's foreign policy or the Tinubu Agenda centered on 4-Ds, namely; Democracy, Demography, Development and Diaspora. Arising from this therefore, this paper investigated the refocusing of Nigeria's foreign policy in the Fourth Republic: An exploration into President Ahmed Tinubu administration's 4-D's foreign policy martrix.

**Theoretical Framework**

This study is predicated on the rational action theory. The theory is usually applied in the understanding, explanation and modeling of socio-economic political and other behavioural tendencies of decision makers. The theory originated from micro economics orientation and related disciplines such as Political science, Sociology, Philosophy and Public administration. The rational action theory is traced to Homans (1961) who first applied it in the study of sociology. Becker (1976) submitted that the rational action theory was also popularized in social sciences.

Essentially, the rational action theory describes a choice situation where predictions are generated in order to understand a choice behaviour or provide normative explanation for a rational behaviour (Aremu & Aluko, 2018). Elster (1989) explained the rationale for the rational action theory. Thus, the theory comes to play as decision makers are usually confronted with several and competitive courses of action. In such a situation, they normally select the course of action that will serve as the best option in the realization of stated objectives. In international relations, states are described as unitary or primary actors where they are presumed to be individuals capable of taking rational decisions. Thus, in the formulation of state goals, interests and objectives, states are often described as rational actors that are capable of making or arriving at rational decisions. As presumed rational actors, states as much as possible rationally make decisions that are capable of enabling them realize their foreign policy goals or national interest, taking into cognizance both domestic and external variables. Foreign policies are usually decisions made by accredited officials of the state in liason with the Head of State or President who as human beings act out of rationality where they play down on personal interest and allow the interest of the state to prevail. The making of rational decision does not actually assume perfection on the part of decision makers per se but an explanation of the process followed. Akpuru-Aja (1997) argues that a decision is regarded as rational to the extent that it is evaluative and analytical of alternative options or actions. Detailed steps are usually followed in the making of rational action model of decision making (Abdulhammed, 2008).

Applying the theory of rational action theory to this study, it has to be understood that foreign policy making is an act of mental brainstorming on the consciousness that policy steps taken from competing alternatives would lead to the realization of state goals and objectives. High level of expertise and experience are usually brought to bear by a galaxy of experts in their various fields of endeavour who assist the President or Head of state in his bid to decide on issues bothering on various aspects of interstate relations and state needs. Thus, the rational action theory has been found relevant in this study.

**Foreign Policy: A recapitulation**

Foreign policy is one of the concepts in international relations that have a definitional problem in view of the divergent views held by scholars on the concept. Nevertheless, Frankel (1975) describes foreign policy as a segment of a state's public policy concerned with her relations toward other states, international organizations and happenings in the international environment. Here, foreign policy is seen as a dynamic policy process aimed at addressing the ever-increasing activities that confront nation states in the international system. Foreign policy has also been conceived by Dutch (1968) as the search for the preservation of a country's independence, sovereignty, security as well as the pursuit and protection of her economic interest. This definition of foreign policy was aptly exemplified by the United States in the new face of her foreign policy between the late 1940s and early 1987. Then, the United States faced the challenge of a divided world and consequently the leadership took to formulating policies aimed at addressing contemporary global realities. Thus, the departure in the United States foreign policy was expressed in President Trumah's Doctrine of containment, the Marshall plan and the North Atlantic Treaty which marked the end of America's abstention from formal military engagement with European nations and the ushering in of a new era on military alliances and alliance diplomacy.

For Holsti (1972) foreign policy is seen as an action and ideas advanced by policy makers to bring a solution or promote needed changes in the international system. The scholar tried to establish a strong link between foreign policy and national interest. Foreign policy has remained a veritable instrument through which states realize their national interest. According to Goldstein & Pevehouse (2010:146) foreign policies denote those strategies adopted by governments to guide their actions in the international system. Such policies outline the objectives state leaders have opted for in the pursuit of set international objectives. In this vein, Bruce, Harvey & David (2006) argue that foreign policy represents a guide to actions taken beyond the territorial boundaries of a state in order to further the goals of the state. State goals are often complex and complicated bearing in mind the competitive nature of the international system.

A broad view of foreign policy was given by Ojukwu (2011). The scholar opines that foreign policy denotes the laid down objectives or rather a set of attitudes of a state towards the international environment, that is, a state's strategic plan of action as it relates with the outside world. In the contestation of Adeniran (1983) foreign policy consists of three elements. One of such has to do with the overall orientation and policy intentions of a country or a number of countries toward others. The next is the objectives that a country outlines to pursue as it relates with the other countries in the international environment. The third has to do with the means of realization the stated objectives or set goals. From the array of scholarly views, foreign policy could therefore be taken to represent the totality of a nation's aspirations or set goals which it intends to pursue beyond her territorial borders with a view to realizing state objectives and making the state relevant among the comity of nations puting into consideration some domestic and external variables.

**Brief Review of Nigeria's Foreign policy since Independence**

Just like every other sovereign and independent state, Nigeria since her independence on October 1, 1960 has been using the instrument of foreign policy to advance or pursue what the nation's leaders consider as Nigeria's foreign policy. At independence, the Balewa's government laid the foundation of Nigeria's foreign policy where Africa was made the centre piece. Nigeria expressed her commitment towards the liberation of the rest of African countries that were still under colonial rule. Nigeria also expressed her concern over some international issues especially the crisis in Congo and the Angolan liberation struggle. The Balewa regime decided not to take sides with any of the power blocs (Obiajulu & Obi, 2003). The administration was generally described as conservative in its response to some international issues.

The Ironsi regime that lasted between January 16, 1966 - July 29, 1966, could not settle down to take a decisive stand on Nigeria foreign policy as it was pre-occupied with some domestic issues that ended up terminating the life of the regime. Just like Balewa's administration, it remained wholly pro-western within the six months of its existence. General Yakubu Gowon's regime (July 19, 1966 - July 29, 1975) came up at a most challenging period in Nigeria's history. Among other issues, the unresolved internal political crisis between the federal government and the government of Eastern Nigeria under the leadership of Lt Col Odumegwu Ojukwu finally led to the Nigeria civil war that lasted between July 1966 and January 1970 (Ndoh & Emezi, 1997)

The prosecution of the civil war to restore the secessionist Biafra to Nigeria as a corporate federal entity marked a watershed in Nigeria's foreign Policy. Thus, the reluctance of Nigeria traditional friends internationally especially countries of the West to support and assist Nigeria in concrete terms in fighting the war affected the pro-western stance of Nigeria foreign policy. As a way out, the direction of Nigeria foreign policy was turned to the Eastern bloc especially Russia which in 1968 readily accepted to supply to Nigeria the needed equipment to prosecute the war. To avert the danger of Nigeria turning communist ideologically, Britain, the United States and other Western countries accepted to offer the needed assistance to Nigeria which helped in routing Biafra in the war. Nigeria's experience after the civil war was formidable. Among others, unlike what hitherto obtained between Nigeria and Soviet Union relations, Nigeria took steps and improved her relations with the communist country. Nigeria also took some steps and strengthened her relations with her neighbouring countries.

Following a bloodless coup on July 29, 1975 against the regime of General Gowon, the mantle of leadership of Nigeria fell on General Murtala Mohammed. The regime was generally noted to have re-focused the conservative posture of Nigeria foreign policy to a more dynamic, pragmatic and progressive stand (Obiajulu & Obi, 2003). Through the Adedeji Commission's recommendations, some of which were accepted the entire foreign policy posture of Nigeria was virtually overhauled. A major test case at this time was Nigeria's uncompromising backing and support for the Popular Movement for the Liberation of Angola (MPLA) during the struggle for Angola's independence. The MPLA stood in opposition against the support given to the other major camps, that is, the National Front for the Liberation of Angola (FNLA) and the National Union for total independence of Angola (UNITA). The struggle for the independence of Angola led to serious tension and polarization of the interest of the super powers. The Soviet Union pitched camp with Nigeria and backed the MPLA whereas the United States supported both the FNLA and UNITA (Obiajulu & Obi, 2003).

On her own, South Africa took side with the United States and backed both the FNLA and UNITA. Although the various liberation movements were united in their common goal of dethrowning the Portuguese colonial army to pave way for the independence of Angola, they however differed on the actual means to achieve their goal. Due to the uncompromising stand taken by South Africa in her support for the other two factions, Nigeria later changed her position by working to ensure the attainment of government of national unity in Angola by taking a definite stand in favour of the MPLA under which platform Angola finally won her independence.

Following the assassination of General Murtala Muhammed during the Colonel Dimka's led coup of 13$^{th}$ February, 1976, his second in command, General Olusegun Obasanjo took over and continued to maintain the tempo already set in Nigeria's foreign policy by the late Muhammed's regime. Little wonders why the regime is usually referred to as the Murtala/Obasanjo's regime. The regime did not relent in giving support to liberation movements in Africa. The dignity of the blackman globally was pursued with vigour, whereas the policy of non-alignment to any of the ideological power blocs was maintained. General Obasanjo's regime took certain steps to justify the regime's new stance on Nigeria foreign policy. For instance, the British tactful support to the apartheid regime in South Africa despite sanctions against the country by the commonwealth as well as her unacceptable policy in Rhodesia were issues Nigeria could not handle with kidglove. Nigeria also took a tough stand against the British petroleum by nationalizing it in 1979 as part of the ways toward realizing the Lancaster's conference which was conceived as a prelude to the independence of Zimbabwe.

The emergence of President Shehu Shagari as Nigeria's first Executive President on 1st October, 1979, after about thirteen years of military rule was greeted with pomp and pageantry in Nigeria and by some sections in the international community. In her foreign policy outing however, the Shagari's administration could not show anything new in charting a new face in Nigeria's foreign policy as the administration remained pro-western and conservative. Nigeria's traditional Afro-centric emphasis in foreign policy also suffered seriously as the administration almost allowed the interest of the West to prevail against that of Nigeria on certain occasions when such collided. For instance, during both the Organization of Africa's Unity summit in Nairobi in 1981 and that of 1982 in Tripoli, Libya, Nigeria in both occasions played safe in order not to hurt western interests. Nigeria's daunting economic predicament at the time grossly affected her performance in international affairs. The military coup that brought General

Buhari/Idiagbon to power removed President Shagari from office on December 31st, 1983. Due to several internal problems and challenges in Nigeria then, the regime centred much attention to finding lasting solutions to the nation's domestic problems (Nwankwo, 2010). In the little effort made by the regime during its short period, the regime gave recognition to the Polisario government in the Western Sahara despite oppositions by some African countries. The regime also gave support for Namibia's independence and opposed the apartheid regime in South Africa.

General Ibrahim Babangida's regime lasted between August 30, 1985 to August 27, 1993. In order to restore the confidence of the international community on Nigeria over some of the tough stance of the previous regime, the Ibrahim Babangida's regime relaxed some of the tough steps taken by the Buhari/Idiagbon regime which ended up distancing Nigeria from the international community. The regime set for itself the onerous task of charting a new face in Nigeria foreign policy after observing that Nigeria's foreign policy goals were not yielding the expected results. The ministry of foreign Affairs under Professor Bolaji Akinyemi as minister was mandated to organize an all Nigeria conference on foreign policy (Solomon, 1999). This took place between 2nd and 13th April, 1986 at the Nigeria institute for policy and strategic studies, Kuru, near Jos. The conference proposed far reaching recommendations that were aimed at making Nigeria foreign policy much more rewarding and impactful.

In recognition of the strong link between the economy of a nation and her foreign policy, the regime went beyond the traditional focus of foreign policy and introduced an economic component of foreign policy known as economic diplomacy. The major aim of this was to look out for markets for Nigeria made products as well as wooing investors into the Nigerian economy. The Nigeria External Affairs Minister at the time, General Ike Nwachukwu was able to travel across the countries of Europe, America, the Caribbean, middle East and Africa for the realization of the foreign policy initiatives on economic diplomacy. No doubt, the programme made some impact in enhancing the economy of Nigeria. With the rejection of the International Monetary Fund (IMF) loan following a national debate, the Structural Adjustment Programme (SAP) was introduced by the regime as an economic recovery strategy aimed at stimulating the domestic economy.

In recognition of the persistent crisis of economic development of most countries in sub regional Africa, the regime came up with the Technical Aids Corps scheme (TAC) to assist needy African countries in critical areas of national need such as Education, Engineering, Medicine and Science related courses. Efforts were also made by the regime towards the restoration of peace in some crisis ridden and war turn countries in West Africa such as Liberia and Sierra Leone. In addition to promoting and investing in the activities of the Economic Community of West African States (ECOWAS), the regime also initiated and invested heavily on the formation of the Economic Community of West African States Monitoring Group (ECOMOG) in 1990.

As chairman of the 27th summit of the Organization of African Unity (OAU) held at Abuja, General Babangida acted in consonance with the endorsement of member

countries of the Organization of African Unity (OAU) and came up with the African Economic Community Treaty. The regime in concrete and unmistakable terms used the opportunity afforded by the various international fora to launch support to its opposition against the apartheid regime in South Africa and contributed immensely to activities leading to Namibia's independence. In addition, President Babangida's regime was able to re-establish Nigeria's diplomatic relations with Israel which was terminated in 1973 in line with the resolution of the Organization for African unity resulting from the Arab – Israel war (Iroanusi, 2009). The controversial registration of Nigeria as a member of the organization of Islamic conference (OIC) in 1986 by the Babangida's regime was a major issue that attracted huge criticisms against the regime by a large section of the Nigeria media and public analysts especially people outside the Islamic fold (Nwankwo, 2013).
The administration of Nigeria's interim Head of State, Chief Ernest Shonekon between August 1993 and November, 1993 could not make a major foreign policy pronouncement but only maintained the status quo in view of severe domestic political instability and crisis occasioned by the annulment of the June 12 presidential election and the consequent setting up of the interim national government by the Babangida's regime.

On November 17, 1993, late General Sani Abacha who took over power from the Head of the interim national government on what was best described as a palace coup described his regime as a child of necessity. General Abacha's regime in Nigeria witnessed what was generally described as dark days in Nigeria's foreign policy. This was as a result of the radical and confrontational nature the regime responded to some critical international issues that involved Nigeria and other countries. Among others, the poor human rights record of the regime and the deceitful way it handled its transition to civil rule programme made the regime odious of the people at domestic and international circles.

Among others, the gruesome hanging of Ken Saro Wiwa and the other Ogoni eight (8) indigenes (Rivers State) despite local and international appeals for leniency attracted serious international condemnation and sanctions against the Abacha's regime and Nigeria. In the pursuit of her foreign policy, the regime made a paradigm shift against Nigeria's traditional loyalty to the West and their allies (Asia, 2000). The Abacha's regime demonstrated its confrontational stand in the pursuit of Nigeria foreign policy by discovering new international business friends and trade partners. In this regard, Nigeria awarded some contracts to China in sectors such as oil, steel, and power. Some trade and cultural pacts were also signed with Russia. Boldly, the regime also entered into some trade and business agreements with some countries the West blacklisted as Pariah States such as Iraq, Iran, Libya and North Korea, among others (Asia, 2000).

The mantle of Nigeria's leadership fell on Major General (and later General) Abdulsalami Abubakar following the sudden death of General Sani Abacha on June 8, 1998. It was indeed a most challenging period in Nigeria's political history in view of both domestic, international challenges and sanctions Nigeria was faced with. By way of finding lasting solutions to the challenges, General Abubakar had to embark on series of shuttle diplomacy across the world to get the support and cooperation of various major world leaders especially convincing them of the sincerity of his regime towards the restoration of democratic rule in Nigeria and respect for human rights (Obi, 2015). On this, a concert of Western coalition led by the United States pressed it on Nigeria to use one year to ensure that democracy was restored in the country.

Chief Olusegun Obasanjo was elected and sworn in as Nigeria's second Executive President on 29th May, 1999. On assumption of office, President Obasanjo's administration set for itself a major target of using the instrument of foreign policy to attract foreign investment into Nigeria; pursuit of debt relief; improving Nigeria relations with the outside world; responding to developments at the global system; and expression of commitment towards the Afro centric posture of Nigeria's foreign policy (Obi, 2015). At the continental level, Nigeria's Afro centric effort was geared towards the gathering of African leaders toward the establishment of a code of conduct in economic and political reforms. Arising from the Group Eight Summit in Genoa, Italy, on June 2001, President Obasanjo was among the four leading African Heads of State that adopted a plan for a new partnership for Africa's development (NEPAD). The arrangement was for the coordination of efforts for the fast tracking of Africa's development (Olasupo, 2015).

Recognizing the role of domestic variables in the building of a viable foreign policy, the Obasanjo administration made concerted efforts in strengthening the domestic front through reforms carried out in the major sectors of the Nigerian economy. Through the instrumentality of foreign policy, some of the sanctions metted to Nigeria by some sections of the international community as well as some regional or continental organizations were relaxed. Nigeria was also able to woo back some of her international friends who expressed the desire to continue to invest in the country. The almost lost political glory of Nigeria as well as her international image was also considerably restored. The sagacity the Obasanjo administration demonstrated in the pursuit of the nation's foreign policy led Nigeria to securing a debt relief from the major world financial bodies to the tone of eighteen billion ($18b) dollars which helped in saving Nigeria's face as the highest indebted country in Africa (Jibrin, 2004).

Nigeria's Afro centric commitment led her to granting asylum to Charles Taylor, former Liberia's leader and warlord. The administration's commitment and resolve to promote global peace and security also led it to respect and honour the ruling of the world court over the age long land dispute between Nigeria and Cameroon on the oil rich Bakassi peninsular. The ruling ceded the territory to Cameroon. At the sub – regional level, President Obasanjo's administration made frantic efforts in the strengthening of the ECOWAS and implementation of some moribund protocols and revised treaties. Efforts made in this regard ended up enhancing the activities of the regional organization especially in the realization of some of its aims and objectives.

Nigeria's foreign policy at the early part of late President Yar'Adua's administration did not record impressive outing due to the persistent ill health of the president despite the administration's laudable seventh point Agenda and citizen's diplomacy. As Adeniyi (2011) contended, Nigeria's foreign policy under President Yar'Adua's administration was marked by unflattering tales. Nigeria's diplomatic relations with some major world powers was marked by mistrust and friction, the United States was a major force in the championing of this ugly development. Whereas Nigeria – United States relations deteriorated at the period, following the AFRICOM episode and Nigeria's opposition to gay marriage, Sino – Nigeria relations however improved, leading President Yar'Adua to paying a state visit to China in February, 2008.

The Afro centric posture of Nigeria foreign policy was maintained. The election of President Yar'Adua as ECOWAS chairman gave him an ample opportunity to mediate in the political crisis in Niger Republic when president Tandja illegally amended the country's constitution to pave way for his third term agenda. The administration also expressed strong resentment against the manipulation of election results in Zimbabwe by the then president, Robert Mugabe in his bid to actualize his tenure elongation (Alozie & Allens, 2022) Citizens diplomacy was another major component of the Yar'Adua's administration Citizens diplomacy was captured to mean that Nigerian citizens wherever they reside shall be the main focus of any foreign policy, they were to be made important stakeholders and the first beneficiaries of Nigeria's foreign policy to the extent that they have to be specially empowered to respond to changing challenges brought about by globalization (Obi, 2015). To address the mistrust, misception and loss of confidence as well as the generally held view in some international quarters against Nigeria as a corrupt nation, the administration through the office of the ministry of foreign affairs headed by late professor Dora Akunyeli embarked on the rebranding of Nigeria project to spread the good news about Nigeria and present a better image about Nigeria at both home and international arena.

Following the death of President Yar'Adua in office in 2010, the Vice President, Dr Goodluck Jonathan completed his tenure contested and won the 2011 presidential election. Aside making Africa the centre piece of Nigeria's foreign policy, the administration worked hard to strengthen and consolidate democracy in Africa. Thus, Nigeria supported the winner of the Cote D'ivoire Presidential election, Mr. Quatara when the incumbent President, Laurent Gbago attempted to scuttle the democratic process. The peaceful settlement of the political impasse in the country by President Jonathan made the coup plotters to spare the ousted President. The administration did not pay lip service to citizen's diplomacy initiated by the previous administration. Efforts were also made by the administration to pursue the interest of Nigerians in the Diaspora especially in South Africa where Xenophobic attacks were metted against some Nigerians.

President Jonathan administration's foreign policy also carried the economic content by widening the international market for the sale of Nigeria made goods as well as attracting international investors into Nigeria. Thus, Nigeria recorded a serious improvement in her foreign Direct Investment in 2012 as this rose to the tone of $8.9 billion making Nigeria one of the flourishing economies in Africa then. Following the internationalization of cross border terrorism in Nigeria through the Boko Haram terrorist and insurgent sect, the administration had to seek international assistance to successfully combat the menace. First, it had to work with some concerned countries in the Africa sub region to set up a Multilateral Joint Military Task Force (MJMTF). It also sought further military assistance by reaching out to some other members of the international community especially the European Union, Western countries, among others in order to successfully contain the incessant attacks by Boko Haram against the nation, its people, institutions, foreigners as well as private and public establishments.

In 2011, due to heightened level of insecurity in Nigeria purportedly perpetrated partly by the influx of criminal elements and insurgents from neighbouring West African countries, the administration was compelled to work against the ECOWAS protocol on free movement of persons and goods by ordering the deportation of about seven thousand illegal immigrants from some neighbouring ECOWAS member states. As Nigeria's fifth Executive President, Muhammadu Buhari who once served as Nigeria's military Head of state between December 31, 1983 and August, 1985 led Nigeria as a civilian President between May 29, 2015 and May 29, 2023. On assumption of office, president Buhari restated the commitment of Nigeria towards fulfilling her obligations at various levels of interstate relations.

President Buhari embarked on series of international tours to solicit for support for his administration. Among others, the President made series of reassurances to members of the international community over Nigeria's unreserved determination to fight against corruption, terrorism and give respect to human right issues (Alozie & Allens, 2018). Utilizing the opportunity of his address at the United Nations General Assembly in 2016 and other international forum, Nigeria entered into series of pacts and agreements with some friendly countries in order to find solutions to the economic and security challenges Nigeria was confronted with. The president requested the countries involved to assist Nigeria in returning stolen funds deposited in foreign banks by some unpatriotic leaders that once served the country.

Despite Nigeria's resolve to pursue world peace and security through the instrumentality of her foreign policy, Nigeria continued to witness daunting socio-economic, political and security challenges at home and international levels. For instance, South Africa continued her xenophobic attacks against the nationals of other countries including Nigerian. On this, Nigeria ruled out reprisal attack. On flumsy excuses, some countries such as Britain, Ghana, the United States, Cameroon, Libya and United Arab Emirate (UAE) at various times humiliated and repatriated some Nigerians who were domiciled in such countries. Some others were bluntly denied entry into these countries. In the third quarter of 2017, India joined suit by either outright denial or delay of visa applications made by some Nigerians without verifiable reasons for such treatment.

At the sub regional level, the Buhari administration recorded some pass mark in her foreign policy outing especially in the area of democratic consolidation in the sub region. Part of the manifestation of this was the effort made by Nigeria in leading a regional military coalition following the reluctance of President Yammeh of the Gambia to relinquish power after losing an election to the opposition candidate, Adama Barrow who was adjudged to have won the Presidential election in 2017. The regional military coalition effort was successful as Adama Barrow was finally installed as the president of the Gambia (Alozie & Iheonu, 2022)

**The "4-Ds" Foreign Policy Matrix of President Ahmed Tinubu's administration**

Recognizing the strong link between foreign policy, national development and citizens welfare, Nigeria's sixth Executive President on assumption of office reinstated his administration's resolve to give a renewed place to Nigeria's foreign policy. The current administration observed that Nigeria is yet to utilize fully the instrumentality of foreign policy to attract the much-needed national development as well as the ultimate welfare of her citizens both at home and in the Diaspora. Consequently, President Tinubu's administration set for itself the goal of pursuing a new face to Nigeria foreign policy under a new visionary paradigm known as the "4-Ds" Diplomacy" commonly known as the "Tinubu Doctrine". Traditionally, Afro centrism has dominated the focus of Nigeria's foreign policy since her independence. Specifically, the pronounced paradigm shift in Nigeria's foreign policy by the Tinubu administration is aimed at being proactive in foreign policy making and implementation in order to make it more robust, impactful and eventful.

President Tinubu and the minister of foreign affairs, Ambassador Yusuf have utilized the opportunity of their addresses at the various international fora such as the United Nations General Assembly, the meeting of the G-20 summit at New Delhi, India on 4th October, 2023 where the minister of foreign affairs represented the president among other global forums to unveil to the global community Nigeria's new foreign policy focus and the expected gains derivable there from. The "4-Ds" foreign policy matrix of President Tinubu's administration is outlined as follows:

**Democracy**

Democracy has continued to gain international currency as the best form of rule as it allows the people to take active part in the art of governance. The word "democracy" is derived from two Greek words, "demos" which means "the people" and kratia which means "rule of or by". Juxtaposing the two words, democracy has to do with rule by the people (Remi & Francis, 2008). As a concept and form of rule, democracy has attracted divergent views among scholars of both liberal, Marxist and orthodox orientations. As captured by Obasanjo & Mabogunnje (1992:1).

> *Democracy as a concept could be considered from two points of view, that is, as an ideology and as politics. As an ideology, democracy is seen as the philosophy of governance which lays emphasis on the basic freedom or fundamental human rights of the citizens, the rule of law… Similarly, democracy as politics has to do with the institutions and procedure of governance…*

The scholars went ahead to contend that democracy is characterized by the following basic elements:

i. Free or right choice of leaders;
ii. Freedom from ignorance and want;
iii. Empowerment and capacity;
iv. Observance and respect for the rule of law;
v. Respect for human rights;
vi. Creation of appropriate machinery for political participation;
vii. Leadership accountability;
viii. Existence of the opposition;
ix. Periodic elections;
x. Presence of political parties;
xi. Peaceful transition to power.

After noting the benefits of democracy as a form of rule through which majority of the people take part in governance directly or indirectly in the determination of public issues, Nigeria's minister of external affairs in his address during the G-20 summit stressed that Nigeria has remained committed to pursuing democratic values and norms both in Africa and in other parts of the globe. To the credit of Nigeria, the country in 2023 celebrated her twenty-five years of unbroken democratic experience since the restoration of democracy in Nigeria in 1999. The essence of democratic consolidation in the continent the minister noted has become imperative especially in view of the resurgence of military coups in some African countries in the latest century.

**Demography**

The largeness of a country's population has remained an important factor in measuring the strength or power potential of a nation especially if the population is a skilled and properly equipped one. As the most populous country in black Africa, Nigeria has been acknowledged as the third largest country in the world after India and China. The United States and Russia are noted as powerful nations due to their huge population advantage. India's population is also making her increasingly relevant in international politics (Remi & Francis, 2008). A large and articulate population would normally convey some economic, political strategic and other advantages to the country.

In emphasizing the significance of population, the role of the youth is always of paramount importance given the enthusiastic, energetic and pragmatic role they normally play in national and political development. The youth are often described as nation builders. The African youth charter defines a youth as a young person between the age of fifteen and thirty-five, whereas the United Nations Declaration considers the youth as persons between the age bracket of fifteen and twenty-five (Agbor, Atu, Odeh & Odido, 2023). The harnessing of Nigeria human capital has been noted as a cardinal objective of the Tinubu's administration. Nigerian youths are noted to have been making significant impact in various areas of endeavour such as sports, music, arts, sports, ICT, among others. Encouraging the Nigerian youth would likely result in their greater performance.

**Development**

The third **"D"** in Tinubu administration's foreign policy matrix is development. The issue of national development has remained a cardinal objective on the agenda of every government in Nigeria, be it civilian or military. Scholars have conceived development in several ways. Hann-Been (1970) defines development as a means of attaining a sustained growth drawing from a systems capacity to deal with new, and continuous changes in the bid towards the achievement of progressive political and socio-economic objectives. Sapru (1997) submits that development has to do with a process of improving the socio-economic wellbeing of the people. That is, raising their standard of living, improving their state of health, education and opening up of new and equal chances for a richer and improved life. Generally, development represents the ability of a people and their leaders to utilize both human and material resources available to them and manipulate their physical, socio-cultural, economic and political environment for their consistent growth and life improvement.

The crisis of development has continued to characterize the Nigerian state uptil the administration of President Tinubu. According to the records released by the National Bureau of statistics in the last quarter of 2023, about 133.3 million Nigerians suffered from multi-dimensional forms of poverty representing about 63% of Nigeria's population estimated at about 220 million people. Nigeria's unemployment level especially among the youth rose to about 22% in the last quarter of 2023. Inflation level also rose to 27%, whereas food inflation rose to over 32% (Yusuf, 2023). President Tinubu administration's development strategy has been outlined to focus on the areas of infrastructure, manufacturing and agricultural sector. To realize Nigeria's development strategy, the nation shall utilize the opportunities of her natural and mineral resources to seek collaboration and cooperation with some other countries that share similar vision with Nigeria.

**Diaspora**

The word "Diaspora" is a Greek word derived from "dia" which means "across" and "speirein" which means "scatter". Diaspora therefore refers to a group or community of individuals domiciled outside their country of origin. It is also used to describe a group of refugees and others who may have been forced to leave their country of origin due to political crisis or other challenges. The Diaspora can create a diverse society of dynamic, innovative and open access to global opportunities. They often use their expertise, skills, technical know-how and knowledge of the terrain of their host country to serve as facilitators in attracting business opportunities and other contacts for both countries (Swing, 2013). The term was earlier associated with Africans in 1965 by George Shepperson at the international congress of African history at the university of Dares Salem (Nwogbaga, 2013). The Diaspora has been useful in the areas of exchange of different cultures, values, beliefs, trade and diplomatic partnership. Recognizing the enormous role of the Diaspora in national development, the Nigeria government has also established the Diaspora commission, charged with the responsibility of seeing to the welfare and matters involving Nigerians in the Diaspora. Under the Diaspora component of Tinubu administration's foreign policy, emphasis shall be placed on sanctity of life and dignity of every Nigerian citizen domiciled in other countries of the world. This is derived from the provisions of Article 1 of the United Nations Universal Declaration of Human Rights which holds that all human beings are born free and equal in dignity and human rights. They are also endowed with reason and conscience and thus should act towards one another in the spirit of brotherhood.

**Challenges of the "4Ds" Foreign Policy Matrix of President Tinubu's Administration**

Although president Tinubu's administration has come up with laudable proposals for a renewed face in Nigeria foreign policy making in order for it to be more impactful and people driven, serious concern has continued to be expressed in several quarters on factors that may mark the realization of the laudable objectives. This paper examined the following:

**(i) The constraint of economic under development**

As a strong and vibrant economy is a sine qua non for the realization of a dynamic foreign policy, the persistent poor state of the Nigeria economy over the years has remained a stumbling block on Nigeria in this regard. In several quarters, President Tinubu and his aides have continued to express their concern of inheriting a prostrate economy on May, 2023. Unfortunately, about one year after the administration of Tinubu, Nigerians could not make any sigh of relief socio economically. As a country that is naturally endowed with the abundance of human, natural and mineral resources, economic mismanagement and institutionalized corruption by the leaders have largely been responsible for Nigeria's persistent crisis of development.

Various regimes in Nigeria since independence have usually come up with one form of economic recovery programme or the other but their poor conception and implementation have made these programmes make little or no impact on the socio – economic life of majority of the people especially those at the grassroot. The economy may have only been witnessing mere growth, not development. Poor management of Nigeria's economy over the years has just been resulting to more cases of socio-economic deprivations of generality of the people. There has been rise in inflation rate and prices of food among others. The present administration of president Tinubu made things worse in May, 2023 when on assumption of office, the President announced a complete withdrawal of oil subsidy without studying the domestic environment or even working out necessary palliative measures to cushion the resultant economic hardship and frustration that resulted from the policy. As at June 2024, the organized labour in Nigeria, private sector entrepreneurs among others have been resorting to frequent strikes, demonstrations and expression of opposition to press home their demand either for a new national minimum wage or for the reversal of some anti-government policies which have impacted negatively on the per capita income of the people.

**(ii) Unending challenge of insecurity in Nigeria**

Without doubt, insecurity has exacerbated in Nigeria since the restoration of democratic rule in May, 1999. Although scholars have conceived insecurity in various perspectives, either in objective or subjective context, insecurity has to do with a State of fear, danger or apprehension of the loss of lives, property or core values of a nation (Akpuru-Aja, 2009). In State centric perspective, insecurity is defined as a State of fear, danger and instability on the part of a nation to secure its core national values, lives and property of its citizens or deter aggression when attacked. As at the second quarter of 2024, Nigeria remained insecure than any other period in the nation's history in view of incessant record of death of persons and loss of property. Insecurity in the country has been resulting from socio-economic, political, cultural, and religious factors. It has usually been stated that no meaningful development can take place in an atmosphere of insecurity. Triggers of insecurity in Nigeria has remained Boko Haram terrorist insurgents, Fulani Herdsmen, armed bandits, unknown Gunmen, kidnappers and other merchants of death. Human lives and property in Nigeria have also been lost due to communal crises and conflict, frequent clashes between government security personnel and some separatist groups across the country, and recklessness of some security agents who with little or no provocation release bullets that kill people on the guise of accidental discharge. Similarly, some hoodlums are also known to have been carrying out attacks against security personnel on duty, setting ablaze patrol vehicles of security men and launching attacks against correctional centres. The horrible incident where suspected unknown Gunmen killed about seventeen military officers and personnel on peace enforcement duty at Okoma (Delta State) in March, 2023 attracted serious national condemnation. A similar incident also occurred at Aba, Abia State, on Thursday May 30, 2024 where about five soldiers on duty were also killed by unidentified Gunmen when the people of the South East were marking their 2024 Biafra day.

**(iii) Regional political instability and the Resurgence of Military coup in some countries in Africa**

The 21st century has witnessed some level of political instability in some countries in Africa and the resurgence of military coups especially in sub-Saharan Africa. President Tinubu was faced with a major acid test within the first few months of his assumption of office as Chairman of the Authority of Heads of State and Government of ECOWAS. That had to do with the challenge of threats to democracy in sub-Saharan Africa in particular and the resurgence of military coup in the sub-region. In about three years the military in countries such as Mauritania, Gabon, Niger, Burkina Faso, Sierra Leone and Mali sacked constitutional governments on these countries (Philip, 2022). In May 2024, there was also an attempted military coup in the Democratic Republic of Congo (Vision Africa, Radio News 10.00, a-m 20th May, 2024) the proposed use of a military coalition by ECOWAS to restore constitutional government in some of these countries ended up as rhetorics after putting into consideration the consequences of such military action. On their part, the military juntas in the affected countries remained resolute, undaunted and united in their action and even decided to withdraw their membership of ECOWAS. The development marked a serious threat against democracy and good governance in the sub region. President Tinubu decried the development and insisted that Africa must remain resolute on democracy as there is no governance, freedom and rule of law in the absence of democracy (Elumoye, 2023).

**(iv) Continued manifestation of threats against the stability of Nigeria as a Federation**

The federal system was carefully designed by political philosophers as an arrangement whereby people from different ethnic configurations could come together to form a stronger and united system with each relatively maintaining its identity as spelt out in the constitution of the country. In Nigeria, the feeling of oneness and issue of nationhood by most Nigerians has continued to be farfetched. Each republic in Nigeria has always seen some people from the different geo-political zones manifesting series of actions and agitations that have constituted has threats against the stability of the nation. For instance, since the restoration of democratic rule in Nigeria in May 1999, some centrifugal forces and issues have remained unabated. Meaningful national unity and cohesion which are critical factors in the pursuit and realization of a nation's foreign policy has been far-fetched in Nigeria. These centrifugal forces have been manifesting in the areas of ethno-religious crisis: inter-ethnic competition; agitations for resource control, structural imbalance of the geo-political zones; separatist agitations; alleged political alienation and exclusion of certain groups, among several others (Omemma, 2016). The insincerity and apparent demonstration of weakness on the part of the state in the effective management of these issues have lived much to be desired.

## Conclusion

Foreign policy has remained an effective instrument through which States pursue their State objectives formulated as national interest in foreign lands. Policies are carefully articulated guidelines or frameworks for action. Nation States usually put some internal and external factors into consideration as determinants of their foreign policy. States hardly play down on their foreign policy realization as such normally go a long way to impacting on national development and the prestige the country enjoys internationally. Foreign policy formulation and implementation are usually influenced by the State leadership. The goal of foreign policy of States may be targeted towards the realization of socio-economic, political, cultural, strategic and other objectives. Over the years, Nigeria foreign policy has been targeted towards the realization of these objectives. However, the experience in Nigeria has so far revealed that foreign policy goals of most of the regimes or administrations in Nigeria have not actually impacted significantly on the socio-economic life and welfare of majority of the people at home and in the Diaspora. Thus, on assumption of office as Nigeria's 6th Executive President, Bola Ahmed Tinubu's administration came up with the 4-Ds foreign policy matrix having noted that the instrument of foreign policy in Nigeria by the previous regimes has not actually made the needed impact on the socio-economic life and welfare of majority of the people.

## Recommendations

This study proffers the following recommendations:

(i). The goal of foreign policy should at all times be made to be impactful on the socio-economic and over all welfare of the people irrespective of religious, ethnic, class, party or other considerations.

(ii). President Tinubu's administration should carefully and tactfully understudy previous foreign policies of previous regimes in Nigeria as to know why those regimes or administration's foreign policies did not go far in realizing the set targets.

(iii). To ensure a quicker realization of the "4-Ds" foreign policy matrix of President Tinubu's administration, the relevant ministries involved in this direction should endeavour to establish the necessary synergy and reach out to relevant stakeholders, institutions and powers that be at home and internationally.

(iv). To avert the resurgence of military coups in Africa especially in the sub region, which may have a spillover effect on other African countries, the political leadership in Africa should spare no effort in embracing leadership accountability and good governance.

(v). To boost national unity and cohesion which are critical ingredients to the realization of foreign policy, concrete and unbiased efforts must be made by the State to address the myriads of centrifugal forces and issues which have continued to stare Nigeria on her face. This should be devoid of ethnic, partisan, class or myopic consideration.

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# ECOLOGICAL HERMENEUTICS IN INDIGENOUS AFRICAN ORAL TRADITIONS: A CRITICAL ANALYSIS OF ENVIRONMENTAL DISCOURSE IN SELECTED ORAL NARRATIVES

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***Abstract***

*This paper examines the incorporation of ecocritical concerns in African oral literature, critiquing the notion that environmental awareness is solely a modern or Western phenomenon. Through an ecocritical analysis of selected forms of oral tradition – folktales, myths, legends, and proverbs – this paper reveals a rich tapestry of ecological wisdom deeply embedded in African cultural expressions. The paper demonstrates how African oral literature articulates complex human-nature relationships, emphasizing interconnectedness, balance, and sustainable resource management. Folktales often serve as vehicles for transmitting ecological knowledge, while myths and legends establish the spiritual significance of landscapes. Proverbs distil environmental wisdom into memorable forms, and epic narratives intertwine human destinies with ecological processes. While acknowledging the challenges in preserving and applying this knowledge, including cultural erosion and ethical considerations, the paper argues for the importance of recognizing and learning from these rich traditions. It concludes that the ecocritical elements in African oral literature offer valuable alternative perspectives on human-environment relationships, providing insights that are increasingly relevant in the face of global ecological crises.*

***Keywords****: Ecological Hermeneutics, Eco-consciousness, Folktales, Myths, Legends, Proverbs,*

## Background to the Study

The relationship between humans and their environment has been a central theme in literature across cultures and throughout history. In recent decades, ecocriticism has emerged as a vital lens through which to examine this relationship, particularly in the face of growing environmental concerns. While much attention has been paid to ecocritical perspectives in contemporary written literature, there is need for critical investigations to advance that argument that the roots of ecological awareness and environmental concern have run deep in African oral traditions, predate the advent of written literature on the continent and which have been transmitted across generations (Smith & Ce, 12). African oral literature, encompassing a rich tapestry of folktales, myths, legends, proverbs, and epic narratives, has long served as a repository of cultural knowledge, values, and worldviews. These oral forms have therefore played crucial roles in African societies, serving as vehicles for education, cultural preservation, social commentary, and entertainment (Finnegan). However, oral art forms have not only entertained and educated generations but have also encoded complex understandings of the natural world and humanity's place within it (Sallau 26). Consequently, the flexibility and adaptability of oral forms have allowed them to remain relevant across centuries, incorporating new elements while preserving core cultural values and wisdom.

There have been several studies which have examined oral literature from an ecocritical perspective. Valentine Iheanacho explored how oral African arts are instrumental in shaping the version of christinaity in Africa. Bashir Sallau examined how oral repertoires in African societies provides insights on the environment using a Yoruba film titled *Ikoko Ebora*. Finally, Ndollane Dione investigated the pedagogical value of African verbal art in terms of raising environmental awareness using Yoruba oral literature. However, these studies have focused on single aspects of African oral arts. To address this gap, this essay explores how these diverse oral traditions incorporate ecocritical concerns, demonstrating that engagement with environmental issues is not solely a modern phenomenon but has been an integral part of African cultural expression for centuries. The argument advanced in this essay is twofold. First, it contends that African oral literature has consistently raised awareness about nature and its significance in sustaining human life. Through various narrative and poetic forms, these oral traditions have conveyed the importance of ecological balance, the interconnectedness of all living things, and the necessity of responsible stewardship of natural resources. Second, this essay examines how these same oral forms have, at times, reflected and critiqued the anthropocentric tendencies of human societies, offering cautionary tales about the consequences of exploiting or disregarding the natural world.

By analysing a wide range of oral forms from different African cultures, this essay demonstrates the depth and breadth of ecological wisdom embedded in these traditions. It explores how folktales often personify animals and natural forces, teaching moral lessons about respect for nature. The essay further delves into creation myths and legends that explain the origin and structure of the natural world, often emphasizing the delicate balance between humans and their environment. Proverbs and sayings will be examined for their distilled ecological insights, while epic narratives will be analysed for their portrayal of heroes' relationships with their natural surroundings. Following this introduction, the next section highlights the theoretical framework of this study. Subsequent section critically explores the environmental concerns highlighted in selected folktales. This is followed by an examination of instances of how legends and myths embody ecological concerns. Next, there is a section that critiques how proverbs convey ecological wisdom. Drawing from the insights from these three broad forms of African oral art, this essay offers informed conclusions.

**Theoretical Framework: Ecocriticism**

Ecocriticism is a relatively recent development in literary and cultural studies. Emerging in the 1970s alongside the environmental movement, ecocriticism examines the relationship between literature and the physical environment (Glotfelty & Fromm, ix). It seeks to understand how nature is represented in literary texts and how these representations reflect and influence cultural attitudes towards the environment. Studies in ecocriticism indicate that it has undergone several ideological phases, "waves" or paradigm shifts (Azeez, et al. 1). The first wave of ecocriticism focused primarily on nature writing, wilderness narratives, and representations of the natural world in literature. Key figures included Lawrence Buell, whose *The Environmental Imagination* (1995) was seminal in establishing ecocriticism as a field. This phase was characterized by a focus on romantic and transcendentalist traditions, often celebrating pristine nature and wilderness. The second wave broadened the scope of ecocriticism to include urban and degraded environments, as well as issues of environmental justice (Azeez, et al. 3). Ursula Heise's *Sense of Place and Sense of Planet* (2008) exemplified this shift towards a more global perspective. This phase also saw increased engagement with scientific ecology and interdisciplinary approaches.

Postcolonial perspectives, animal studies, and the concept of the Anthropocene formed the core of the third wave of ecocriticism (Azeez, et al. 5). Rob Nixon's *Slow Violence and the Environmentalism of the Poor* (2011) highlighted issues of environmental justice on a global scale. This phase also saw increased attention to materiality, new materialisms, and sustainability. This third phase is often delineated from the fourth wave which is characterised by engagement with the climate crisis, posthumanism, apocalyptic visions, and the digital humanities. Timothy Morton's work, *Dark Ecology*, as well as Stacy Alaimo's concept of "trans-corporeality" in *Bodily Natures* (2010), exemplify this phase's theoretical complexity. Throughout these waves, ecocriticism has become increasingly interdisciplinary, engaging with fields such as environmental history, philosophy, and the natural sciences. It has also become more politically engaged, addressing urgent environmental crises and their representation in literature and culture. These "wave" divisions should, however, not be taken to be that there is a clear demarcation of one period from another rather there are significant overlaps.

While ecocriticism initially focused primarily on Western written literature, there has been a growing recognition of the need to expand its scope to include non-Western and oral traditions. This expansion is crucial for several reasons: it offers the chance to gain insight into the man-nature relationship. Thus, including African oral literature in ecocritical studies brings to light alternative worldviews and ecological philosophies that may offer new insights into human-nature relationships. It also offers the possibilities of deepening awareness about history. This is evident in the instance of how examining African oral traditions provide evidence of a long-standing awareness of issues pertinent to Africa including the possibility of highlighting a history of environmental awareness in these African oral arts (Sallau, 27). Further, these oral forms can offer culturally specific understandings of nature that can enrich while also complicating global environmental discourses. Finally, African oral literature can encapsulate traditional ecological knowledge that has been developed and refined over centuries of close interaction with specific environments.

Against the above backdrop, the intersection of African oral literature and ecocriticism offers fertile ground for exploring how different cultures have conceptualized and interacted with their environments over time. By examining these oral traditions through an ecocritical lens, depth of insight can be gained on sustainable practices, alternative models of human-nature relationships, and the cultural roots of environmental ethics. However, it is important to approach this analysis with cultural sensitivity and awareness of the complexities involved. African oral traditions are diverse and context-specific, resisting broad generalizations (Okpewho). Moreover, these traditions are not static but dynamic, continually evolving in response to changing social and environmental conditions. On this note, this essay relies on specific examples of African oral literature and how these ecocritical themes manifest in various genres and cultural contexts. This analysis demonstrates the depth and sophistication of environmental thought in African oral traditions, highlighting their relevance to contemporary ecological discussions and their potential to inform more sustainable ways of living.

**Folktales and Environmental Concerns**

Folktales form a significant part of African oral literature, serving as vehicles for cultural transmission, moral education, and entertainment (Finnegan). These narratives, passed down through generations, often reflect the environmental contexts in which they originated and provide valuable insights into traditional ecological knowledge and attitudes towards nature. One of the most striking features of many African folktales is the prominence of animals as central characters. These animal protagonists often serve as proxies for human behaviour, but they also reflect close observation of nature and deep understanding of animal characteristics. This anthropomorphism blurs the line between human and animal worlds, promoting a more integrated view of nature. For example, the Akan people of Ghana have a rich tradition of spider stories featuring Anansi, the trickster. In one of the tales titled, "Anansi and the Dispersal of Wisdom," (which is part of the fokltake tradition in Ghana regarded as Anansesem) Anansi attempts to hoard all the world's wisdom in a calabash. He however fails in this quest (Sampene & Adom). His failure teaches that knowledge, like nature's resources, should be shared for the benefit of all. This story not only entertains but also promotes an ecological ethic of resource distribution and interconnectedness. By projecting animal characters, this folktale calls attention of readers to the natural environment. This is in line with the argument of ecocritic, Kate Rigby, who argues that one of the core tasks of any text that has ecocritical value should be in its ability to covertly ad overtly call for a remembrance of nature (155).

Having established the above, folktales have also served as cautionary tales about environmental exploitation. They often serve as warnings against the over-exploitation of natural resources, often depicting the dire consequences of greed or disrespect towards nature. An example of this portrayal is evident in a Maasai folktale from East Africa entitled, "The Greedy Hyena", where a hyena discovers a magical stone that produces unlimited meat. Instead of sharing this bounty, the hyena gorges itself until it becomes too fat to move, ultimately leading to its demise (Kipuri 19). This tale can be interpreted as a warning against overconsumption and the importance of sustainable resource use. This perhaps explains why folktales also convey depictions of consequences when man fails to sustainably relate with nature and its elements. This is evident in a Yoruba Folktale from Nigeria about Oshun, the river goddess (Emrys 1). In the story about this god, Oshun withholds her waters when disrespected, causing drought and hardship. This tale emphasizes the importance of respecting natural forces, maintaining a harmonious relationship with the environment, and ethically appropriating nature to meet the needs of man. It becomes evident that there is a significant tendency for African folktales to personify natural elements such as rivers, mountains, or weather phenomena, imbuing them with agency and consciousness. This personification fosters a sense of respect and reverence for nature towards the attainment of a stable man-nature relationship. This is further reinforced by the fact that African folktales tend to centre around sacred natural sites, promoting their protection and reverence. An instance is seen in tales of Kikuyu people of Kenya who have numerous stories about Mount Kenya, which they consider sacred (Waita 28). These tales often involve the mountain as a dwelling place of the divine, emphasizing its importance and the need to respect and protect it.

Further, folktales often serve as a means of medium of transmitting ecological knowledge. One of such is the how folktales serve as a means of highlighting the delicate balance of ecosystems and the interdependence of different species, including humans. This is captured in a Zulu tale titled "The Spirit in the Tree" (Frazer). In this tale, a motherless Zulu girl finds solace in a tree growing from her mother's grave. Her stepmother repeatedly destroys nature's gifts, but they keep reappearing. A hunter uses the dead tree for a bow, succeeds in hunting, and marries the girl. The tale illustrates nature's resilience and its vital role in human life. Among the issues expressed in this tale is its message on the ethical treatment of nature: The contrasting behaviours of the stepmother (destructive) and the hunter (respectful use) highlight different approaches to interacting with nature, with the latter being rewarded. The take also taches lessons of balance and reciprocity. The story implies a give-and-take relationship between humans and nature. When respected and used wisely, nature provides abundantly (as seen with the hunter's unprecedented success). Similarly, folktales also often encode practical ecological knowledge, including information about local flora and fauna, weather patterns, and sustainable farming or hunting practices. An example is found among the San people of Southern Africa, where their folktales about animals often include detailed information about their behaviour, habitats, and relationships with other species (Schmidt 20). These stories serve as educational tools, passing down generations of observational knowledge about the local ecosystem.

There is also the folktale titled "How Anansi Tricked God" which tells the story of how God challenges a boastful Anansi to fill a sack with an unknown "something." Anansi, aided by birds and overhearing conversations in heaven, learns God wants the sun and moon (Radin 19). With advice from a wise python, Anansi captures the celestial bodies, impressing God and earning the title of God's captain on earth. This story demonstrates how different elements of nature (birds, python, sun, moon) work together, highlighting ecological interdependence. In addition, the python in the story was described as the wisest among all creatures on earth which represents the inherent wisdom in nature, suggesting that humans can learn from the natural world. Further, Anansi's success relies on cooperation with various natural elements (birds, python), illustrating the potential for harmonious human-nature relationships. Also, Anansi's ability to navigate and manipulate natural elements leads to his elevated status, suggesting that understanding nature is a source of power and responsibility. Finally, Anansi's appointment as God's captain on earth could be interpreted as a call for responsible environmental stewardship. This folktale therefore highlights themes of interconnectedness, wisdom in nature, and the complex relationship between humans and their environment.

One key insight that the above exposition has offered is that there is clearly delineable relationship between man and nature. This is because while man is projected to be subservient on nature – as he gets his means of livelihood from nature, man is also portrayed as a subject to nature who is capable of exploiting and overexploiting nature. Further, nature is also portrayed as being capable of becoming a subject who can inflict pain and negative outcomes on man when man, presumably, over-exploits it. These indicate that the relationship between man and nature assume varied states leading to the complexity of man's relations with nature (Bennet & Reyers, 403). However, a problematic which this insight raises is the extent to which there can be a truly sustainable appropriation/consumption of nature's resources without descending into overexploitation. In addition, to what extent can the reflection of ecological concerns in these tales result in the formulation of a viable environmental ethic. Despite these unresolved issues, one thing is paramount, these tales contribute to the re-imagining of man's relations with the natural environment.

**Myths and Legends in Relation to Nature**

African myths and legends form a crucial part of the continent's oral literature, often serving as foundational narratives that explain the origins of the world, natural phenomena, and the relationship between humans and their environment (Okpewho 5). These stories, passed down through generations, offer profound insights into traditional African worldviews and ecological philosophies. This section will explore how myths and legends from various African cultures engage with nature and environmental concerns. A significant number of African creation myths emphasize the interconnectedness of all elements in nature and the importance of maintaining ecological balance. To exemplify, the Yoruba creation myth tells of Obatala, who was sent by the supreme god Olodumare to create the earth. Obatala used a chain to descend from the sky, spread sand on the waters below, and released a five-toed chicken to scatter the sand, forming land (Finnegan 198). This myth emphasizes the collaborative nature of creation, involving deities, animals, and elements, reflecting a worldview where all parts of nature are interdependent. In addition, the fact that elements of nature – sand, land, sky, waters – are deployed to drive the myths could be interpreted a narrative desire to call attention to nature. This is especially significant considering man's continuous distancing from nature.

Another key portrayal of nature in myths and legends is the spiritualization of elements of nature (Kanu 111). This is largely targeted at promoting respect for natural forces. This is also in addition to the positioning of these manifestations or forces of natures as markers of the historical heritage of a particular socio-cultural setting. Thus, many African mythologies feature deities closely associated with natural elements, emphasizing the sacred nature of the environment. In Yoruba mythology for instance, there is the *Oya* which is the *orisha* (deity) of wind, lightning, and violent storms. She (*Oya*) is also associated with the Niger River (Finnegan 476). The myths surrounding Oya not only explain natural phenomena but also promote respect for these powerful forces, encouraging humans to live in harmony with nature rather than trying to dominate it. Similarly, among the Batammaliba people of Togo and Benin, the python is considered sacred and associated with their founding ancestors (Radin 25). Myths about the python's role in their history have led to strict taboos against harming these snakes, effectively creating a conservation practice embedded in cultural beliefs. Similarly, the Ashanti creation myth tells of how heavenly and earthly humans were taught procreation by a Python sent by the Lord of Heavens. The Python, using river water, enabled conception. Descendants revere the Python as their Clan Spirit, considering it taboo to harm and burying dead pythons with respect. This myth establishes a direct link between nature (the Python) and divine forces (Lord of Heavens), elevating the status of natural elements to sacred levels. The Python is portrayed as a wise being that teaches humans essential knowledge, fostering respect for nature's wisdom. Further, humans depend on the Python and river water for procreation, highlighting the crucial role of nature in human existence. The practice of burying dead pythons with honour demonstrates a deep respect for nature, even beyond an animal's life and the myth implies that humans can benefit from nature (procreation) without causing harm, promoting a balanced and conservative approach to natural resources. This creation myth of the Ashanti people thus instils a deep respect for nature, particularly the Python and water sources, while also establishing guidelines for conservative and respectful interaction with these natural elements. It provides a cultural foundation for sustainable practices and environmental reverence.

Another significant example of how myths and legends spiritualize nature towards conserving the natural environment is found among the Beng people of Côte d'Ivoire who strongly believe in spirits called *Gba* that inhabit the forest (Gottlieb 323). These spirits must be appeased before any major undertaking in the forest, such as clearing land for farming. Thus, the forests become associated with *Gba*. Thus, references for *Gba* spirit is reference for forest, a natural space. This belief system has traditionally helped to regulate resource use and preserve biodiversity. In essence, these myths and legends therefore establish totemic relationships with specific animals or plants, Myths and legends further serve to reinforce the argument that man is a part of nature rather than being a distinct entity. Instances of these abound where humans transform into plants, animals, abiotic elements of nature, and other geographical features. In a legend from the Luo people of Kenya which tells the story of Lwanda Magere, a great warrior whose body was made of stone. Upon his death, he (Lwanda) transformed into a large rock formation (Finnegan). In another myth, the indigenous Efé people, inhabiting the Democratic Republic of Congo (DRC), maintain a cosmogonic belief system centred on a supreme deity known as Tore. According to the creation mythos, Tore, in collaboration with the moon fashioned the primordial man (Rabin). This divine act of anthropogenesis involved the meticulous moulding of clay to form the corporeal structure, which was subsequently enveloped in skin and Tore then poured blood into the creature, which was called Baatsi. This serves to reinforce that man is nature and nature is man thereby eliminating any form of bounded classifications that might be offered. These stories essentially reinforce the idea that humans are intrinsically part of the natural world.

These examples of myths and legends indicate that nature and its elements are largely the plot drivers of traditional African legends and myths. The broader significance of the engagement of the elements of nature in narrating the legends are manifest in how they subtly create a culture of natural resource conservation and sustainability among the groups from which these myths and legends emerge. Likewise, the portrayal that man originates from nature is a technique to advance for harmonious correlation between man and nature. However, it is challenging to conceive if there can be a harmonious relationship between man and nature. This is evident in the instances of man's attempt to conquer time, space, and the natural world. Nature and its of forces, on the other hand, are able to expose man to negative outcomes as evident in occurrences such as hurricane, earthquake, landslides, wildfires, blizzards, tornadoes, tsunamis, and cyclones among others. While these examples point to a tensed relation between man and nature, it indicates that man and nature can generate positive and negative outcomes in more similar than diverse ways. Thus, the legends and myths serve to showcase the unification of man and nature yet the complex relation where each can expose the other to negative outcomes in infinite ways.

**Proverbs and the Reflection of Ecological Wisdom**

Proverbs and sayings are concise, memorable expressions that encapsulate cultural wisdom, often passed down through generations. In African oral traditions, these short forms of oral literature frequently contain profound insights about the natural world and humanity's relationship with it. For instance, Ayinuola & Edwin argue that the Yoruba culture of Nigeria has a particularly rich tradition of eco-proverbs that draw on natural elements like animals, plants, and landscapes (29). In line with this, studying eco-proverbs through an eco-critical lens is beneficial as it promotes environmental sustainability rather than exploitation (Ayinuola & Edwin).

It will suffice to begin the exploration of proverbs using selected proverbs from the Yoruba culture. “Omi l'enia” is a proverb which literarily translates as “Man is river” (Ayinuola & Edwin, 36). Three key ecological implications can be drawn from this proverb conveyed in three words. First, the use of the word “river” is an attempt to call attention to nature, which is a key tenet in ecocritical discourse. Second, it underscores the dissolution of nature-culture binaries, positing instead a continuum in which human and natural elements are inextricably intertwined. This implies that the ontological boundaries between humanity and nature are increasingly blurred. Third, it expresses the need for environmental ethic. By recognising that man is an ontological part of nature, he is expected to engage in acts that will enhance the health of the natural world. Any form of harm to the "river" (nature) is equally a harm to man.

A proverb from the Maasai people of Kenya also carries sustained ecocritical tropes. The proverb is thus: *Mikedie namuka soito* (Translated as "Do not climb rocks with the shoes on") (Kipuri 225). A cursory examination of the proverbs reveals that it seeks to position nature in the consciousness of the reader as conveyed in the word "rocks". A critical examination of the proverb indicates that it is a call for return of man to nature. By stating that the reader should not approach the rocks with "shoes on", the proverb seeks to address man's continuous detachment from nature due to the increased materialism that permeates the society where man seeks to appropriate nature for capitalist gains. Another proverb from the Maasai culture embodies deeper ecocritical concerns: *Memira mbenek eshal* (translated as "Leaves have not been beaten as long as they are still green) (Kipuri 198). This proverb offers interesting ecocritical interpretations. First, the proverb metaphorically represents the resilience and endurance of living ecosystems. As long as leaves are green, they maintain their vitality and ability to withstand external pressures, symbolizing nature's capacity to persist despite human interventions. Second, the proverb can be seen as advocating for sustainable practices. It suggests that as long as natural systems are healthy (green), they have not been irreparably damaged, emphasizing the importance of preserving ecosystems before they reach a point of no return. Third, the proverb offers a though on the anthropocentric vs. ecocentric view which permeates ecocritical discourse. It challenges anthropocentric attitudes by implying that nature has its own agency and strength. It suggests that human attempts to "beat" or dominate nature are futile as long as nature remains vital and alive. Contrarily however, the proverb hints at the gradual nature of environmental degradation. It implies that the effects of human actions on the environment may not be immediately visible but can accumulate over time, stressing the need for proactive environmental stewardship. Overall, the proverb can be read as a message of hope and a call to action in environmental contexts. It suggests that provided ecosystems are still functioning, there's opportunity for conservation and restoration efforts.

Further, *Ekueniyie olchata otii oltiren olotii enkima* (translated as "The firewood on the hearth laughs at the one in the fire") is a proverb from the Maasai people (Kipuri 201). It centres on the issue of resource exploitation. This proverb can be seen as a metaphor for the exploitation of natural resources. The firewood in the fire represents resources currently being consumed, while the one on the hearth symbolizes resources not yet utilized. This highlights the often-short-sighted nature of resource consumption. The proverb further underscores the interconnectedness of all-natural elements. It suggests that what happens to one part of nature (the burning firewood) could eventually happen to another (the firewood on the hearth), emphasizing the shared fate of all-natural resources. The anthropocentric trope in the proverb is evident in the personification of the firewood "laughing" at its burning counterpart and this could represent human tendency to view nature as separate from themselves, failing to recognize their shared vulnerability and interconnectedness with the environment. Further, the "laughing firewood" represents a short-term perspective that fails to consider long-term environmental consequences. This aligns with ecocritical concerns about the need for long-term, sustainable thinking in man's approach to the environment. Consequently, this proverb serves as a warning against environmental complacency.

In corroboration of the above, an Akan proverb in Ghana states, "When the last tree dies, the last man dies" (Morgan 122). This powerful statement recognizes the fundamental dependence of human life on the natural world and the dire consequences of environmental destruction. This proverb epitomizes the ecocritical view that humans are not separate from nature but inextricably linked to it. It emphasizes the fundamental dependence of human existence on the natural world, particularly on trees as a symbol of the broader ecosystem. The proverb challenges anthropocentric worldviews – which views man as the loci of existence – by suggesting that human survival is contingent on the survival of other species (trees in this case). This aligns with ecocriticism's aim to de-centre human-centric perspectives in favour of more eco-centric ones. The proverb also invokes a sense of environmental apocalypticism, a common theme in ecocritical studies (Garrard 27). It presents a stark, cautionary tale about the potential consequences of environmental degradation taken to its extreme.

On the whole, African proverbs and sayings offer a wealth of ecological wisdom condensed into memorable, often poetic forms. These concise expressions reflect deep understanding of natural processes, the interconnectedness of ecosystems, and the complex relationship between humans and their environment. They challenge simplistic views of nature as a resource to be exploited, instead presenting a nuanced worldview where humans are part of a delicate ecological balance. The ecocritical elements in these proverbs – from advocating sustainable resource use to warning about the consequences of environmental disrespect – provide valuable perspectives on environmental ethics and sustainable living. They offer insights that resonate with modern ecological concepts while being deeply rooted in traditional African cultures. Moreover, these proverbs serve as vessels for traditional ecological knowledge, encoding practical information about local ecosystems, weather patterns, and sustainable practices. As man faces global environmental challenges, these age-old sayings are reminders of the deep roots of ecological thinking in human culture and offer wisdom that may prove valuable in addressing current crises.

## Conclusion

This essay has demonstrated how various forms of oral literature incorporate ecocritical themes. Folktales often serve as vehicles for transmitting ecological knowledge and ethical guidelines for human-nature interactions, using animal characters and natural settings to convey complex environmental concepts. Myths and legends frequently explain natural phenomena and establish the spiritual significance of landscapes, fostering a sense of reverence and responsibility towards the environment. On their part, Proverbs and sayings distil ecological wisdom into memorable, concise forms, offering practical guidance for sustainable living and resource management. These diverse forms of oral literature collectively present a worldview where humans are not separate from nature, but integral parts of a complex, interconnected ecosystem. They emphasize principles of balance, respect, and reciprocity in human-nature relationships, offering alternative models to the exploitative attitudes often associated with environmental degradation.

However, the preservation and application of this knowledge face significant challenges. The erosion of traditional cultures, loss of indigenous languages, and rapid environmental changes threaten the continuity of these oral traditions. There are also complex ethical considerations surrounding the documentation and use of traditional ecological knowledge in contemporary contexts. Despite these challenges, the growing recognition of the value of African oral ecological knowledge is encouraging. It represents a crucial step towards a more inclusive and historically grounded understanding of environmental thought. By acknowledging and learning from these rich traditions, it is not only possible to preserve invaluable cultural heritage but also gain diverse perspectives that can inform and enhance our approach to global environmental challenges. Overall, African oral arts are a rich site of environmental wisdom, ecological knowledge, and ethical guidelines for human-nature interactions. They demonstrate that environmental concerns have long been integral to African cultures, challenging the notion that ecological awareness is a purely modern or Western phenomenon. The ecocritical elements in these folktales – from the personification of nature to cautionary tales about resource exploitation – provide valuable perspectives on sustainable living and environmental ethics. Moreover, they offer alternative models for conceptualizing the relationship between humans and their environment, emphasizing interconnectedness, respect, and balance. Similarly, oral art forms are clear reminders of the deep roots of ecological thinking in human culture, especially Africa culture.

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# STRUCTURAL CHOICES AS A TOOL FOR EFFECTIVE COMMUNICATION IN SELECTED PEACE AND CONFLICT RESOLUTION TEXTS OF KOFI ANNAN

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***Abstract***

*Systemic choices is an integral part of linguistic studies. Choices are made at the paradigmatic and syntagmatic dimensions. The choices made determines whether the structures of the text will be simple or complex. This study therefore examines the combinatorial choices made at group level, that is, what element are combined at group levels, to form the structure of that group. Each group has compulsory and optional elements. When a group is made up of only the compulsory elements and leave out the optional ones, that group is said to be simple and can be easily intelligible to whoever reads or listens to the material when it is in a speech form. The data for the study was analysed using Systemic Functional Linguistic theoretical framework. A total of ten (10) paragraphs from the speeches of Kofi Annan were selected for this study. The findings showed that there are a total of thirty (30) group structural units in the data, out of which eighteen (18) groups functioned in both subject and complement slots. Out of the eighteen (18), only seven (7) have complex structures. The verbal groups have six (6) verbal group structures in the analysis, out of which only one (1) is a complex structure. The adjuncts seven (7) groups in the analysis and they are all prepositional headed adjuncts with two complex structures. This finding, therefore showed that the speeches are replete with more simple structures than complex ones.*

## Introduction

In language study, one is exposed to a number of structural choices. The prominent choices for language users are the paradigmatic and syntagmatic choices. Halliday and Matthiessen (2004) define both choices, thus, Paradigmatic ordering in language is any set of alternatives, together with its condition of entry. This constitutes a system in the technical sense. For instance, 'all clauses are either positive or negative', or more fully 'all clauses select in the system of plarity whose terms are positive and negative. Syntagmatic choices, on the other hand, therefore, it is the compositional aspect of language, referred to in linguistic terminology as 'constituency'. The ordering principle, as defined in systemic theory, is that of rank: compositional layers, organised by the relationship of 'is a part of'. The type of choice made, this time, in the combination of elements of the group structures, determine whether one uses a complex structure or not. The SPCA structure of the clause is the area these choices are made. The nominal group structures of a clause, that is, the subject and complement is exposed to the three choices; using only the headword only or headword combined with either modifier and qualifier. The verbal group is exposed to the choice of only the lexical verb or lexical verb combined with auxiliaries and negation. The adjunct chooses either a prepositional headed adjunct or adverbial headed adjunct with the different elements that make up the group.

The combinations of these elements in the different structures of the clause could determine whether the message or the intent of the writer could be easily accessible. It is therefore worthy of note that peace and security is a sensitive aspect of human existence. Any speech delivered with the intent of ensuring peaceful and common existence must be devoid of complexities. It must be stated clearly and must ensure intelligibility. It must be stated in simple terms and structures. This study therefore is intended to peruse through some of the speeches of Kofi Annan, to see whether the structural choices he made are simple or complex, in order to form a basis through which peace and conflict resolution items must be structured. This rightly points to the importance of Peace Linguistics (PL). Peace Linguistics is novel area of language study; a new way of studying conflict resolutions. This is due to the need to curb linguistic violence which is on the rise on a large scale. Conflict manifests itself as a difference between two or more persons or groups characterised by tension, disagreement, emotion, or polarisation where bonding is broken or lacking.

**Literature Review**

**The Phrase and its Structure as the Constituent of the Clause**

Halliday and Matthiessen (2004) opine that a text is the product of ongoing selection in a very large network of systems — a system network. Systemic theory gets its name from the fact that the grammar of a language is represented in the form of system networks, not as an inventory of structures. Of course, structure is an essential part of the description; but it is interpreted as the outward form taken by systemic choices, not as the defining characteristic of language. A language is a resource for making meaning, and meaning resides in systemic patterns of choice.

Morley (2000) states that syntactic structure can be approached in two ways: formal and functional. Formal syntax deals with how words can combine to create larger units of form and eventually sentences. One can perhaps visualise this as an orientation towards unit building, with a progression upwards from the word to the sentence. This bottom-upwards perspective reflects the question 'What increasingly larger, formal units can we build up with words?'. Functional syntax, on the other hand, handles the way in which sentences are structured in terms of smaller functional elements and eventually words.

Going by the structural description of the clause, a clause is structurally described as having four primary elements of structure. All English clauses are realised by these four primary elements, which are; subject, predicator, complement, and adjunct (SPCA). It therefore means that the structure of the clause is made up of one or more groups. That means a clause might have full structure which is the SPCA or might be realised by only some of the structural elements. We need to also note that of all the four elements of structure, only the 'P' is compulsory. All the other elements are optional. The 'P' must be found or realised in every normal English clause (Ojo: 1999). So far, we understand clearly that the clause is generated by the SPCA structural formular. It is used to generate all naturally occurring clauses. The SPCA formular is the composite formular from which several types of clauses are generated.

Ajiduku (2013) opines that phrases contain more than one word and yet operate as one unit with one meaning in a grammatical unit. He adds that a phrase forms part of a sentence but when it is removed from the sentence, it does not make a complete sense. The reason is because a phrase contains neither subject nor finite verb.

Ajiduku identifies noun phrases, verb phrases, adjectival phrases, prepositional phrases as the type of phrases found in sentences. He states that noun phrases behave like nouns and they can either be subject or object of the verb as the case may be. Another phrase that is made reference to by Ajiduku (2013) is verb phrases. According to Adijuku (2013) verb phrases contain the verb as the head plus one or two or more modifiers. Furthermore, he states that prepositional phrase comprises of preposition at the beginning followed by noun.

Ajiduku (2013) also states that adjective phrase describe nouns in sentences. However, he cautions against confusing adjective phrase with single word adjectives. According to him, the difference between them is that the adjective phrases just like other types of phrases contain more than one word.

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Umoh (2015) points out the prominency of head in any phrase. He worked on the head parameter in English and Edo. He posits that noun as the head of the NP may be pre-modified by determiners, numerals, and adjectives. He explains that endocentricity is a situation in which satellites (pre or post-modifiers) converge on the head. He shows that the head parameter is not only restricted to the noun phrase only but any other kind of phrase such as Determiner phrase (DI), Prepositional phrase (PP), Verbal phrase (VP), Inflectional phrase, and many others.

**Structural Choices in the Nominal Groups**

The nominal group functions in the subject and complement slots of the clause. All world languages have nominal group featuring in their clause structures. in making the choice of the structure of the NG, it is needful to note that there are three elements that constitute the structure of the NG. They are; the headword, the modifier and the qualifier. The headword is the only compulsory element in the structure of the NG. all other elements such as the modifier and qualifier are optional elements. We have The h-type structure which shows the headword is the only element in this structure, the mh-type, which is the modifier and headword, the hq-type which consists of the headword and the qualifier and finally, the mhq-type consisting of the modifier, the headword and the qualifier**.** Though, because of the possibility of multiplicity of the modifier system, other structures such as mmh, mmmh exist. This is as a result of the multiplicity of the modifier elements. The linguistic choice here is between the three elements that make up the group

**Structural Choices in the Verbal Groups**

The most complex area of the English grammar is the verbal group. This is brought about by the fact that systemic choices are made within the verbal group. According to Quirk (2000), the verbal group is viewed as group of words with a verb as the head, whereas the other words in the group function as modifier of the verb head. Halliday (1996), on the other hand, opines that the verbal group is the expansion of a verb and it is the constituent that functions as Finite plus the predicator. According to him, the Finite comes first in the verbal group functions as the modifier while the predicator functions as the head which is also regarded as lexical element whereas all other modifying elements in the structure are referred to as auxiliary, including negations. Thus, we have the structure of the verbal group as auxiliary (a), negation (n) and lexical 'l'. the lexical is not bracketed because it is the only compulsory element in the structure, all other elements are optional. In this case, therefore, systemic choices are made in the composition of the element that make up the predicator structure. the choice is made between the lexical elements, the auxiliary elements and the negative element.

**Structural Choices in the Adjuncts**

Any group that performs the function of an adverb in a clause is referred to as an adverbial group, Ojo (2011). He further states that the headwords here are either an adverb or a preposition. That means, there are adverb-headed adverbial group or preposition-headed adverbial group. When an adverb heads an adverbial group, the structure is tempered (t), apex 'a' and limiter (l). On the other hand, whenever an adverbial group is headed by a preposition, the structure is prepend 'p' and completive(c)

**Peace Linguistics and Peace and Conflict Studies (PCS)**
A new branch of linguistics was birthed into existence through an entry written by Gomes (2005), called Linguística Humana (Human Linguistics), in it he asked a two-fold question: How can language users and methods-materials for language education be further humanized linguistically? He provided a brief answer to the question and was published 10 years later in an article for a Greek publication in Applied Linguistics in which a case for Peace linguistics was made (Gomes 1987). Another important step toward the birth of Peace Linguistics took place with the publication of an entry by Crystal (1999) in which he postulates that the way of doing Linguistics is "an approach which emerged in the 1990s among many linguists and language teachers in which linguistic principles, methods, findings and applications were seen as a means of promoting peace and human rights at a global level. The emphasis is placed on the value of linguistic diversity and multilingualism.

More recently, Gomes defined Peace Linguistics in terms of what peace linguists are expected to do, by giving priority to humanizing the nature of language use and also being aware of the other side of communicative reality. Going by both humanising and dehumanising of life can be seen by the recent launch of The Journal of Language Aggression and Conflict. This editorial initiative provides researchers with a source which can be said to be complementary to Peace and Conflict: Journal of Peace Psychology (published by the American Psychological Association). In proposing an Applied Peace Linguistics, Gomes de Matos, 2012) states there is a dual challenge involved: on the one hand, appliers are challenged to identify states of agreement, harmony, communicative dignity, communicative peace and also identify states of disagreement and disharmony such as communicative conflict, discord, contention, and dissension.

Peace linguists and appliers of Peace Linguistics can benefit from Principles and Practices for Conflict Resolution such as presented by peace psychologist, Coleman (2012). He states some principles and procedures which if correctly applied, can go a long way toward shepherding most conflicts in a positive and satisfying direction, and enhancing the general health and well-being of individuals and communities. There is a general need to explore studies in Peace and Conflict Resolution (PCR). This is because peaceful co-existence among different groups in threatened globally. What then is peace? There are varied definitions of peace. Igbuzor (2011) defines peace "as the absence of war, fear, conflict, anxiety, suffering and violence and about peaceful coexistence". The same definition is captured in Francis (2006), although their definitions captured elements of peace, they were heavily criticised for lacking the adequate concept of peace. To bridge the gap created by their definitions, Ibeanu (2012) defines peace as a "process involving activities that are directly or indirectly linked to increasing development and reducing conflict, both within specific societies and in the wider international community". In this regard, peace therefore connotes the absence of violence or war, the presence of justice, equality and development; the existence of rule of law, respect for human life and dignity, and tolerance among and between people; maintenance of a balanced ecosphere and more importantly, having inner peace and wholeness. Galtung (1996), in his postulation provides three types of violence inherent in human society, thus; direct, structural and cultural.

The study for peace and conflict resolution or studies is very important among scholars. This led to it been widely researched and taught in a large and growing number of institutions and locations. We must accept the fact that it has recorded many successes and yet there are still many challenges. That informed the reason why even in Nigeria, PCR is taught in many Nigerian Universities, Colleges of Education, Polytechnics and Monotechnic among several other higher institutions of learning. Of course, it is very necessary because the challenges are so enormous.

**Theoretical Frameworks**

The evolution of Systemic Functional Grammar is linked to M.A.K. Halliday, a former student of J.R Firth. This was attempted by his followers which Halliday was a leading figure. At the beginning the model started as scale and category grammar. Language according to this grammar, is a whole system of choices existing in complex structural relations. One basic assumption of the theory which is relevant to the present study is the concept of constituency. Halliday and Matthienssen (2004) view constituency as the compositional structure of language. That means any larger unit in a language comprises smaller units or units lower in rank. They list all the compositions of the structure of language. Take, for instance, the first structure of language according to them is phonology. Phonologically, a line is made up of feet, a foot is made up of syllables, a syllable is made up of a sequence of phonemes. They are related by rank scale. The second structure is the graphology. Graphologically, language is made up of sentences, sentences are made up of sub-sentences, sub-sentences are made up of words and words of letters. Lexicogrammar consists of clause-complexes, clause-complexes are made up of clauses, clauses of groups and groups are made up of words and words of morphemes. Lexicogrammar relates directly to grammar, graphology to the writing systems.

It is obvious that Halliday and Matthiessen (2004) prove that language study is an analysable structure. From the standpoint of constituency therefore, language is a resource where sentences are realised and can be analysed into their constituent structures, and ranked as the highest unit followed by clause, group, word and morpheme. They opine that the systemic theory is of comprehensiveness; that is, it is concerned with language in its entirety, so that whatever is said about one aspect is to be understood from the standpoint of the total picture. This shows that there is relatedness and dependency of the structures. That is to say, all aspects of language contribute to the functions of one another.

Constituency, according to them, belongs to the syntagmatic ordering of structure whereas system belongs to the paradigmatic ordering in language. Paradigmatic axis is the axis of choice that has to do with a set of alternatives together with the condition of entry. But the syntagmatic axis is the axis of choice. How structures are interconnected in chain.

Halliday, as the proponent of this school of thought, proposed four categories of grammatic description; unit, structure, class and system. All these have scales relating them. That means the units have structures and the structures are made up of words and the words belong to different classes, and are also exposed to systemic choices at paradigmatic axis. The scales perform different functions. The scale of rank accounts for the arrangement of the grammatical units according to size, the scale of exponence is what brings the categories of the theories together; relating them to each other and the scale of delicacy is what exposes the structure to the degree of detail or depth. It is obvious that the above notion by Halliday and Matthiessen bear a direct relevance to this study since it is dealing the different structural systems that exist in clauses.

**Methodology**

The instruments for the collection of data are some downloaded Kofi Annan speeches during negotiations and dialogues while he headed the United Nations. They were downloaded by the researcher in order to extract some of the portions for analysis. The research therefore was subjected to both qualitative and quantitative analyses through Systemic Functional Linguistics theoretical framework's constituency model. Sentences in Systemic Functional Grammar are in network of relationships known technically as clause complexes.

**Data Presentation and Analysis**

The analysis starts off from clauses and clause structural units of SPCA. Because the research is about identifying the different units that carry peace and conflict ideologies of Kofi Annan, each head of the groups are identified with the words that modify them and those that come as extra information on the headwords. This is done in order to interpret them ideologically, tilting it towards the beliefs of Kofi Annan in relation to conflict resolution.

**Analysis of Group Structural Choices at the Subjects and Complements**

**h h**

**S-/Ignorance and prejudice/**

The above is a double-headed subject, which are words with negative connotation. They are simple nominal group with just the headwords. They are without modification nor any added information.

**m h q**

**C-/the handmaidens of propaganda/**

The nominal group is a complement. This nominal group has a complete structure of*mhq*. The headword is the 'handmaiden' which is being modified by a definite article 'the'. There is an added information to the head by the use of a qualifier 'of propaganda'.

**m h**

**S-/our mission/**

The nominal group above is a subject. The structure of the above nominal group is not complete, with just *mh*. It has a modifier and a headword as elements of group structure. The headword is a strong word relevant to peace-keeping; mission. It is being premodified by 'our'.

**h q**
**C-/ignorance with knowledge/**
The above nominal group is a complement. It has only two element of group structure, *hq*, the headword and the qualifier.

**h q**
**C-/bigotry with tolerance/**
This is a complement with similar *hq*structure as the one above. The structure has a headword, bigotry, without anything modifying it and a qualifier 'with tolerance' occurring after it.

**h q**
**C-/isolation with the outstretched hand/**
This is another example of complement with *hq* structure. It is worthy of note that in clause structure, there can be multiple complements. The group is headed by the noun 'isolation'. Of course, isolation is a negative tool that can lead to conflict situation. The qualifier placed after the headword is 'with the outstretched hand, meaning a hand of fellowship. The qualifier is an example of a rank-shifted element, which on its own forms another nominal group occurring within a prepositional element, 'with'. The structure of that rank-shifted NMG is *mmh*' the outstretched hand.'

**h**
**S-/racism/**
The subject above is a nominal group without any modification. It is a head only group.

**h**
**S-/Literacy/**
This is a head only nominal group functioning as the subject of one of the clauses in the paragraph. The headword is literacy with no modifier nor qualifier. The structure therefore is *h* only.

**m h**
**C-/a bridge/**
This group is a complement. The structure is *mh* with an indefinite article 'a' modifying the noun bridge.

**m h q**
**C-/a bulwark against poverty/**
The complement above is a nominal group with full structure of *mhq*. The headword if the group is bulwark. It is modified by an indefinite article 'a'. the qualifier in the structure is 'against poverty.' Bulwark.

**m m q**
**C-/a building block of development/**
The complement above is functioning as a nominal group with two modifiers and a qualifier. The structure is *mmhq*. Because of the possibility of multiplicity of elements in the modifier system, there are about two modifiers are functioning in the group, hence, the structure *mmhq*. The headword of the group is 'block' being modified by 'a' and 'building.' The qualifier which is 'development' is a noun occurring under a prepositional element 'with.'

**m m h**
**C-/an essential complement/**
The group above is a complement with *mmh* nominal group structure type. The headword is 'complement, whereas, it is been modified by 'an' and 'essential'.

**h**
**S-Literacy**
This is a head only nominal group functioning as the subject of one of the clauses in the paragraph. The headword is literacy with no modifier nor qualifier. The structure therefore is *h* only.

**m h q**
**C-a platform for democratization**
The group above is a complement with *mhq* nominal group structure type. The headword of the group is 'platform, whereas the indefinite article 'a' is a modifier and 'for democratization serves as the qualifier elements.

**m h q**
**C-a vehicle for the promotion of cultural and national identity**
The group above is a complement with *mhq* nominal group structure. The headword of the group is 'vehicle', the modifier is the indefinite article 'a' and the qualifier is initiated by a prepositional element 'for', followed by 'the promotion of cultural and national identity'.

**h**
**S-Literacy**
This is the third time 'literacy' is repeated in just one paragraph. It is a head only nominal group functioning as the subject of one of the clauses in the paragraph. The structure therefore is *h* only.

**m m m h**
**C-a basic human right**
The group above is a complement with *mmmh* nominal group structure. The headword 'right' is been modified by three modifiers 'a basic human'.

**Analysis of Group Structural Choices at the Verbal Groups**

**P-/is/**

This is a single predicator system functioning as a lexical verb. The structure is *lex*.

**P-is**

This is a single predicator system functioning as a lexical verb. The structure is *lex*.

**(aux +aux+aux+aux+lex**

**P-/can, will and must be defeated/**

This group is a predicator, the carrier of verbal elements. It has only one lexical verb and about four auxiliary verbs.

**P-/is/**

This is a single predicator system functioning as a lexical verb. The structure is *lex*.

**lex**

**P-is**

This is a single predicator system functioning as a lexical verb. The structure is *lex*.

**P-is**

This is a single predicator system functioning as a lexical verb. The structure is *lex*.

**Analysis of Group Structural Choices at the Adjunct**

**p c**

**A-/to confront/**

The element of clause structure above an adjunct. The 'to' is the prepend and also the head of the group, followed by 'confront' which functions as the completive.

**p c**

**A-/of generosity/**

The above group is a prepositional-headed adjunct. Any prepositional headed adjunct is having prepend and completive as elements of group structure. The head of the group is the prepend while the element occurring under it is the completive. The completive, though, is occurring under the prepend, but it is the carrier of the message, generosity.

**p q**

**A-/from misery to hope/**

Here is a situation where two prepositional headed adjuncts are placed side by side. One adjunct is occurring under another adjunct. One is positive, the other is negative. The structures of both adjuncts are *pc*.

**p c**

**A-to investment**

The group above is an adjunct. The head of the group is 'to' and its completive is 'investment'.

**p c c c c**
**A-in roads, dams, clinics, and factories**
The group above is an adjunct. This is a case of multiple nouns functioning under a prepositional element. The prepend which is the head of the group is a prepositional element, followed by about four (4) nouns functioning as the completive.

**p c**
**A-for girls and women**
The group above is an adjunct, headed by a prepositional element serving as the prepend and double headed nouns as completive.

**A-along with education in general**
The group above is an adjunct. The head of the group is 'along' which serves as the prepend. The completive elements are 'with education in general'.

**Frequency of Group Structural types**

| **Group Type** | Frequency |
|---|---|
| **Subject** | 6 |
| **Predicator** | 6 |
| **Complement** | 11 |
| **Adjunct** | 7 |

**Summary of the Analysis**
Analysis of Group Structural Choices at the subject and complement Groups
h&h, mhq, mh, hq, hq, hq, h, h, mh, mhq, mmhq, mmh, h, mhq, mhq, h, mmmh
Analysis of Group Structural Choices at the Verbal Groups
Lex, lex, aux+aux+aux+aux+lex, lex, lex, lex
Analysis of Group Structural Choices at the Adjunct
pc, pc, p&p, pc, pcccc, pc, pcc

**Findings from the data**
From the summary above, it is observed that there are eighteen (18) group structural element in both subjects and complements, out of which only seven (7) are complex structures. They are complex because of the multiplicity of the modifier elements and also because there more than two elements in the structure. the remaining twelve are simple group structures. The next is the verbal group structures. From the summary, there are six (6) verbal group structures in the analysis, out of which only one (1) is a complex structure. It is complex because of the multiplicity of the auxiliary element. It has about four auxiliaries and one (lexical verb) functioning in it. The adjuncts perform the function of the adverbial groups. the headwords are headed either by an adverb or a preposition. That means, there are adverb-headed adverbial group or preposition-headed adverbial group. When an adverb heads an adverbial group, the structure is temperer (t), apex 'a' and limiter (l). On the other hand, whenever an adverbial group is headed by a preposition, the structure is prepend 'p' and completive (c). From the

summary, therefore, it was found out that there are seven (7) adjuncts in the analysis and they are all prepositional headed adjuncts. Out of the seven (7), only two are complex structures because of the multiplicity of the completive element. The rest are simple structures.

The findings in this study showed that there thirty (30) group structures used in the analysis. Out of the thirty group structures found in the analysis, only ten (10) are complex structures. The remaining twenty (20) are simple group structures. It therefore means, if possible, in peace and conflict narratives, all the group structures should be devoid of complexities. The predicator element is the unit that has potency and power of action. It must be stated in clarity of language for the message to be driven home. The subject and complement in any clause structures name the initiator and recipient of the action in the clauset. The adjunct is the last element in the clause structure provides additional information in the clause even though it is an optional member of the clause structure. they must be stated in clear terms, devoid of any complexities

**Conclusion**

This study is on Peace Linguistics which explored issues on peace and conflict resolutions through the eyes of Systemic Functional Linguistics. From the foregoing, it is clear that peace and conflict narratives by Kofi Annan is a viable tool that should serve as a microcosm for global peace and conflict resolution study. This means, a new approach for peace and conflict study should be evolved and patterned after the style of Kofi Annan. The evolution for peace and conflict study should encapsulate a linguistic study where structures of prominent global conflict resolution figures should be studied, to look at how they make choices in the structure of the clauses in their speeches. It therefore means all effort must be made to avoid using complex structures in order to have quality intelligibility during speech delivery.

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# UNLOCKING NIGERIA'S ECONOMIC GROWTH POTENTIAL: THE ROLE OF FINANCIAL DEVELOPMENT AND INVESTMENT

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***Abstract***

*This study investigates the relationship between financial development, investment, and economic growth in Nigeria from 1981 to 2021. Using broad money supply and bank credit to the private sector as proxies for financial development, the research employs the Autoregressive Distributed Lag (ARDL) model to analyse their impact on Nigeria's real GDP in the short and long run. The Augmented Dickey-Fuller (ADF) test is utilised to assess the stationarity of the data. The findings reveal that broad money supply significantly contributes to short-term economic growth, while bank credit has a positive, albeit less robust, effect in the long term. Additionally, investment positively influences economic growth, but inefficiencies in the domestic investment framework limit its long-term potential. The study concludes that financial development and investment are vital for Nigeria's growth but recommends ongoing reforms in the financial sector and improved management of investments. These measures will help sustain long-term economic growth and enhance the effectiveness of financial policies.*

***Keywords**: Nigeria's Economic Growth, Potential, Role, Financial Development, Investment*

## Introduction

As Africa's largest economy, Nigeria has significant potential for sustained economic growth. However, despite its rich natural resources and strategic geographical position, the country faces structural challenges that inhibit its economic development (Adeniyi et al., 2015). Financial development and investment are critical drivers of economic growth, enhancing resource allocation efficiency and fostering a stable economic environment. Iamsiraroj and Ulubaşoğlu (2015) highlight the importance of foreign direct Investment (FDI) as a vehicle for growth, asserting that the positive association between FDI and economic growth holds across various regions, including developing economies. Furthermore, Osuji (2015) emphasises that a well-developed financial system can channel resources to productive sectors and promote savings, thus supporting investments that stimulate economic expansion.

Domestic and foreign investment is essential for enhancing Nigeria's productive capacity. Bakari (2018) investigates the relationship between domestic investment and economic growth in Algeria, indicating that while domestic investment can have short-term positive effects on growth, poor management can lead to long-term challenges. This scenario is similarly applicable to Nigeria. The presence of obstacles to investment, such as inadequate financial intermediation and weak institutional frameworks, hampers Nigeria's ability to attract and retain significant levels of Investment (Ogunjinmi, 2022). De Jongh and Mncayi (2018) noted that business confidence and investment are interconnected and essential for economic growth, underscoring the importance of creating an enabling environment that encourages Investment in Nigeria.

The relationship between financial development and investment is paramount for unlocking Nigeria's economic growth potential. Iamsiraroj (2016) explores the nexus between FDI and economic growth, suggesting a bi-directional relationship that underscores the mutual benefits of these two variables. This study indicates that enhancing financial development, which includes improving financial infrastructure and access to credit, can increase both domestic and foreign investments, thereby stimulating economic growth (Adeniyi et al., 2015; Okafor, Onwumere & Chijindu, 2016; Ndako, 2017). Pegkas (2015) reinforces this notion by revealing a positive long-run relationship between FDI and economic growth in Eurozone countries, implying that Nigeria could experience similar benefits through strategic financial reforms and investment policies.

This sets the stage for an in-depth exploration of how financial development and investment can be strategically leveraged to unlock Nigeria's economic growth potential for the period 1981-2021. By examining the interplay between financial systems and investment dynamics, this study highlights the necessary policy interventions and reforms that could help Nigeria overcome its structural challenges and achieve long-term, inclusive economic growth. Recognising the synergy between financial development and investment will be crucial for Nigeria to realise its full economic potential and improve the living standards of its population.

**Literature Review**

The relationship between financial development and economic growth has been widely explored across different countries and economic contexts. Samargandi et al. (2015) examine middle-income countries and reveal a non-monotonic, inverted U-shaped relationship, where financial development enhances growth up to a point before becoming detrimental. This suggests that excessive financial development may lead to inefficiencies, hindering economic progress. Durusu-Ciftci et al. (2017), through their analysis of 40 countries, support this finding by showing that credit markets and stock markets are long-term determinants of GDP per capita, with credit markets playing a more significant role. Caporale et al. (2014) also emphasise that efficient banking sectors accelerate growth in new European Union members, but underdeveloped stock and credit markets limit their overall contribution.

Financial development and economic growth dynamics reveal complementary effects in emerging markets like BRICS. Guru and Yadav (2019) analyse Brazil, Russia, India, China, and South Africa, finding that banking sector indicators such as credit-to-deposit ratios and stock market metrics like the value of shares traded are positively correlated with economic growth. This suggests that both financial intermediaries and stock markets play vital roles in driving growth in emerging economies. Similarly, Eren et al. (2019) focus on India and find a positive and significant relationship between financial development and renewable energy consumption driven by economic growth. Shahbaz et al. (2017) further show, using a nonlinear analysis, that negative shocks to financial development and energy consumption can asymmetrically impact growth in India, underscoring the complexities in this relationship.

Fetai (2018) investigates European countries, including Russia and Turkey, in transition economies and shows that financial development leads to higher real GDP per capita growth. This supports the finance-led growth hypothesis, where institutional improvements in the financial sector contribute to economic progress. Valickova et al. (2015) conducted a meta-analysis of 67 studies. They found a generally positive impact of financial development on growth, though the effects vary by region, with stock markets having a stronger effect than other financial intermediaries. Additionally, their analysis indicates that the positive impact of financial development has weakened since the 1980s, especially in less developed countries, reflecting the need for continuous financial reforms to sustain growth.

Empirical studies on the relationship between investment and economic growth reveal mixed outcomes, with foreign direct Investment (FDI) generally shown to impact economic growth, especially in developing economies, positively. Iamsiraroj and Ulubaşoğlu (2015) find that FDI fosters growth globally, with absorptive capacities like trade openness and financial development enhancing its effect. Similarly, Pegkas (2015) demonstrates a long-term positive relationship between FDI and growth in Eurozone countries, while Iamsiraroj (2016) highlights a bidirectional link between FDI and growth, indicating that growing economies attract more FDI inflows, creating a virtuous cycle of growth and investment.

On the other hand, the relationship between domestic investment and growth varies depending on the context. Bakari (2018) finds that while domestic Investment in Algeria drives short-term growth, its long-term impact is negative due to inefficiencies in management and strategy. In contrast, De Jongh and Mncayi (2018) show that in South Africa, investment and business confidence significantly contribute to economic growth, with increased investment leading to greater economic expansion. These findings highlight the importance of creating a supportive environment for foreign and domestic investments to drive economic growth effectively.

**Methodology**

The ex post facto research design was used to analyse the relationships between financial development, investment, and Nigeria's economic growth by examining historical data without manipulating variables for the period 1981-2021. This approach allows for assessing how past financial and investment trends have influenced economic outcomes, providing insights into growth potential.

**Model Specification**

This study utilises the neoclassical aggregate production function, incorporating financial development and investment as key variables. Development theories, as highlighted by Ndako (2017), emphasise financial development's role in economic growth by facilitating foreign reserves for imports and resource specialisation:

$$RGDP_t = \alpha_0 + \beta_1 FP_t + \beta_2 INV_t + \beta_3 LAB_t + \beta_3 OPN_t + \mu_t \quad (1)$$

RGDP represents Real Gross Domestic Product (GDP); FP stands for financial development, measured by money supply (M2) and Banks' credit to the Private sector. INV stands for investment, proxied by Gross Capital Formation, LAB represents labour supply, and OPN means trade openness, measured as the percentage of trade to GDP. $\alpha$ = Constant and $\beta$ = Coefficients or Regression parameters of the model while $\mu$ = Disturbance term or Error Term, which captures the effects of other factors or variables on a dependent variable but not included in the model. Finally, t = time.

This model was augmented to include all the elements of financial development adopted in the research as follows:

$$RGDP_t = \alpha_0 + \beta_1 M2_t + \beta_2 CPS_t + \beta_3 INV_t + \beta_4 LAB_t + \beta_5 OPN_t + \mu_t \quad (2)$$

This can be transformed to logarithm form as follows

$$lnRGDP_t = \alpha_0 + \beta_1 lnM2_t + \beta_2 lnCPS_t + \beta_3 lnINV_t + \beta_4 lnLAB_t + \beta_5 lnOPN_t + \mu_t \quad (3)$$

**Techniques of Data Analysis**

This study employs the Autoregressive Distributed Lag (ARDL) model, following Pesaran et al. (2001) and Pesaran and Shin (1999), to examine the impact of public debt on economic growth in both the short and long run. The ARDL approach is favoured for its robustness, handling variables that are stationary at levels (I(0)), first differences (I(1)), or both. This method also allows simultaneous estimation of short- and long-run parameters, making it suitable for small sample sizes. The Augmented Dickey-Fuller (ADF) test is used to verify the stationarity of the data, while the ARDL bounds test checks for cointegration. The F-test determines cointegration, with its value needing to exceed the critical bounds. The error correction model (ECM) coefficient is also employed to assess the long-term relationship. The study utilises Eviews and Microsoft Excel for estimations, ensuring a rigorous evaluation of the dynamics between public debt and economic growth, supported by the model's flexibility in managing time series data.

$$\Delta lnRGDP_t = \beta_0 + \beta_1 lnRGDP_{t-i} + \beta_2 lnM2_{t-i} + \beta_3 lnCPS_{t-i} + \beta_4 lnINV_{t-i} + \beta_5 lnLAB_{t-i} + \beta_6 lnOPN_{t-i} + \sum_{i=0}^{p} \beta_7 \Delta lnRGDP_{t-i} + \sum_{i=0}^{p} \beta_8 \Delta lnM2_{t-i} + \sum_{i=0}^{p} \beta_9 \Delta lnCPS_{t-i} + \sum_{i=0}^{p} \beta_{11} \Delta lnINV_{t-i} + \sum_{i=0}^{p} \beta_{12} \Delta lnLAB_{t-i} + \sum_{i=0}^{p} \beta_{13} \Delta lnOPN_{t-i} + ECM + \mu_t \quad (4)$$

Note that all the variables remain as previously described, but Δ stands for the difference (or change) in respective variables, and (-) is the lag sign. In satisfying the long-run relationship, the ARDL bound test requires a null hypothesis for no cointegration HO: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = 0$; for equation (4).

**Results and Discussion**

**Summary Statistic and Correlation**

The analysis of the influence of financial development and investment on economic growth in Nigeria begins with descriptive statistics, correlation analysis, and unit root tests to ensure the stationarity of the variables. Following this, a cointegration test was conducted to examine the long-run relationships among the variables, with the ARDL technique being applied for its robustness in estimating short-run dynamics.

**Table 1:** Summary Statistics and Correlation Matrix

| **Panel A Summary Statistics** | | | | | | |
|---|---|---|---|---|---|---|
| Variables | LNGDPC | LNM2 | LNCPS | LNINV | LNLAB | OPN |
| Mean | 26.1652 | 27.6594 | 2.16283 | 24.4758 | 18.6516 | 0.32896 |
| Median | 25.9592 | 27.9006 | 2.10067 | 24.4918 | 18.647 | 0.34183 |
| Maximum | 26.9615 | 31.3607 | 2.97571 | 25.7281 | 19.1693 | 0.53278 |
| Minimum | 25.4515 | 23.4471 | 1.59899 | 23.2367 | 18.1389 | 0.09136 |
| Std. Dev. | 0.53303 | 2.71239 | 0.35103 | 0.68086 | 0.30813 | 0.12393 |
| Skewness | 0.26828 | -0.1526 | 0.38676 | 0.10921 | 0.02119 | -0.4418 |
| Kurtosis | 1.50101 | 1.60277 | 2.43081 | 1.89508 | 1.81014 | 2.27633 |
| Jarque-Bera | 4.33039 | 3.49428 | 1.5756 | 2.16713 | 2.42167 | 2.22846 |
| Probability | 0.11473 | 0.17427 | 0.45484 | 0.33839 | 0.29795 | 0.32817 |
| Sum | 1072.77 | 1134.04 | 88.6759 | 1003.51 | 764.714 | 13.4872 |
| Sum Sq. Dev. | 11.3649 | 294.283 | 4.92882 | 18.5427 | 3.79775 | 0.61436 |
| Observations | 41 | 41 | 41 | 41 | 41 | 41 |
| **Panel B Correlation Matrix** | | | | | | |
| Variables | LNGDPC | LNM2 | LNCPS | LNINV | LNLAB | OPN |
| LNGDPC | 1 | 0.96917 | 0.82961 | 0.62465 | 0.97383 | 0.38741 |
| LNM2 | 0.96917 | 1 | 0.8499 | 0.47336 | 0.99144 | 0.52939 |
| LNCPS | 0.82961 | 0.8499 | 1 | 0.49064 | 0.81148 | 0.30783 |
| LNINV | 0.62465 | 0.47336 | 0.49064 | 1 | 0.4848 | -0.1013 |
| LNLAB | 0.97383 | 0.99144 | 0.81148 | 0.4848 | 1 | 0.49717 |
| OPN | 0.38741 | 0.52939 | 0.30783 | -0.1013 | 0.49717 | 1 |

**Source:** Author's Computation, 2022 Using Eview 10

Table 1 Panel A presents the descriptive statistics for key variables in their natural logarithmic form. Real GDP, the dependent variable, has a mean of 26.165, a median of 25.959, a maximum of 26.961, a minimum of 25.451, and a standard deviation of 0.533. Money supply, one of the primary independent variables, exhibits a mean of 27.659, a median of 27.901, a maximum of 31.361, a minimum of 23.447, and a standard deviation of 2.712. Bank credit to the private sector shows a mean of 2.163, a median of 2.101, a maximum of 2.976, a minimum of 1.599, and a standard deviation of 0.351. Gross capital formation, representing investment, has a mean of 24.476, a median of 24.492, a maximum of 25.728, a minimum of 23.237, and a standard deviation of 0.681. Labour supply has a mean of 18.652, while trade openness records a mean of 0.329.

Correlation analysis was used to assess the linear relationship between variables and determine their degree of association. Table 1, panel B, shows that not all variables are highly correlated. The ARDL estimation technique, with varying lags, eliminates serial correlation and multicollinearity, confirmed by post-estimation results later in the section.

**Stationarity Test and Lag Selection Criteria**

Table 2 shows the Augmented Dickey-Fuller (ADF) results for unit roots. The ADF test was chosen because of its popularity and the reliability of its results. The result revealed that trade openness is stationary at level. At the same time, Real GDP, money supply, Banks' credit to Private sector, gross capital formation (Investment) and labour force are all stationary at first difference. Stationarity of each of the variables is presented in Table 2. The results justify the choice of the ARDL estimation technique.

**Table 2:** Augmented Dickey-Fuller (ADF) Unit Root Test

| | Level | | Ist difference | | Order of |
|---|---|---|---|---|---|
| Variables | t-statistics | p-value | t-statistics | p-value | integration |
| LNGDPC | -0.913253 | 0.7731 | -3.984505 | 0.0037 | I(1) |
| LNM2 | -1.182433 | 0.6724 | -3.383538 | 0.0177 | I(1) |
| LNCPS | -1.727936 | 0.4099 | -5.819415 | 0.0000 | I(1) |
| LNINV | -1.004154 | 0.7427 | -3.558463 | 0.0114 | I(1) |
| LNLAB | -1.549631 | 0.4957 | -3.673170 | 0.0099 | I(1) |
| OPN | -3.207193 | 0.0207 | -7.512319 | 0.0000 | I(0) |

**Note:** The unit root test was based on the Augmented Dickey-Fuller (ADF) technique following the Schwarz Info Criterion (SIC), which was automatically selected.

**Source:** Author's Computation, 2022 Using Eview 10

Lag selection is crucial in the ARDL model, as Nuhu, Isik and Azu (2020) highlighted since it can significantly impact the F-statistic results. This research adopts the lag selection criteria from Muhammad, Azu, and Oko (2018) and Azu and Abu-Obe (2016), employing the VAR lag selection criteria. The findings indicate a preference for lag three based on the LR, FPE, AIC, and HQ criteria, favouring this lag at a 5% significance level. Conversely, the Schwarz criterion suggests lag one as optimal, demonstrating the sensitivity and complexity of lag selection in this analysis.

**Bound Test for Cointegration**

To establish a long-term relationship between the dependent and independent variables, this study employs a bound test for cointegration using the ARDL methodology, as shown in Table 3. Following Banerjee et al. (1998), the results indicate a significant long-run relationship, evidenced by a negative ECM-1 value of -0.239 at a one per cent significance level. Additionally, the F-statistics exceed the lower and upper bounds set by Pesaran et al. (2001), confirming the long-term association between the variables. The findings suggest that the long-term equilibrium adjustment speed is approximately 23.86 per cent, indicating that it takes this average rate for the variables to converge to their long-term equilibrium.

**Table 3:** Cointegration Bound Tests Result

| | | | | |
|---|---|---|---|---|
| F-statistic | 23.75382 | $EC_{M-1}$ | -0.238682*** | (-18.23605) |
| Significant level | | 10% | 5% | 1% |
| F-Bounds Test | Lower bound | 2.08 | 2.39 | 3.06 |
| | Upper bound | 3 | 3.38 | 4.15 |

**Note:** the number in parenthesis represents t-statistics, *** signifies a 1% level of significance, F-statistics is determined with restricted constant and no trend

**Source:** Author's Computation, 2022 Using Eview 10

**The Short-run and Long-Run Analysis**

The short-run and long-run effects were analysed to test the research hypothesis, with results in Tables 4 and 5, respectively. Financial development was measured using two proxies: broad money supply and banks' credit to the private sector. In the short run, a broad money supply positively influenced Nigeria's economic growth, with an estimated coefficient of 0.177, which was statistically significant at the 1% level. This suggests that a 1% increase in broad money supply results in a 17.739% rise in real GDP, assuming other factors remain constant. The effect remained consistent at lag one with a coefficient of 0.135, which was also significant at 1%. However, the result at lag two was inconsistent, indicating a lack of robustness. In the long run, the coefficient for broad money supply was 1.186, significant at 5%, implying that broad money supply increases GDP by 118.614%. This highlights the critical role of broad money in economic development, as it enhances investment and revenue generation when properly managed.

**Table 4:** ARDL Error Correction Regression

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(LNGDPC(-1)) | -0.01149 | 0.060862 | -0.18875 | 0.8565 |
| D(LNGDPC(-2)) | 1.495877 | 0.090007 | 16.6196 | 0.0000 |
| D(LNM2) | 0.177397 | 0.015532 | 11.42113 | 0.0000 |
| D(LNM2(-1)) | 0.134995 | 0.018056 | 7.476564 | 0.0003 |
| D(LNM2(-2)) | -0.04797 | 0.013054 | -3.67441 | 0.0104 |
| D(LNDCB) | -0.27656 | 0.015907 | -17.3857 | 0.0000 |
| D(LNCPS(-1)) | 0.124994 | 0.01109 | 11.27129 | 0.0000 |
| D(LNCPS(-2)) | 0.206929 | 0.013778 | 15.0184 | 0.0000 |
| D(LNINV) | -0.02218 | 0.01074 | -2.0648 | 0.0845 |
| D(LNINV(-1)) | 0.164115 | 0.01305 | 12.57576 | 0.0000 |
| D(LNLAB) | -0.07257 | 0.108078 | -0.67143 | 0.5269 |
| D(LNLAB(-1)) | -1.17484 | 0.123265 | -9.53099 | 0.0001 |
| D(LNLAB(-2)) | -0.81315 | 0.165942 | -4.90022 | 0.0027 |
| D(OPN) | 0.314332 | 0.025968 | 12.10463 | 0.0000 |
| D(OPN(-1)) | 0.407976 | 0.021988 | 18.55437 | 0.0000 |
| D(OPN(-2)) | 0.397293 | 0.028301 | 14.03825 | 0.0000 |
| CointEq(-1)* | -0.23868 | 0.013088 | -18.2361 | 0.0000 |

**Note:** Case 2: Restricted Constant and No Trend

**Source:** Author's Computation, 2022 Using Eview 10

Conversely, banks' credit to the private sector yielded mixed results. In the short run, the estimated coefficient was -0.277, which is significant at 1%, indicating a negative impact on Nigeria's economic development. A 1% increase in bank credit led to a 27.656% decrease in real GDP, all else being equal. However, at lag one, the effect reversed with a positive coefficient of 0.125, also significant at 1%, suggesting a 12.499% increase in GDP. This positive trend continued at lag two, with a coefficient of 0.207, reinforcing the short-run positive impact of bank credit. Despite this, the inconsistency in signs at different levels indicates that the results are not robust. In the long run, the coefficient for bank credit was -1.166 and statistically insignificant, suggesting that while bank credit has potential long-term negative effects, it lacks significance. Thus, any positive role of bank credit is confined to the short run.

**Table 5:** Estimated Long-Run Effect of Financial Development and Investment on the Nigerian Economy

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LNM2 | 1.186142 | 0.56259 | 2.108361 | 0.0796 |
| LNCPS | -1.16566 | 0.604061 | -1.92971 | 0.1019 |
| LNINV | -0.42119 | 0.44401 | -0.94861 | 0.3794 |
| LNLAB | -6.2728 | 3.502017 | -1.7912 | 0.1234 |
| OPN | -0.26703 | 0.536962 | -0.49729 | 0.6367 |
| C | 115.8157 | 55.05462 | 2.103652 | 0.0801 |

**Case 2:** Restricted Constant and No Trend

**Source:** Author's Computation, 2022 Using Eview 10

In the short run, the estimated coefficient of investment is -0.022, statistically significant at the 10% level, indicating a negative effect on Nigeria's economic development. Specifically, a 1% increase in investment leads to a 2.22% decrease in real GDP, assuming other factors remain constant. However, at lag one, the result shifts, showing a positive coefficient of 0.164, significant at the 1% level, implying that a 1% rise in investment boosts economic growth by 16.4%. In the long run, investment appears to have a negative impact on economic growth, with a coefficient of -0.421, though this result is not statistically significant. This suggests that while investment may hinder economic development in the long run, the effect is not strong enough to be conclusive. Therefore, investment's influence on Nigeria's real GDP is more prominent in the short run than in the long run.

**Causal Relationship**

The causal relationship between financial development and economic growth in Nigeria is explored through broad money supply and bank credit to the private sector. For broad money supply (LNM2), the hypothesis that it does not Granger-cause GDP (LNGDPC) is rejected with a p-value of 0.0372, indicating that broad money supply drives GDP. However, GDP does not Granger-cause broad money supply, as the hypothesis is accepted with a p-value of 0.8347. Thus, the relationship is unidirectional, from broad money supply to GDP.

In contrast, for bank credit to the private sector (LNDCB), the hypothesis that it does not Granger-cause GDP is accepted with a p-value of 0.3793, meaning bank credit does not influence GDP. However, the reverse is true, as the hypothesis that GDP does not Granger-cause bank credit is rejected with a p-value of 0.0198. This establishes a unidirectional causal relationship from GDP to bank credit in Nigeria.

Lastly, regarding investment, the hypothesis that Investment (LNINV) does not Granger-cause GDP is rejected with a p-value of 0.0014, indicating that investment drives GDP growth in Nigeria. However, the reverse is not true, as GDP does not Granger-cause investment, based on the accepted hypothesis. This reflects a unidirectional relationship where investment fuels economic growth without reciprocal causality.

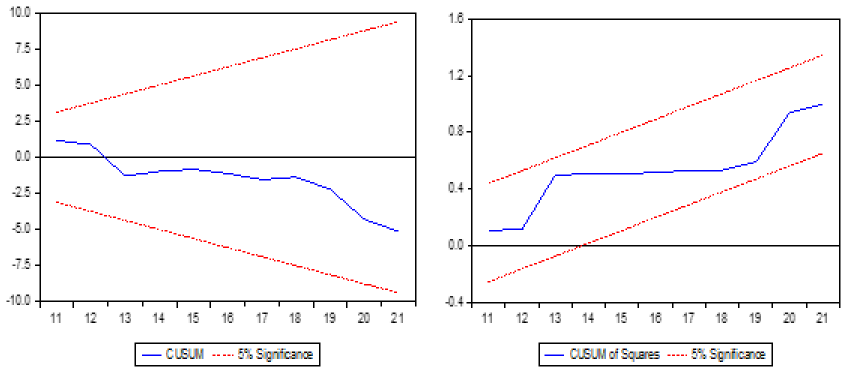


**Figure 1**

**Stability and Diagnostic Tests**

Conducting a stability test is crucial to ensure the reliability of the model's findings. This thesis uses the CUSUM and CUSUM of Squares tests based on recursive residuals established by Brown, Durbin, and Evans (1975). These tests are superior in detecting parameter instability early. The visual results confirm that the model is stable, with no errors, as all lines fall within the stability region, supporting the model's suitability.

**Table 6:** Diagnostic Test

| | |
|---|---|
| R-Square | 0.989617 |
| Adjusted R-square | 0.975773 |
| Serial Correlation | 2.346698 (0.2117) |
| Heteroscedasticity Test | 2.034723 (0.1923) |

**Note:** Numbers in parentheses are probabilities, Jarque Bera Normality Test was utilised, Serial correlation is with Breusch -Godfrey serial correlation Lagrange Statistics, Heteroscedasticity test is with Breusch -Pagan-Godfrey test. All were done using the E-views 10 version.

Table 6 presents diagnostic test results for the model. The R-squared value of 0.990 suggests the model explains about 99% of the variation in the dependent variable, while the adjusted R-squared of 0.976 accounts for the number of predictors, indicating a strong model fit. The Breusch-Godfrey serial correlation test shows no serial correlation (p-value = 0.2117). The Breusch-Pagan-Godfrey test for heteroscedasticity indicates no heteroscedasticity issues (p-value = 0.1923). Both tests and the Jarque-Bera normality test confirm the model's robustness and reliability, conducted using E-Views 10.

**Discussion of Findings**

The findings of this study align with existing literature on the relationship between financial development and economic growth. Similar to the work of Samargandi et al. (2015), the results suggest that financial development positively influences Nigeria's economic growth in the short term. However, the potential inefficiencies associated with excessive financial development, as seen in Samargandi et al.'s inverted U-shaped model, could become relevant if Nigeria's financial sector continues to expand without proper oversight. This underscores the importance of finding a balance between growth stimulation and the risks of over-expansion, especially within credit markets.

Durusu-Ciftci et al. (2017) emphasise that credit markets drive long-term economic growth. Our findings reinforce this, particularly in the short run, where bank credit to the private sector positively impacts Nigeria's real GDP. However, the long-term effects appear less significant, suggesting that while financial intermediaries like banks contribute to immediate economic development, sustained growth requires more comprehensive reforms in the financial sector, aligning with Caporale et al.'s (2014) observations about the limitations of underdeveloped financial markets.

In line with the dynamics in emerging markets like the BRICS nations, Guru and Yadav (2019) highlight the complementary roles of banking and stock markets in driving growth. This is evident in Nigeria's context, where broad money supply—an indicator of the banking sector—plays a significant role in economic growth. Eren et al. (2019) and Shahbaz et al. (2017) emphasise the complexity of this relationship, especially concerning external shocks. Nigeria's reliance on broad money supply and private sector credit mirrors the patterns in these emerging economies. However, the country must remain cautious about disruptions in external and sectoral financial stability.

Regarding investment and economic growth, our findings on the unidirectional relationship between Investment and GDP in Nigeria align with Iamsiraroj and Ulubaşoğlu's (2015) view that investment, especially foreign direct investment (FDI), fosters growth. However, as Bakari (2018) has noted, the impact of domestic investment can vary. While short-term gains are evident, long-term strategies and proper management are crucial to ensuring domestic investment sustains economic growth. Therefore, Nigeria's policy framework should focus on improving the efficiency of foreign and domestic investments to maintain a positive growth trajectory.

**Conclusions**

This study highlights the significant role of financial development and investment in driving Nigeria's economic growth. The findings indicate that broad money supply and bank credit to the private sector positively influence short-term economic growth, although the long-term effects are less robust. Additionally, investment, particularly domestic investment, demonstrates a positive impact on economic growth, albeit with limitations tied to inefficiencies in management. These results align with global studies, suggesting that while financial development and investment contribute to growth, the sustainability of these effects depends on continuous reforms and effective financial management.

Based on these findings, it is recommended that policymakers in Nigeria enhance financial sector reforms to ensure a balanced and efficient development of both credit markets and banking sectors. Strengthening regulatory frameworks to avoid the potential inefficiencies linked to excessive financial development is crucial. Furthermore, efforts should be made to create a more supportive environment for both foreign and domestic investment, including improving business confidence and management strategies to maximise the long-term benefits of investment on economic growth.

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## **APPENDIX I:** PAIRWISE GRANGER CAUSALITY TESTS

| Null Hypothesis: | Obs | F-Statistic | Prob. |
|---|---|---|---|
| LNM2 does not Granger Cause LNGDPC | 39 | 3.63190 | 0.0372 |
| LNGDPC does not Granger Cause LNM2 | | 0.18159 | 0.8347 |
| LNCPS does not Granger Cause LNGDPC | 39 | 0.99747 | 0.3793 |
| LNGDPC does not Granger Cause LNCPS | | 4.41343 | 0.0198 |
| LNINV does not Granger Cause LNGDPC | 39 | 0.61839 | 0.5448 |
| LNGDPC does not Granger Cause LNINV | | 8.02990 | 0.0014 |