AKWAPOLY INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH (AIJMR)

MAIDEN EDITION

A Journal of School of Communication Arts,
Akwa Ibom State Polytechnic, Ikot Osurua, Nigeria.

VOLUME 1, NUMBER 1, SEPTEMBER 2024

Akwapoly International Journal of Multidisciplinary Research (AIJMR)
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Volume 1, Number 1, September 2024

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APPROXIMATION OF INDEFINITE INTEGRAL WITH SINGULARITY USING VARIABLE TRANSFORMATION METHOD

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Abstract

A numerical scheme based on Sinc function was applied to an indefinite integral with possible endpoint singularities in the integrand. The scheme employed Sinc spaces of approximation and a variable transformation function constructed with a composition of trigonometric functions. With this method, the singularity in the integrand is moved to infinity allowing a possible evaluation of the integral without consideration of the endpoint singularity. The procedure was demonstrated with numerical examples to justify its suitability for numerical integration over the prescribed interval of integration. The error bound in the numerical results satisfies the established convergence rates associated with Sinc methods with single exponential decay with increase number of evaluation points N. Finally, the results shown on tables and graphs validate the efficiency of the numerical scheme.

Keywords: Indefinite integral; Endpoint singularity; Composite trigonometric function; Sinc approximation; Variable transformation function

1.0 Introduction

Numerical methods are especially useful in situations where analytical evaluation is very difficult to obtain or the result is too unwieldy to permit further processing for meaningful interpretation. The widespread availability of fast and efficient computers has renewed interest in the development of exceptionally accurate numerical methods for handling realistic problems.

One area that this interest is employed is in the integration of functions in which the integrand may have endpoint singularities. This challenge can be overcome by the use of variable transformation, a transformation that relates the original (finite) interval of integration to the real line $\mathbb{R}$ in such a way that the singularities are moved to infinity.

Early contributors to this discourse include Haber (1993) and Kearfott (1983) whose work employed the tanh transformation in the strip region. Mohammad and Mori (2003) further improved the results with use of double exponential formula. Recently, the application of error functions has been employed by John & George (2024) as a variable transformation function in the approximate solution of indefinite integral.

The extension of such procedure with composite trigonometric functions is the motivation in this research work.
The paper considers the application of the variable transformation, John et al (2024)

$$x = \varphi(t) = \frac{b-a}{2} sin\left(tan^{-1}(t)\right) + \frac{b+a}{2}, t \in (-\infty, \infty) \tag{1}$$

to the integral

$$\int_0^s f(x)dx, 0 < s < 1 \tag{2}$$

where the integrand *f*(*x*)in (2) is assumed to be analytic in $x \in (0, 1)$ except at $x = 0$ *or* $x = 1$ where singularity may occur. Equation (1) is a composition of trigonometric functions with the conditions.

$$\varphi(-\infty) = 0, \varphi(0) = 0.5, \varphi(\infty) = 1.$$

The inverse and the derivative of (1) are

$$t = \varphi^{-1} = (tan\,(sin^{-1}\,(2x-1)))$$

and

$$\varphi^{'}(t) = \frac{\frac{1}{2}\cos\left(tan^{-1}(t)\right)}{1+t^2} \qquad (4)$$

respectively.

2.0 Materials and Methods

In this section the available tools for the implementation of the variable transformation method for the numerical integration of (2).

2.1 Variable transformation Technique

Given a variable transformation function φ *(t)*, the integral (2) becomes

$$\int_0^s f(x)dx = \int_{-\infty}^{\beta} u(t)dt \quad u(t) = f(\varphi(t))\varphi^{'}(t),\ \beta = \varphi^{-1}(s). \qquad (5)$$

Approximation of indefinite integral with singularity using variable transformation method

Following Mori & Mohammad (2003) and from (5), it is assumed that f(x) satisfies

$$f(x) = \begin{cases} O((1+x)^{\alpha-1}) as\ x \to -1 \\ O((1-x)^{\alpha-1})\ as\ x \to 1 \end{cases} \text{for } \alpha > 0 \qquad (6)$$

such that for a single exponential transformation

$$f\big(\varphi(t)\big)\varphi^{'}(t) = O(\exp\,(-2(\alpha-\epsilon)|t|))\text{as } t \to \pm\,\infty \qquad (7)$$

where α is a constant and $0 < \in < 1$,

2.2 The Sinc Function

The function

$$S(j,h)(t) = S\left(\frac{t}{h} - j\right) = \frac{sin\pi(\frac{t}{h} - j)}{\pi(\frac{t}{h} - j)}\ , j = 0, \pm\,1, \pm\,2, \ldots \qquad (8)$$

is known as shifted Sinc function Stenger (1993), and for $t_k = kh$,

$$S(j,h)(kh) = \begin{cases} 0, k \neq j \\ 1, k = j \end{cases}$$

2.3 Trapezoidal Rule

Given the integral

$$I = \int_{-\infty}^{\infty} F(u)du \tag{9}$$

The trapezoidal rule approximation to (3) is given by

$$T_h = h \sum_{j=-\infty}^{\infty} F(jh), h > 0 \tag{10}$$

Consequently, for t e function F(u) defined on the whole real line, $(-\infty, \infty)$ as

$$F(u) \approx \sum_{j=-N}^{N} F(jh)S(j,h)(u), \quad u \in \mathbb{R} \tag{11}$$

thus

$$\int_{-\infty}^{\infty} F(u)du \approx \sum_{j=-N}^{N} F(jh) \int_{-\infty}^{\infty} S(j,h)(u)du = h \sum_{j=-N}^{N} F(jh) \tag{13}$$

From (5), (8) and (13),

$$\int_{-\infty}^{\beta} u(t)dt \quad u(t) = h \sum_{-\infty}^{\infty} u\,(jh) \left(\frac{1}{2} + \frac{1}{\pi} Si \left(\frac{\pi \varphi^{-1}(s)}{h} - j\pi \right) \right) + Ohe^{-\frac{\pi d}{h}} \tag{14}$$

where

$$Si\ (x) = \int_0^{\tau} \frac{\sin \tau}{\tau}\, d\tau\,. \tag{15}$$

2.4 Convergence Theorems

Definition 2.1: Okayama et al (2011)

Let α be a positive constant, and let D be a bounded and simply-connected domain which satisfies $(a, b) \subset D$. Then $La\ (D)$ denotes the family of functions f that satisfy the following conditions: (i) f is analytic in D; (ii) there exists a constant C such that for all z in D

$$|f(z)| \leq C|Q(z)|^{\alpha} \tag{16}$$

where the function Q is defined by

$$Q(z) = (z - a)(b - z).$$

For the implementation of the single exponential transformation in the above Definition 2.1, the domain D considered to be the region $\phi\,(D_d) = \{z = \phi\,(\mu) : \mu \in D_d\}$ where $D_d = \{z \in \mathbb{C} : |im\ \mu| < d\}$ denotes a strip region of width $2d$. This gives the image of the region under consideration as,

$$\varphi(\mathcal{D}_d) = \{z \in \mathbb{C} : |arg(\tan(\sin^{-1}(2x-1)))| < d\} \qquad (17)$$

Theorem 1 Stenger (1993) and Stenger (2011)

Let $f \in L_\alpha\varphi\ (Dd)$ for d with $0 < d < \pi$, let N be a positive integer and let h be selected by the formula

$$h = \sqrt{\frac{\pi d}{\alpha N}} \qquad (18)$$

then there is a constant C independent of

$$\max_{a \le x \le b}\left| f(x) - \sum_{j=-N}^{N} f(\varphi(jh)S(j,h)(\{\varphi\}^{-1}(x)) \right| \le C\sqrt{N}e^{-\sqrt{\pi d \alpha N}}\ . \qquad (19)$$

The choice of h is optimal and satisfies (20) based on Sugihara (2002).

Theorem 2: Kearfott (1983)

Let $(fQ) \in L_\alpha\varphi\ (Dd)$ for d with $0 < d < \pi$, let N be a positive integer and let h be selected by the formula (18), then there is a constant C independent of N, such that

$$\left| \int_a^s f(t)dt - h\sum_{j=-N}^{N} f(\varphi(jh)S(j,h)(\{\varphi\}'(jh))J(j,h) \right| \le CN^2 e^{-\sqrt{\pi d \alpha N}} \qquad (20)$$

where

$$J(j,h) = \left(\frac{1}{2} + \frac{1}{\pi}Si\left(\frac{\pi\varphi^{-1}(s)}{h} - j\pi\right)\right).$$

From Theorem 1 and Theorem 2, equation (2) has the approximation,

$$\int_0^s f(x)dx = h\sum_{-\infty}^{\infty} f(\varphi(jh))\varphi'(jh)\left(\frac{1}{2} + \frac{1}{\pi}Si\left(\frac{\pi\phi^{-1}(s)}{h} - j\pi\right)\right) + O\left(N^{\frac{1}{2}}\exp\left(-\sqrt{\pi d N}\right)\right). \qquad (21)$$

3.0 Results

In this section, the formula (1) is applied to equation (2) using the following examples:

The maximum absolute error between the exact solution and the approximate solution at Sinc points x_k is defined by $|E_N(h(\varphi))|$ with respect to L_∞ norm such that:

$$|E_N(h(\varphi))| = \max_{k=-N-1,-N,\ldots N,N+1} |\text{Exact} - \text{Approx}|. \quad (22)$$

Numerical computations were carried out with the help of MATLAB R12 where h was chosen as in (18)

Example 3.1

$$\int_0^s \frac{1}{\pi\sqrt{1-x^2}}dx = \frac{1}{\pi}\arcsin s.$$

Example 3.1 is a modification of Haber (1993) with the integrand exhibiting endpoint singularity at 1. For this example, $d = \pi/2$ and $a = 1$.

Example 3.2

$$\int_0^s \frac{\log 2x}{1-x}dx = \frac{s\log 2s}{(1-s)+\log(1-s)}$$

The integrand in Example 3.2 exhibits endpoint singularity at $s = 0$ *and* $s = 1$.

Table 1: Maximum error and error ratio for Example 3.1

N	H	$\lvert E_N(h(\varphi))\rvert$	Error Ratio
10	0.7025	1.73×10^{-2}	-
20	0.4967	8.6×10^{-3}	2.01
30	0.4056	4.4×10^{-3}	1.95
40	0.3512	1.9×10^{-3}	2.32
50	0.3142	3.1704×10^{-4}	5.99

Table 2: Maximum error and error ratio for Example 3.2

N	H	$\lvert E_N(h(\varphi))\rvert$	Error Ratio
10	0.7025	3.85×10^{-2}	-
20	0.4967	1.67×10^{-2}	2.31
30	0.4056	1.13×10^{-2}	1.48
40	0.3512	8.7×10^{-3}	1.30
50	0.3142	7.2×10^{-3}	1.21

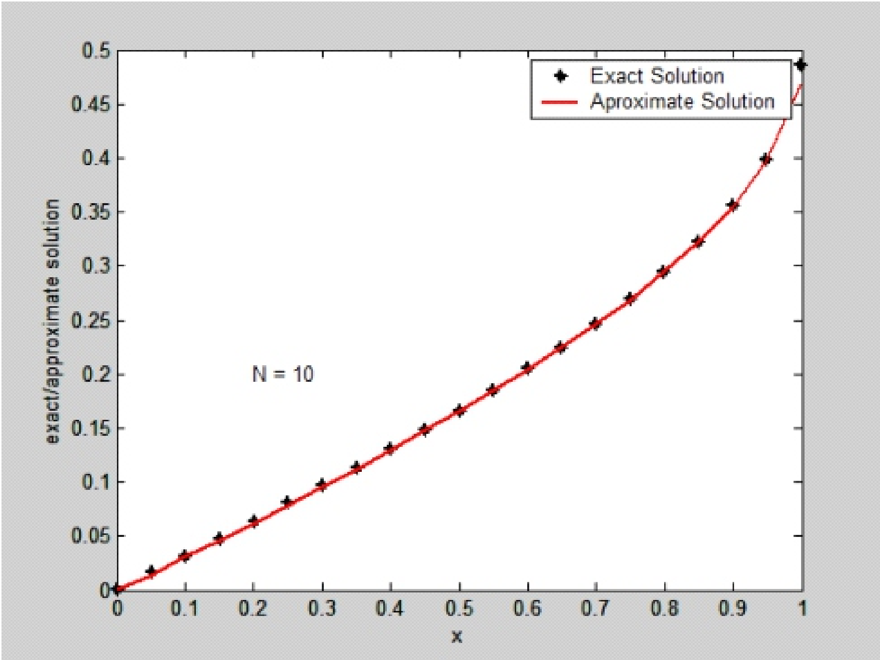

Fig.1: Exact and approximate solution Example 3.1 at $N = 10$

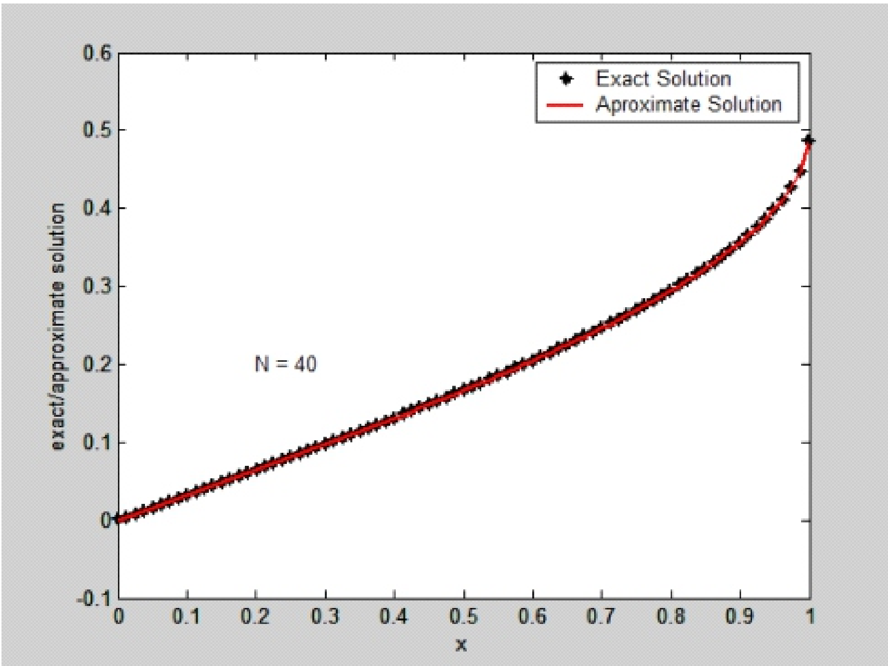

Fig.2: Exact and approximate solution Example 3.1 at $N = 40$

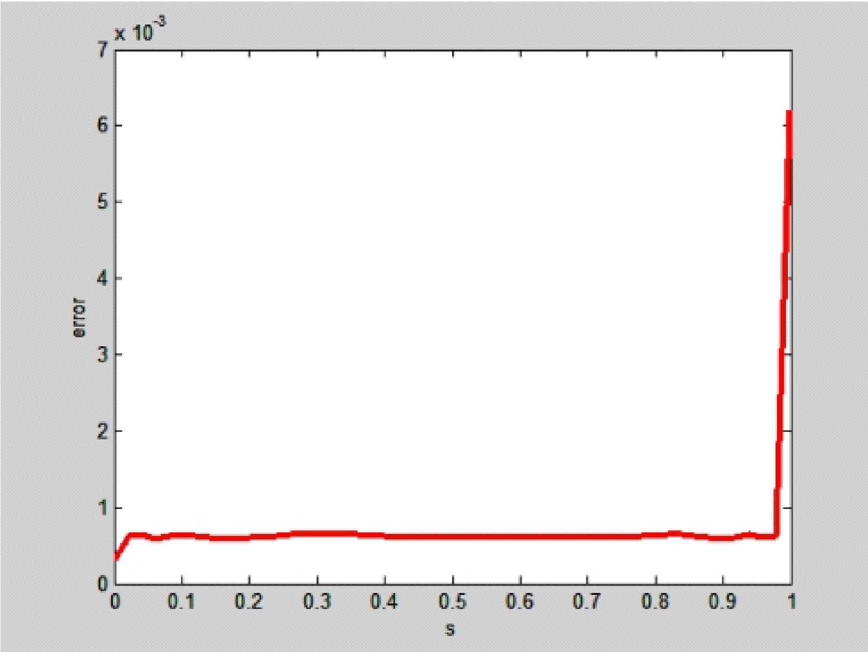

Fig.3: Error against - for Example 3.1 at $N = 25$

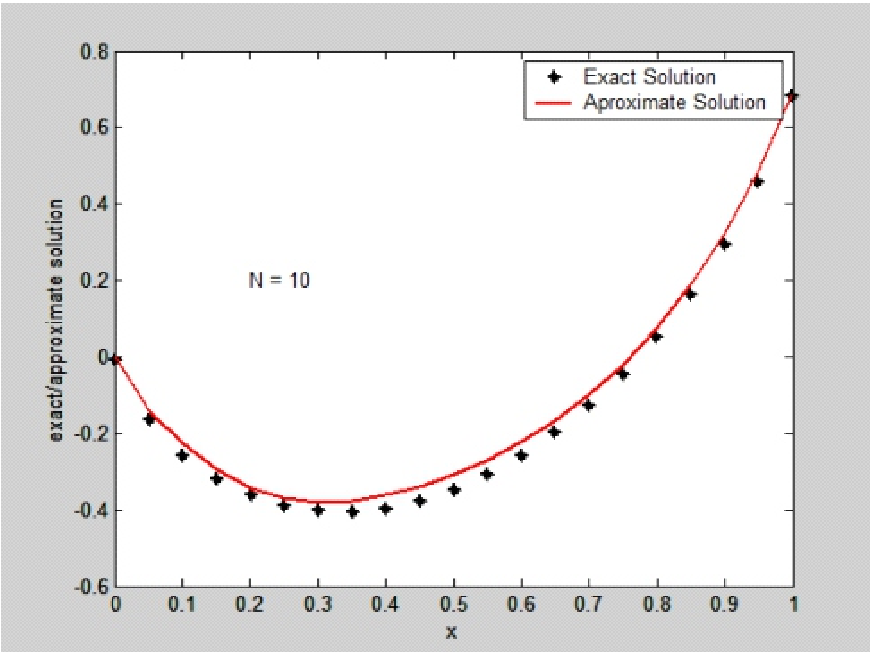

Fig.4: Exact and approximate solution Example 3.2 at $N = 10$

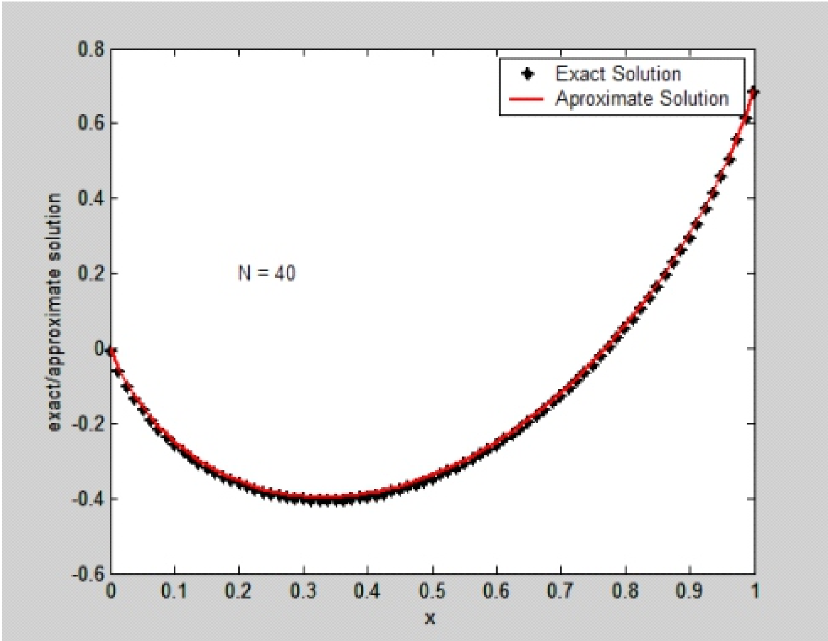

Fig. 5: Exact and approximate solution Example 3.2 at $N = 40$

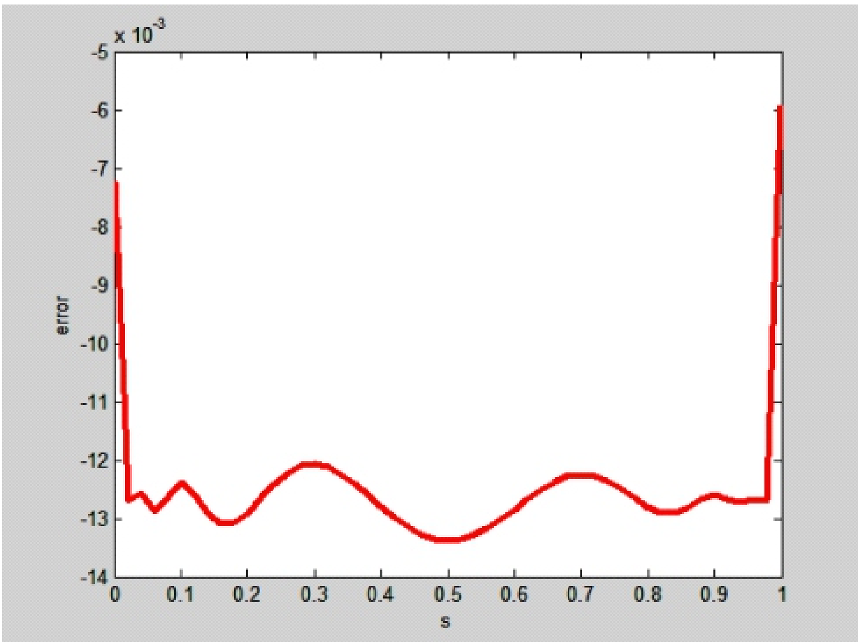

Fig. 4: Error against - for Example 3.2 at $N = 25$

4.0 Discussion

The focus of this paper was to demonstrate the application of composite trigonometric function for the numerical approximation of an indefinite integral in the region *(0, s)*, where the integrand appears to be singular in one or both endpoints. The properties of the variable transformation function is clearly defined alongside the parameters required for a successful implementation of the method.

This article employed procedures outlined in some already established research works on single exponential Sinc approximations for numerical integration; such as the theoretical result for optimal parameters to guide in the choice of the step-size of the numerical scheme and the determination of the convergence rate of the scheme.

The results of the numerical examples are shown in Tables 1 and Table 2 for Examples 3.1 and 3.2 respectively. These results demonstrate the error decay over the interval of integration with the increase number of evaluation (N). In Figures 1 and 2 the plots show the comparison between the exact and approximate solutions for N = 10 and N = 40 respectively for Example 3.1 and Figures 4 and 5 show the comparison between the exact and approximate solutions for N = 10 and N = 40 respectively for Example 3.2 respectively. The improvement of the accuracy is seen with respect to the increase of number of evaluations N. The behavior of the error over the interval for Example 3.1 and Example 3.2 for N = 25 are illustrated in Figure 3 and Figure 6 respectively.

In Figure 3 and Figure 6, the horizontal ranges are $0 < s < 1$ respectively. The vertical range for Figure 3 ranges from -10^{-3} to 10^{-3} and that of Figure 6 ranges from -10^{-3} to 10^{-3}

5.0 Conclusion

In this work, the numerical indefinite integration was implemented using a composite trigonometric function as a variable transformation formula with the help of Sinc function. The efficiency of the method as demonstrated with numerical examples agrees with the theoretical convergence results.

6.0 Recommendations

The method demonstrated opens up a new frontier for researchers with interest in numerical analysis and approximation theory. Thus, the following recommendations will help interested researchers to further contribute to this discourse.

- The development trigonometric functions as alternatives to hyperbolic functions for the construction of variable transformation functions.
- The method employed is based on a single exponential formula, further studies should consider developing a double exponential formula by improving the current for improved convergence.

7.0 Recommendation for further studies

Since the topic is topical, expansive and daring, there is a compelling need for extensive studies. Subsequent work will seek to extend the application of the method to other intervals, while considering alternative approaches to convergence of the method with respect to the determination of optimal parameters. Also, factors required for improved convergence will be studied. An extension of the procedure for the solution of weakly singular integral equations will also be considered.

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LEVERAGING WIRESHARK FOR THE DETECTION AND COLLECTION OF INDICATORS OF COMPROMISE IN MALICIOUS NETWORK TRAFFIC

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Abstract

Maintaining constant vigilance against malicious traffic is essential for ensuring network security. Indicators of Compromise (IOCs) play a crucial role in identifying such activities. This study examines the effectiveness of Wireshark, a free and widely-used network packet capture and analysis tool, in collecting these IOCs. The importance of network security and the role of IOCs in threat detection, a brief introduction to Wireshark, detailed capabilities and usage in network traffic inspection are discussed by researchers. Various types of IOCs relevant to network traffic analysis, including IP addresses, network ports, URLs, and file hashes are identified. There is a description of how Wireshark can be used to extract each type of IOC by analysing communication patterns, suspicious connections, domain names, and captured packet content. The research concludes by highlighting benefits and limitations of using Wireshark for IOC collection. These include cost-effectiveness, deep packet inspection, and customisable filters. Conversely, the need for proficiency, time-consuming nature of analysis, and the potential for false positives are acknowledged. Indeed, this study validates the value of Wireshark as a powerful tool for network security professionals, capable of facilitating the collection of critical IOCs for early detection and response to malicious activities.

Keywords: Security, Network, IOCs, Wireshark, Forensics

1.0 Introduction

An era of unprecedented connectivity has ushered in the digital age, but with it comes a growing concern: network security (Al-Naqeeb & Choi, 2022). As organisations increasingly rely on interconnected systems, they become vulnerable to a vast array of cyber threats. These threats, ranging from malware infections to sophisticated cyberattacks, can cripple operations, steal sensitive data, and cause significant financial losses (Sharma et al., 2023). Therefore, effective threat detection mechanisms are paramount for maintaining a secure network environment.

One crucial approach involves identifying Indicators of Compromise (IOCs) (Al-Rubaie & Atiquzzaman, 2020). IOCs are observable signs that a system or network may have been compromised by malicious activity. These indicators can manifest in various forms, such as suspicious network traffic patterns, unauthorised access attempts, or the presence of known malware signatures. By actively monitoring for and analysing IOCs, security professionals can gain valuable insights into potential threats. This allows for early detection and swift response, minimising the damage caused by cyberattacks. Fortunately, a range of tools exist to assist in the identification and analysis of IOCs (Jiang et al., 2020). Among these, Wireshark stands out as a powerful and freely available network packet capture and analysis tool (Yoo et al., 2021).

Network security relies heavily on the ability to understand and analyze the flow of data across a network. This process, known as Network Traffic Analysis (NTA), plays a vital role in identifying suspicious activity and potential threats (Sharma et al., 2023). NTA involves capturing and examining network packets, which are the individual units of data transmitted between devices on a network. One common technique used for NTA is packet sniffing. Packet sniffers are software programs that operate in promiscuous mode, allowing them to capture all network traffic on a specific segment, regardless of its intended recipient (Yoo et al., 2021). This comprehensive capture capability makes packet sniffing a powerful tool for network administrators and security professionals (Garcia-Fernandez., 2020). Wireshark stands out as a widely-used and free packet sniffer (Yoo et al., 2021).

It offers a robust suite of features for capturing, inspecting, and analysing network traffic. Wireshark can decode packets based on various network protocols, allowing users to delve into the details of communication flows. Additionally, it provides powerful filtering and search capabilities, enabling security professionals to identify specific patterns or anomalies within captured traffic. Network protocols are the foundation of communication on a network. They define the rules and formats for data exchange between devices. Common protocols include TCP/IP (Transmission Control Protocol/Internet Protocol), HTTP (Hypertext Transfer Protocol), and DNS (Domain Name System) (Sharma et al., 2023). Understanding these protocols is crucial for interpreting captured network traffic and identifying potential IOCs. For example, unusual communication patterns on ports typically used for secure connections (e.g., port 443 for HTTPS) could indicate a potential attempt to bypass security measures.

1.2 Identifying IOCs with Wireshark

Indicators of Compromise (IOCs) come in various forms, each offering valuable insights into potential malicious activity on a network. Wireshark's comprehensive traffic analysis capabilities make it a powerful tool for identifying these diverse IOCs (Al-Rubaie &Atiquzzaman, 2020). Let's explore how Wireshark can be leveraged to extract different types of network traffic-related IOCs.

1.3 Categorises of IOCs

IP addresses and ports: Deviations from expected network traffic patterns are key indicators of potential threats. Wireshark allows users to filter and analyse communication based on source and destination IP addresses and ports (Yoo et al., 2021). Examining connections to unusual or blacklisted IP addresses, or communication on ports not typically used by legitimate applications, can raise red flags. For instance, a sudden spike in traffic towards a known command-and-control server IP address could signal a malware infection attempting to communicate with its remote controller.

Uniform resource locators (URL’s) and domain names: Malicious actors often utilise websites or domains for phishing attacks, malware distribution, or data exfiltration. Wireshark can capture URLs embedded within HTTP traffic packets, allowing security professionals to identify suspicious domain names or unauthorised website access attempts (Al-Naqeeb & Choi, 2022). By comparing captured URLs against known malicious domain lists, analysts can gain valuable insights into potential threats.

Protocols: Network communication relies on established protocols like TCP/IP for reliable data exchange. Wireshark enables users to decode captured traffic based on various protocols (Sharma et al., 2023). The presence of non-standard or unexpected protocols may indicate the use of custom malware or communication channels designed to evade detection. While encrypted traffic analysis with Wireshark has limitations due to encryption methods, unusual protocol usage patterns can still provide valuable clues.

File hashes: Malware often carries unique identifiers in the form of file hashes. Wireshark can capture data payloads within packets, potentially containing malware signatures (Alsaadi et al., 2021). By comparing captured file hashes with known malware databases, security professionals can identify potential malware infections on a network. However, it's important to note that this approach may not be foolproof, as malware creators can employ techniques to obfuscate file hashes.

2.0 Materials and Methods.

Materials:

- Wireshark version 3.6.0
- Pcaps
- Virustotal.com

2.1 Methods

The methods used in collecting indicators of compromise with Wireshark are enumerated below:

2.2 Collecting indicators of compromise with wireshark

Monitoring for indicators of compromise enables organisations to better detect and respond to security compromises (Sharma et al., 2023). Collecting and correlating IOCs in real time means that organisations can more quickly identify security incidents that may have gone undetected by other tools and provides the necessary resources to perform forensic analysis of incidents. When a host is infected or otherwise compromised, security professionals need to quickly review packet captures (pcaps) of suspicious network traffic and these pcaps can be used to identify affected hosts and users. There are many sites that provide pcaps for analysis. The researchers have used pcaps from Traffic analysis exercise “Pizza Bender” to demonstrate how Wireshark is used to capture and analyse IOC’s.

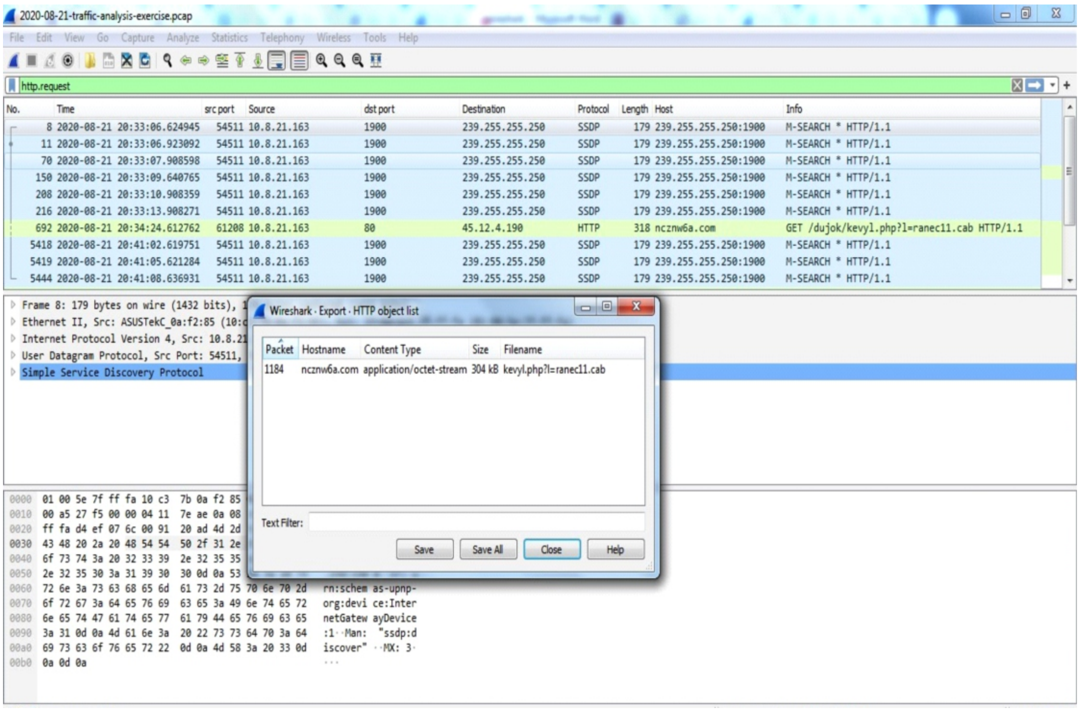

Figure 1: Infected file hash captured by Wireshark

First, the file hash of the infected file is captured as shown in figure 1 above then the result is scanned on virustotal.com as depicted in figure 2 below.

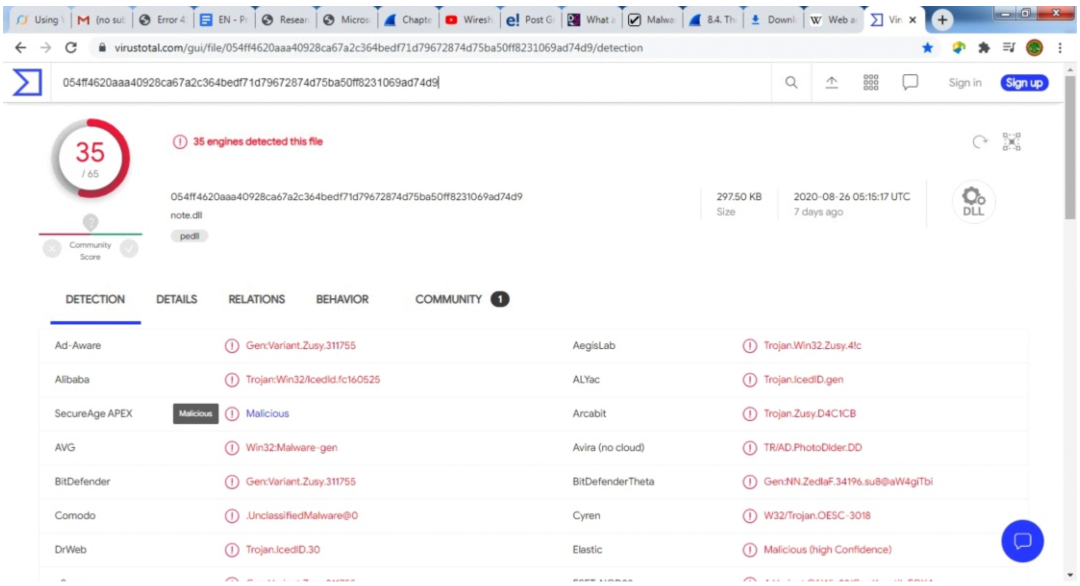

Figure 2: Result scanning on virustotal.com

Having detected that the file is compromised, the researchers proceeded to investigate the host name, domain address and Internet Protocol (IP) address of the infected host as clearly shown in figure 3, 4 and 5 respectively. Network traffic analysis at the packet level is very necessary, owing to the fact that it can identify many different threats and attacks that could remain unnoticed by antivirus software. In the past, packet analyzers were very expensive and patented. Wireshark has changed all that. Wireshark is one of the best open source packet analysers available today, and it displays packet data as detailed as possible.

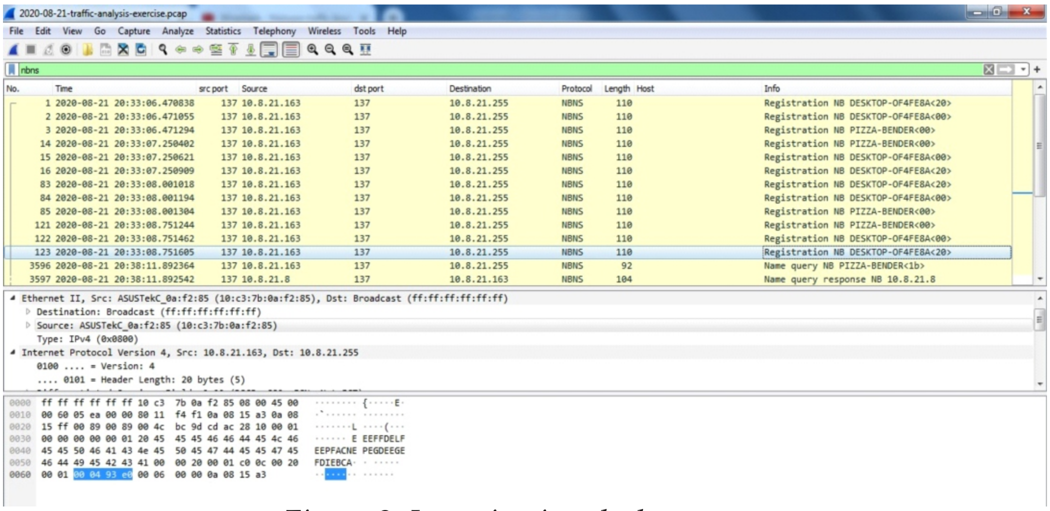

Figure 3: Investigating the host name

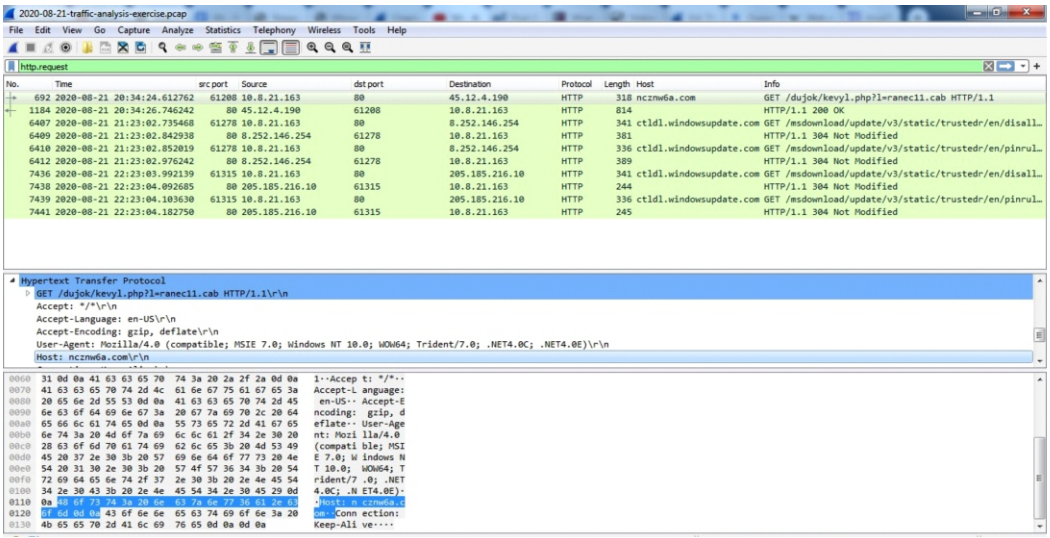

Figure 4: Investigating the Domain address

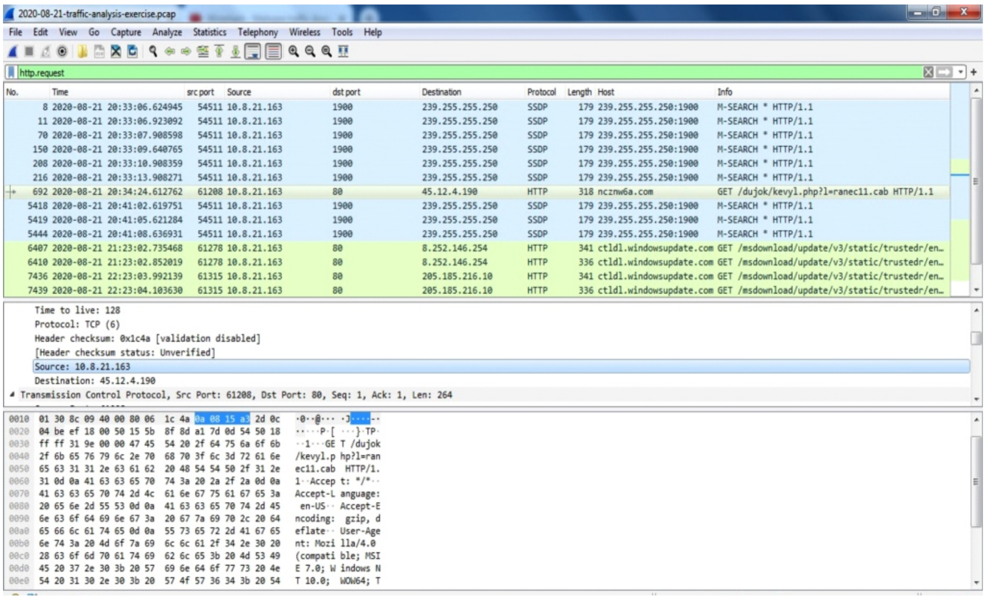

Figure 5: Investigating the IP address of the infected host

2.3 Benefits and Limitations of using Wireshark for IOC Collection

2.3.1 Benefits

- **Cost-effective:** Wireshark is a free and open-source tool, making it readily accessible to individuals and organisations of all sizes. This eliminates the need for expensive commercial network traffic analysis software.

- **Deep Inspection:** Wireshark provides deep inspection capabilities for network traffic. It can decode packets based on various protocols, allowing users to examine the details of communication flows. This granular level of analysis is crucial for identifying subtle anomalies and extracting meaningful IOCs.

- **Customisable Filters:** Wireshark offers a powerful filtering engine. This allows security professionals to tailor their analysis to specific needs. By filtering traffic based on pre-defined criteria (e.g., IP addresses, ports, protocols), analysts can quickly pinpoint suspicious activity and focus on relevant data for IOC extraction.

2.3.2 Limitations:

- **Need for Proficiency**: Effective use of Wireshark requires a strong understanding of network protocols, traffic analysis techniques, and network security concepts. This can be a barrier for users with limited technical expertise.
- **Time-Demanding Analysis:** Analysing captured network traffic with Wireshark can be a time-consuming process. Depending on the volume of traffic and the complexity of the investigation, it can take significant effort to identify and extract relevant IOCs.
- **Probability of False Positives:** While Wireshark offers valuable insights, it's important to acknowledge the potential for false positives. Unusual traffic patterns or communication with unknown entities may not always be malicious. Careful analysis and correlation with other threat intelligence sources are essential to avoid mistaking legitimate activity for a threat.

3.0 Conclusion

Early detection is paramount in the fight against cyberattacks. Indicators of Compromise (IOCs) serve as crucial early warnings, allowing security professionals to identify and respond to potential threats before significant damage occurs. By actively collecting and analysing IOCs, security teams gain valuable insights into suspicious activity on their networks. Wireshark emerges as a powerful and versatile tool for network security professionals. This free software excels at capturing and analysing network traffic in detail, making it ideal for identifying various network traffic-related IOCs. With its deep inspection capabilities, customisable filters, and cost-effectiveness, Wireshark empowers security teams to effectively investigate suspicious activity and extract relevant IOCs for a swift and targeted incident response. Looking ahead, automation and integration with security frameworks offer exciting possibilities for streamlining IOC collection and analysis, further enhancing Wireshark's value in the ever-evolving cyber threat landscape.

4.0 Recommendations

- Based on the findings of this research, it is strongly recommended that organisations adopt the following strategies to enhance their network security posture through effective IOC collection and analysis using Wireshark:
- **Prioritise IOC collection:** Given the critical role of IOCs in early threat detection, organisations should make IOC collection a top priority in their security strategies.
- **Invest in Wireshark:** Wireshark's capabilities and cost-effectiveness make it a valuable investment for network security teams. Organisations should consider deploying Wireshark on their networks to capture and analyse network traffic for IOCs.
- **Train staff:** Ensure that network security professionals are adequately trained in using Wireshark and interpreting IOCs. This will enable them to effectively leverage the tool's capabilities and maximise its benefits.
- **Integrate Wireshark with other security tools:** To streamline IOC collection and analysis, explore opportunities to integrate Wireshark with other security tools and frameworks. This can automate certain tasks and provide a more comprehensive view of network activity.
- **Stay updated on IOC types:** As cyber threats evolve, new IOC types may emerge. Network security professionals should stay informed about the latest IOC trends and ensure that their IOC collection and analysis processes are adapted accordingly.
- **Automation:** It is necessary to explore automation techniques to reduce the manual effort involved in IOC collection and analysis. This can help improve efficiency and reduce the risk of human error.

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SYNERGY FOR PROGRESS: COMMUNICATION AND MEDIA STRATEGIES FOR A.R.I.S.E AND SUSTAINABLE DEVELOPMENT INITIATIVES IN AKWA IBOM STATE AND NIGERIA

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Abstract

This paper investigates communication and media strategies for A.R.I.S.E and sustainable development in Akwa Ibom and Nigeria. The objectives of the study include; ascertaining the perception of the ability of communication and media strategies to positively impact the success of development initiatives in Akwa Ibom and Nigeria. It also sought to find out public participation in A.R.I.S.E or other Sustainable Development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns. Hinged on diffusion of innovation theory and media ecology theory, the study adopted an exploratory and descriptive approach using an online survey. Findings reveal that the majority of respondents perceive communication and media strategies as important instruments in promoting sustainable development initiatives like A.R.I.S.E in Akwa Ibom State and Nigeria. The paper recommends the utilisation of a multi-channel approach to communication that leverages both traditional media and digital platforms to reach diverse audiences with messages about A.R.I.S.E and Sustainable Development initiatives.

Keywords: Synergy, Communication, Media, Strategies, Sustainable development

1.0 Introduction

Communication is central to human existence, and there is no human endeavour involving persons or groups of persons that can thrive without communication. The mass media are generally recognised channels of mass communication and dissemination of information.

The mass media are interwoven with the socio-economic and political life of Nigeria as a nation. The history of Nigeria in the various ramifications of development cannot be told without the study of the mass media.

Successive administrations in Akwa Ibom have always initiated programmes or development initiatives to drive development in the state. In recent times, development efforts have been tailored towards the achievement of the United Nations Sustainable Development Goals (SDGs). The immediate past administration in Akwa Ibom State had the Dakkada initiative. The administration before then, had the Uncommon Transformation mantra. In all of these, communication through the mass media has been the fulcrum of the development drives.

Throughout the launching and implementation of these programmes, the mass media played the roles of informers, educators, advocators amplifiers, and mobilisers to gain acceptance by Nigerians and farmers in particular.

The centrality of communication to human existence and development is incontestable. Wilson (2006) sees communication as a form of expression of human behaviour that is processional in nature having clearly defined purpose or purposes. Specifically, he makes it clear that the human communication system is such that the interdependent participations in the communication process are generally engaged in information dissemination, reception, processing, and meaning exchange which engenders the ability to transact with others and ultimately adapt to their environment. Through communication, these active participants can create, acquire, transform, transact, re-order, and make use of what they obtain in various ways that ultimately enable them to achieve their goals.

There have been a series of communication and the mass media have been reporting the A.R.I.S.E. agenda and Sustainable Development initiative. However, researches on the communication and media strategies that can engender the success of the programme are limited. Available studies are mostly on Sustainable Development Goals, given this scenario; there exists a gap in the study of communication and media strategies for A.R.I.S.E agenda and Sustainable Development Goals in Akwa Ibom. It has not been empirically established what communication and media strategies have been utilised, the awareness level by members of the public, the effectiveness of the communication, nor are the challenges faced in utilising communication and media identified, thereby making this study necessary.

1.1 Objectives of the Study

The objectives of this study were to:

i. ascertain the perception of the ability of communication and media strategies to positively impact the success of development initiatives in Akwa Ibom and Nigeria.

ii. determine the extent of awareness of A.R.I.S.E and other Sustainable Development initiatives in Akwa Ibom and Nigeria.

iii. determine channels/platforms through which messages about A.R.I.S.E and Sustainable Development initiatives are encountered.

iv. find out public participation in A.R.I.S.E or other Sustainable Development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns.

1.2 Research Questions

The following research questions were raised to guide this study:

i. What is the level of perception of the ability of communication and media strategies to positively impact the success of development initiatives in Akwa Ibom and Nigeria?

ii. What is the extent of awareness of A.R.I.S.E and other Sustainable Development initiatives in Akwa Ibom and Nigeria?

iii. Which channels/platforms are messages about A.R.I.S.E and Sustainable Development initiatives encountered?

iv. Do members of the public participate in A.R.I.S.E or other Sustainable Development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns?

2.0 Conceptual Clarifications

Some concepts are clarified in this section to engender the understanding of this study.

2.1 Synergy for Progress: This concept refers to the combined and mutually reinforcing efforts of different stakeholders, initiatives, and strategies working together towards a common goal of progress and Sustainable Development. It emphasises the importance of collaboration, coordination, and integration of efforts to achieve greater impact and outcomes. According to Sridhar Venkatapuram (2020), synergy for progress refers to the collaborative and integrated efforts of various stakeholders and initiatives, working together towards common objectives in Sustainable Development Goal 17. Sustainable Development Goals is a partnership, and partnership means to strengthen the means of implementation and realisation of development goals by working together.

In synergising, everyone is expected to help make sure we achieve the set pace and targets of progress or development. The United Nations in expounding goal 17 in target 17.6 places emphasis on knowledge sharing.

2.2 Communication Strategies: Communication strategies encompass the planned and systematic approaches used to convey messages, information, and ideas to target audiences effectively. Communication strategies involve the planned and systematic approaches used to convey messages and engage stakeholders effectively (Drezner, 2020).

In the context of Sustainable Development initiatives like A.R.I.S.E, communication strategies may include methods such as media campaigns, community engagement, digital communication, and public relations efforts aimed at raising awareness, promoting participation, and driving behaviour change toward Sustainable Development Goals.

2.3 Media Strategies: Media strategies involve the planned utilisation various media channels and platforms to communicate messages and engage audiences. This may include traditional media such as television, radio, and newspapers, as well as digital and social media platforms like websites, social networking sites, and mobile applications. According to McGrath and Moloney (2020), media strategies encompass the utilisation of various media channels and platforms to communicate messages and engage audiences in the context of public relations and communication campaigns. Media strategies are essential for amplifying messages, reaching diverse audiences, and maximising the impact of communication efforts in Sustainable Development initiatives.

2.4 A.R.I.S.E Agenda: The A.R.I.S.E agenda, a developmental initiative of the Akwa Ibom State governor, Pastor Umo Eno can be understood by clearly delineating the acronym thus:
A – Agricultural Revolution
R – Rural Development
I – Infrastructural Maintenance/Advancement
S – Security Management
E – Educational Advancement

The governor during the electioneering for the 2023 gubernatorial poll stated, "We will spread our resources to water the seed of our collective prosperity. That is what the A.R.I.S.E agenda is all about.

This clarification is necessary since many may not understand that A.R.I.S.E is a coinage that gives the acronym that may mean stand up which may also be taken as the English version of Dakkada, the attitudinal change project of Governor Eno's predecessor, Udom Emmanuel.

According to Eno (2023), the A.R.I.S.E agenda is aimed at achieving global best democratic practices in line with the Sustainable Development Goals (SDGs). The initiative is meant to address the challenges faced by the state while fostering Sustainable Development.

Eyakenyi (2023) avers that the A.R.I.S.E agenda is a guiding principle for key stakeholders on their path toward contributing to the developmental success of government.

2.5 Sustainable Development: Sustainable Development refers to the pursuit of economic growth, social inclusion, and environmental protection while meeting the needs of the present generation without compromising the ability of future generations to meet their own needs (Sachs, 2020). It encompasses a holistic approach to development that balances economic prosperity, social equity, and environmental sustainability.

The International Institute for Sustainable Development (2015) defines sustainable development as the type of development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Drezner (2020) sees sustainability as the capacity to maintain some entity, outcome, or process over time. Sustainable development in a very straightforward language is the development that can be maintained over time. In other words, it is the development that will last and the benefits can be sustained for a long time. It is development with transgenerational benefits that gives room for future harmless development.

What is known today as Sustainable Development Goals (SDGs) originated from the coming together of the international community in 2015 to adopt the seventeen (17) SDGs as the gold standard which would guide all developments, economic development inclusive, and by which all developments would be evaluated (Lawrence et al., 2020). Sustainable economic development, therefore, is the economic development that meets the standard of sustainability as set out in the Sustainable Development Goals (SDGs).

According to the United Nations Department of Economic and Social Affairs (2015), the 2030 agenda for sustainable development adopted by all United Nations member states in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. These development goals are seen as an urgent call for action by all countries in a global partnership. The goals, seventeen in all, include quality education, decent work, and economic growth, as well as industry, innovation, and infrastructure as goals 4,8 and 9.

3.0 Theoretical framework

This study draws upon two theoretical perspectives to guide the analysis and interpretation of findings. These theoretical frameworks include:

3.1 Diffusion of Innovations Theory

This work is anchored on the diffusion of innovation theory. According to Rogers (2003), the main thrust of the theory is the recognition of the fact that innovations take some time before it is finally adopted. Thus, it aims at shortening the period within which innovation diffuses.

One reason there is so much interest in the diffusion of innovations is that adopting new ideas, even with apparent advantages, is often very difficult. There is a wide gap in many fields between what is known and what is put into use. Many innovations require a lengthy period, often some years, from when they become available to when they are widely adopted. Therefore, a common problem for many individuals or organisations is how to speed up an innovation's diffusion rate.

The theory seeks to explain how, why, and at what rate new ideas and technology spread. According to Rogers (2003), the basic assumption of the theory is that the innovation process is influenced by four main elements the innovation. Itself, communication channels, social system, and time.

3.2 Media Ecology Theory

Media ecology theory has its roots in the works of McLuhan, Ong and Postman (Laskowska & Marcynski, 2019). According to McLuhan, the media is an environment that is different from the natural one, but, at the same time, has the power of influence and constitutes an important and natural element of the modern world – just like the natural one. In this sense, media ecology can be understood as the science of functioning of the media, the impact of media on human beings, dependencies between man and the new media environment.

Postman believed that medium technology within which a culture grows; that is to say, it gives form to a culture's politics, social organisation and habitual ways of thinking (Laskowska & Marcynski, 2019).

The word "ecology" suggests studying the environments – their structures, contents, and consequences they have for people. Media ecology analyses the role that media play in social interactions that are forced upon members of society by the media. It is also about how the media represents reality, how it evokes feelings and behaviours in us, as well as how the media reconstruct our lives and survival.

4.0 Communication Strategies

Communication is defined in different ways by different scholars but with a central focus on transfers and understanding of communication contents. Wilson (2006) sees communication as a form of expression of human behaviour that is processual in nature having clearly defined purpose or purposes. The author sees various definitions as confirming that communication is a behaviour–based activity that is exhibited usually more meaningfully by humans.

To further elucidate on communication, Adeseye and Ibagere (1993) cited in Anyanwu (2015) drawing their definitions of communication from several sources define communication as any means by which a thought is transferred from one person to another.

Also, Agee et al (1988) cited in Ndolo (2005, p. 10) see communication as "The act of transmitting information, ideas, and attitudes from one person to another." Summarising the various definitions of communication, Ndolo (2005, p. 11) submits that "Common to all the above definitions is that communication is a process of understanding and sharing of ideas, and feelings, or meaning or messages between people."

A strategy operates as a system that includes the purpose, the message, the medium, and the people who are involved. Brown et al., (2024), aver that a strategy needs to be considered through time, especially since each activity undertaken will have an irreversible effect on the system.

5.0 Research Methodology

The study adopted an exploratory and descriptive approach. Given this approach, the population of the study comprised adult smartphone users in Akwa Ibom State estimated at 1.5 million. The online survey was utilised with a sample size of 250 respondents due to its exploratory and descriptive nature. Given the specific criteria for the population (adults with smartphones), snowball sampling was employed. This method is also known as chain referral sampling. The snowball sampling technique involves recruiting participants through referrals from existing participants, the initial participants, known as "seeds," are selected through convenience or purposive sampling methods. These seeds then refer additional participants to the study, who in turn refer more participants, creating a "snowball" effect.

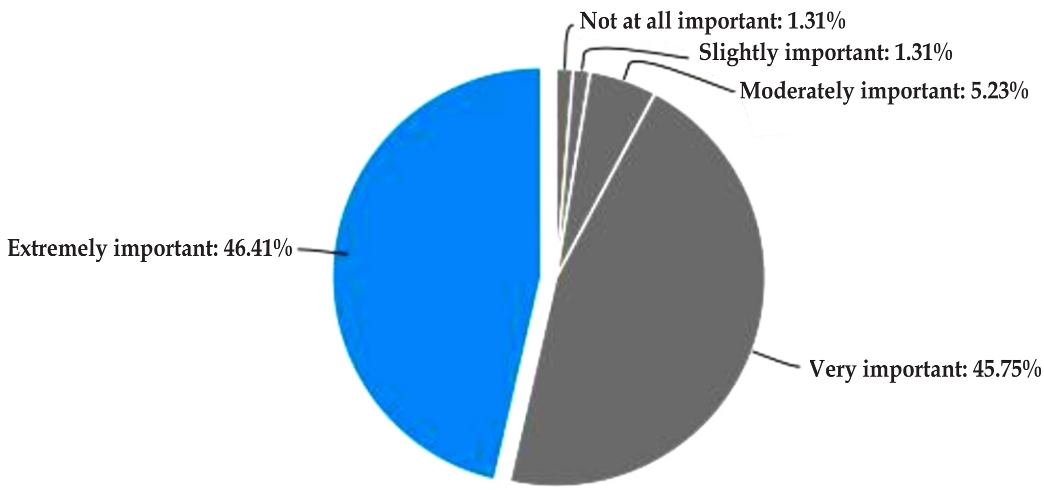
The instrument used was the online questionnaire. The online questionnaire is a structured instrument designed to collect data from respondents regarding their attitudes, awareness, and behaviour related to sustainable development and communication strategies in the context of the A.R.I.S.E initiative. The questionnaire consists of 10 close-ended questions, which are designed to be easily understood and quickly answered by respondents. The questions cover a range of topics relevant to the study objectives and are formatted in a way that facilitates efficient data collection and analysis. A total of 165 copies of the questionnaire were returned, making a return rate of 66 per cent and used for analysis.

6.0 Data Presentation, Analysis, and Discussion

Some objectives were put forward to guide the study and the survey was done using the online survey software – questionpro to create the survey and administer the questionnaire. Based on the exploratory and descriptive approach, 165 responses were completed and the data are presented, analysed, and discussed as follows:

Research Question I: What is the level of perception of the ability of communication and media strategies to positively impact the success of development initiatives in Akwa Ibom and Nigeria?

How important do you consider communication and media strategies in promoting sustainable development initiatives like A.R.I.S.E in Akwa Ibom State and Nigeria?



To what extent do you agree with the statement: "Effective communication and media strategies can positively impact the success of sustainable development initiatives in Akwa Ibom State and Nigeria"?

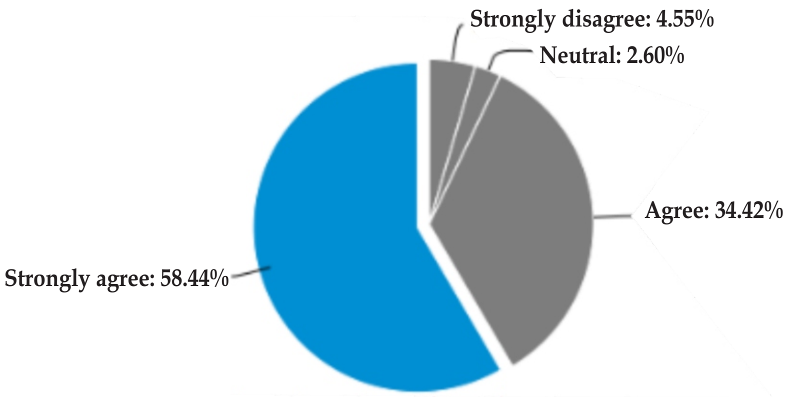


Figure i

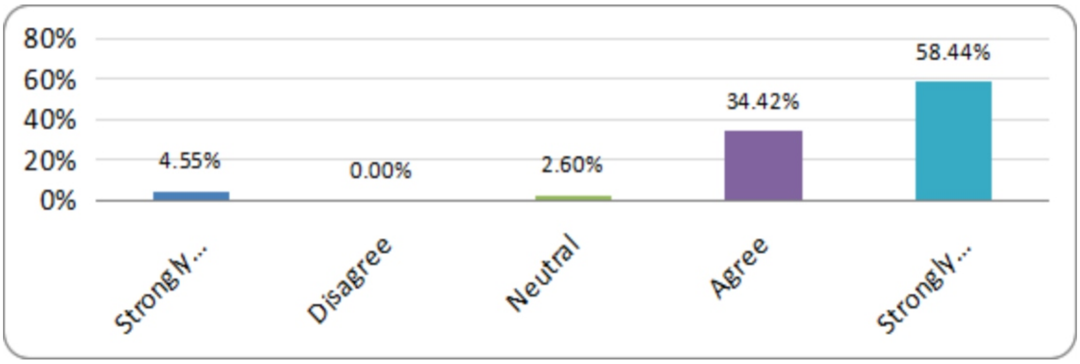


Figure ii

Data in figures i and ii are used to answer this research question. Most respondents, 71 (46.41%) considered communication and media strategies in promoting sustainable development initiatives like A.R.I.S.E in Akwa Ibom State and Nigeria extremely. Seventy (70) respondents representing 45.75% considered them very important, making a total of 91% of respondents affirming the importance of communication and media strategies in communicating the A.R.I.S.E and sustainable development initiatives in Akwa Ibom State and Nigeria.

As a corollary to the foregoing, data in Figure 6 show a very high level of perception of the ability of communication and media strategies to impact positively on the success of A.R.I.S.E and sustainable development in Akwa Ibom and Nigeria. Ninety (90) respondents representing 58.44% agreed strongly, and 53 respondents (34.42%) agreed, making a combined majority of 92.86%.

From the above, it is evident that communication is perceived to have the ability to positively impact the success of A.R.I.S.E and sustainable development initiatives in Akwa Ibom State and Nigeria.

Research Question II: What is the extent of awareness of A.R.I.S.E and other Sustainable Development initiatives in Akwa Ibom and Nigeria?

How aware are you of A.R.I.S.E. and other sustainable development initiatives in Akwa Ibom State and Nigeria?

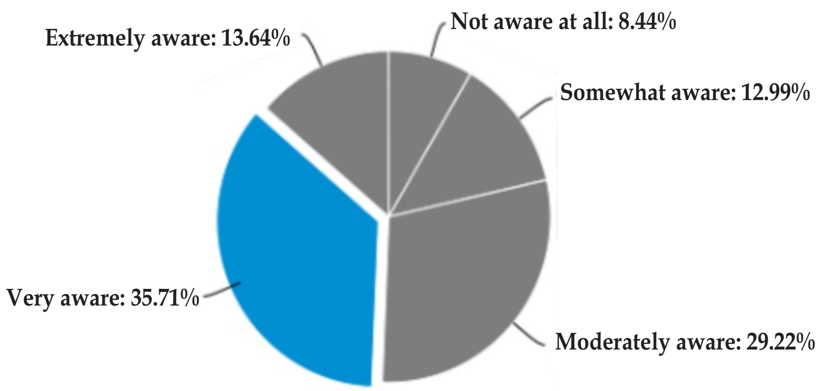


Figure iii

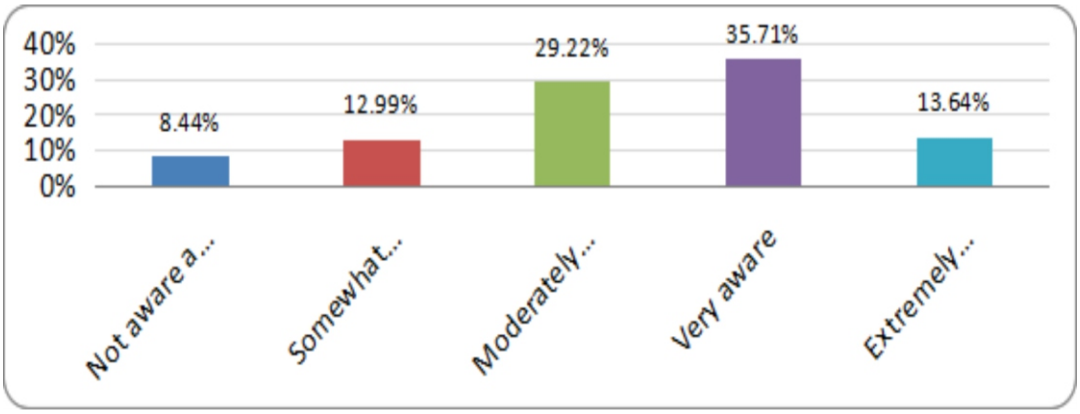


Figure iv

The data presented in figure iii and iv provide insights into the extent of awareness of A.R.I.S.E and other Sustainable Development initiatives among respondents in Akwa Ibom and Nigeria. The analysis reveals that a majority of respondents demonstrate varying levels of awareness of these initiatives, with the highest proportion falling under the "Very aware" category at 35.71%. This indicates a significant level of awareness among the respondents regarding A.R.I.S.E and other Sustainable Development initiatives.

Furthermore, when considering the cumulative percentages, it is evident that a substantial portion of respondents, totalling 79.56%, fall under the categories of "Moderately aware," "Very aware," and "Extremely aware." This suggests that a large majority of respondents have at least a moderate level of awareness of A.R.I.S.E and other Sustainable Development initiatives in Akwa Ibom and Nigeria.

The data also indicate that a smaller proportion of respondents, representing 21.44%, have lower levels of awareness, including "Somewhat aware" and "Not aware at all." While this portion is relatively smaller compared to those with higher levels of awareness, it still signifies the existence of some respondents who may benefit from increased awareness-building efforts regarding A.R.I.S.E and other Sustainable Development initiatives.

Overall, the analysis suggests that there is a considerable level of awareness of A.R.I.S.E and other Sustainable Development initiatives among respondents in Akwa Ibom and Nigeria. However, there remains a need for continuous efforts to enhance awareness among those with lower levels of awareness, ensuring broader dissemination and understanding of these important initiatives for sustainable development.

Research Question III: Which channels/platforms are messages about A.R.I.S.E and Sustainable Development initiatives encountered?

If you are aware, please indicate which communication channels/platforms you have encountered information about A.R.I.S.E. and sustainable development initiatives from (select all that apply):

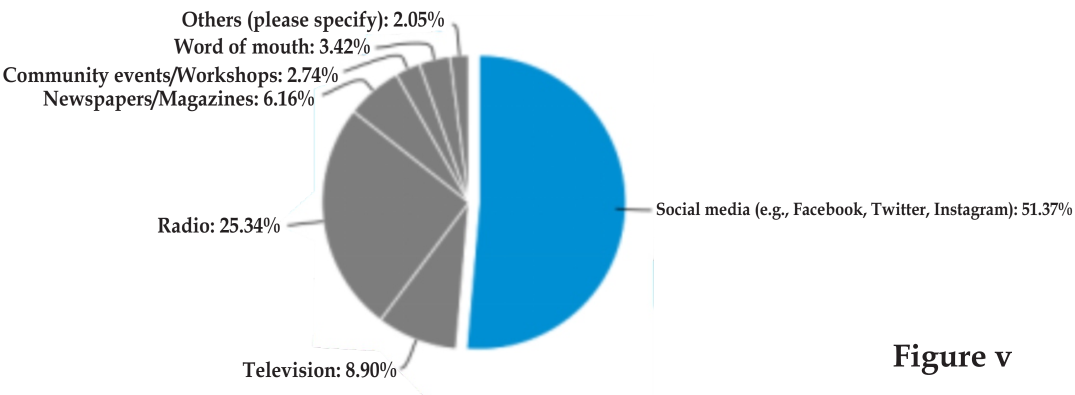


Figure v

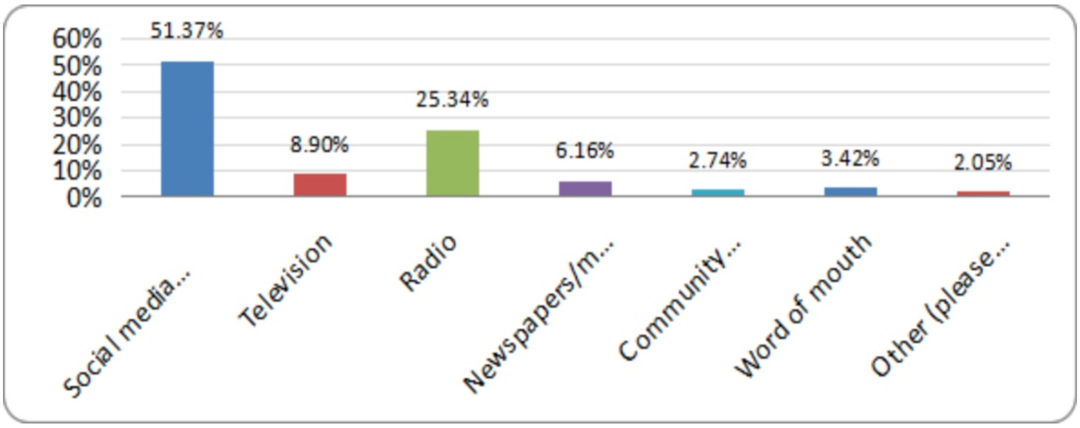


Figure vi

The data provided in figure v and vi offer insights into the various channels or platforms through which respondents encounter messages about A.R.I.S.E and Sustainable Development initiatives. The analysis indicates that social media emerges as the most prevalent channel, with 51.37% of respondents reporting encountering messages through platforms such as Facebook, Twitter, and Instagram. This suggests that social media plays a significant role in disseminating information about A.R.I.S.E and Sustainable Development initiatives to the target audience.

Furthermore, the data reveal that radio is another prominent channel, with 25.34% of respondents encountering messages through this medium. Television follows, albeit with a lower proportion of 8.90%. These findings suggest that traditional media channels, such as radio and television, continue to play a role in reaching audiences with information about A.R.I.S.E and Sustainable Development initiatives, albeit to a lesser extent compared to social media.

Moreover, the data highlight the relatively lower usage of print media, with newspapers/magazines accounting for only 6.16% of encounters. Additionally, community events/workshops and word of mouth are reported by a smaller proportion of respondents, at 2.74% and 3.42%, respectively.

It is noteworthy that a small percentage of respondents (2.05%) indicated encountering messages through channels not specified in the options provided, indicating the possibility of other communication channels or platforms not captured in the survey.

Overall, the analysis underscores the importance of utilising multiple communication channels and platforms to effectively disseminate messages about A.R.I.S.E and Sustainable Development initiatives. While social media emerges as the dominant channel, traditional media channels and other communication avenues also play significant roles in reaching diverse audiences with information about these initiatives.

Research Question IV: Do members of the public participate in A.R.I.S.E or other Sustainable Development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns?

Have you ever participated in any activities or events organized by A.R.I.S.E. or other sustainable development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns?

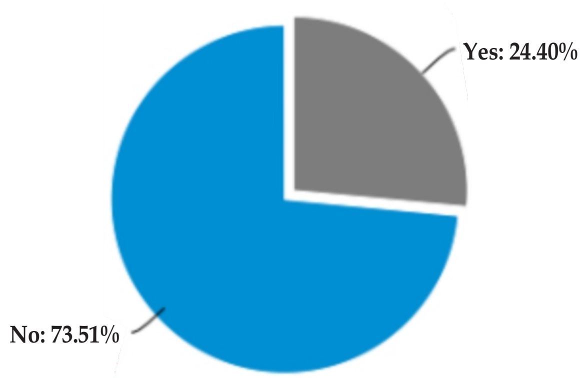


Figure vii

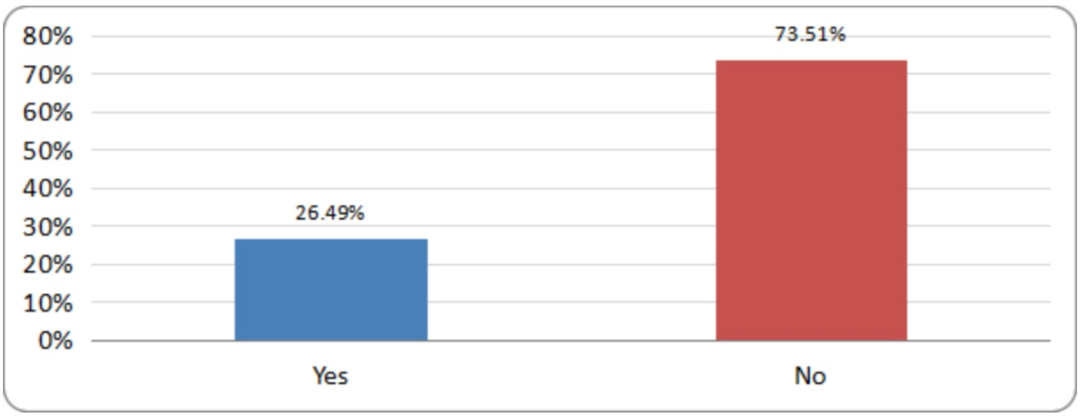


Figure viii

The data presented in Table IV aim to assess whether the public participates in A.R.I.S.E or other Sustainable Development initiatives in Akwa Ibom State and Nigeria as a result of communication and media campaigns. The analysis reveals that 26.49% of respondents answered "Yes," indicating that they do participate in these initiatives due to communication and media campaigns. Conversely, the majority of respondents, comprising 73.51%, answered "No," indicating that they do not participate in these initiatives as a result of communication and media campaigns.

This analysis suggests that while a portion of the public does participate in A.R.I.S.E or other Sustainable Development initiatives as a result of communication and media campaigns, a significant proportion does not. It is important to explore the reasons behind this discrepancy further, which may include factors such as lack of awareness, competing priorities, or perceived barriers to participation.

Additionally, the data highlight the potential effectiveness of communication and media campaigns in driving public participation in these initiatives. However, the relatively lower percentage of respondents indicating participation underscores the need for targeted and effective communication strategies to increase engagement and participation among the broader public.

Overall, the analysis emphasises the importance of evaluating the impact of communication and media campaigns on public participation in A.R.I.S.E and other Sustainable Development initiatives, as well as identifying areas for improvement in communication strategies to enhance public engagement and involvement in these initiatives.

7.0 Summary of Findings

This paper drew the following findings:

i. The majority of respondents perceive communication and media strategies as extremely important or very important in promoting sustainable development initiatives like A.R.I.S.E in Akwa Ibom State and Nigeria.

ii. There is a high level of perception among respondents regarding the ability of communication and media strategies to positively impact the success of A.R.I.S.E and sustainable development initiatives in Akwa Ibom and Nigeria.

iii. Social media emerges as the most prevalent channel/platform through which messages about A.R.I.S.E and Sustainable Development initiatives are encountered by respondents.

iv. While some respondents participate in A.R.I.S.E or other Sustainable Development initiatives as a result of communication and media campaigns, a majority do not engage in these initiatives due to such campaigns.

These findings highlight the importance of effective communication and media strategies in promoting sustainable development initiatives and the need for targeted approaches to enhance public engagement and participation.

8.0 Conclusion

This paper highlights the significance of communication and media strategies in promoting sustainable development initiatives like A.R.I.S.E in Akwa Ibom State and Nigeria. The study underscores the importance of effectively communicating key messages about these initiatives through diverse channels and platforms, with social media emerging as a primary channel for reaching audiences. However, while there is a strong perception of the positive impact of communication and media strategies, there is room for improvement in driving public participation in A.R.I.S.E and Sustainable Development initiatives.

9.0 Recommendations

9.1 Communication Strategies

- Utilises a multi-channel approach to communication that leverages both traditional media (e.g., radio, television, newspapers) and digital platforms (e.g., social media, websites, mobile apps) to reach diverse audiences with messages about A.R.I.S.E and Sustainable Development initiatives.
- Tailor communication messages to resonate with the specific needs, interests, and priorities of different target audiences in Akwa Ibom State and Nigeria. This could involve segmenting audiences based on

demographic factors (e.g., age, gender, education level) and crafting messages that address their unique perspectives and concerns.

- Engage with local community leaders, influencers, and stakeholders to amplify communication messages and foster grassroots support for A.R.I.S.E and Sustainable Development initiatives. This could involve partnering with community organisations, religious institutions, and youth groups to disseminate information and mobilise participation.
- Invest in capacity building and training for communication professionals and stakeholders involved in implementing communication strategies for A.R.I.S.E and Sustainable Development initiatives. This could include workshops, seminars, and skill-building sessions to enhance their abilities to create compelling content, engage with audiences, and measure the impact of communication efforts.

9.2 Media Strategies

- Develop engaging and visually appealing multimedia content (e.g. videos, infographics, and animations) that effectively communicates key messages about A.R.I.S.E and Sustainable Development initiatives to diverse audiences in Akwa Ibom State and Nigeria.
- Cultivate partnerships with local media outlets, including radio stations, television channels, and newspapers, to disseminate information about A.R.I.S.E and Sustainable Development initiatives through news coverage, feature stories, and public service announcements.
- Leverage social media platforms such as Facebook, Twitter, Instagram, and YouTube to create interactive and shareable content that engages audiences and encourages dialogue around A.R.I.S.E and Sustainable Development initiatives.
- Monitor and analyse media coverage and audience engagement metrics to assess the effectiveness of media strategies in reaching target audiences and driving awareness, participation, and support for A.R.I.S.E and Sustainable Development initiatives. Adjust strategies as needed based on feedback and performance data to optimise impact and reach.

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PRESS REPORTAGE OF SEXUAL AND GENDER VIOLENCE IN NIGERIAN RURAL COMMUNITIES

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Abstract

This study critically examines the coverage of sexual and gender violence by the Pioneer and Ibom Nation newspapers in rural Akwa Ibom State, Nigeria. Utilising Cultural Feminist theory as a framework, we conducted a content analysis of 104 newspaper editions from January to December 2023. The findings reveal that both newspapers predominantly feature straightforward news stories (56.4%), yet they afford minimal prominence to issues of sexual and gender violence, with limited front-page coverage. Notably, 55.8% of the content from the Pioneer newspaper was unfavourable towards such violence. The research concludes that these newspapers do not actively support efforts to combat sexual and gender violence, instead aligning with governmental initiatives aimed at addressing this pressing issue. The study recommends that journalists diversify their sources and adopt strategies to enhance the visibility of gender violence stories in media narratives, ensuring equitable representation for all genders as both news subjects and sources.

Keywords: Gender-based violence, Media coverage, Content analysis, Uyo, Akwa Ibom, Cultural feminism.

1.0 Introduction

Gender-based violence is a global issue that transcends all boundaries geographical, cultural, social, economic, ethnic, and otherwise. It is a form of violence that is inflicted based on gender differences. Worldwide, children are faced with challenges of practices such as female genital mutilation, child trafficking, forced marriage, sexual abuse, child labor, bullying, and other forms of deprivation (Badri, 2014).

The United Nations Declaration on the Elimination of Violence against Women (1993) offers a critical perspective on the root causes and perpetuation of violence against women. It frames this violence as a symptom of long-standing power imbalances between genders, where men have historically held dominance over women. This inequality has resulted in systemic discrimination and hindered women's progress in society. The declaration suggests that violence serves as a critical mechanism for maintaining women's subordinate status relative to men. This subordination is further entrenched by several interconnected factors such as women's limited access to social and economic resources, traditional gender roles, and the undervaluation of women's contributions to society and the economy (Pickup, Williams, & Sweetman 2011). In many cultures, practices such as child marriage, the expectation for widows to remarry within the deceased husband's family, and male-centric property rights contribute to women's dependence on men (Nartey, Bahar, & Nabunya). These issues are particularly pronounced in areas where women face high unemployment rates and limited access to social services. Such circumstances severely restrict women's options for escaping abusive situations, effectively trapping them in cycles of violence and dependency (Ogunyemi, 2022).

Globally, an estimated 30% of ever-partnered women have experienced physical and or sexual violence, with a higher regional prevalence of approximately 37% in Africa, East Mediterranean, and South East Asia. Also, a prevalence of exposure to violence among ever-partnered women stratified by age has been recorded (29.4%) amongst the age group 15-19 years. This indicated that violence starts early in women's relationships (WHO, 2013). Reports have also shown that 7% of non-partnered women have experienced sexual violence (Decker, Peitzmeier, Olumide, Acharya, & Ojengbede, 2014).

The media has a significant impact on society and people's daily lives. Whether directly or indirectly, the media affects the way people live, interact, or make decisions. Therefore, the media is assumed to have some influence on our lives, and this influence cannot be taken for granted. One of the critical functions of the media is disseminating information that has been gathered ethically, objectively, and fairly.

However, there is a lack of information on accurate estimates of the magnitude of gender and sexual violence, especially against women in Nigeria, mainly due to violence being unreported. Authorities often fail to document many reported incidents even though information is the foundation for human thought and behaviour. Information provides a stimulus for all thoughts and actions of human beings. According to Akarika, Iwok, and Ikon (2019), information entails data, facts, imagination, ideas, opinions, and cultural values in various media, including print, audio-visual materials, and electronic processors. Research by WHO (2013) has highlighted significant challenges faced by sexual abuse victims in Nigeria when seeking justice. According to Amnesty International (2002), victims often struggle to convince law enforcement and prosecutors of their experiences, bearing the burden of proving non-consent or coercion. The cultural stigma surrounding sexual abuse in many Nigerian communities compounds this issue, leading victims to self-blame and fear of social exclusion if they disclose their experiences (IRIN, 2017). Consequently, many survivors choose to suffer silence, potentially resulting in underreported statistics that may not accurately reflect the true prevalence of abuse. It is worth noting that while men can also be victims of violence perpetrated by women, the scale of this issue is generally considered less severe.

The media's role in shaping societal attitudes towards gender-based violence is complex. Studies conducted by women's rights organisations have revealed that mass media often perpetuate harmful gender stereotypes, which can negatively influence perceptions of violence against women. However, media outlets' widespread reach and influence also present an opportunity to effect positive change in combating such violence (Pickup, Williams, & Sweetman, 2011). Notably, the print media hold a crucial position in addressing and challenging gender-based violence due to its significant societal impact.

The picture painted above clearly indicates the perceived power of the press to influence public opinion on burning contemporary issues. The implication is that the press may not have been effective in combating gender-based and sexual abuse. Based on the above, this study seeks to investigate Pioneer and Ibom Nation newspapers' coverage of gender-based and sexual abuse cases in rural areas in Akwa Ibom State.

1.1 Research Objectives

The objectives of the study are to:

i. examine the extent to which Pioneer and Ibom Nation newspapers have covered gender and sexual abuse in Nigeria.
ii. investigate the prominence of the reports on gender and sexual abuse by Pioneer and Ibom Nation newspapers.
iii. identify the dominant direction used by Pioneer and Ibom Nation newspapers on gender-based and sexual abuse in Nigeria.

1.2 Gender-based violence and the media

Gender-based violence is a global socioeconomic issue that affects many women. However, in light of this sad reality, media portrayal of Gender-Based violence, the quality and extent of reportage remains astonishingly mediocre. Mass media are significant agents in informing citizens about relevant issues like Gender Based Violence. As Steeves (1997) states that "news has been examined by many researchers who have discovered that very little news is by or about women, uses female sources, or examines issues of particular salience to women, such as child care, women's health, women's economic status, abortion, or gender violence" (P.7).

To further buttress Steeves' assertion, Gallagher (2001) postulates that gender violence has transformed over the years from extraordinary to ordinary news. Gallagher (2001) further alludes that it is not a first-page news item unless famous people are involved. Gallagher (2001) notes that: "Women and their voices may be considered unworthy of serious consideration even in media content that is destined specifically for them" (p.6). When Gender Based Violence gains media attention, it may not be framed in a fair and balanced manner. Gill (2007) contends that the media give a distorted version of incidents of Gender Based Violence. News reports on Gender-Based Violence focus disproportionately on attacks by strangers, bizarre assaults, and those perpetrated against young women. The news reports on Gender-Based Violence are also littered with descriptions that bear little relationship to the women's experience of the attack, such as "fondled her breasts" and "took turns, while the other pinned the girl down. Gill (2007) notes that men are never described as hysterical, bubbly, pretty, pert, prudish, vivacious, or flirtatious. However, these are all the words used to describe victims of cases.

A prevalent and misleading representation of perpetrators of gender violence in news media is the portrayal of them as "identifiably sick and depraved strangers" (Gill, 2007). This narrow framing obscures the reality that many offenders are often known to their victims, reinforcing harmful stereotypes and diverting attention from the broader societal issues that contribute to gender-based violence. However, many perpetrators are friends, neighbors, relatives, co-workers, or someone else known to the victim. News media hold a critical position in society regarding the extent of influence on public opinion. Gillespie et al. (2013) argue that the news media can disseminate information more rapidly than any other entity in our society and has the potential to drastically influence public opinion.

From the above assertion, it can be realised that media are a force that cannot be overlooked. Sacco (1995) concurs with the idea that media have a vital role in shaping society's consciousness around issues such as Violence Against Women. Sacco (1995) suggests that the news media are essential in turning people's personal experiences with crime—whether as victims or offenders—into wider societal issues. The way the media collect, organise, and explain crime reports plays a significant role in shaping public awareness about which situations should be considered urgent problems, what these problems entail, and how they might be addressed.

In addition to being an essential institution, the news media industry also acts as an independent, powerful opinion-shaping force. They create the agenda, give information of wide interest, and draw attention to pertinent topics. Thus, the strength of the media is determined by its influence on social reality and environment.

Often, Gender-based violence, whether sexual or otherwise, has become mere media entertainment pieces instead of being treated as severe hard news that carries a significant impact on society. Gender-based violence in the news has many insights into society. It often shapes how people think about the issue and receive survivors and perpetrators. The episodic coverage patterns of Violence Against Women undermine efforts to change opinion and policy. This also atomies victims' quest to be heard and obscures the social root causes of Gender-based violence. The literature also suggests that media coverage of violence can affect public policy. Meyers (2010) argues that News of violence is significant not only because it influences public perceptions of whether this crime is seen as a severe social problem but also because it directly influences governmental policymaking.

The media's portrayal of women as victims in news reports further defines their role within the community. As Ross (2010) states, "men circumscribe women's lives" (p. 95), highlighting how societal narratives often limit women's identities and experiences. This representation not only reflects but also reinforces the boundaries placed on women, shaping public perception and influencing their status in society. However, the media only report violence, but when some women in such violent situations emerge as survivors, the media do not report such victory.

2.0 Theoretical Framework

Cultural Feminist Theory

The theory considered relevant to this work is cultural feminist theory. Cultural feminist theory, primarily articulated by scholars like Carol Gilligan in the 1980s, emphasises the role of gender and power dynamics in understanding domestic violence. This theory posits that domestic violence is a manifestation of patriarchal structures that perpetuate female subordination and male dominance. It highlights how societal norms valorise traditional masculinity, thereby contributing to systemic mistreatment of women across different cultures.

Cultural feminist theory explains domestic violence about gender and power relations in society, including the role of the patriarchy in enacting and perpetuating female domestic abuse. Feminist scholars insist that domestic violence is sexed, thus a means through which sexed exploitation and inequality are staged, where society emphasizes continual female denigration and inferiority but male superiority (D'cruze & Rao, 2005). Societal norms often valorise traditional masculinity and femininity, with particular emphasis on male power and authority. This system of male dominance and control is rooted in specific sociocultural concepts of what it means to be a "proper" man or woman. The variation in gender construction across cultures contributes to the persistent systemic mistreatment of women.

In many African societies, including Nigeria, gender roles are sharply delineated. Male dominance is upheld through traditional values, beliefs, and customs. Sociocultural expectations shape women's experiences in the domestic realm, emphasising traits like passivity and submission as ideal feminine qualities. Conversely, men are expected to embody aggression and dominance. Traditional norms cast men as household heads and primary income earners, while women are viewed primarily as procreators and homemakers.

The Igbo ethnic group in Nigeria provides a striking example of how marital rituals can reinforce gender hierarchies. Illika (2006) describes a marriage ceremony where a woman demonstrates her acceptance of marriage and complete submission to her husband by kneeling before him and offering a cup of palm wine after taking a sip. Unlike some other Nigerian ethnic groups, such as the Hausa, Igbo marriages are elaborate affairs involving substantial bride prices or dowries, including specified "head drinks" and other items demanded by the bride's family.These marriage rituals serve to communicate male entitlement, power, and superiority in contrast to female submission. Consequently, any deviation from the expected subordinate role of women in marriage can be seen as a transgression, potentially leading to marital abuse.
Cultural feminist theory is highly relevant to this study on media coverage of gender-based and sexual abuse in Nigeria. The theory provides a framework for understanding how patriarchal structures and societal norms contribute to the perpetuation of violence against women (D'cruze & Rao, 2005). It helps explain why such violence may be underreported or misrepresented in the media. The theory's emphasis on gender roles and power dynamics aligns with the study's focus on how Nigerian newspapers cover these issues.

Furthermore, it offers insight into the cultural context of gender-based violence in Nigeria, particularly in relation to traditional marriage practices and gender expectations (Illika, 2006). This theoretical lens can inform the analysis of media framing and representation of abuse cases.

3.0 Methodology

The content analysis method was adopted for the study. The manifest content of Pioneer and Ibom Nation newspapers concerning the coverage of gender-based violence in rural communities of Akwa Ibom State from January 2023 to December 2023 were analysed. Pioneer and Ibom Nation newspapers are two of the leading local newspapers in Akwa Ibom State, with wide circulation and readership across all parts of the state. The total population comprises 52 editions each of the Pioneer and Ibom Nation newspapers over a twelve-month period, resulting in a combined total of 104 editions. A systematic sampling method was employed to select a sample size of 30 editions from the Pioneer and Ibom Nation newspapers. This approach was chosen to ensure that all editions were equally represented in the study, thereby enhancing the reliability and validity of the findings.

3.1 The units of analysis

The study's units of analysis were news stories, editorials, features, letters to the editor, opinions, and comments.

3.2 Content categories

The following content categories were employed in the study to help guide the coding of the selected newspaper samples.

Frequency: The frequency would be measured by the number or total number of news stories written about the incident in both newspapers. The magnitude of the press coverage also determines this.

Placement: This involves the position of the stories in the entire newspaper setup. These include;

a. Front Page: The stories on the front page would be considered the most important;
b. Inside page: The stories would be considered least important. These

stories began from the second page to the inside back page;

c. Back page: The stories on the back page are not.

Direction: This is used to help determine the angle, tone, or language in which the stories were reported, either favourable, unfavourable, or neutral news stories.

4.0 Data Analysis

Table 1: Frequency of reports according to each newspaper

Story Type	*Pioneer*	*Ibom Nation*
News stories	53 (55.8%)	49 (57%)
Features	9 (9.5%)	6 (7%)
Editorials	1 (1.1%)	2 (2.3%)
Pictures	22 (23.2%)	18 (21%)
Opinion and Comment	10 (10.5%)	11 (13%)
Total	**95 (100%)**	**86 (100%)**

Table 1 shows the percentage and the sum of news contents reported by the two newspapers on the coverage of gender-based violence and sexual abuse in the rural Area of Akwa Ibom State. It also reveals the differences between the news contents reported on Pioneer and Ibom Nation newspapers and their overall coverage of the same period. The analysis shows that Pioneer newspaper had 53 news stories (55.8%), 9 features stories (9.5%), 1 Editorial and Letters-to-the editor (1.1%), 22 Pictures (23.2%) and 10 Opinions and Comments (10.5%) all summed up to 95 (100%) news content. In comparison, Ibom Nation newspaper reported 49 news stories (57%), 6 feature stories (7%), 2 Editorials and Letters to the editor (2.3%), 18 Pictures (21%), and 18 Opinions and Comments (13%) all summed up to 86 (100%) news contents. Hence, the total sum of coverage of news contents by the two newspapers during the gender-based violence and sexual abuse was 181 news Items.

Table 2: The prominence of coverage of gender-based violence and sexual abuse

Placement	***Pioneer***	***Ibom Nation***
Front Page	13 (13.7%)	19 (22.1%)
Inside Page	82 (86.3%)	65 (75.6%)
Back Page	-	2 (2.3%)
Total	**95 (100%)**	**86 (100%)**

Table 2 shows that in Pioneer newspaper, 13 (13.7%) reports were published on the front page, and 82 (86.3%) were published on the inside page. In comparison, no story was published on the back page, while Ibom Nation newspaper had 19 (22.1%) reports on the front page, 65 (75.6%) on the inside page, and 2 (2.3%) reports published on the back page. This analysis reveals that based on the placement, Ibom Nation newspaper attached more importance to the coverage of gender-based violence and sexual abuse against women in rural communities on the front page. However, the two newspapers did not attach much prominence to the coverage of gender-based violence and sexual abuse against women in rural communities, as they had few reports published on the front page and the back page.

Table 3: The reports according to the direction of coverage of the selected newspapers

Direction	**Newspapers**	
	Pioneer	*Ibom* ***Nation***
Favourable	18 (18.9%)	21 (24.4%)
Unfavourable	53 (55.8%)	48 (55.8%)
Neutral	24 (25.3%)	17(19.8%)
Total	**95 (100%)**	**86 (100%)**

The data presented in the table and chart above reveals the direction of coverage of gender-based violence and sexual abuse against women in rural communities by Pioneer and Ibom Nation newspapers. This is used to help determine the angle, tone, or language in which the stories were reported, either favourable, unfavourable, or neutral news content. This implies whether the news stories say pleasant, healthy, or supportive things about gender-based violence and sexual abuse against women in rural communities or whether they say unpleasant things about gender-based violence and sexual abuse against women in rural communities or stand neutral on the issue.

The data shows that 18 (18.9%) of the news contents published in Pioneer newspaper were favourable to the gender-based violence and sexual abuse against women in rural communities, 53 (55.8%) of the news content published by the same newspaper were not favourable to gender-based violence and sexual abuse against women in rural communities. In comparison, 24 (25.3%) of the news content was neutral. On the other hand, Ibom Nation newspaper had 21 (24.4%) news contents favourable to the gender-based violence and sexual abuse against women in rural communities, 48 (55.8%) of the news contents published were unfavourable to gender-based violence and sexual abuse against women in rural communities while 17 (19.8%) news contents as neutral news content.

5.0 Discussion of Findings

The analysis indicates that Pioneer newspaper had the highest coverage of sexual abuse against women with 95 news coverage. The finding also indicate that the two newspapers published more straight news stories (56.4%) than other news content.The outcome indicates that the quality of the reportage based on content categories, which determined the coverage format, could have been more desired as the two newspapers concentrated more on news stories, giving inadequate coverage to essential facts behind the news. Opinion articles and editorials that could have given the news, facts, and figures behind the news should have been given more attention. This aligned with the outcome of Boykoff and Ravi (2007), who argued that news is not the best way to report issues. Apart from limiting the analytical power of the journalists, thereby obscuring the basic facts, news also allows issue skeptics/contrarians to spread their views because journalists believe in balance in straight news. Also, Batta, Ashong, and Abdullahi (2013) discovered that letters to the editor, opinion articles, columns, interviews, and vox pops allow people to participate in media discourses. However, Ochonogor and Hyacinth (2011) state that serious and current events are usually treated with straight news.

The analysis also indicates that Ibom Nation newspapers attached more prominence by publishing more news content on the front page, with 19 (22.1%) reports as against Pioneer's 13 (13.7%) reports. Also, the two newspapers attached less prominence to the coverage of gender and sexual violence against women in rural communities as they had few reports published on the front page and the back page. The back pages were adorned with sports news and soft columns. This result is at variance with the earlier findings of Reisner (1992, p.971), who reported that the front page is the most critical page of a newspaper and suggests what the newspaper considers the day's most important stories. Risner (1992, p.973) discovered that the trend is that "stories are more likely to be chosen for the front page – with little argument if they are part of a recent ongoing story." Ofuoku and Agumagu (2008) stated that the front page presents readers with all the essential, attractive, eye-catching, and significant headlines inside the newspaper.

The outcome of the analysis also shows that 55.8% of the news content published by Pioneer newspaper was not favourable to gender and sexual abuse against women. This analysis shows that Nigerian newspapers do not support gender-based violence and sexual abuse against women in Nigeria; hence, they work in hand with the government to tame the growing cases of gender-based violence and sexual abuse against women in Nigeria.

6.0 Conclusion

The level of importance accorded to the reportage of gender and sexual violence issues by Pioneer and Ibom Nation newspapers cannot help in taming the problem. Therefore, The print media must dedicate ample space for the coverage of gender and sexual violence issues in Nigeria. Some decades ago; gender questions generated limited interest among theorists, researchers, the mass media, and society. However, with the industrial revolution and the population explosion, gender-related issues have become a reality in human society and have pervaded all areas of human life, so there is a need for more excellent newspaper coverage of gender and sexual violence issues in Nigeria.

7.0 Recommendations

Based on the findings and conclusions of this study, the following recommendations are made.

- There is an urgent need for journalist to diversify their news sources when reporting on Sexual abuse. They should strive to include victims'/survivors' voices in media stories. This gives more credibility to the stories and gives a perspective of the victim's side of the story.
- The role played by Stakeholders consultations within the journalism industry should be held in order to generate more effective strategies to improve media reporting on violence against women and even men and encourage a collaborative approach. This will give a better understanding of Sexual abuse to reporters, as well as arm them with a new way of reporting.
- There is an urgent need for stakeholders like the universities that train journalists to establish education and training strategies for journalists on Sexual abuse issues to enhance their reporting. These include targeting university curricula, developing short courses, and on-the-job training. This will ensure that when students graduate, they already have a better way of dealing with Sexual abuse issues and thus get into the employment world better armed.

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BRANSFORD-STEIN MODEL AND ACADEMIC ACHIEVEMENT AND RETENTION IN TRIGONOMETRY AMONG SENIOR SECONDARY SCHOOL STUDENTS IN AKWA IBOM STATE

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Abstract

The study examined effects of Bransford-Stein model (BSM) on academic achievement and retention in trigonometry among secondary school students in Akwa Ibom State. A quasi-experimental pretest, posttest, control group design was used for the study. A sample of 300 (150 males, 150 females) senior secondary school two (SS2) students drawn from two public secondary schools in Ikot Ekpene were categorised into experimental class taught with BSM and control class taught by lecture method. Trigonometry Achievements Test with reliability index of 0.83 was the instrument for data collection. Research questions and hypotheses were analysed with mean, standard deviation and analysis of covariance (ANCOVA). Findings indicate that students taught with BSM performed significantly better than those taught through lecture method. It is recommended that female Mathematics teachers should be employed and deployed to teach Mathematics, which latently can serve as role models to female students. Also, teachers of Mathematics should use BSM in teaching trigonometric concepts. By adopting steps of BSM strategy in worked examples in their publications, authors will encourage and create opportunities for teachers and students to familiarise with the strategy that can enhance students' academic achievement and retention.

Keywords: Bransford-Stein model, Achievement, Retention and Trigonometry.

1.0 Introduction:

Mathematics is the study of the principles and patterns that govern numerical and spatial relationships, shapes, qualities and structures. It involves the use of logical reasoning, problem solving skills, and mathematics abstractions to understand and describe the world (Ogunsola, Adelana & Adewale 2021). Maruta and Magaji (2022) defined Mathematics as a subject that encroaches into all aspects of human endeavours and could be described as the life wire in the studies of various discipline. The author further stated that it is the important of mathematics that compelled the Federal Government of Nigeria to make Mathematics compulsory subject from primary school through to the end of secondary school education.

Trigonometry is a branch of Mathematics which deals with the relationships between lengths, angles and triangle etc, (Ginsburg, 2016). According to Courtney (2016), Trigonometry helps students to develop the capacity of visualising any mathematical contents differently. Basically, the contents in the trigonometry are based on the concepts of right-angle triangle, (Bhat, 2017). Learning trigonometry implies understanding symbols, language, relationships, identities, equations and other verbal problems.

One of the goals of Trigonometry teaching is to improve the ability of students to recognise a problem and apply the knowledge of trigonometry to get the solution to the problem. Learning trigonometry will remain ineffective without an appropriate teaching strategy. For this reason, the researcher opined that, if students are allowed to experience trigonometry through Bransford-Stein model during trigonometry lessons, their academic achievement and retention will improve and their fear in learning the subject will vanish leading to greater positive productivity in all examinations.

Shear (2020) defined Mathematics Achievements as a construct used to represent the level or nature of demonstrated learning in relation to specific domain of Mathematics. Mathematics achievement can be assessed at either an individual or a group level and hence, can be described as multilevel construct. The author further stated that, at individual level, mathematics achievement represents the knowledge and skills a person has learned in particular areas of the subject. At a group level, mathematics achievement represents the demonstrated learning of a classroom, school, school district, state or country, and can serve as an indicator of educational opportunities. In research and policy contexts, Mathematics achievements are usually measured with a test or assessment procedures. According to him, these tests can include both multiple choice and constructed response items.

According to Seun, Onocha and Oluwatoyin (2022), student achievement in Mathematics measures the amount of academic content a student learns in a determined amount of time. Student achievement has become an important topic in education today because it is the outcome of educational system. It is the extent to which a student, teacher or institution have their educational goals. The author further stated that mathematics achievement has to do primarily with the performances of the student in their teacher-made test or standardised achievement test administered by examining bodies. However, the major goal of the teacher is to improve the ability level of the students and prepare them for adulthood. Each grade level has learning goals or institutional standards that teachers are required to teach.

Mathematics can be defined as a subject that encroaches into all aspects of human endeavours. It could be described as the life wire in the studies of various disciplines. It is this importance of this subject that compelled the Federal Government of Nigeria to make it a compulsory subject from primary school through the end of senior secondary school education (Bakke & Igharo in Maruta & Magaji, 2022).

Nneji in Maruta, Mohammed and Magagi (2023), contended that for improvement of retention of learned materials in Mathematics, activity-based learning is indispensible. Retention depends mainly on teaching strategy adopted by the teacher. He further pointed out that research evidences have consistently indicated teaching method as a major factor determining achievement and retention of students in Mathematics. Hence, the search for better methods and newer innovations is a great challenge facing science educators. In the same vein, Maruta (2018), stated that the lecture method does not allow students to participate actively in the learning process and discourages them to have both inductive and deductive reasoning.

Gender differences in Mathematics teaching, learning, achievement and retention have also been explained on the basis of gender differences in cognition and brain internalisation (Egara & Mosimege, 2023). In a similar argument, Allahnana, Akande Vintesh, Alaku and Alaku, (2018) argued that male and female students do experience the world in different ways. Firstly, they are positioned differently in society. Secondly, their learning styles are different in how they perceive and process reality. Oribhabor (2020) emphasise that most Mathematics classroom discourse is organised to accommodate male learning patterns, hence their high achievement in Mathematics. Also, the idea that Mathematics is for boys may result in low motivation in girls and could widen the gender gap in Mathematics achievement and retention in favour of boys. Boaler in Ajai and Imoko (2015) is of the view that the different learning goals of girls and boys leave girls at a disadvantage in competitive environments. Boys and girls preferred a Mathematics curriculum that enabled them to work at their own pace as their reasoning is different. Girls value experiences that allow them to think and develop their own ideas, as their aim is to gain understanding. In the same vein, boys emphasize speed and accuracy and see these as indicators of success. Boys are able to function well in a competitive environment of textbook based mathematics learning.

Many people do not know that mathematics is more that what is taught at school, and different from what most people think it is. Many students have wrong image of mathematics; that mathematics has many formula to learn without knowing why; mathematics is a never changing, not lively subject; something for nerds and loners, and also, maybe, something for boys and men and not for girls and women. Gender is a set of characteristics distinguishing between male and female, particularly in the case of men and women. The discriminating characteristics vary from sex to social life to gender identity. Gender differences in mathematics achievement and ability has been a source of concern as scientists seek to address the under-representation of women at the highest levels of education, (Asante in Ajai & Imoko, 2015).

Through BSM, learners are given free hands and exposed to different strategy for solving problems. BSM is made up of five stages (i) Identification of the problem (ii) Defining the problem (iii) Exploring possible solutions, (iv) Act on the selected strategy, (v) Look back and evaluate the effects.

1.1 Research Questions

The following research questions guided the study

i. What are the Achievement scores of males and females taught Trigonometry using Bransford-Stein model?

ii. What are the retention scores of males and females taught Trigonometry using Bransford-Stein model?

1.2 Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance:

Ho_1: There is no significant difference in the mean, achievement scores of male and female students taught trigonometry using Bransford-Stein model.

$Ho_{2:}$ There is no significant difference in the mean retention scores of male and female students taught trigonometry using Bransford-Stein model.

2.0 Methodology

The design used for this study was the quasi-experimental pretest, posttest, control group design. The target population of the study was all secondary school students in Akwa Ibom State. Two (2) public secondary schools was the sample for the study to guarantee uniformity because of same scheme of work and curriculum, learning condition of the students and period of work coverage is the same. The sample of the study comprised 300 students of equal gender ratio drawn from senior secondary schools two (SS 2) in Ikot Ekpene town. Only co-education schools were considered. Two out of 20 schools were selected using simple random sampling techniques; one was assigned experimental group and the other control group, using tossing a coin method. Trigonometry Achievement test (TAT) comprising 50 multiple choice objective questions with options A-D, developed by the researcher was used for data collection. TAT items were adapted from WAEC and NECO past questions, and New General Mathematics textbooks. The TAT was used for pretest and posttest. To determine Retention, Trigonometry Retention Test (TRT), which is the reshuffled items of the TAT was used. TAT underwent both face and content validation by three experts, two in measurement and evaluation and one from mathematics department. The validity index was computed by taking the average of the index by various experts which yielded 0.83 coefficient of internal consistency. A trial test was given to students in one of the co-education schools that are not among the sampled schools. The reliability coefficient of the TAT was determined using Kuder-Richardson 20 (KR – 20) formula which yielded internal consistency index of 0.91. The data collected from the pretest, posttest and retention test were analyzed using mean and standard deviation to provide answers to the research questions while the hypotheses were tested at 0.05 significance level using Analysis of Covariance (ANCOVA), where the pretest scores served as the covariates.

3.0 Results of Findings

Test of hypotheses and answers to research questions are presented below:

Research question 1: What are the mean achievement scores of males and females taught trigonometry using (BSM)?

Table 1: Mean ($\overline{X}$) and standard deviation (SD) of males and females taught trigonometry using BSM in TAT

Strategy	Gender	Type of Test	N	$\overline{X}$	SD
BSM	Male	Pretest	150	8.50	3.99
	Female	Posttest	150	19.92	3.67
		Pretest	150	8.92	3.26
		Posttest	150	19.46	2.90
Total			**300**		

Table 1 shows that the male students taught Trigonometry using BSM had mean scores of 8.50 and 19.2, standard deviations of 3.99 and 3.67 in pretest and posttest respectively. Female students taught Trigonometry using BSM had mean scores of 8.92 and 19.46 with standard deviations of 3.26 and 2.90 in pretest and posttest respectively.

Hypothesis one (Ho_1): There is no significant difference in the mean achievement score of male and female students taught trigonometry using BSM.

Hypothesis Two (Ho_2): There is no significant difference in the mean retention scores of male and female students taught trigonometry using BSM.

Table 2: ANCOVA result of mean achievement of male and female students taught Trigonometry using BSM computer at alpha = 0.05

Score	Type III sum of squares	Df	Mean square	F	Sig.	Decision
Corrected model	2991.839	4	747.960	186990	0.000	S
Intercept	4786.037	1	4786.037	1196.509	0.000	S
Posttest	87.762	1	87.762	21.941	0.000	S
Group	2476.233	1	2476.233	619.058	0.000	S
Gender	84.726	1	84.726	21.182	0.20	NS
Group gender	321.344	1	321.344	80.336	0.315	NS
Error	12183.988	295	41.302			
Total	**591.39.000**	**300**				
Corrected Total	**13916.500**	**299**				

The exact probability, P = 0.020 is less than α = 0.05 show that gender is a significant factor on the achievement of student taught Trigonometry using BSM. Hence the Null hypothesis is rejected.

Research Question Two: What are the mean retention scores of male and female students in trigonometry when taught using BSM?

Table 3: Mean and standard deviation of male and female student taught trigonometry using BSM in TRT

Score	Gender	Types of Test	N	$\bar{X}$	SD
BSM	Male	Posttest	150	19.92	3.67
	Female	Retention	150	20.79	4.58
		Posttest	150	19.46	2.90
		Retention	150	19.12	3.12
Total					

Table 3 shows that made student taught Trigonometry using the BSM had mean scores 19.92 and 20.79, standard deviations of 3.67 and 4.58 in posttest and retention respectively.

Female students taught Trigonometry using BSM had mean scores of 19.46 and 19.12, standard deviations of 2.90 and 3.12 in posttest and retention respectively.

Table 4: ANCOVA results of mean retention scores of male and female students taught trigonometry using BSM

Score	Type III sum of squares	Df	Mean square	F	Sig.	Decision
Corrected model	3871.36	4	967.840	241.960	0.000	S
Intercept	5.20.697	1	520.697	130.174	0.000	S
Posttest	179. 804	1	179.804	44.951	0.000	S
Group	360.712	1	360.712	90.178	0.000	S
Gender	28.461	1	28.461	7.115	0.170	NS
Group gender	12.674	1	12.674	3.169	0.071	NS
Error	13084.821	295	44.355			
Total	68721.426	300				
Corrected Total	**14654.304**	**299**				

Table 4 indicate that the exact probability P = 0.17 which is greater that = 0.05. this means that gender is not a significant factor on the retention level of students taught Trigonometry using BSM. Hence the null hypothesis was accepted.

4.0 Discussions of Findings

The result showed that both male and female students in the experimental group had higher achievement in Trigonometry than those in the control group. But the male students scored a little higher than their female counterparts in the experimental group. This agrees with the work cited by Effiom and Abdullahi (2021) that boys generally achieve higher than girls on standardised mathematics test.

Furthermore, the result shows that the mean retention scores in the students in the experimental were significantly above those in the control group. Thereby, agreeing with the findings of Ajai and Imoko (2015); Egora and Mosumege (2023) and Mahaweruimana, and Mutarutinya (2023). Male students had a higher mean retention than their female counterparts among those taught trigonometry using BSM.

Results of mean achievement scores of male and female students taught Trigonometry using BSM shows that there was a significant difference between gender and strategy since the probability level 0.020 was less than significant level of 0.05. The result of the retention shows showed no significant difference between gender and strategy

5.0 Conclusion

Based on the findings of the study, it was concluded that Bransford-Stein problem solving model has more positive effect on student's achievement and retention in trigonometry than the traditional (lecture) method. This positive effect on students' achievement happens to be higher for the male students than the female counterpart even though the difference in their achievements for both groups was not significant. The overall results obtained from this study agree with the general expectation of educators that activity-based teaching strategies which are student-centred are more educationally rewarding that the traditional (lecture) method which is more of teacher-centred.

6.0 Recommendations

- The following recommendations were made from the study: Female teachers should be employed and deployed to teach in order to encourage female students.
- Authors should be encouraged to use the steps of BSM strategy in their worked examples in order to afford teachers and students the opportunity to use the strategy.
- Teachers should be encouraged to use BSM for teaching their students Trigonometric concepts in school, and more attention should be given to the female students.

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REIMAGINING LIBRARY SPACES: TRANSFORMATIVE ROLES OF LIBRARIES IN FOSTERING DIGITAL LITERACY AND BRIDGING THE DIGITAL DIVIDE

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Abstract
This paper explores the transformative roles of libraries in fostering digital literacy and bridging the digital divide. In the digital age, libraries are crucial in providing access to technology and facilitating the development of digital skills, especially in underserved communities. By reimagining library spaces, this work advocates for libraries to evolve from traditional silent archives to vibrant, technologically integrated hubs of learning and access. Using a mixed-methods approach, the study examines case studies of successful library programmes, analysing strategies and community engagement efforts. Drawing on theories of social justice and diffusion of innovation, it highlights the library's potential as a community anchor for promoting digital inclusivity and education. It concludes with a call to action for policymakers and library professionals to prioritise the expansion of digital resources and training within library services to ensure they remain essential resources in the information age. The researchers suggest strategic modifications in library functions and infrastructure to meet contemporary digital demands, advocating for enhanced collaborations with tech firms and educational institutions.

Keywords: Library, Technology, Digital resources, Education, Digital divide

1.0 Introduction

In an era where digital skills are integral to nearly every aspect of daily life, from accessing government services to participating in the economy, digital literacy has emerged as a fundamental necessity. Yet, despite its importance, a significant digital divide persists, characterised by unequal access to information technology and varying levels of digital competence across different demographics (Smith et al., 2022). This divide not only perpetuates inequalities but also hinders full participation in a digital society, making it a critical area of focus for policymakers, educators, and community leaders. Libraries, traditionally as gatekeepers of knowledge and information, are uniquely positioned to address these disparities. As community hubs, they have the potential to serve as pivotal points for digital access and education.

However, to do so effectively, a reimagining of library spaces and roles is necessary (Johnson & Lee, 2021). This involves transforming libraries from static repositories of books into dynamic, technologically-equipped learning environments that actively promote digital literacy and inclusion. The central thesis of this paper posits that libraries can and should play a transformative role in reducing the digital divide. By leveraging their community presence and trust, libraries can not only provide access to digital technologies but also offer the training necessary to use them effectively (Chen, 2022).

This paper explores how libraries are currently addressing the challenges of digital literacy and what more can be done to enhance their impact. Given the scope of this challenge, it is crucial to frame the discussion within appropriate theoretical and practical contexts. The subsequent sections will discuss relevant theories that inform an understanding of the digital divide and digital literacy, the effectiveness and potential areas for improvement in library practices (Williams et al., 2020).

Theories such as diffusion of innovation and frameworks on social equity play pivotal roles in understanding how information and technology spread across different segments of society and how these processes can be made more equitable (Turner & Hughes, 2023). Libraries are at the forefront of this transformation, striving to ensure that their patrons are not only recipients of information but also skilled navigators of digital landscapes (Kumar & Singh, 2023).

2.0 Methodology

This study employs a mixed-methods approach to investigate how libraries can foster digital literacy and bridge the digital divide. The research includes detailed case studies of libraries that have successfully implemented innovative digital literacy programmes. These case studies provide insights into the specific strategies used, such as enhancing technological infrastructure, developing comprehensive digital literacy programmes, and fostering community partnerships. Data were analysed using thematic analysis to identify recurring themes, including challenges related to staff training and the importance of collaboration with local organisations. Ethical considerations were prioritised, with measures in place to ensure participant confidentiality and informed consent. Although the study offers valuable insights, future research could broaden the scope to include diverse library settings, enabling a more comprehensive understanding of the varied approaches to digital literacy across different communities.

3.0 Theoretical Framework

The role of libraries in addressing digital literacy and the digital divide can be conceptualised through several theoretical lenses. The integration of theories such as information theory, diffusion of innovation, and theories of social justice provide a robust framework for understanding and addressing the challenges and opportunities that libraries face in promoting digital inclusion.

3.1 Information Theory

Shannon (1948), propounded the Information theory. This was initially developed to improve telecommunication systems; it is also applicable to digital literacy as it helps to explain how information is processed, transmitted, and decoded. Libraries, in this context, function as channels of information dissemination, ensuring that all demographic groups have equal access to digital knowledge and tools. The ability to effectively manage and mitigate the "noise" in these channels—be it technological disparities, socioeconomic barriers, or literacy skills—shapes their success in bridging the digital divide (Goldman et al., 2021).

3.2 Diffusion of Innovation

Rogers' Diffusion of Innovation theory provides insight into how new ideas and technologies spread through specific channels over time among members of a social system (Rogers, 1962). This theory is crucial for libraries as they introduce digital technologies and literacy programmes. Libraries serve as change agents by adopting innovative practices that facilitate the diffusion of digital skills across their user base, particularly targeting late adopters or those resistant to technology adoption (Miller & Katz, 2023).

3.3 Theories of Social Justice

Rawls' theories of social justice are particularly relevant when discussing digital literacy, as they address issues of equity and access. Libraries are often seen as egalitarian institutions dedicated to providing free and equal access to information for all. By applying social justice principles, libraries aim to democratise access to digital tools and resources, ensuring that marginalised and underserved populations are not left behind in the digital age (Rawls, 2017; Thompson & Robinson, 2022).

These theoretical frameworks collectively inform a comprehensive understanding of libraries' transformative potential in fostering digital literacy. They highlight the necessity of adopting proactive strategies that not only provide access to technology but also enhance the capability of individuals to use these technologies effectively and ethically. This paper explores these theories further by examining how they are practically applied in library settings and their impact on digital literacy initiatives. Through this analysis, the paper has provided actionable insights that can help libraries redefine their roles as critical agents of digital inclusion. The commitment of libraries to fostering digital literacy is more critical now than ever, as the gap between the digital haves and have-nots widens. Despite considerable progress, many communities, particularly in underprivileged areas, still lack basic digital access and skills. This section offers a critical analysis of current library practices, evaluating their effectiveness and proposing ways to enhance their role in digital literacy education.

4.0 Current State of Digital Literacy in Libraries

Libraries have traditionally excelled at providing access to resources, yet their role in teaching digital skills has been inconsistent. While some libraries have embraced their role as digital educators, others have lagged, often due to funding constraints, inadequate staff training, or a lack of strategic focus (Adams & Stevenson, 2022). Moreover, the rapid pace of technological change continually challenges libraries to keep their services and offerings relevant and up-to-date (Baker & White, 2021).

4.1 Libraries as catalysts for digital inclusion

The potential of libraries to act as catalysts for digital inclusion is immense. By leveraging their position as trusted community centres, libraries can deliver tailored digital literacy programmes that meet the specific needs of their communities. This includes offering workshops on basic computer skills, internet safety, digital content creation, and more advanced IT courses that could improve employment prospects (Carter & Jenkins, 2023). To realise this potential, libraries need to adopt a more proactive approach. This includes forming partnerships with schools, local businesses, and technology providers to create a comprehensive digital literacy curriculum that is both accessible and impactful (Diaz & Harris, 2022).

4.2 Challenges and Opportunities

One of the main challenges facing libraries today is the digital readiness of their own staff. To effectively teach digital literacy, library staff must themselves be adequately trained and comfortable with the latest technologies (Ellison & Wu, 2021). Additionally, libraries must navigate the financial constraints that limit their ability to update technological infrastructures and expand digital resources (Foster & Gomez, 2022).Despite these challenges, the opportunity to bridge the digital divide through library initiatives has never been greater. With the right strategies, libraries can transform digital barriers into opportunities for community

4.3 Vision for future libraries

The vision for future libraries is anchored on their potential to act as primary catalysts for fostering digital literacy and bridging the digital divide. Strategic guides and a forward-looking perspective on how libraries can evolve to meet the digital needs of their communities more effectively are enumerated thus:

- **Enhancing technological infrastructure:** Future libraries should invest in robust technological infrastructure that not only supports current digital needs but is also scalable for future developments. This includes high-speed internet, modern computing equipment, and access to a wide range of digital resources and tools. Such enhancements will enable libraries to provide a more comprehensive digital learning environment and adapt to new technologies as they emerge (TechLib Journal, 2023).
- **Developing comprehensive digital literacy programmes:** Libraries should develop and continuously update their digital literacy programmes to address the evolving digital skills required by their communities. These programmes should cover basic digital skills, cyber security, digital content creation, and more advanced IT skills that are increasingly demanded in the workforce. The programmes should be designed to be inclusive, catering to all age groups and skill levels (Digital Education Review, 2023).
- **Staff training and development:** Investing in ongoing professional development for library staff is crucial. Training programmes should focus on emerging technologies and digital teaching strategies to ensure that members of staff are not only knowledgeable but also effective in teaching digital literacy to a diverse audience (Library Workforce Review, 2023).
- **Community partnerships and collaboration:** Future libraries should actively seek partnerships with educational institutions, local businesses, tech companies, and community organisations. These collaborations can enhance the resources available to libraries, provide practical opportunities for library patrons, and ensure that library services are aligned with local economic and educational needs (Community Partnership Journal, 2023).
- **Policy advocacy and funding:** Libraries must also engage in advocacy to secure the necessary funding and policies that support their transformation into dynamic digital learning centres. This involves working with local, state, and federal governments to ensure that digital literacy and access are prioritised in public policy (Library Policy Review, 2023).

5.0 Conclusion

This paper has explored the evolving role of libraries in bridging the digital divide and enhancing digital literacy within their communities. Through a detailed examination of current practices and theoretical frameworks, it is evident that libraries are uniquely positioned to facilitate widespread digital inclusion. However, to fully realise this potential, a comprehensive transformation in library practices and infrastructures is necessary. The future of libraries lies in their ability to adapt to the demands of a rapidly changing digital landscape. By reimagining their roles and spaces, libraries can continue to serve as essential pillars of community support, education, and empowerment. It is a call to action for library professionals, policymakers, and community leaders to invest in the transformation of libraries into dynamic centres that promote digital literacy and inclusion. This investment is not only a commitment to the future of libraries but to the future of society itself, ensuring that all individuals have the opportunity to participate fully in the digital age.

6.0 Recommendations

The strategic enhancement of libraries as outlined presents numerous opportunities for increasing their societal impact. By becoming more integrated with the digital needs of their communities, libraries can help reduce educational disparities and support economic development. Furthermore, libraries can serve as community hubs for digital innovation and creativity, fostering an environment where community members can develop and refine their digital skills in meaningful ways. The following strategic actions are capable of enhancing their impact. Therefore, libraries should consider:

- **Investment in staff training:** Comprehensive digital literacy training for library staff is essential to ensure that they can confidently impart these skills to patrons.
- **Updating and expanding technology offerings:** Regular updates to technology offerings and infrastructure are crucial to keeping pace with digital advancements.
- **Collaborations and partnerships:** Forming partnerships with tech companies can provide libraries with the necessary resources and expertise to offer cutting-edge digital literacy programmes.

By implementing these recommendations, libraries can significantly enhance their role in reducing the digital divide and promoting a digitally inclusive society.

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UNDERSTANDING FAILURE IN FLEXIBLE PAVEMENT AND OPTIONS OF MAINTENANCE USING PAVEMENT CONDITION SURVEY

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Abstract

In Nigeria, the choice of a suitable and timely road maintenance option is still an issue of concern due to lack of appropriate maintenance practice. The research evaluates and determines causes of pavement failures through empirical analysis of soil stabilisation, adequate drainage, and asphalt overlay. Road material samples obtained by coring from the study site was analysed in the laboratory through geotechnical test, California Bearing Ratio (CBR), Bitumen extraction test, moisture analysis and plasticity test. The geotechnical results revealed that, plastic index of the Base course material was about 16% in excess of the recommended 10%. Appling Deep Cone Penetration test method and the California Bearing Ratio (CBR) value of the Base course resulted at about 67%, which is below the recommended 80%. Furthermore, the asphalt extraction test revealed that the bitumen content was only 4.9% against the 6.5% that is recommended. It is concluded that insufficient drainage, poor construction methods, and lack of quality control measures as indicators of maintenance options contribute to early failure of road pavement. Against the above, a suitable maintenance option using the pavement condition survey is recommended as a general guide, particularly for highway engineers.

Keywords: Asphalt, Deterioration, Flexible pavement, Maintenance

1.0 Introduction

In the last two decades, the Nigerian government has made tremendous efforts to expand and extend her road network. However, the emphasis on expansion and extension of the road network apparently relegated the issue of maintenance to the background. Unfortunately, because of increase in volume of traffic during the same period, the roads deteriorate at a rapid rate.

Flexible pavements are constructed in cumulative layers of natural granular material covered with one or more waterproof bituminous surface layers, and as the name imply, are considered to be flexible (Okikbo, 2012). A flexible pavement will flex (bend) under the load of a tyre. The objective in the design of a flexible pavement is to avoid the excessive flexing of any layer, failure to achieve this will result in the over stressing of a layer, which ultimately will cause the pavement to fail or deteriorate (Etikala, 2015). Harischandra (2004) emphasised that flexible pavements deteriorate under loading conditions and climate change effect. This effect depends on the technology and materials of the road, but the greatest effects depend on traffic loads and volumes. Magdi (2015) and Nordengen (2006) investigated the effect of poor drainage on road pavement condition and found that the increase in moisture content decreases the strength of the pavement base course.

Therefore, poor drainage causes the premature failure of the pavement, on the same line, pavement tends to crack at some point of their lives under the combined action of traffic loads and climate change conditions. Adeoti (2004) examined the methods of road maintenance in Nigeria. To do so, they defined and analysed the causes of structural failure of highway pavement and suggested some factors; climate change, unstable ground conditions and poor drainage, poor construction material and methods, post construction activities like digging of trenches along the road etc., poor workmanship and inadequate maintenance. Okikbo (2012) and Abhijit (2011) identified some of the factors that cause highway failure. These factors were; poor design and construction, poor maintenance of already built highways, use of low-quality materials in construction, poor workmanship and poor supervision of construction work and the applying of heavy traffic vehicles that were not meant for the road.

There are various forms of periodic rehabilitation that involves the application of relative layer of bituminous bound aggregate over the existing wearing course of the weakened pavement. It serves the purposes of levelling out minor surface distortions and it is a means of strengthening as well as restoring structural integrity of the pavement. When these methods are properly selected, they provide the most cost-effective method of improving existing pavement as they can be used to strengthen existing pavement, reduce maintenance cost, increase pavement lifespan, provide a smooth ride, and reduce safety hazards by improving pavement surface skid resistance (Korkiala-Tanttu, 2007).

Traditionally, ranking of pavement sections for maintenance operations in Nigeria have been based wholly on the experience and judgement of highway engineers and maintenance personnel (Abiola, 2011). It is disheartening to note that most of the road pavements in the State are in various states of disrepair. Most of the roads have become hazardous and sources of economic drain in terms of high road user cost, loss of lives and property and loss of highway investment (Hnin, 2014). Other studies have highlighted various maintenance practices, while some have evaluated causes of failure in flexible pavement. But this research aims to evaluate and determine causes of failed pavement, as well as schedule a suitable maintenance option.

2.0 Study Area

Uyo is a metropolitan city in the heart of Akwa Ibom State, Nigeria as shown in figure 1. It is located on 5.0377^0N and 7.9128^0E and the capital of Akwa Ibom state created in 1987 and located at the south-south region of Nigeria, thus, having tropical climate condition. Uyo has a total land area of 7,081 km^2 and an estimated population of 5.520,208 peoples. Akwa Ibom State has a total road network of 6,288Km out of which 9.6% (602km) are federal government roads (AKSG, 2023).The study was conducted on a single carriageway with ADT of 3000. The road length and width are about 3.6 km and 8m respectively. This road has been maintained several times during the last 10 years and still suffered from severe distresses. The last rehabilitation work on this road was carried out in 2022. The road has serious problems that have decreased its performance and safety. These problems include inadequate drainage system and damaged pavement surface.

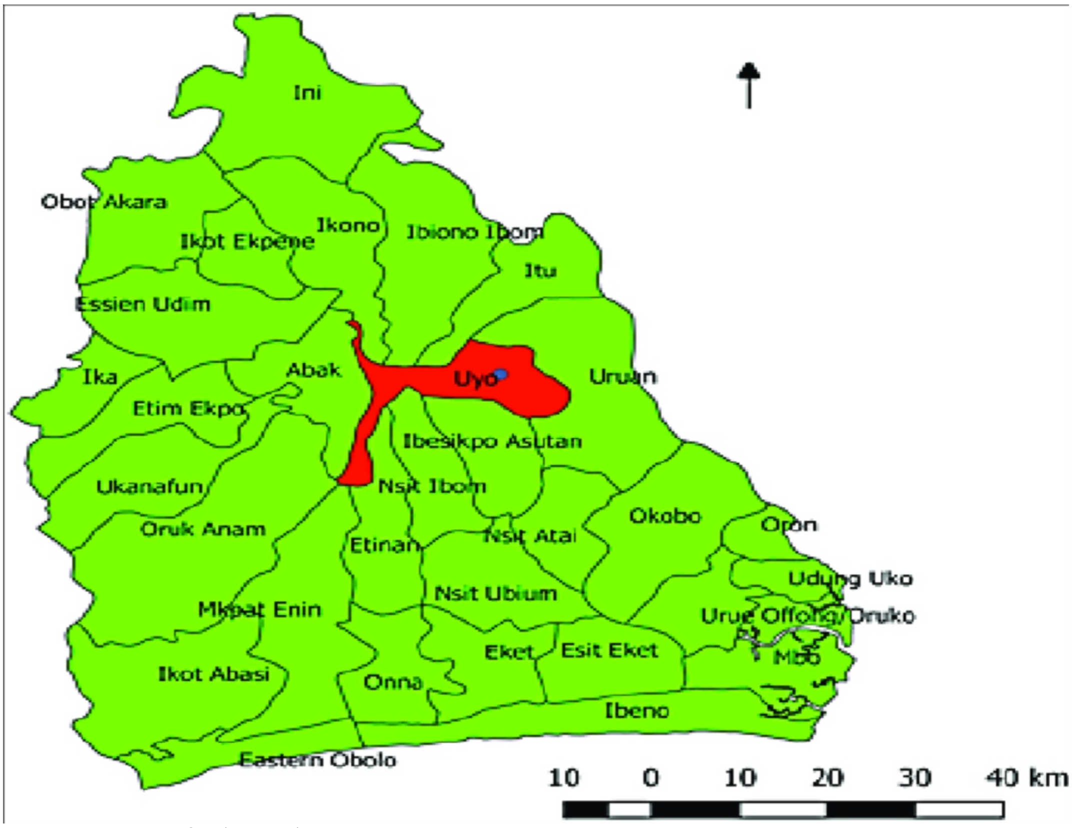

Fig. 1: Map of Akwa Ibom State

3.0 Methodology

The method followed some basic steps as follows:

i) Pavement condition survey.

ii) Experimental work

3.1 Pavement Condition Survey

Pavement condition survey is the overall evaluation of the present serviceability and performance condition of the pavement as compared to its design function. The pavement condition survey included visual examination of pavement failures. The geology and mechanics of the soil was examined as an important factor in determining the causes of the pavement failure. Survey was carried out on failed pavement sections to find out the amount, type, and condition or state of failures, as well as the effectiveness of any previously applied maintenance practice to the failed section of the road pavement.

3.2 Experimental Work

The experimental work included field and laboratory testing. Field density testing was carried out to assess the percentage (%) compaction of the pavement materials. The conventional field tests carried out included Dynamic Cone Penetration (DCP) test, and the failures on the pavement were also measured. Coring was done on pavement structure to ascertain if the pavement layers were built according to the plans and specifications and to collect samples for experimental test. Atterberg's Limit test, California Bearing Ratio (CBR) tests, Marshall tests for stability and flow, and extraction test on the asphalt concrete sample were among the test conducted.

4.0 Results and Discussion

The pavement was travelled upon by foot and then by car to ascertain the actual length of the road and then the extent of the road that is being affected by the different stresses. It was observed during the inspection process that the total length of the road pavement was 3.6KM.An evaluation plan was drawn out to divide the study road into three sections, (A,B,C) each of same length 1.2km,and the basis for evaluation was on these three sections. A thorough review and analysis of the existing construction records, the contract documents and test results were examined.

4.1 Field Survey of Failed Pavement Section

A comprehensive visual survey of pavement surface was conducted by walking through the study surface area and closely observing, identifying, and recording the defects on failed pavement sections. The data collected from the field survey of the existing pavement surface failures were analysed. The measured and observed states of failures with different levels of severity are given in Table 1 and figure 2.

Fig. 2: Various failed sections of Edet Akpan Avenue

Table 1: Severity levels of the measured stresses

Distress	Section A	Section B	Section C
Rutting	Heavy	Moderate	Light
Depression	High	High	Moderate
Potholes	Low	Moderate	Low
Cracking	High	Moderate	Moderate
Ravelling	High	High	High
Polishing	High	Moderate	Low
Patching	Moderate	High	Low

4.2 Experimental Work

The experimental work program consists of two tasks; field work and laboratory test. Three trail pitholes of one meter depth were excavated in the road, a pithole in each section. Disturbed soil samples were collected at 1m depth to represent the pavement soil. The tests performed included, Atterberg limits, compaction and California Bearing Ratio (CBR) tests, Deep Cone penetration test, Asphalt extraction and marshal stability and flow test. The test results summary is given in Tables 2 to 5.

4.3 Results and Discussion

Table 2 indicates that the subgrade soils in sections C and B compared to A have high values of liquid limit and plasticity index and low CBR values. These soils of sections B and C can be classified as expansive clay. While the subgrade soil in section A has low liquid limit and plasticity index and relatively high CBR and classified as non- expansive soil. Thus, the subgrade soils in sections B and C are considered as weak subgrade. The base material plasticity index was also above 10% which exceeded the project requirements or specification, and that of the sub-base material barely met the project specification (12-15%).

The Dynamic Cone Penetration (DCP) tests result as shown in Table 3 were carried out on the pavement structure at three locations. The penetration depth measured up to 75 cm below the base course level. The data from DCP tests were used to determine the penetration resistance (mm/blow), which is simply the distance that the cone penetrates with each drop of the hammer. The field CBR value was determined using Transportation Research Laboratory (TRL) correlation as follows: Log (CBR) = 2.48 – 1.057 Log (DCP).

The test results from the dynamic cone penetration test revealed that the thickness of the base layer varied between 180-210mm whereas the sub-base ranged from 205-350mm, but the specification for the project required 250mm and 400mm respectively for the base course and sub-base course layers. Using empirical relationships, the California Bearing Ratio (CBR) were determined from the DCPT results, the average CBR values of the base, sub-base and embankment materials are 67%, 37% and 18% respectively. The results illustrated that the base materials do not comply with the specifications (i.e. CBR ≥ 80%). While the sub-base and embankment materials barely complied with the specifications. Analysis on the test result from the DCPT revealed that there was no clear distinction between the quality of the base and the sub-base layer material since the lateritic gravelly sandy soils with trace of clay were practically dumped on the sub-base layer.

Table 2: Sud-grade test result

Test	Section A	Section B	Section C
Liquid limit(%)	26	33	50
Plasticity limit (%)	15	18	27
Plasticity index (%)	11	15	23
Max dry density (g/cm^3)	1.66	1.60	1.48
Optimum moisture content (%)	13.5	15	18.5
Soaked CBR (%)	22	14	12

Table 3: Deep cone penetration DCP test result

Location	Layer Thickness(mm)	DCP(mm/blow)	CBR (%)
	180	4.5	62
Section	220	6.4	32
A	400	17.4	15
	210	4.1	68
Section	205	7.2	37
B	300	15.2	17
	200	3.9	72
Section	320	6.6	41
C	420	12.6	21

The asphalt sample carried for the Asphalt Marshall test in Table 5 revealed that, 70mm thickness asphalt was used. The Asphalt Marshall Stability and Flow test was carried out according to the specifications of ASTM D1559-89, and the results revealed that the average stability and flow from the three samples in the different sections was within acceptable range with the specification of the project, and it is sufficient to resists plastic deformation.
The extraction test(table 4)on the other hand revealed that the average percentage binder content in the asphalt concrete was too low and that has greatly affected the durability of the asphalt concrete resulting in the ravelling observed on the road pavement.

Table 4: Asphalt extraction test

Sample	Height(mm)	Stability (N)	Flow (mm)	Correction	Corrected value
A	61.3	6566	3.6	1.06	6960
B	58.2	5600	4.6	1.15	6400
C	62.0	6800	4.2	1.04	7072
			4.1		6824

Table 5: Asphalt stability and flow test

Section	Binder content%	Bulk density g/cm^3	Void content %	Voids with binder%
A	4.6	2.673	6.68	88.85
B	4.9	2.6795	5.73	76.0
C	5.2	2.6795	5.12	79.75

4.4 Pavement Condition Rating

The results of pavement failure survey done through an effective inspection on site revealed that some stress affected the performance of the pavement more than other factors under consideration. Under this rating system, the less serious stresses are assigned values between zero (o) and five (5). Stress of a more serious nature, those directly related to the strength of the pavement are rated on a scale of zero (o)to ten (10). Hence, the extent and severity of failure along the study road is as given in the pavement rating form.

Asphalt Pavement Rating Form	
Street/Route name: Edet Akpan Avenue	
City: Uyo	Date: 12-02-2024
Length of Project:3.6KM	Width:8M
Location of Survey: Total Length	Weather:Fair
Pavement Type: Flexible Pavement	

Notes---

Stress	**Rating**	**Score**
Blockcracks	0 – 5	3
Edgecracks/alligator crack	0 – 5	3
Longitudinal/transverse crack	0 – 10	8
Rutting	0 – 10	4
Potholes	0 – 10	6
Patching	0 – 5	2
Swelling	0 – 5	1
Corrugation	0 – 5	2
Ravelling	0 – 5	4
Depressions	0 – 5	2
Deficient drainage	0 – 10	8
Riding quality	0 – 10	8
	Sum of stress	51

Condition rating = 100 – sum of stress
= 100- 48
Condition rating = 51

Legend:

Reconstruction	Overlay	Routine Maintenance
0 20	40 60	80 100

4.5 Maintenance Option
The maintenance option that was considered appropriate for this research was pavement overlay. Considering the legend in the pavement condition rating which summarised the overall pavement condition, the condition rating was 51 which falls between 40 and 80 which is the range for pavement overlay.

5.0 Conclusion
In conclusion, the material quality of the pavement as investigated through geotechnical tests was poor and resulted in significant pavement failures. Poor drainage condition of the pavement was a major cause of some of the failure. The poor construction method and quality was identified as part of the causes for the failed pavement as it is evident in the CBR test result of 67% against the recommended 80%. Finally, considering the result of the pavement condition rating, which was 51, pavement overlay was scheduled as the maintenance option.

6.0 Recommendations
- It is recommended that this research which presents an easy-to-follow pavement condition assessment approach for determining causes of failure and maintenance option in failed flexible pavement should be used as a general guide particularly for young highway engineers.
- This research was based on the geotechnical properties of the road for the determination of the causes of failure and choosing of maintenance option, further research is required on the effect of traffic loading and travel behaviour on maintenance option.

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THE LGBTQ2+ CONUNDRUM: THE IMPERATIVES OF ETHICAL COUNSELLING PRACTICE

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Abstract

The adoption of Western code of ethics in counselling practice in Nigeria has particularly made it difficult for professional counsellors to align what is conceived as "Global ethical practice with local prescriptions and proscriptions on sexual behaviour, orientation and preferences". This article examines how professional counsellors can safeguard their practice amid global divide on LGBTQ2+ issues, using core ethics of counselling. Global views on LGBTQ2+ and the discordant hues of legislation, religious opinions, societal attitudes, and individual perceptions are explored. Furthermore, ethical principles of autonomy, beneficence, non-maleficence, among others are individually explicated in the context of LGBTQ2+ counselling. While the depth of challenges confronting counsellors in diverse legal, religious, and societal landscapes are highlighted, resolute means to overcome them through ethical practice are elucidated. Sexual orientation theories provided theoretical anchorage since it is a complex interplay of biological, psychological, environmental and social factors. It is argued in the article that counsellors must adopt culturally sensitive and ethically sound techniques to navigate the complexities surrounding LGBTQ2+ issues, while providing competent and compassionate care. By adhering to these ethical principles, counsellors can effectively support their clients, uphold their professional responsibilities, and avoid potential ethical dilemmas in this challenging area of practice.

Keywords: Sexual orientation; Sexual disorientation, LGBTQ2+, Counselling Practise, Counselling Ethics

1.0 Introduction

The acronym LGBTQ2+ stands for Lesbian, Gay, Bisexual, Transgender, Queer or Questioning, and Two-Spirit, with the plus sign symbolising the inclusivity of other sexual and gender identities not explicitly represented in the acronym (Twinkl, 2024). This terminology reflects a diverse spectrum of sexual orientations and gender identities, each with its unique cultural, social, and personal significance.

The concept of LGBTQ2+ identities is not a modern invention but has historical roots that trace back to ancient civilisations. For example, evidence of same-sex relationships and non-binary gender expressions can be found in ancient Greece, where same-sex love, particularly between men, was not only accepted but also idealised in certain forms of art and literature (Hubbard, 2018). Similarly, the Two-Spirit identity, recognised by many Indigenous cultures in North America, predates European colonisation and reflects a complex understanding of gender that transcends the binary view of male and female (Driskill, 2016).

However, as suggested by Duberman (2019), the terminology and framework used today in LGBTQ2+ discourse seem to have emerged from Western socio-political movements in the 20th century, given the role of the Stonewall Riots of 1969 in New York City often regarded as the catalyst for the modern LGBTQ2+ rights movement which led to the formation of advocacy groups and the eventual decriminalisation of homosexuality in many Western countries. Over time, the movement has expanded to include a broader range of identities and issues, reflecting the evolving understanding of gender and sexuality.

Despite this push, the acceptance and recognition of LGBTQ2+ identities vary widely across different cultures and historical periods. In some societies, LGBTQ2+ individuals have been revered, while in others, they have faced severe persecution. This historical context is essential to understanding the complex and often contentious global views on LGBTQ2+ issues today.

2.0 Societal views of LGBTQ2+ around the World

Societal views on LGBTQ2+ individuals and communities are diverse and shaped by a combination of cultural, religious, legal, and political factors. These views can range from acceptance and support to outright hostility and discrimination, reflecting the broader societal attitudes towards gender and sexual diversity.

2.1 Western societies: Acceptance and legal recognition

In many Western countries, particularly in North America and Europe, there has been significant progress toward the acceptance and legal recognition of LGBTQ2+ rights. Countries like Canada, the United States, and many members of the European Union have enacted laws that protect LGBTQ2+ individuals from discrimination and violence. Same-sex marriage is legally recognised in these countries, and there is a growing awareness and support for transgender rights (Kollman & Waites, 2016).

The rise of LGBTQ2+ visibility in popular media and the arts has played a crucial role in shifting public opinion in these regions. Shows like *Queer Eye* and movies like *Moonlight* have brought LGBTQ2+ issues into mainstream culture, challenging stereotypes and fostering empathy and understanding (Baunach, 2017). Despite this progress, challenges remain, particularly concerning transgender rights and the intersection of LGBTQ2+ identities with race, religion, and class.

2.2 Africa: Legal prohibition and cultural guardrails

In contrast, many African countries maintain strict legal prohibitions against LGBTQ2+ individuals, often influenced by colonial-era laws and deeply entrenched cultural and religious norms. In countries like Nigeria, Uganda, and Kenya, same-sex relationships are criminalised, with penalties ranging from imprisonment to the death penalty (Epprecht, 2020). These laws are often justified by appeals to tradition and religious morality, with many viewing LGBTQ2+ identities as foreign impositions on African culture (Kahn-Fogel, 2013).

Cultural stigma against LGBTQ2+ individuals in these regions is pervasive, leading to widespread discrimination, violence, and social exclusion. The lack of legal protection and social acceptance creates a hostile environment for LGBTQ2+ individuals, who often face harassment, assault, and even murder with little recourse to justice (Amnesty International, 2019).

2.3 Middle East and South Asia: Religious conservatism and limited rights

In the Middle East and South Asia, societal views on LGBTQ2+ issues are heavily influenced by religious conservatism, particularly Islam and Hinduism. In many countries in these regions, homosexuality is illegal, and transgender individuals often face significant legal and social challenges. For example, in Saudi Arabia and Iran, same-sex relationships are punishable by death, while transgender individuals may undergo gender reassignment surgery under strict legal and medical supervision (Mahdavi, 2016).

In India, the 2018 Supreme Court decision to decriminalise homosexuality was a landmark moment, signalling a shift in societal attitudes and opening the door for further advocacy (Narrain, 2018). Similarly, Pakistan has recognised the rights of transgender individuals, allowing them to self-identify their gender on legal documents and providing them with some legal protections (Khan, 2016). However, societal acceptance remains limited, with LGBTQ2+ individuals often facing discrimination and violence.

2.4 Latin America: A mix of acceptance and resistance

Latin America presents a complex picture of LGBTQ2+ rights, with seeming acceptance in some areas and persistent challenges in others. Countries like Argentina, Brazil, and Mexico have enacted laws that protect LGBTQ2+ individuals and recognise same-sex marriage (Encarnación, 2016). However, these legal advances often coexist with deep-seated cultural and religious resistance, leading to high levels of violence against LGBTQ2+ individuals.

Brazil, for instance, has one of the highest rates of violence against transgender people in the world, despite having relaxed laws on the books (Carrara, 2020). This contradiction highlights the ongoing struggle for LGBTQ2+ rights in the region, where legal recognition does not always translate into social acceptance and safety.

3.0 Factors sustaining or inhibiting prevailing views on LGBTQ2+

The societal views on LGBTQ2+ are sustained or inhibited by a variety of factors, including cultural traditions, religious beliefs, political ideologies, and media representation. Understanding these factors is crucial for analysing the global landscape of LGBTQ2+ rights and the challenges that persist.

Cultural Traditions

Cultural traditions play a significant role in shaping societal views on LGBTQ2+ issues. In many societies, traditional gender roles and family structures are deeply ingrained, and any deviation from these norms is often met with resistance. For example, in many African and Middle Eastern cultures, heterosexual marriage and procreation are viewed as fundamental to social stability, and LGBTQ2+ identities are seen as a threat to these values (Nyeck & Epprecht, 2013).

However, cultural traditions are not static, and there are instances where traditional practices have accommodated diverse gender and sexual identities (Morris, 2023). The Two-Spirit identity in many indigenous cultures in North America, for example, reflects a tradition of recognising and honouring non-binary gender roles (Driskill, 2016). These examples show that cultural traditions can both sustain and inhibit LGBTQ2+ acceptance, depending on how they are interpreted and practised.

Religious Beliefs

Religious beliefs are perhaps the most influential factor in sustaining or inhibiting views on LGBTQ2+. Major world religions such as Christianity, Islam, and Hinduism have historically promoted heterosexual marriage as the ideal, and deviations from this norm have often been condemned (Yip & Page, 2013). For instance, many conservative Christian denominations in the United States oppose same-sex marriage and transgender rights, citing biblical teachings on gender and sexuality (Vines, 2014).

However, there are also religious movements that advocate for LGBTQ2+ inclusion, arguing that religious teachings should emphasise love, compassion, and justice for all individuals. So-called progressive Christian groups, for example, have reinterpreted biblical passages to support LGBTQ2+ rights and have been instrumental in advancing these causes in many Western countries (Robinson, 2016).

Political Ideologies

Political ideologies also play a crucial role in shaping societal views on LGBTQ2+. In many countries, the rights of LGBTQ2+ individuals are a highly politicised issue, with conservative and liberal parties often taking opposing stances. Conservative parties may oppose LGBTQ2+ rights, viewing them as a threat to traditional family values, while liberal parties typically support these rights as part of a broader commitment to human rights and equality (Paternotte & Kuhar, 2018).

In some cases, authoritarian regimes use anti-LGBTQ2+ rhetoric as a way to consolidate power and distract from other issues. For example, in Russia, the government has enacted laws banning "gay propaganda," which critics argue is a way to scapegoat LGBTQ2+ individuals and stoke nationalist sentiment (Stella, 2015).

Media Representation

Media representation is a powerful factor in shaping public perceptions of LGBTQ2+ issues. Positive representation in films, television, and social media can challenge stereotypes, humanise LGBTQ2+ individuals, and foster empathy and understanding. Conversely, negative or stereotypical portrayals can reinforce prejudice and discrimination (Bond, 2019).

The rise of LGBTQ2+ visibility in mainstream media has been a double-edged sword. While it has helped to normalise LGBTQ2+ identities in many parts of the world, it has also provoked a backlash in more conservative societies, where such representation is seen as a threat to traditional values (Clarkson, 2020).

Legal Frameworks

The legal framework of a country significantly influences societal views on LGBTQ2+. Laws that protect LGBTQ2+ individuals from discrimination and violence send a strong message that these identities are legitimate and deserving of respect. Conversely, laws that criminalise LGBTQ2+ identities reinforce stigma and justify discrimination (Choudhury, 2017).

In countries where LGBTQ2+ rights are legally recognised, there is often a correlation with higher levels of social acceptance. However, legal recognition alone is not enough to change deeply ingrained societal attitudes, as seen in countries like Brazil and South Africa, where progressive laws coexist with high levels of violence against LGBTQ2+ individuals (Theron, 2020).

4.0 Assessing LGBTQ2+ from a Psychological Perspective

As a psychologist, it is pertinent that a counsellor recognises the multifaceted issues revolving around global perspectives on LGBTQ2+. It is necessary to reflect theories of sexual orientation, gender identity, mental health, and knowledge of the impact of societal stigma when addressing this issue. Understanding these perspectives is crucial for addressing the unique challenges faced by LGBTQ2+ individuals and for promoting their well-being as a counsellor to whom they may come for counselling. It is pertinent at this juncture to review these factors.

4.1 Theories of Sexual Orientation

Theories of sexual orientation have evolved, reflecting changing scientific and cultural understandings of human sexuality. Early theories, such as the theory of psychosexual development proposed by Sigmund Freud, pathologised same-sex attraction as a form of arrested development or psychological disturbance (Drescher, 2015). However, contemporary psychological research has largely rejected these views, arguing that sexual orientation is a complex interplay of biological, psychological, and social factors.

LeVay (2016) suggested, regarding the genetic and hormonal influences on sexual orientation, that both biological and environmental factors contribute to the development of sexual orientation. Furthermore, Bailey et al. (2016) indicated that identical twins are more likely to share the same sexual orientation than fraternal twins, suggesting a genetic component. However, no single "gay gene" has been identified, and sexual orientation is likely influenced by multiple genes and environmental factors.

5.0 Gender Identity and Transgender Issues

Gender identity refers to an individual's internal sense of their gender, which may or may not align with their biological sex. For transgender individuals, their gender identity do not correspond to the sex they were assigned at birth, leading to a desire to transition to the gender with which they identify (Bockting & Coleman, 2016).

The psychological understanding of transgender issues has shifted from pathologising transgender identities to recognising them as a natural variation of human gender diversity. The American Psychiatric Association, for example, removed "Gender Identity Disorder" from the DSM-5 and replaced it with "Gender Dysphoria," which focuses on the distress experienced by some transgender individuals rather than labelling their identity as disordered (APA, 2013).

Psychological support for transgender individuals often involves helping them navigate the social, medical, and legal aspects of transitioning, as well as addressing any mental health concerns that may arise due to societal stigma and discrimination (Budge et al., 2016). Studies have shown that transgender individuals who receive gender-affirming care, such as hormone therapy and surgery, experience significant improvements in mental health and well-being (Murad et al., 2017).

5.1 Mental Health and LGBTQ2+ Individuals

LGBTQ2+ individuals are at higher risk for mental health issues compared to their heterosexual peers, partly due to the stress of living in a society that often stigmatises and discriminates against them. This phenomenon, known as minority stress, can lead to increased rates of depression, anxiety, substance abuse, and suicide among LGBTQ2+ individuals (Meyer, 2015).

However, it is important to note that these mental health disparities are not inherent to being LGBTQ2+, but are the result of external factors such as discrimination, social exclusion, and lack of support. Russell and Fish (2016) suggested that LGBTQ2+ individuals who have access to supportive communities, inclusive healthcare, and affirming social environments have better mental health outcomes.

5.2 Societal Stigma and Discrimination

Societal stigma and discrimination against LGBTQ2+ individuals remain pervasive in many parts of the world, leading to significant psychological distress. This stigma can take many forms, including verbal harassment, physical violence, exclusion from social and family networks, and institutional discrimination (Herek, 2016).

The impact of stigma on LGBTQ2+ individuals can be profound, leading to feelings of shame, isolation, and internalised homophobia or transphobia. These negative experiences can contribute to mental health issues and hinder an individual's ability to live authentically and participate fully in society (Meyer, 2015).

Addressing societal stigma requires a multifaceted approach, including public education, legal protections, and the promotion of inclusive environments. Psychologists and mental health professionals play a crucial role in this process by providing support to LGBTQ2+ individuals, advocating for their rights, and challenging discriminatory practices and beliefs (Herek, 2016).

6.0 Imperatives of Ethical Aapproach to LGBTQ2+ Issues in Counselling

Given the global divide in legislation, religious support, social acceptance, and individual viewpoints on LGBTQ2+ discussed in the preceding sections, it is apparent that counsellors are duty-bound to thoroughly understand the confusion brewing in society and assume an ethical stance if they must intervene on client issues in this critical subject. Ethical principles in counselling include autonomy, beneficence, non-maleficence, fidelity, justice, veracity, and self-respect (American Counseling Association, 2014; British Association for Counselling and Psychotherapy, 2018). These principles, when strictly followed, act like a compass to ensure that counsellors do not veer off course in their interventions. It is pertinent at this point to discuss briefly how each ethical code may guide the counsellor:

i. **Autonomy:** Autonomy is the ethical principle that underscores respect for the client's right to make their own decisions. In the context of LGBTQ2+ counselling, a counsellor must honour and respect the client's self-identification, choices, and life decisions, irrespective of the counsellor’s personal beliefs or societal norms. This involves providing a non-judgmental and supportive environment where clients feel safe to explore their identities and experiences. To safeguard practice, a counsellor should avoid imposing their personal views on the client and must ensure that their counselling approach is client-centred, empowering the client to make decisions that align with their values and beliefs.

ii. **Beneficence:** Beneficence involves acting in the best interest of the client by promoting their well-being. In dealing with LGBTQ2+ issues, a counsellor must focus on fostering the client's mental, emotional, and psychological health, which might involve helping them navigate societal stigma or internalised homophobia. The principle of beneficence requires the counsellor to stay informed about the unique challenges faced by LGBTQ2+ individuals and to offer interventions that enhance the client's quality of life. Safeguarding practice here means continuously updating one's knowledge and skills to provide competent and compassionate care that benefits the client.

iii. **Non-maleficence:** Non-maleficence is the obligation to not harm. Given the global divide on LGBTQ2+ issues, it is crucial that counsellors carefully consider the potential harm that might arise from their interventions, especially in regions where LGBTQ2+ identities are criminalised or heavily stigmatised. A counsellor must be vigilant to avoid any actions or words that could inadvertently contribute to the client's distress or place them at risk of harm from others. Safeguarding practice requires a careful, culturally sensitive approach that protects the client from potential negative repercussions while supporting their psychological well-being.

iv. **Fidelity:** Fidelity refers to the counsellor's duty to be trustworthy and maintain confidentiality. In contexts where LGBTQ2+ identities are socially or legally contentious, the principle of fidelity becomes critical. A counsellor must safeguard their practice by ensuring that client information is kept strictly confidential, particularly in environments where disclosure could lead to discrimination, persecution, or legal consequences. Maintaining fidelity also involves being honest with clients about the limits of confidentiality, particularly if there are legal mandates that might require the disclosure of certain information.

v. **Justice:** Justice in counselling ethics emphasises fairness and equality. Counsellors are obligated to treat all clients with fairness, regardless of their sexual orientation, gender identity, or any other characteristic. This principle requires counsellors to advocate for the rights of LGBTQ2+ clients, ensuring they receive equitable access to care and resources. To safeguard their practice, counsellors should work to eliminate any biases in their practice, challenge discriminatory practices in their professional environment, and strive to provide services that are accessible and equitable for all clients.

vi. **Veracity:** Veracity is the ethical obligation to be truthful. In the context of LGBTQ2+ counselling, this principle requires counsellors to provide accurate and honest information to clients. This includes educating clients about their rights, available resources, and any risks associated with their identity in the counsellor's socio-cultural context. Safeguarding practice under veracity involves clear, honest communication with clients, and ensuring they have all the information they need to make informed decisions about their lives and well-being.

vii. **Self-respect:** Self-respect involves the counsellors maintaining their own integrity and professional boundaries. Given the divisive nature of LGBTQ2+ issues globally, counsellors must be clear about their values while ensuring these do not interfere with their professional responsibilities. Safeguarding practice means recognising when one's personal beliefs might conflict with the client's needs and being prepared to refer the client to another professional if necessary to ensure they receive unbiased care. Self-respect also involves continuous self-reflection and professional development to ensure that personal biases do not compromise the ethical standards of practice.

Generally, counsellors must employ sound ethical decision-making processes when faced with dilemmas related to LGBTQ2+ issues. This involves considering the ethical principles, relevant laws, and the well-being of the client. In situations where there is a conflict between ethical guidelines and local laws or societal norms (e.g., in countries where LGBTQ2+ identities are criminalised), counsellors should seek consultation and possibly legal advice to navigate the situation ethically and safely. Using a structured decision-making model helps counsellors justify their actions if they are ever questioned or face legal challenges. It also promotes consistency and integrity in their practice.

7.0 Conclusion

Global views on LGBTQ2+ issues are shaped by a range of cultural, religious, legal, and political factors. Ethical practice does not require that counsellors adopt the views or beliefs of the clients on presenting issues, in as much as counsellors are duty-bound not to impose their views and beliefs on the client. Rather it behoves the counsellors to demonstrate their commitment to the ethical principles of autonomy, beneficence, non-maleficence, fidelity, justice, veracity, and self-respect. While this is challenging given the legal and cultural climate in Nigeria, counsellors must navigate these challenges with cultural sensitivity, professional integrity, and an unwavering focus on the long-term well-being of their clients.

8.0 Recommendations

Given the imperatives of ethical counselling practice in Nigeria, the following recommendations are put forward for policy and practice:

- **Develop culturally relevant ethical guidelines:** The Counselling Association of Nigeria (CASSON) and similar bodies should develop ethical guidelines that balance international best practices with local laws and cultural sensitivities. This is expedient because existing Western ethical codes do not adequately address the challenges faced by practitioners in Nigeria.
- **Promote client-centred, non-discriminatory practices:** Counsellors should be trained to focus on the client's overall well-being rather than on their sexual orientation. This would allow counsellors to provide support without endorsing behaviours considered unlawful.
- **Strengthen confidentiality protocols:** Implementation and reinforcement of strict confidentiality protocols should be prioritised. Counsellors should prioritise informing clients of the limits of confidentiality before they initiate services to forestall perceptions of betrayal and sabotage by the client.
- **Provide continuous ethics training for counsellors:** Regular ethics workshops should be organised to help counsellors navigate complex issues involving sexual orientation. These trainings should cover topics such as managing ethical dilemmas, handling cultural expectations, and ensuring client care within the bounds of local laws.
- **Create safe discussion platforms for counsellors:** Professional forums or support groups where counsellors can discuss ethical dilemmas and receive peer or supervisory guidance should be formed by relevant regulatory bodies. This will help counsellors feel supported and can foster innovative ways to resolve ethical dilemmas without violating laws or ethics.

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PERSONAL PRONOUNS IN POLITICAL DISCOURSES IN NIGERIA: A CRITIQUE OF GOVERNOR UMO ENO'S SPEECH AT THE LAUNCH OF A.R.I.S.E AGENDA

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Abstract
The study investigates Governor Umo Eno's pronominal preferences in his speech at the launch of his economic blueprint, christened ARISE Agenda. Since language, which remains the vehicle through which political speeches are carried out, the study examines the patterns and speech mannerism as employed by the Governor in his presentation. Critical discourse analysis forms the theoretical framework in the study. While quantitative analysis indicates the frequency of the pronouns, qualitative critical discourse analysis aided the interpretation of the pronouns in order to draw attention to the meanings behind their preferences. The researchers posit that Governor Umo Eno had skilfully employed pronouns in his speech at the occasion to communicate his commitment to leadership as spelt out in the blueprint. It is observed in the study that the Governor has not only cultivated inclusivity and optimism in the minds of the people, but has also clearly spelt out the roadmap and guiding principles of the administration, thereby attracting the masses to his side. It is suggested that political speech makers should consciously employ relevant language skills and grammatical items in communicating intended information so as to achieve desired goals

Keywords: Personal Pronouns, Language, A.R.I.S.E. Agenda, Critical discourse analysis, Political speeches, Leadership.

1.0 Introduction

Language relies on verbal or nonverbal codes to transfer information and convey meaning systematically using symbols and sounds. It is a vital element in human relationship as it is a means of communication among the members of a society. Language, therefore, serves as a system or tool of communication by facilitating the exchange of messages or information between persons or groups. Fairclough (2003), buttressing the secular relevance of language, asserts that language is an irreducible part of social life, dialectally interconnected with other elements of social life. According to Sapir (1970 cited in Udofot, 1998), Language could be seen as a purely human and non-instinctive method of communicating ideas, emotions and desires by means of a system of voluntarily produced symbols. It is also, a tool of significant experience, aiding in the manipulation of minds and actions. Hence, political leaders explore this all-important role of language in human affairs and communicate their intentions to the people, demand needed response, build and sustain a socially stable relationship with the governed.

When language is adopted in communicating to an audience, the listeners are given an insight into the intention of the speaker. Governor Umo Eno of Akwa Ibom State, through this medium, brought to the fore his blueprint, which, according to him, "Situates itself in history as an instrument that sets to consolidate on the economic gain of previous administrations while expanding the frontiers of the state economy in the post COVID era that we presently are" (Eno, 2023).

The dire need for more assurances through communication by leaders became a great necessity with the impact of Corona Virus Disease of 2019 (Covid-19) which fast grew into a pandemic proportion, affecting almost all countries around the world. Its negative impacts were extensive including forcing governments to face difficult trade-offs; in addition to health, economic and social challenges it raised (Gelmini et al, 2021).

As nations and their subnationals were grappling with measures to contain the pandemic, Akwa Ibom State was not left off. Indeed, the previous administration and the administration of Governor Umo Eno rose to the occasion, by crafting and deploying relevant messages and systems to communicate with Akwa Ibom people.

In his avowed commitment to interfacing with the people on governmental policies and programmes, the Governor developed a blueprint- A.R.I.S.E. Agenda. This intends to keep the people abreast of vital plans and measures that government has designed to implement. It is this ARISE document which inaugural speech that the present study is considering for a critique.

1.1 The aspirations of the Economic Blueprint: A-R-I-S-E Agenda

The ARISE Agenda of Governor Umo Eno aptly serves as the flagship economic and development agenda that guides the development efforts of his administration (Eno, 2023).

The word 'A-R-I-S-E' is an acronym derived from a select combination of five-group aspirations and areas of interest, as depicted in Table 1 below:

Table 1: Full meaning of the abbreviated word- ARISE

A	▪ Agricultural Revolution, Tourism, Sports/Social Development and Environmental Management
R	▪ Rural Development, Women and Youth Empowerment
I	▪ Infrastructural Maintenance/Advancement and ICT Development
S	▪ Security Management, Sound Educational and Health Sector Management
E	▪ Economic, Industrial and Social Advancement

The variables and areas of interest encapsulated in the blueprint are further adumbrates as policy directions for implementation accordingly.

2.0 The Pronoun

A pronoun is used in place of a noun, most often, to avoid unnecessary and awkward repetitions. As a grammatical item, it is used as a substitute for a noun or noun group. "Such nouns occur (or are understood) as their antecedents in the sentences or passages where they are used" (Egbe, 2000, p. 88). Pronouns belong to the closed system items. According to Nnamdi-Eruchalu (2017), they are sub categorised into personal, demonstratives, possessive, reflexive, interrogative, indefinite, relative, but of all these, personal pronouns are hugely exploited in political discourse. Why are they so called? "They are personal pronouns because they are used by the speaker (or writer) for referring to one or other of the three kinds of entities (persons and things all technically known as persons) normally involved in actual communicative uses of language" (Aremo, 2004, p.15).

As noted by Nnamdi-Eruchalu (2017), the English language maintains three grammatical persons:

(I.) First person: The speaker or writer or the speaker or writer and others. The pronouns are *I* and *we* (subjective case), *me* and *us* (objective case) and *my* and *our* (possessive case).

(ii.) Second person: The person the speaker or writer is addressing. The pronouns are *you* (subjective and objective case) and *your* (possessive case).

(iii.) Third person: The person or thing the speaker or writer talked about. The pronouns include he, she, it and they (subjective case); him, her, it and them (objective case), and her, his, its, and their (possessive case).

The author further observes that *I, we, you* and *they* (as well as their objective and possessive cases) are used extensively in political discourse because they present multiple identities. Political office holders deploy them in varying degrees, depending on which of their senses they want to construct.

3.0 Theoretical Framework

Critical Discourse Analysis (CDA) adopted for this research is an approach to language study firmly established as a field within the humanities and social sciences. Its concerns, as observed in Breeze (2011), range from the highly politicised: "To explain existing conventions as the outcome of power relations and power struggle" (Fairclough, 1989, p. 2), to the almost anodyne "To answer questions about the relationships between language and society" (Rogers, 2005, p. 365), depending on the stance of the individual researcher. Hence, as a specific approach in language study, the CDA focuses on the inter-relatedness of language, power and ideology, that is, the relationship between language (text, discourse) and power (political struggle, inequality, dominance). It "Focuses on the strategies of manipulation, legitimisation, the manufacture of consent and other discursive ways to influence the minds (and indirectly the actions) of people in the interest of the powerful" (van Dijk, 1995, p. 18).

The Critical discourse analysis is, therefore, relevant because the texts and talks people produce in various speech events are constructed to serve their interests, and particularly, those of the dominant members of society as evident in political discourses.

3.1 Empirical Studies

A study of first person personal pronouns in political speeches with a focus on *I* vs. *We* was conducted by Stănculete (2019) where the author presented a case study that focused, comparatively, on the extent to which Romania's Prime Minister Adrian Năstase and UK's Prime Minister Tony Blair reveal their intentions and thoughts in their investment speeches, by the use of the personal pronouns *I* and *we*. The number of occurrences of each of the two first person pronouns and the way in which they are used were considered in the analysis that was both quantitative and qualitative. The overall aim of the comparative approach was to highlight how democracy is seen in the cases scrutinised, based on the activation by the speakers of the principle of cooperation in oral communication.

Nnamdi-Eruchalu (2017) in embarking on a critical discourse analysis of President Muhammadu Buhari's inaugural speeches with a focus on pronouns noted that politics and rhetoric are interwoven, and that the latter is highly esteemed as an instrument of persuasion or manipulation in the former. The author opined that personal pronouns provide an easy access to these activities in mind control because they readily provide multiple identities. The study argued that Muhammadu Buhari in both the maiden speech as a Military Head of State in 1984, and inaugural speech as a President with executive powers in 2015 tactfully deployed personal pronouns to present different identities and project different ideologies, and that the backgrounds from which he spoke impacted on his pronominal choices. That study, therefore, set to provide an insight into the influences of the ideological stances from which the President spoke on the choice of language. Employing critical discourse analysis as the theoretical framework, it is revealed that by strategically selecting personal pronouns, Buhari constructed the identities that reflected the military and civilian backgrounds from which he spoke. It also, created the in-groups and out-groups he desired in order to project the authoritarianism and persuasion of military and democratic regimes, respectively.

In a study of the concession speech by President Goodluck Jonathan carried out by Okoye and Mmadike (2016), the authors held that when language is used to communicate to an audience, the listeners are given an insight into the intention of the speaker. It adopted the speech act theory in the classification of the illocutionary acts which are contained in the speech. The simple percentage was used in computing the frequency of the various illocutionary acts. The researchers' findings showed a preponderance of the representative speech act and the absence of the directive.

Anyanwu (2020) undertook a stylistic analysis of President Buhari's addresses of Nigerians in the face of Covid-19 pandemic by investigating two speeches of President Muhammadu Buhari during the coronavirus (Covid-19) pandemic. This was to ascertain how he had employed language, the linguistic elements used and the stylistic and pragmatic imports. Using the theoretical framework of stylistics, the researcher found out that Buhari tactfully used words to address Nigerians on Covid-19 and stressed the proposed measures to contain the spread of the virus. To achieve the pragmatic effect of his speeches, he used lexical devices such as transitional makers, repetition, alliteration, assonance, and pronouns to project the theme/subject matter of the language discourse. It was found out that the speaker used coordination to denote relationship of grammatical units, show contrast and as a re-statement of what he said earlier. The speaker repeatedly used coordination in his speeches and this is commendable since in language, identical items may be conjoined in an indefinite number of times. The analysis revealed that the president was committed in combating the coronavirus pandemic that was ravaging his nation.

Al-Khayyat (2020) embarked on a discourse analysis of the use of pronouns in Covid-19 selected presidential speeches as a model to training EFL postgraduate students. The study also had within its scope the influence of the pandemic on political speeches. The author pointed out that although investigating the role of pronouns in formulating specific socio-political ideologies is not new, the influence of the Covid-19 on the leaders, politicians and presidents contributes in creating controversial speeches which are similar in the timing of their issuance, their goals, and their objectivity in introducing the unprecedented crisis of Covid-19. Discourse analysis was adopted for the study to analyse two political speeches which were chosen arbitrarily. The data were the American president, Trump's speech, and the French president, Macron's speech. According to the author, many linguistic strategies were employed in the two speeches, but the concentration of the study was on the pronouns, especially the personal pronouns: *I, We,* and *You*. The study was not a comparative study as much as it was a way to reveal to what extent the two presidents used the personal pronouns to display the ability or inability to take responsibility for fighting Covid-19 along with spreading a specific ideology adopted by each president.

This current study's preoccupation with critical discourse analysis of Governor Umo Eno's speech at the inauguration of the ARISE Agenda bridges the gap of non-research in the area with the hope that political speech makers would always consciously employ relevant language skills and grammatical items to achieve desired goals, which mainly is to get the people on their side in order to make governance much easy, especially for politicians.

4.0 Methodology

The datum for this study is the inaugural speech made by Governor Umo Eno on July 24, 2023. The analyses were done quantitatively to show the frequency of the pronouns and qualitatively using critical discourse analysis to interpret the pronouns so as to draw attention to the meanings behind their preferences.

5.0 Results, Data Analysis and Discussion

The number of occurrences of pronouns (subject case and selected possessive case) in the two speeches used for this study is as follows:

Table 1: Frequency of pronouns in the ARISE Agenda speech of Governor Umo Eno

ARISE Agenda Inaugural Speech on:	I	My	You	He	She	We	My	Our	Total
July 24, 2023	5	5	9	-	-	34	5	18	72

Table 1 shows that the pronoun I featured five (5) times in the speech. You was used nine (9) times. He and she do not feature in the speech. The Governor made use of the pronoun we thirty-four (34) times in his ARISE Agenda inaugural speech. My is found five (5) times in the speech, while our featured eighteen (18) times. The total number of pronouns considered in the 24th July speech of Governor Umo Eno stands at seventy-two (72).

5.1 The Use of First Person Singulars *I* and *My*

Extracts from the speech of Governor Umo Eno on the inauguration of the ARISE Agenda with the first person pronoun *I* (subjective case) and *my* (possessive case) are:

> 3. **I** had made a firm promise and commitment to operate a government where all strands of thought from Akwa ibomites across party lines, and other policy experts drawn from all corners of our dear nation and in the Diaspora would be sought and canvassed.
>
> 6. **I** am deeply heartened and grateful for you kind prayers and all the great and inspiring things you have said about us, since we came on board.
>
> 24. In conclusion, **I** am hopeful that through the break-out groups that would follow after this opening ceremonies, you will avail us of more inputs so at the end of this event, we will present a more detailed document of governance that will lift our State to further layers of growth and development,…
>
> 26. Akwa Ibom is on the ascendance, we owe our people nothing more than good governance and that's what **I** promised you my dear people, in the course of **my** electioneering campaign and that's what we are determined to do,…
>
> 27. … and **I** expect the incoming Honourable Commissioners to interpret and run with the vision that the ARISE Agenda represents.

Discussion 1

The use of the first person subject pronoun *I* and its possessive case *my* serves as a declaration that holds the Governor fully responsible for the welfare of his people. The pronoun *I* is usually not used as a substitute for the speaker's name; it is the way for him to refer to himself. Bramley (2001) notes that *I*, for instance, presents multiple selves. It makes reference to the person speaking and also points to his/her public (professional or institutional) and private discourse identities in politics. It is also used to indicate commitment and establish authority. *I* and its variant enable politicians to assert themselves as people with political clout to make decisions and assertions on behalf of the people. "Politicians jump between the various identities; whether they choose to be private or public depends on the context and the effect the politician is looking for" (Nakagwee, 2001 p. 7). And as further observed by Fetzer (2002), presenting private aspect of themselves paints a picture of sincerity and helps to build the credibility of the public identity. Governor Umo Eno, therefore, employs *I* and *my* in his speeches to buttress his position as a leader committed to the welfare of the led.

5.2 The use of the First Person Plurals *We* and *Our*

Extracts from the Governor's speech featuring *we* (subjective case) and *our* (possessive case) are:

1. …and all the policy experts who have agreed to lend their expertise to help distil and deepen the layers of our Economic Blueprint called ARISE Agenda, which **we** are gathered here, to formally launch.

2. **We** have invited you all, for this policy talk-shop appropriately tagged "Akwa Ibom Dialogue", so **we** can come and reason together across party and ideological lines and move the needle of development of **our** dear State further.

4. The ARISE Agenda is a detailed and well -articulated governance document, which **we** have painstakingly assembled. **We** could have gone ahead with its implementation without exposing it for further analysis, but **we** felt **our** dear people should have a buy-in and take ownership in its articulation and eventual implementation.

6. I am deeply heartened and grateful for you kind prayers and all the great and inspiring things you have said about us, since **we** came on board. Akwa Ibom State belongs to us all; **we** have no other State to go to, except this great State. **We** must de- emphasize politics of destruction, **we** must eschew hatred, **we** must deepen the cords of **our** unity and **we** must invest in the sustainable growth and development of this great State.

7. The ARISE Agenda is an acronym which stands for five bold aspirations: Agricultural Revolution, Rural Development, Infrastructural Maintenance and Advancement, Security Management, Educational and Health Sector. This is further broken down into 17 Focal Sectors, detailing what **we** expect to achieve in each of the sectors, in the short to medium and long terms.

8. …**We** will continue to provide economically viable roads as a means to stimulate the economy of our rural dwellers. **We** will place deep accent on cottage hospitals, provide more ambulance services and also continue to maintain the standards of the secondary health care facilities, such as general hospitals which my worthy predecessor invested heavily in.

9. **We** will ignite agricultural revolution in this State, with integrated farms, investment in oil palm plantations; **we** will construct model primary and secondary schools in each of the three senatorial districts, protect our environment through renewable

energy. **We** will equip **our** people with the necessary skills to be competitive and plans are in top gear to set up the Ibom Leadership Entrepreneurial Development Centre (Ibom LED). **We** will create a Ministry that will focus on **our** internal security and **we** will invest deeply in tourism industry, which today, thanks to Ibom Air, has made **our** State, a destination of choice for Nigerians and other foreigners.

10 In the past two months, **we** have engaged and played host to several potential investors across sectors, who are desirous of investing in **our** State.

11. Please permit me at this point, to go deeper into with what **we** expect to see in each of the Seventeen Focal Sectors.

12. In Agriculture, **we** will develop full value chains for the major economic crops in the State, using farm settlement schemes and integrated farm systems.

13. In Healthcare, **we** will revitalise our Primary Healthcare centers, provide new primary healthcare centres, where non exist, ensure the existence of effective health insurance scheme; and establish a Medical City along the Ibom Specialist Hospital-Four Point by Sheraton corridor.

14. In Education, **we** shall build model schools; remodel dilapidated school structures, priotise training and the retraining of teachers. Promote improved learning standards, and privatise vocational and technical education.

15. **We** will improve the access of our people to critical infrastructure such as clean and potable water, electricity and good road network.

16. **We** will deploy a host of women empowerment initiatives; and will encourage and assist women in business start-ups and entrepreneurial ventures.

17. **We** will provide massive skills acquisition initiatives to empower youths; revive and promote inter-school sporting activities where new talents in sports will be discovered.

18. In Information Technology (ICT), **we** will encourage automated processes, and entrench e-governance by gradually migrating from a manual mode of operations to a digital mode in the public service and ensure the effective operations of AKWAGIS for ease of doing business in the state

19. **We** will provide improved environmental management practices; develop the blue economy, and encourage recycling of waste material to create wealth from waste. **We** will provide

affordable housing units across the State
20. **We** will implement an integrated transport system in the State, as well as the establishment of industrial layouts and clusters in the State; encourage the production of Made-In-Akwa Ibom brand of products.
21. **We** will provide critical infrastructure and basic services in the rural areas.
22. **We** will rebuild dilapidated tourist sites and put our state in the forefront of tourism in the nation.
23. **We** will work to ensure the improvement of electricity and promote excellence in Public Service delivery among others.
24. In conclusion, I am hopeful that through the break -out groups that would follow after this opening ceremonies, you will avail us of more inputs so at the end of this event, **we** will present a more detailed document of governance that will lift **our** Sate to further layers of growth and development, especially through Micro, Small, and Medium-Sized Enterprises (MSMEs) which according International Finance Corporation contribute more than half of every nation's Gross Domestic Product (GDP.)
25. …As a deeply transparent government, **we** hope to publish the conclusions in the final Roadmap to be released, based on your expected contributions.
26. Akwa Ibom is on the ascendance, **we** owe **our** people nothing more than good governance and that's what I promised you my dear people, in the course of my electioneering campaign and that's what **we** are determined to do, and I expect the incoming Honourable Commissioners to interpret and run with the vision that the ARISE Agenda represents.
27. Thank you for helping put the building blocks of our economic Blueprint that **we** are hopeful, will lead to **our** shared prosperity, growth and development. God bless.

Discussion 2

The use of the first person subject plural *we* and its possessive case *our* convey a sense of collective identity or group membership, making the speaker the mouthpiece of the audience. In other words, it enables speakers to identify with "*us*" (the in-group), while distancing themselves from "*them*" (the out-group) (Nnamdi-Eruchalu, 2017). As Hakansson (2012) puts it, the discourse functions of *we* in political speeches can be divided into two main categories which are inclusive and exclusive. The *inclusive we* refers to the speaker and the second person pronoun *you* while the *exclusive we* refers to the speaker and the third person pronoun and puts the second person *you* or the direct audience into another side.

Again, according to Van-Dijk (1997, pp. 33-34), “the use of political plural *we* (or its possessive *our*) has many implications for the political position, alliances, solidarity, and other sociopolitical position of the speaker, depending on the relevant in-group being constructed in the present context”. On the whole, *we* and its variant are used to promote togetherness of purpose and evoke the spirit of commonness in decision making and task execution. Governor Umo Eno, therefore, employs these pronouns to close ranks, bridging the gap between leadership and fellowership while giving everyone a sense of involvement.

6.0 Conclusion and Recommendations

This study investigated Governor Umo Eno’s pronominal choices in his speech during the ARISE Agenda formal launch. The results showed that the Governor employed various pronouns in his speeches. Mostly featuring in the speeches are first person pronouns, especially, the first person plural pronouns, which are used very frequently, thus: *I* (subjective case) and *my* (possessive case); and *we* (subjective case) and *our* (possessive case), respectively. The pronouns *I* and *my* are used to show a great sense of commitment and responsibility, possession/ownership of the government which denotes power relationship. *You* creates a desirable sense of connection between the speaker and the listener. It also suggests the recognition of the presence of others, sometimes, including the speaker, who must all be catered for in terms of welfare packages.

The highest occurring pronouns, *we* and *our*, are used to connect with the audience, and convey a sense of collective identity or group membership, making the speaker the mouthpiece of the audience, and so, promoting togetherness and commonness in decision making and task execution. Hence, deploying relevant language skills in speech making aids the transmission of desired information as seen in Governor Umo Eno’s ability to direct the state on various measures and yardsticks that would drive his administration in the overall interest of the people.

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DEVELOPMENT OF SECURITY CONSCIOUSNESS AMONG STUDENTS FOR SAFE SCHOOL ENVIRONMENT IN AKWA IBOM STATE: THE ROLE OF EFFECTIVE GUIDANCE AND COUNSELLING

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Abstract

A secured and accommodating atmosphere is essential for learners of every age grade as it enables students to build self-reliance and face their studies. This portrays that when an environment is prone to threat, an individual's focus on their academics would not be at its best. Based on this note, this study conceptually considers the role of effective guidance and counselling in the development of security consciousness among students for a safe school environment in Akwa Ibom State. Different concepts such as security, security consciousness, safe school environment, development of security consciousness among students, role of guidance and counselling, among others were explored, while human needs theory provided theoretical explications. It is concluded that students must be guided and counselled to understand patterns and indicators of security threats and dangers. The paper observed that with awareness, prevention within schools is inevitable, and guarantees a safe school environment. It is recommended among others that government should employ guidance/counsellors in secondary and tertiary institutions to help students develop security consciousness to engender a safe school environment for effective teaching and learning that can propel the development of Akwa Ibom State.

Keywords: Security, Consciousness, Safe school environment, Role of guidance and counselling, Human needs

1.0 Introduction

A safe and secure environment is a sine qua non for students of all ages since it helps learners to develop confidence and focus on their studies (Iwatt *et al.*, 2022). This assumes that students' concentration to their academics would be, at most, minimal in a hostile or dangerous atmosphere. While many schools, specifically privately-owned schools hold a prominence in providing a safe learning atmosphere, most government owned schools and small scale private schools do not have such chances (Umoh, 2020). The frequency of both man-made and natural disasters that affect schools nationwide, particularly kidnapping, sexual harassment, drug abuse, and other forms of violence, supports the idea that more needs to be done to protect students from harm and even death. Regretfully, kidnappers continue to find ways to support their horrific trade even as the federal and state governments continue their valiant efforts to put an end to the age of terrorists and other lawbreakers ambushing schools with the intent to kill or abduct numerous students in a way that calls into question the nation's security protocols and the abilities of its protection services.

School safety is crucial, safeguarding everyone from various threats and ensuring a conducive learning environment. It protects students from negative experiences and promotes their well-being. Schools should be safe havens, especially considering the mental stress many children face due to various factors. A safe environment allows students to focus on learning and development, promoting active participation in school activities. Without this sense of security, students may become disengaged and reluctant to attend school or participate in extracurricular activities.

A safe and secure environment is crucial for students as it allows them to maintain academic focus and perform well. Insecure environments can negatively affect students' academic performance and overall well-being. Okon (2018) emphasises the link between insecurity and poor academic performance, highlighting the importance of safety for students' success. As a result, decision-makers prioritise safety in educational settings, recognising its significance for students and teachers alike.

The primary responsibility of the Akwa Ibom State government is to ensure the security and well-being of its citizens. However, the state is grappling with various security challenges, including kidnapping, robbery, cultism, and ethnic conflicts, which have adversely affected students in secondary and tertiary institutions. These issues have created a pervasive sense of insecurity, characterised by vulnerability, fear, and anxiety. As a result, the state is experiencing a high frequency of incidents that threaten the lives and psychological well-being of its residents.

The security situation in Nigerian schools faces various challenges including kidnappings, violence, and other crimes. Recent news reports like the abduction of five students and two members of staff in Ogun State, and the death of two students as a result of cult clash in Edo State highlight alarming cases of kidnappings and cult-related violence, creating an environment that hinders educational goals. These circumstances necessitate the urgent development of security consciousness among students to ensure a safe and conducive learning environment.

Ozoemena (2019) proposed that developing security consciousness among staff and students is crucial for combating insecurity in schools. This involves aligning attitudes and values with current security realities and implementing policies that raise awareness and educate the school community about protecting themselves from threats. Longman (2019) further emphasised that creating security consciousness encompasses educating students on security measures and appropriate responses to threats, aiming to protect themselves and their schools. Ultimately, it promotes a proactive approach to safety, enabling students to identify and respond effectively to potential dangers, ensuring a secure learning environment.

Lack of attention to security challenges in schools has resulted in numerous incidents of violence and crime against students, violating their constitutional right to security and welfare (section 14 subsection 2 (b) of the 1999 Nigerian constitution). Owonikoko (2021) gave details of school abduction cases, which included 344 male students of Government Science Secondary school in Kankara, Katsina State. They were abducted on the 11th day of December 2020; 80 pupils of Islamiyya School, Mahuta, Kaduna State were abducted on the 20th day of December 2020; 39 students of the Federal College of Forestry

Mechanisation, Afaka, Kaduna State were abducted on 26th of February, 2021; 23 students of Greenfield University, Kaduna State were abducted and 4 were killed on the 11th day of March, 2021; 3 students of the Federal University of Agriculture, Makurdi, Benue State were abducted on the 24th day of April, 2021. Okorafor (2012) defines safety as the comprehensive effort, resources, commitment, and use of institutions to implement and ensure adequate protection of individuals and property.

Aliero et al. (2022) highlight that guidance and counselling is a collaborative process where a counsellor helps individuals address challenges and find self-determined solutions. Counsellors play a crucial role in ensuring student safety by providing accurate information, offering various options, and assisting students in understanding their motivations, feelings, and security needs. Okoro (2018) emphasises that guidance and counselling can effectively curb security challenges in schools by guiding students towards appropriate behaviours. Bashar (2020) further states that guidance and counselling not only helps students solve academic problems but also equips them with information to address security issues within their schools. This information is essential for students to meet the requirements and standards of secondary and tertiary institutions in Akwa Ibom State.

The current global landscape is marked by a growing concern over insecurity, with issues like theft, abduction, and violence threatening peace and hindering societal progress. School environments are particularly vulnerable, as young people are at a higher risk of becoming victims or perpetrators of crime. While security measures like guards are important, fostering individual security consciousness is equally crucial. By addressing the holistic security needs of students, schools can create a conducive learning environment that enables them to thrive academically, socially, and emotionally.

Achumba et al. (2018) characterised insecurity as the opposite of security, leading to descriptors like fear, harm, and uncertainty. It stems from a lack of knowledge, control, and protection reflecting the absence of the fundamental human need for safety as outlined in Maslow's Hierarchy of Needs. Egwu (2019) defined insecurity as a state of fear or anxiety arising from a perceived lack of protection. This insecurity in Nigeria is attributed to the government's failure to ensure safety, resulting in inequality and injustice, forcing citizens to take matters into their own hands (Jimoh, 2020).

Insecurity in schools, characterised by conflict, violence, and social issues, creates uncertainty and hinders educational progress, contributing to underdevelopment. While definitions of insecurity vary, a common understanding is that it arises from the absence or inefficiency of systems meant to protect lives and property. Onifade et al. (2020) define insecurity as a state of vulnerability caused by internal or external factors, often influenced by weak economic, military, and resource conditions. To address the challenges of insecurity in schools, it is important to have effective systems in place to protect people's lives and property. These systems may include law enforcement, security personnel, and educational programs that teach students about safety and security. It is also important to address the root causes of insecurity, like poverty and inequality. Working together, we can create a safer, safer environment for all.

2.0 Conceptual Clarifications

2.1 Security Consciousness

Security consciousness is a continuous state of awareness, crucial for recognising and responding to potential threats. Individuals unaware of security risks can unknowingly become victims highlighting the importance of knowledge and awareness in achieving safety, a key tenet of Social Learning Theory. Being security conscious involves understanding the implications of surrounding events and responding effectively. This awareness stems from knowledge, as informed reactions are impossible without understanding a situation's potential impact.

Security consciousness in schools involves recognising unusual circumstances, behaviours, or potential threats. It's the awareness of risks, vulnerabilities, and protective measures, and the knowledge and attitudes students possess regarding the safety of their information, networks, and schools. This awareness can be crucial in distinguishing between safety and danger, ultimately contributing to a secure learning environment.

As asserted by Okunola (2021), security consciousness empowers students with the knowledge and skills required to protect themselves and their environment from threats. It also, involves safeguarding their safety and education as echoed by the principles of social learning theory. Akpan (2021) views security consciousness as a combination of strategies, actions, knowledge, and precautionary measures that prevent individuals from engaging in criminal activities. It refers to students' understanding of and responsibility for ensuring the safety of both themselves and their schools.

Joseph (2019) opines that security consciousness involves students' knowledge and behaviour regarding the protection of environmental and educational resources. Scott et al. emphasise the necessity of formal security awareness training for students upon enrolment and periodically thereafter, as it significantly impacts academic performance and enrolment rates supporting the idea that security is a foundational need according to Maslow's hierarchy. A safe school environment, characterised by tranquillity and non-violent activities, is crucial for effective teaching and learning. Students have a responsibility to ensure the safety of themselves and their institutions, as their identities are closely linked to their schools. In the face of criminal activity, students often take local measures, sometimes seeking external assistance depending on the severity of the threat, demonstrating the interconnectedness of individual and systemic security within the framework of systems theory. Vimeo (2018) asserts that security consciousness in educational institutions is fundamental for safeguarding against security risks. Schools must be aware of potential threats to both physical and informational security to effectively defend themselves. Security awareness not only protects individuals within the school community but also educates them about potential security challenges; both internal and external, contributing to a comprehensive understanding of security as advocated by systems theory.

2.2 Safe School Environment

Shuaibu (2015) suggests that a secure school environment fosters tranquillity, positive relationships, and an absence of disruptions, violence, and discrimination. A safe school environment encompasses emotional, physical, and overall well-being, and can be categorised into psychological, social, pedagogical, and physical dimensions (Okon, 2018).

The psychological learning environment is influenced by the academic atmosphere and tone. The social learning environment includes all educational systems that facilitate information exchange among trainers, students, and associates. The pedagogical learning environment encompasses instructional design, including the selection of educational materials and teaching methods. The physical setting refers to the location for teaching and learning. Furthermore, a safe and sound educational environment comprises psychological, social, pedagogical, and physical aspects that ensure the safety and protection of students, faculty, and staff from both accidental and intentional harm.

In addition to violence, a safe school environment considers other dangers like accidents, disease outbreaks, and emergencies. Therefore, a comprehensive school safety plan encompassing crisis management, response teams, and psychological and physical safety measures is crucial. Physical safety focuses on aspects like surveillance and access control, while psychological safety prioritises student well-being through a supportive and connected school environment.

A secure learning environment is crucial for fostering genuine learning and personal growth. It safeguards students from both physical and psychological harm, creating a space where they feel valued, understood, and safe. Beyond physical safety, it encompasses emotional and psychological well-being, promoting respect, self-expression, and confidence in tackling challenges. This safe environment enables students to reach their full potential by fostering holistic development, enhancing their confidence and engagement. Without this foundation, true education remains unattainable. Therefore, these safe spaces must be prioritised and nurtured in all educational institutions due to their significant impact on academic outcomes.

Student safety is critical to overall development. Creating a safe learning environment involves more than just removing physical hazards. Open communication, respect, and emotional intelligence are key factors in fostering a secure classroom where students feel comfortable expressing themselves without fear. Recognising and accommodating diverse learning styles through varied teaching approaches is also essential. Educators must go beyond academic achievements and constantly adapt to the evolving needs of their students for a truly holistic approach to education.

3.0 Theoretical Framework - Human Needs Theory

Human needs theory (HNT) was developed in the 1970s and 1980s as a theory of human behaviour though as an offshoot of Maslow (1943) Hierarchy of Needs Theory. It is based on the hypothesis that humans have basic *needs* that have to be met in order to maintain stable societies. As Burton (1990 cited in Awak, 2014) asserts that the human participants in conflict situations are compulsively struggling in their respective institutional environments at all social levels to satisfy primordial and universal needs - needs such as security, identity, recognition, and development. They strive increasingly to gain the control of their environment that is necessary to ensure the satisfaction of these needs.

According to Awak (2014), there are fundamental universal values or human needs that must be met if societies are to be stable. That, this is true provides a non-ideological basis for the establishment of institutions and policies. Unless identity needs are met in multi-ethnic societies, unless in every social system, there is a distributive justice, a sense of control and prospects for the pursuit of all other human societal developmental needs, instability, insecurity and conflict are inevitable.

If the hypotheses of this theory are correct, if there are certain human needs including security infrastructure and consciousness of the people that are required for human development and social stability, then the solution to insecurity and social conflict must be the ability to create an environment in which these needs can be met by all segments of societies, Awak (2014) enthused. The position of the theory is explicit of the focal points of this paper since educational institutions cannot thrive in an environment filled with rancour, social strife and ignorance.

To Oni (2016) security is the constancy and consciousness of means of living, expectedness of everyday life, protection from wrongdoing, liberty from mental hurt, and preservation against emotive hassle, which leads from the certainty of knowing that one is accepted, wanted, or loved and protected in one's community and by individuals nearby a specific neighbourhood. While this description has diverse extents, it can be summarised as the defence contrary to every dimension of emotional, bodily and monetary harm (Adeyemi & Olotu, 2020). In contrast, insecurity is characterised by vulnerability to harm or threats, or by a lack of protection. The anxiousness that comes with feeling unconfident or uncertain is also included. In general, security refers to being secure, protected from harm, and free from risk. Humans have an innate desire to make the most of their possessions so as to maintain their physical, physiological, and mental health. Security is more than being safe from danger. This is because of the prevalence of sexual assault and rape at the school and in the surrounding community, some female students may feel intimidated. However, national security is attained if disputes are settled amicably and there is perpetual peace. National security, as defined by Francis (2019) is focused on surviving and the state of affairs of people living which includes peace, development and justice because the absence of all these creates the conditions for conflict and national insecurity.

4.0 Development of Security Consciousness in Students

Vimeo (2018) emphasises that schools must prioritise raising security awareness among students and staff to ensure their safety. This is because security consciousness is a crucial first line of defence against threats. Students who are unaware of potential security risks are unable to protect themselves. Therefore, they need to be aware of risks to both physical and informational security, enabling them to defend the school if security is compromised. Vimeo further states that security consciousness not only safeguards individuals but also educates the school community about emerging security issues, both within and outside the school premises.

Idris (2018) highlighted that the Nigerian government launched the "Safe School Initiative" in response to the alarming rise of threats, rape, kidnapping, and other vices in schools. This initiative, launched in May 2014, aims to protect students from various forms of violence, including abductions, cultism, and forced intercourse. Adebayo (2018) explained that the initiative was a direct response to the disturbing frequency of insecurity in Nigerian schools, particularly targeting students. It aimed to raise awareness about protecting students from violence and potential threats, which school administrations might not openly address to avoid jeopardising their educational goals. Consequently, the government and educational stakeholders have taken on the responsibility of implementing effective strategies to safeguard students from violent attacks.

To address the urgent need to protect the educational system and students in Akwa Ibom State, the Safe School Initiative integrates three primary management systems. The United Nations Development Programme (2018) outlines these approaches as: 1) School-based interventions, 2) Community interventions to protect schools, and 3) Special measures for schools in high-risk areas. These strategies aim to address the primary challenges of frequent attacks on students in Akwa Ibom State schools.

4.1 Guidance and Counselling

Nwachuku (2017) views guidance and counselling as a systematic academic support service provided by qualified professionals to students of all ages. It aims to facilitate self-understanding, environmental awareness, and identification of personal interests, potential, and opportunities, ultimately empowering students to achieve fulfilling lives. This aligns with social learning theory's emphasis on the role of cognitive processes and social interactions in shaping behaviour.

Modo et al. (2016) and Egbule (2016) emphasise the role of guidance and counselling in helping individuals define goals, instil security consciousness, and create a safe school environment. In the context of school security, guidance and counselling can play a crucial role in promoting security consciousness among students.

4.2 Role of Guidance and Counselling in Development of Security Consciousness

Counselling not only addresses deviant behaviour but also fosters security consciousness, improving student safety. Security, a fundamental human need, is crucial for effective learning and overall well-being. Maslow's hierarchy of needs emphasises that basic needs like food, shelter, and security must be met before pursuing higher needs like education and intellectual development. Unmet security needs can lead to stress and hinder personal growth.

Nwafor (2018) emphasised that security awareness involves the absence of conflict or violence, fostering an environment free from fear, coercion, and harm. Understanding the importance of security is vital for both national development and effective teaching and learning. This view is supported by international agreements, such as the 1995 Beijing Platform of Action, which recognised a safe school environment as a human right and a crucial tool for achieving educational goals. Additionally, the World Congress of Education International affirmed the right to a peaceful and safe school environment and pledged support for conflict and violence-free schools.

Umar (2019) recognised the importance of guidance and counselling in promoting security consciousness among students. This includes helping students cope with challenges, preparing them for adulthood, fostering unity and patriotism, and equipping them with skills to avert conflict and promote peace. Additionally, it emphasises instilling values such as kindness, fairness, and non-violence to enhance moral development and create a safe school environment.

Crawford and Bodine (2019) argued that developing security consciousness in students is crucial for effective education and preparing them for responsible citizenship. Schools in Akwa Ibom State need to prioritise safety and implement security measures to create a secure learning environment and foster individual behavioural changes. Francis (2019) suggested that security measures involve peaceful conflict resolution strategies like arbitration and mediation. Okolie-Osemene (2019) viewed the development of security mindfulness as a process of acquiring skills, values, and knowledge that promote positive interactions among students.

When security consciousness is inculcated, imbibed and practised by students in schools, the schools will be safe and there will be an appreciable level of effective teaching and learning that lead to development (Nwafor, 2018). When there are no crises or crimes in schools, it will be safe for students to learn. Nonetheless, advice and counselling can aid in fostering a security consciousness, enabling educators and students to learn about matters pertaining to peace, violence, conflict resolution, crises, and their interconnection.

According to Iwatt *et al*. (2022), this consciousness makes it probable for individuals to embrace peace, which means more than a mere nonexistence of antagonisms, but slightly an absenteeism of skirmish. This awareness teaches and reveals a person to the proper methods and procedures for resolving conflicts, disagreements, and problems.

Okoro (2018) argues that security is enhanced when students shift from conflict to collaboration, working together to find mutually beneficial solutions. Promoting concord mindfulness among students is crucial for advancing security consciousness. This involves fostering an environment of tolerance, equality, social justice, democracy, literacy, respect, non-violence, and respect for rights. Additionally, respect for human rights, gender equality, diversity, cultural identity, environmental protection, justice, coexistence, and mutual growth are essential aspects of creating a secure school environment.

Ozoemena (2019) suggests that counsellors can foster a safe school environment by promoting understanding, interaction, and collaboration among students with diverse backgrounds. Umoh (2020) adds that when security consciousness is instilled in students, schools are less likely to experience delinquency. Furthermore, it's crucial to teach students critical thinking, problem-solving skills, and expose them to topics that promote safe learning environments, national identity, and patriotism. Through interactions with guidance counsellors, students can develop mindfulness and contribute to a secure school atmosphere.

5.0 Conclusion

This paper sheds light on the critical role of security consciousness in fostering safe school environments. It underscores the interconnectedness of individual awareness, institutional policies, and societal factors in shaping security within educational settings. By highlighting the potential of guidance and counselling to cultivate security consciousness among students, this paper offers a pathway towards creating schools where students feel safe, empowered, and capable of reaching their full potential. This paper suggests that a proactive and comprehensive approach, encompassing both physical and psychological security measures, is essential for creating a truly conducive learning environment in Akwa Ibom State.

6.0 Recommendations

- The Akwa Ibom State Government should employ guidance counsellors in secondary and tertiary institutions to help students develop security consciousness, fostering a safe school environment for effective teaching, learning, and state development.
- School administrators should proactively implement guidance and counselling policies and measures, ensuring students acquire the necessary security consciousness to mitigate insecurity and create a safe school environment in Akwa Ibom State.
- School administrators should integrate guidance and counselling services as a crucial component in enhancing school safety, significantly reducing threats to students' lives and property in Akwa Ibom State.
- Students should actively participate in counselling, recognizing its importance in building a safe school environment and utilising it as a resource for addressing discipline issues and conflict resolution.
- Counsellors should provide guidance and counselling services proactively, intervening before conflicts arise, and offering support beyond academic concerns. Schools should also integrate diverse strategies, such as involving inspectors, security personnel, and educating students about laws and rules, to complement counsellor's efforts in promoting school security.

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AVAILABILITY OF INSTRUCTIONAL MATERIALS: IMPLICATIONS ON TEACHING AND LEARNING OF MATHEMATICS IN SENIOR SECONDARY SCHOOLS IN AKWA IBOM STATE

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Abstract

The availability of Mathematics instructional materials: Implications on teaching and learning of Mathematics in senior secondary schools of Akwa Ibom State. A total of twenty two (22) schools were sampled from the three Senatorial Districts of the state. Simple Random Sampling Technique was used to select forty (40) Mathematics teachers and two hundred and sixty (260) students from the sampled schools. Three research questions were formulated and three hypotheses were tested. T-test statistics were used to determine the extent of availability at 0.05 level of significance. The instrument for data collection was Mathematics Instructional Materials Checklist (MIMCL), with the reliability coefficient of 0.78. The result of the research indicates that there is a deficiency in availability of Mathematics instructional materials. The result of the research also revealed that there is a significant relationship between availability of Mathematics Instructional materials in the teaching and learning in Akwa Ibom State. The recommendations are that mathematics teachers should make the materials available for effective teaching in secondary schools. Government should provide enough instructional materials for teaching and learning in secondary schools.

Keywords: Availability, Mathematics instructional materials, Learning, Teaching, Senior Secondary Schools.

1.0 Introduction

Effective teaching and learning of any subject depends on the availability of suitable instructional materials. This is mostly noticed in many secondary schools subjects such as Mathematics. Aboula (2003) stated that instructional materials are major part of the teaching and learning process and that the aims and objectives of education are achieved primarily on the effective utilisation of instructional materials.

National Teachers Institute (2002) defined instructional materials as those resources which promote the effectiveness of instruction. Also, Umar (2004) stated that materials which promote the effectiveness In the same vein, Olubor (2008) stated that instructional materials are the resources that both teachers and students use to influence the effectiveness of teaching and learning process. In other words, for teaching of Mathematics to be effective and efficient, but is compulsory for teachers to make use of varieties of instructional materials. Adekuole (2011), stressed that there was no adequate instructional material in teaching and learning process in Ogun State. Similarly, Liman (2004), observed that in post primary school in Bida, 70% of students said that mathematics teachers did not have adequate instructional materials in the teaching and learning. Thus, mass failure as reported by some researchers could be traced to non-availability of the instructional materials.

1.1 Statement of the Problem

The performance of students in SSCE over the past few years in the study has not been impressive. It is still worrisome the level of failure considering the importance of Mathematics to the development of the country. The country is in economic recession and needs educators that can stand up to the task of calculating certain economic indices that will help salvage the current economic situation of Nigeria.

The study must be taken seriously by students and teachers in secondary schools as it is needed in all facets of life. Consequently, the teaching of the subject should be directed to its methods using adequate instructional materials to support teaching process (Silas, 2016). It is from this premise that the researcher concludes that there is need to study the availability of mathematics instructional materials for teaching and learning in secondary schools.

1.2 Purpose of the Study

The study sought to:

i. Determine the extent of availability of Mathematics instructional materials in secondary schools in Akwa Ibom State.

ii. Find the extent of which the instructional materials are available in private and public schools in Akwa Ibom State.

iii. Determine the extent of which the Mathematics instructional materials are available in urban and rural schools.

1.3 Research Questions

i. To what extent are the instructional materials available in senior secondary schools in Akwa Ibom State?

ii. To what extent are the instructional materials available in private and public secondary schools?

iii. To what extent are the mathematics instructional materials available in urban and rural schools?

1.4 Hypotheses

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

Ho_1: There is no significant difference between the mean ratings of teachers and students on the extent of availability.

Ho_2: There is no significant difference between the mean rating of private and public schools on the extent of availability.

Ho_3: There is no significant difference between the mean rating of urban and rural school on the extent of availability.

2.0 Methodology

The design of this research work is a descriptive survey that was conducted to find out the availability of mathematics instructional materials in senior secondary schools in Akwa Ibom State.

The researcher used combinations of stratified, simple random sampling as well as purposive sampling techniques to get the sample of respondents for the study. Stratified sample were used to select schools. The categories are senior secondary two (SS11) students and mathematics teachers from the sampled schools in Akwa Ibom State. These helped reduced bias in the selection of schools. Simple sampling technique using balloting method was use to select the 22 secondary schools in the sample area. The researcher selected 40 Mathematics Teachers and 260 students from the sampled schools. This enables both teachers and students to have equal opportunity to participate in the study.

3.0 Data Presentation and Results

Hypothesis One

Ho_1: There is no significant difference between the mean ratings of teacher and students on the availability of mathematics instructional materials.

Table 1: t-test analysis on the difference between mean ratings of teachers and students on the extent of availability of instructional materials

Respondents	N	X	SD	t-cal	df	t-crit	Remarks
Teachers	40	1.53	0.27	3.48	298	1.96	Significant
Students	260	1.38	0.72				

Hypothesis Two

Ho_2: There is no significant difference between the mean rating of private and public school students on the extent of availability.

Table 2: t-test analysis of the difference between mean ratings of private and public school students on the extent of availability of instructional materials.

Respondents	N	X	SD	t-cal	df	t-crit	Remarks
Private school Students	84	1.85	0.16	10.00	258	1.96	Significant
Public school Students	176	1.66	0.12				

Hypothesis Three

Ho_3: There is no significant difference between the mean rating of urban and rural school students on the extent availability.

Table 3: t-test analysis on the difference between the mean rating of Urban and Rural School students on the availability of mathematics instructional materials

Respondents	N	X	SD	t-cal	df	t-crit	Remarks
Urban School Students	140	1.90	0.12	6.40	258	1.96	Significant
Rural School Students	120	1.80	0.13				

4.0 Discussion of Findings

- One salient finding was the fact that the extent of availability of instructional materials was low. It was also observed that the condition of the mathematics instructional materials in public schools is poor and shabby.
- It was observed that the type of school influences the availability of instructional materials. This is because out of twenty two schools, instructional materials were available in five private schools and only two public schools.
- The result also shows that instructional materials are available in schools in the urban location than schools in the rural location in Akwa Ibom State.

5.0 Conclusion

Based on the study findings, it was observed that, the availability of instructional materials influences students' achievement.

It has also been discovered that availability of instructional materials has significant influence on academic achievement of students. Actively participating in concrete examples are retained longer than abstract symbols.

Furthermore, for effective teaching and learning to take place, learners must have access to adequate instructional materials.
Hence, adequate instructional materials in senior secondary schools enhance good academic achievement.

6.0 Recommendations

The following recommendations were made.

- The teachers should to make the instructional materials available for effective teaching and learning.
- Government should ensure the adequate employment of dedicated and qualified teachers to teach the subject in all secondary schools.
- Recommended text books should be made available to all secondary schools.
- Teachers should attend conferences, seminars and workshop on availability of instructional materials.

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MASS MEDIA, SCIENCE AND TECHNOLOGY, AND SUSTAINABLE DEVELOPMENT IN NIGERIA: THE A.R.I.S.E PERSPECTIVE

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Abstract

The paper on mass media, science and technology and sustainable development in Nigeria; the A.R.I.S.E perspective sought practical ways of harnessing communication and media strategies to drive home sustainable development in line with the Akwa Ibom State A.R.I.S.E Agenda. This is predicated on the fact that no development initiative meant for the people could achieve its objective if the would-be beneficiaries are not properly and adequately informed and government getting immediate feedback. Anchored on the development media and technological determinism theories, the desk and qualitative analytical methods were adopted using the interview technique. The author identifies media channels, strategies and utilizing science and technology to reach the populace. The paper concludes that the A.R.I.S.E Agenda is a panacea for myriads of economic and social woes in Akwa Ibom and Nigeria. It advocates constant training of media personnel who are the drivers of the agenda and provision of modern media equipment to meet current trends in information dissemination even as the re-introduction of community viewing centres to capture ruralites.

Keywords: Mass media, Science, Technology, Sustainable development, A.R.I.S.E Agenda

1.0 Introduction

In recent years, the promotion of sustainable development worldwide has been greatly aided by the mass media, science, and technology. Like in other nations, Nigeria can benefit from these instruments in terms of economic expansion, better social conditions, and increased citizen well-being. Thus, through the A.R.I.S.E. agenda, this study seeks to investigate how science, technology, and the media contribute to Akwa Ibom and Nigeria's sustainable development.

The mass media plays a critical role in influencing public opinion and distributing knowledge about sustainable development initiatives. The public can be informed about development initiatives through a variety of media, including radio, newspapers, television, social media, and other online platforms. In addition, the media plays an advocacy role by making legislators answerable for their deeds or inactions. Media, science, and technology are crucial for accomplishing sustainable development goals because they spur creative solutions to problems facing sustainable development.

Nwabuize (2011, p. 35) defines sustainable development as development plans, projects, policies, and programs that are intended to last over time and benefit present and future generations. Uduak (2005) characterises it as a similar process of carrying out projects that have a good effect on the economy and are resilient enough to endure over time.

This concept aligns with the Akwa Ibom State Government's A.R.I.S.E agenda, which stands for Agricultural Revolution, Rural Development, Infrastructural Maintenance and Advancement, Security Management, and Educational Advancement. Governor Umo Eno emphasised that the A.R.I.S.E agenda was thoughtfully crafted to address the state's challenges while promoting sustainable development, which he believes will drive socio-economic growth and improve the lives of the citizens.

Nevertheless, no matter how well-meaning this policy is, without the media's participation, the public might not be aware of current projects, and the government might not receive the input it needs to meet its goals. Young and

McCornas (2016) emphasised that journalists play a crucial role in achieving sustainable development goals in developing nations such as Pakistan. They do this by disseminating information that empowers the public to actively engage in discussions and decision-making that could improve their quality of life. As noted by Gillmor (2004), inclusive development depends on informed citizens.

However, the fascinating effects of science and technology on contemporary society cannot be ignored. Apart from advocating for sustainable development, they have also led to advancements in achieving specific goals, like the media's function in development. In order to solve problems related to sustainable development, implement those solutions successfully, and create partnerships both domestically and internationally to accomplish development objectives, the government is under constant pressure from the media. With reference to Nwabueze (2011), Umoren (2022, p. 15) observes that "Theentire human existence and mutual coexistence in any society are to a large extent, shaped by scientific activities or technology in the world."
This study is necessary because, despite the programme's claimed focus on people, it is unclear how the public will be informed and what strategies will be employed to guarantee that the right information reaches the right audience at the right time.

1.1 Statement of the Problem

The Akwa Ibom State Government under Governor Umo Eno, at its inception in 2023, launched a policy tagged A.R.I.S.E agenda, an initiative meant to propel the state's socio-economic growth and transform the lives of its citizens. The programme is believed to be people oriented, but what is not known is through which channel(s) will the people be informed and the strategies to be adopted to ensure the right information gets to the right target and at the right time. Thus, such necessitated the study.

1.2 Objectives of the Study

The study had the following objectives:

(i) Identity media channel(s) through which Akwa Ibom people get information on A.R.I.S.E Agenda.

(ii) Determine the strategy(ies) that could create that needed awareness on A.R.I.S.E Agenda in the State.

(iii) Establish the relationship between mass media, science and technology and sustainable development.

1.3 Research Questions

The following probing questions guided the study

(i) Which media channel(s) do Akwa Ibom people get information on A.R.I.S.E Agenda?

(ii) What media strategy(ies) could create needed awareness on the A.R.I.S.E Agenda in the State?

(iii) What is the relationship between Mass Media, Science and Technology and Sustainable Development?

2.0 Conceptual Clarifications

Mass Media

Mass media refers to the various channels through which information is disseminated to a large and heterogeneous audience. These channels include television, radio, newspapers, and digital platforms. In Nigeria, mass media plays a critical role in shaping public opinion, educating citizens, and promoting cultural integration. Okunna and Omenugha (2012) highlight that the Nigerian mass media has a dual responsibility of entertaining and educating the public, making it a pivotal tool for national development. The influence of mass media extends to advocacy for democratic governance and mobilization for social change.

2.1 Science and Technology

Science and technology involve the systematic study of the natural world and the application of scientific knowledge for practical purposes. They are essential drivers of innovation, industrialisation, and modernisation. According to Oyewale (2017), science and technology in Nigeria are crucial for addressing socio-economic challenges such as poverty and unemployment. However, the nation faces barriers like inadequate funding, poor infrastructure, and limited capacity building, which impede their effective utilisation.

2.2 Sustainable Development

Sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Oyewale, 2017). In the Nigerian context, this concept encompasses economic growth, social inclusion, and environmental sustainability. Eneh (2011) argues that achieving sustainable development in Nigeria requires addressing critical issues such as resource management, environmental conservation, and equitable distribution of wealth. The integration of science, technology, and mass media is essential in achieving these goals by fostering awareness, innovation, and public participation.

2.3 A.R.I.S.E Agenda

Under the direction of Governor Umo Eno, the Akwa Ibom State Government introduced the A.R.I.S.E. Agenda in July 2024, an initiative designed to improve the socioeconomic growth of the state and improve the lives of its people. During the function, the governor said that the Agenda was a comprehensive economic plan, designed to solve the problems the state was facing and promote sustainable growth.

The Agricultural Revolution, Rural Development, Infrastructure, Security Management, and Educational Advancement are the five main pillars upon which the initiative is built. According to Mrs. Uduakobong Inam, the Governor's Economic Advisor, the government hopes that this move will support ongoing economic initiatives while promoting a more dynamic, inclusive, diversified, and highly industrialised economy for Akwa Ibom State.

The Governor asserts that the campaign's achievement depends on the combined efforts and commitment of individuals, including A.R.I.S.E. ambassadors, public servants, individuals who might benefit, and media representatives.

3.0 Literature Review

Overview of the relationship between mass media, science and technology and sustainable development

Mass media are technologically driven information-transmission platforms that strive to virtually simultaneously reach a variety of audiences. They included but were not limited to, newspapers, radio, television, books, and social media. It is common knowledge that leaders and leaders have a big influence on society and can be effective forces for advancement when used properly. Tsegyu (2015) asserts that the mass media is recognised as both a vital tool for inspiring the nation as a whole to pursue national development and as a major contributor to Nigeria's attainment of sustainable development.

To say that the mass media create awareness is an understatement when viewed from overwhelming evidences which abound everywhere they are employed for such purpose. The presence of mass media suggests that both rural and urban communities have access to information. The A.R.I.S.E Agenda, a policy aimed at advancing the state's socioeconomic development and improving the lives of its citizens, was introduced by the Akwa Ibom State Government, led by Governor Umo Eno, upon the inauguration of the administration in 2023.

According to Akinyooye and Aransi (2020), the mass media raised awareness of the different development projects implemented in Ogun State communities, which required community stakeholders to lend support to projects pertaining to poverty. Therefore, it appears from the above that these change agents not only raised awareness, but also inspired people to participate in such development initiatives. Once more, Akinyooye and Aransi (2020) believe that the media plays a significant role in raising public awareness of development initiatives.

Because of the established role that mass media play in the socio-political and economic development of a nation, Tsegyu (2015) and Umoren (2022) contend that modern politics would be virtually impossible without sufficient media coverage. According to Ochonogor and Omego (2012), the ability of candidates to communicate with voters more directly and swiftly has allowed the mass media to completely transform political campaigns. There is a chance that other development goals could be served in a similar way if the media can do this for politics. This also explains why, conscious of its prominence in development, development partners have recently contributed enormous sums of money to media initiatives.

Science and technology are like Siamese twins which difference is quite infinitesimal, but its output is indeed phenomenal through their relationship. As noted by ITEA (2000), science studies the natural world, while technology increases humankind's capacity to alter it, thereby influencing human existence and harmonious coexistence in all societies. Thus, it should come as no surprise that people are constantly curious to learn and hear about new advancements in science and technology.

By stimulating innovation and developing solutions to environmental problems, science and technology play a critical role in promoting sustainable development. These solutions have the potential to reduce pollution, slow the depletion of natural resources, and pave the way for a more sustainable future. The development of renewable energy sources is another way that science and technology can promote sustainable development. As noted by Kammen, Blok, and Nijkamp (2005), advances in solar and wind energy technology have reduced the cost and increased the efficiency of these clean, sustainable energy sources, improved efficiency and decrease waste. It makes sense that Pretty (2008) notes that agricultural innovations like precision farming methods and cutting-edge irrigation systems are contributing to higher crop yields. Additionally, they are making it possible to build smart cities, which use technology and data to increase infrastructure efficiency and lower resource consumption (Chourabi et al., 2012).

In order to ensure that people everywhere have a better standard of living in the face of the current social and economic realities, efforts are made on a global scale. A society that places little emphasis on development is already preparing for extinction. Sustainable development is the norm where it occurs. As a result, strategic planning for development projects that last longer than the present is becoming increasingly important in the context of sustainable development.

According to Uduak (2005), sustainable development is the process of starting initiatives that have a positive economic impact and are viable in the long term. This kind of development, in these terms, improves the capacity to meet human needs both now and in the future. To benefit both the present and the future generations, it is the "Totality of development plans, projects, programmes, and policies being able to endure for a long time, to be of benefit to today's and tomorrow's generations" (Nwabueze 2011, p. 35).

Therefore, it makes sense to assume that the mass media have the tendency to reach all sectors of the society, both Nigeria and globally when effectively combined with modern information and communication technology, would impact sustainable development, the very essence of Akwa Ibom State Government socio-economic and political policy, the A.R.I.S.E Agenda.

4.0 Theoretical Foundation

The study was anchored on two theories; Development media and Technology determinism.

4.1 Development Media Theory

According to Asemah, Nwammuo, and Nkwam-Uwaoma (2017, P. 57), McQuail developed this theory in 1987. Since the media is seen as a social force and an agent of development in any community, the theory suggests that the media should support government initiatives by implementing initiatives that will encourage positive behavioural modifications among the populace. To promote development in this case, the media shouldn't be at odds with the political establishment.

4.2 Technological Determinism Theory

According to Asemah, Nwammou, and Nkwam-Uwaoma (2017), this theory was initially coined by Thorstein Veblen in the 19th century. Marshal Mcluhan further developed the theory in 1964. It implies that as society transits from one technological era to the next, media technology affects people's thoughts, feelings, and behaviours. As per the theory, the advancement of a society's social framework and cultural values is influenced by its technology.

Since the A.R.I.S.E. Agenda seeks to develop the state for the general benefit of the populace, including Nigeria, the two theories implicitly advance the concept of the agenda.

5.0 Methodology

For the study, desk research and qualitative research methods were employed. The desk research method, also known as the secondary source of data, is a technique where the researcher gathers information from previously collected data from other sources, such as data published in books, academic literature, the internet, scientific reports, and other publications (Ajayi 2023).
Six (6) media representatives, A.R.I.S.E. Agenda stakeholders, and twelve (12) randomly selected individuals from each of the state's three senatorial districts—four from Ikot Ekpene, Eket, and Uyo—were also interviewed. A descriptive analysis was done.

5.1 Interview Analysis

Q1: What media channel do you receive information on AkwaIbom State A.R.I.S.E Agenda?

All of the respondents acknowledged having heard about the initiative, albeit to differing degrees and via various media outlets. Few, well-educated and well-informed people mentioned that they obtained their information from a variety of media sources, including radio, newspapers, billboards, and social media. On the day of the inauguration, some people claimed to have been able to watch and listen live. Four of them mentioned that the only sources of information they had access to were the radio and television. They had seen billboards, but they were never sure what they meant.
Many of them claimed that their Android phones served as their primary information sources, and that they were also able to learn about the agenda via Facebook, Twitter, TikTok, WhatsApp, and other social media platforms. Very few of them cited print media like newspapers.

Q2: What media strategies would you use to create public awareness on the A.R.I.S.E Agenda of government?

The question was primarily intended to enquire about how media representatives and agenda stakeholders plan to or have already reached a sizable number of people to join the initiative.

The majority of respondents agreed tho programmes, including drama, press releases, documentaries, musicals, jingles, and interviews, can raise awareness because most people have access to it. Radio in particular has the power to transcend boundaries and reach rural areas.

They added that watching television shows is another way to connect with people. They noted that while the majority of people do not own televisions, a small percentage do, and that is because of the television's ability to produce interest in shows due to its sound, motion, and visual elements. In the same way that radio, theatre, talk shows, documentaries, interviews, and similar media are crucial for drawing in viewers.

Respondents stated that since social networking is now a marketing tool and the majority of respondents use it for business, using it is essential if the A.R.I.S.E Agenda is to be successful. They noticed that audiovisual media, such as radio, has evolved into a personnel medium in which users receive personalised attention and are able to provide prompt feedback.

Due to the apparent decline in the reading culture and the fact that newspapers are only read by the literate—those who can afford to read—people do not view them or other printed materials as particularly effective strategies. They should not only not neglect it, but also not spend a significant amount of money and effort on the print.

Q3: What is the relationship between mass media, science and technology and sustainable development?

This question was intended to demonstrate how science, technology, and the media have affected the government's efforts to realise the ARISE agenda. The respondents shared what they knew about the potential applications of the mass media. They view the media as genuine socialisation facilitators that unite all parties involved in development. They argued that regardless of how excellent a project is, nobody would be aware of it if not for the media, who also spread awareness of the ARISE agenda.

The respondents hold the belief that media technology, which arises from scientific and technological advancements, is a guaranteed path to sustainable development. This is because sustainability can only occur when development is able to persist. News media, science, and technology are therefore intertwined in the context of sustainable development.

6.0 Result and Discussion of Findings

RQ.1 Which media channel(s) do Akwa Ibom people get information on ARISE Agenda?

The respondents to the above question have reiterated the significance of mass media in enlightening and educating people about events occurring in their surroundings. The respondents listed a variety of mass media sources - including but not limited to radio, television, social media (Facebook, Twitter, WhatsApp, and TikTok), through which they learnt about the A.R.I.S.E agenda. The aforementioned supports Tsegyu's (2015) assertion that the mass media is a crucial tool for inspiring a country to take action towards development.he mass media plays a significant role in raising public awareness of development projects, this cannot be applied to all media platforms equally. For example, respondents felt that print media, particularly newspapers, did a poor job of raising awareness of the ARISE agenda. This is likely due to the fact that a large number of people lack formal education, and even those who do may find it difficult to obtain due to cost. They believe that the print is only for the privileged, while ARISE is intended for all state residents. Social media seems to be one of the best because so many people can now access phones through quickly spreading, viral content that reaches everyone nearly instantly.

RQ II: What media strategy(ies) could create needed awareness on the ARISE agenda in the state?

Based on the findings, respondents maintained that information administrators must constantly come up with new strategies to inform the public about government actions in a diverse society like Akwa Ibom State, which has many dialectal variations. These strategies must be tailored to the specific circumstances at hand, as one may not work for every situation.

Media professionals and stakeholders who were part of the respondents identified several media strategies for the ARISE Agenda with the aim of piquing public interest in the project. These include the use of drama on radio and television, documentaries, talk shows, jingles, interviews, musical programmes, and social media, which has evolved into a private platform where users create forums and group chats. This is consistent with the findings of Osatuji (2013) and Rapada *et al.* (2021), who have observed that social media has been utilised by governmental and non-governmental organisations as a means of disseminating information and promoting awareness.

When used correctly and strategically, radio and television can be powerful tools for raising awareness. The observation made by Ochongor and Omego (2012) that the mass media has revolutionised political campaigns by facilitating candidates' access to the public suggests that these candidates were able to devise specific strategies for reaching their target audience in order to persuade them to vote for their candidatures.

RQ 3 What is the relationship between mass media, science and technology and sustainable development?

Getting the people of Akwa Ibom State involved in the effort to improve a good society where life is simple and affordable is the main goal of the ARISE agenda. As per the State Governor, the agenda's five principal pillars were meticulously designed to address the present issues faced by the populace concerning education, security, infrastructure, rural development, and food-producing agriculture.

The media could certainly assist in informing the public about agenda items that benefit them if they could get people to vote and participate in other random activities. Effective information, mobilisation, and educational efforts require science and technology, potentially leading to better media hardware. ARISE is more widely known now that media technology has advanced. To improve sustainable development, the two work in concert as a result (Uduak, 2005; Nwabueze, 2011; Jamil, 2017).

7.0 Conclusion

Every project, whether undertaken by a government agency or an individual, is designed to accomplish a specific objective and, as such, must be carried out following the original creator's wishes. This may be the reason that if the public should be kept informed about policies, science and technology in the mass media would be essential.

By identifying the media outlets and implementing the necessary techniques to emphasise the initiative, the paper has successfully defended its goal. People learn about the policy through mass media, which includes billboards, radio, television, and other media. Documentaries, talk shows, dramas, as well as jingles on the radio and television are examples of tactics used to reach the audience that is being targeted.

Additionally, since technological advancement is a magic bullet for raising human well-being, it has been noted that science, the media, and technology all directly relate to sustainable development.

8.0 Recommendations

The following recommendations are made to further the awareness of the ARISE by citizens:

- If a large population must be reached, alternate forms of interpersonal communication should be used in addition to the mass media.
- Establishing and utilising viewing centres would be a good idea, particularly in rural areas.
- To attract more rural dwellers, it would be beneficial to include indigenous forms of communication like the marketplace and traditional town criers.
- To connect the past with the present and work towards a better tomorrow, the library needs to be designed to store information for simple retrieval.

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PUBLIC SERVICE CAMPAIGNS AND CITIZENS' AWARENESS OF FAKE DRUGS AMONG RESIDENTS OF UYO METROPOLIS

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Abstract

This study examines the role of public service campaigns in raising awareness about fake drugs among residents of Uyo metropolis. The objectives were to assess residents' exposure to these campaigns, evaluate their impact on awareness, and identify other factors that shape citizens' understanding of fake drug problems in Uyo metopolis. Using a survey method, 384 copies of questionnaire were distributed to residents of Uyo metropolis, with 353 valid responses analysed. Results revealed high exposure to NAFDAC campaigns, with the "NAFDAC and your Health" initiative being most prominent (Mean = 3.87, SD = 0.39). Respondents demonstrated good knowledge of fake drug identification methods, particularly recognising NAFDAC registration numbers (Mean = 2.74, SD = 0.52). Factors such as access to social media, internet, and constant electricity significantly influenced awareness levels. The study concludes that while public service campaigns have effectively raised basic awareness, challenges remain in translating this knowledge into safe purchasing behaviours. Recommendations include diversifying communication channels, emphasising practical identification methods, and addressing infrastructural challenges.

Keywords: Fake drugs, Public service campaigns, Health awareness, Practical identification method, Communication channels

1.0 Introduction

Fake drugs pose a significant threat to public health globally, with particularly severe consequences in developing countries like Nigeria. The World Health Organisation (2006) defines fake drugs as medicines that are deliberately and fraudulently mislabelled with respect to identity and/or source. These counterfeit products often contain insufficient quantities of active ingredients, toxic substances, or no active ingredients at all. As a result, consumers do not receive the full treatment benefits, leading to delayed recovery or even fatalities.

In Nigeria, the prevalence of fake drugs has been a persistent challenge, prompting the establishment of the National Agency for Food and Drug Administration and Control (NAFDAC) to regulate and control counterfeit drugs. Despite NAFDAC's efforts, the circulation of fake drugs remains a critical issue, especially in grassroots areas where access to information and quality healthcare is limited. This study focuses on examining the role of public service campaigns in raising citizens' awareness about fake drugs among residents of Uyo, the capital city of Akwa Ibom State in Nigeria.

Public service campaigns have long been recognised as an effective tool for disseminating health information and influencing public behaviour. Atkin (2001) argues that the effectiveness of such campaigns depends not only on the quantity and quality of messages but also on the difficulty of achieving the intended outcome and the receptivity of the audience. In the context of fake drugs, these campaigns aim to educate the public about the dangers of counterfeit medications and promote safe drug consumption practices.

Uzochukwu and Chinedu-Okeke (2017) reveals several factors contributing to the proliferation of fake drugs in Nigeria. Uzochukwu and Chinedu-Okeke (2017) identify economic factors, poor health-seeking behaviour, and a chaotic drug distribution system as key drivers. The adverse economic situation in the country has led to a preference for cheaper, often counterfeit drugs. Additionally, self-medication practices and the patronage of unlicensed drug vendors increase the risk of consuming fake drugs.

NAFDAC has employed various communication strategies to combat the menace of fake drugs, including television and radio programs, posters, and community outreach efforts. However, Ude-Akpeh, Onyima, and Job (2019) argue that these campaigns may not effectively reach vulnerable populations, particularly those in rural areas with limited access to media and low literacy levels. They suggest that more targeted and context-specific communication approaches are needed to address the issue effectively.

The Health Belief Model (HBM) provides a useful framework for understanding how individuals perceive health threats and make decisions about health behaviours. Applied to the context of fake drugs, the model suggests that individuals' awareness and actions are influenced by their perceived susceptibility to the risks of fake drugs, the perceived severity of the consequences, and their belief in the effectiveness of preventive measures (Widodo & Suharmiati, 2021).

While previous studies have examined the prevalence of fake drugs and the general impact of public health campaigns, there is limited research specifically addressing the effectiveness of public service campaigns on fake drug awareness in Uyo. This study aims to fill this gap by investigating how residents of Uyo respond to and are influenced by NAFDAC's public service campaigns on fake drugs.

1.1 Objectives

The objectives of this study were to:

i. Assess the level of exposure of Uyo residents to public service campaigns on fake drugs.

ii. evaluate the extent to which the public service campaigns have contributed to shaping awareness of fake drugs among residents of Uyo metropolis.

iii. identify other factors that influence Uyo residents' awareness of fake drugs.

1.2 Research Questions

To guide this investigation, the following research questions were formulated:

i. What is the level of exposure of residents of Uyo to public service campaigns on fake drugs?
ii. To what extent have the public service campaigns contributed to shaping awareness of fake drugs among residents of Uyo metropolis?
iii. What are the other factors that influence awareness of fake drugs among residents of Uyo metropolis?

2.0 Conceptual Clarifications

2.1 Exposure to public service campaigns on fake drugs: The concept of public service campaigns refers to the educational and informational initiatives undertaken by government agencies, such as the National Agency for Food and Drug Administration and Control (NAFDAC), to raise awareness about the dangers of counterfeit or substandard pharmaceutical products among the general public (Uzochukwu et al., 2012). These campaigns are designed to disseminate information through various communication channels, including radio, television, print media, and community outreach programs, with the aim of informing and empowering citizens to recognise and avoid fake drugs (Salihu et al., 2014).

2.2 Impact of public service campaigns on citizens' awareness: Citizens' awareness denotes the level of knowledge, understanding, and recognition that residents of Uyo metropolis have regarding the issue of fake drugs (Ude-Akpeh et al., 2019). This awareness encompasses individuals' ability to identify the characteristics of counterfeit medicines, the risks associated with their consumption, and the recommended strategies for avoiding such products (Isah et al., 2018). Public service campaigns play a crucial role in shaping this awareness by providing citizens with the necessary information and tools to make informed decisions about their healthcare purchases.

2.3 Factors influencing awareness of fake drugs: In addition to public service campaigns, various other factors can influence citizens' awareness of fake drugs. These include access to social media and the internet, as well as the availability of reliable electricity supply within the community (Salihu et al., 2014; Uzochukwu & Chinedu-Okeke, 2017). The accessibility and quality of these infrastructural and technological resources can either facilitate or hinder the dissemination and reception of information about counterfeit medicines, thereby impacting the overall awareness levels among Uyo residents.

2.4 Fake drugs: Fake drugs, also known as counterfeit or substandard drugs, are pharmaceutical products that are deliberately and fraudulently mislabelled with respect to their identity, composition, or source (Isah et al., 2018). These illicit products pose a significant threat to public health, as they may contain harmful substances, lack the active ingredients necessary for treatment, or be completely ineffective, potentially leading to adverse health consequences for consumers (Ude-Akpeh et al., 2019). Understanding the concept of fake drugs is crucial in the context of this study, as it forms the basis for examining the role of public service campaigns in raising awareness and promoting safe purchasing practices among residents of Uyo metroplois.

3.0 Review of Related Literature

The existing body of literature has extensively explored the role of public service campaigns in addressing public health issues, including the menace of fake drugs. Uzochukwu et al. (2012) emphasised the importance of using a multi-channel communication strategy, incorporating various media platforms such as radio, television, and community outreach programs, to effectively reach and educate the target population about health-related topics. The researchers argued that the use of diverse communication channels increases the likelihood of the message being received and internalised by the audience, ultimately enhancing the campaigns' impact (Uzochukwu et al., 2012).

Building on this notion, Ude-Akpeh et al. (2019) advocated for the need to adopt context-specific communication approaches that resonate with the local community. The researchers posited that public health campaigns should be tailored to the unique cultural, social, and economic factors prevalent in the target region to ensure the message's relevance and effectiveness (Ude-Akpeh et al., 2019). This is particularly relevant in the case of addressing the fake drug problem, as the challenges and perceptions surrounding counterfeit medicines may vary across different geographical and socioeconomic contexts.

Regarding the impact of public service campaigns on citizens' awareness, Isah et al. (2018) found that general public knowledge about counterfeit medicines was high. Their study, conducted in Nigeria, revealed that the majority of respondents were aware of the existence of fake drugs and could identify some common characteristics associated with these products. However, the researchers noted that despite this widespread awareness, translating this knowledge into safe purchasing behaviours remained a challenge (Isah et al., 2018). This suggests that while public service campaigns may be effective in raising basic awareness, there are additional factors that influence the translation of this awareness into tangible actions.

In line with this observation, Salihu et al. (2014) highlighted the role of digital platforms, such as social media and the internet, in disseminating health information and influencing awareness levels. The researchers emphasised the growing importance of leveraging these contemporary communication channels to reach and engage with the target audience, particularly the younger demographic (Salihu et al., 2014). This is especially relevant in the context of the current study, as access to digital technologies and the internet may play a significant role in shaping Uyo residents' awareness and understanding of the fake drug problem.

Furthermore, the literature suggests that factors beyond public service campaigns can shape citizens' awareness of fake drugs. Uzochukwu and Chinedu-Okeke (2017) identified economic factors, such as affordability and accessibility, as contributors to the proliferation of counterfeit medicines. These economic barriers may indirectly impact awareness levels, as individuals' purchasing decisions and perceptions of fake drugs could be influenced by their financial constraints and the availability of affordable healthcare options (Uzochukwu & Chinedu-Okeke, 2017). This underscores the need to consider the broader socioeconomic context when examining the factors shaping citizens' awareness and behaviours regarding counterfeit pharmaceuticals.

4.0 Relevant Theories

This study draws on the Health Belief Model (HBM) to understand the factors influencing citizens' awareness of fake drugs. The HBM, proposed by

Rosenstock (1974), is a widely used theoretical framework in public health research and practice. The model posits that an individual's likelihood of engaging in a health-related behaviour is determined by their perceived susceptibility to the health threat, the perceived severity of the threat, the perceived benefits of the recommended action, and the perceived barriers to taking the action (Marks, Kalaitzandonakes, Wilkins, & Zakharova, 2016).

In the context of this study, the HBM suggests that residents' awareness and subsequent actions to avoid fake drugs are influenced by their perceptions of the risks associated with counterfeit medicines and the benefits of adopting safe purchasing practices. For example, if Uyo residents perceive themselves as susceptible to the dangers of fake drugs and believe the consequences to be severe, they may be more likely to heed the recommendations from public service campaigns. Similarly, if they recognise the benefits of purchasing medication from registered pharmacies or healthcare facilities, and perceive minimal barriers to doing so, they may be more inclined to engage in these safer behaviours (Jones et al., 2015; Carpenter, 2010). The HBM provides a valuable theoretical lens through which to examine the cognitive and perceptual factors shaping citizens' awareness and protective actions regarding counterfeit pharmaceuticals.

5.0 Materials and Methods

This study employs a survey method to investigate the role of public service campaigns on citizens' awareness of fake drugs among Uyo residents, Akwa Ibom State. The population comprises all 1,329,000 Uyo residents (Macrotrends, 2022). Using the Phillip Meyer sampling method, a sample size of 384 respondents was determined. Purposive sampling was utilised to select respondents meeting the criteria of being residents of Uyo metropolis and are exposed to public service campaigns about fake drugs.

Self-administered questionnaires were designed based on the research objectives and questions. The questionnaire contained two sections - section A with items related to the research variables and questions, and section B with demographic items. Copies of questionnaire were hand-distributed to respondents in Uyo metropolis and collected back when completed. This approach enabled researchers to access the target population of residents of

Uyo metropolis, as well as explaining the survey and instructions to participants.

The questionnaire was structured to gather information on respondents' level of exposure to public service campaigns on fake drugs, their awareness and understanding of the issue, and other factors influencing their knowledge about fake drugs. Questions were designed to assess the effectiveness of various campaign channels, including radio, television, posters, and community outreach programmes. Collected data was analysed statistically using SPSS software.

6.0 Results of Findings

The researchers distributed 384 copies of questionnaire to residents of Uyo metropolis. Out of these, three hundred and fifty-three (353) copies were successfully retrieved, representing a return rate of 92%. This high response rate ensures that the data collected is representative of the target population.

Table 1: Knowledge of fake or counterfeit drugs

Response	Frequency	Percentage
Yes	353	100%
No	0	0%
Total	**353**	**100%**

The above data indicate unanimous awareness of fake or counterfeit drugs among the respondents. This portrays that all participants (100%) have heard of fake or counterfeit drugs, suggesting a high level of basic awareness about the issue in the surveyed population.

Table 2: Level of exposure to public service campaigns on fake drugs

Campaign Type	Always	Sometimes	Rarely	Never	Mean	SD
NAFDAC and your Health	315	31	7	0	3.87	0.39
NAFDAC consumer safety club	266	77	10	0	3.73	0.49
Enlightenment campaign on fake drugs	242	61	50	0	3.54	0.72
NAFDAC Bulletin	264	71	18	0	3.70	0.54
Town Hall Meetings	271	51	31	0	3.68	0.63
Email marketing	281	62	10	0	3.77	0.48
Pop up messages	258	74	21	0	3.67	0.57

The weighted mean scores range from 3.54 to 3.87, indicating a high level of exposure to various NAFDAC campaigns on fake drugs. The "NAFDAC and your Health" campaign had the highest mean score (3.87), suggesting it was the most frequently encountered campaign. The standard deviations (0.39 to 0.72) indicate relatively low variability in responses, with the "Enlightenment campaign on fake drugs" showing the most diverse responses (SD = 0.72).

Table 3: Ways to identify fake drugs

Identification Method	Yes	No	Can't Say	Mean	SD
NAFDAC registration number	271	71	11	2.74	0.52
Expiry date	229	109	15	2.61	0.59
Taste of drug	303	32	18	2.81	0.49
Mobile Authentication Service (QR code)	255	87	11	2.69	0.54
Appearance of drug	232	100	21	2.60	0.62

The weighted mean scores range from 2.60 to 2.81, indicating a moderate to high level of awareness of various methods to identify fake drugs. The taste of the drug was the most recognized method (Mean = 2.81, SD = 0.49), followed by the NAFDAC registration number (Mean = 2.74, SD = 0.52). The relatively low standard deviations suggest consistency in responses across the sample.

Table 4: Factors influencing awareness of fake drugs

Factor	Always	Sometimes	Rarely	Never	Mean	SD
Access to social media	232	62	38	21	3.43	0.88
Access to the internet	209	81	16	47	3.28	1.02
Exposure to NAFDAC campaigns	237	73	26	17	3.50	0.83
Constant electricity in community	254	57	17	25	3.53	0.88
Knowledge of medical personnel	204	76	47	26	3.30	0.96

The weighted mean scores range from 3.28 to 3.53, indicating that these factors have a moderate to high influence on awareness of fake drugs. Constant electricity in the community had the highest mean (3.53, SD = 0.88), followed closely by exposure to NAFDAC campaigns (Mean = 3.50, SD = 0.83). The standard deviations (0.83 to 1.02) suggest some variability in responses, with access to the internet showing the most diverse responses (SD = 1.02).

Table 5: Ways to avoid buying fake drugs

Method	Yes	No	Can't Say	Mean	SD
Patronize registered pharmacy	311	33	9	2.86	0.42
Buy from drug sellers inside bus	39	269	45	1.42	0.65
Check for NAFDAC registration number	298	33	22	2.78	0.53
Go to hospital or primary healthcare	316	25	12	2.86	0.43
Buy from roadside drug sellers	41	273	39	1.44	0.64

The data indicates varying levels of awareness about safe drug purchasing practices. Patronising registered pharmacies (Mean = 2.86, SD = 0.42) and going to hospitals or primary healthcare centres (Mean = 2.86, SD = 0.43) were the most recognised methods to avoid buying fake drugs. Conversely, buying from drug sellers inside buses (Mean = 1.42, SD = 0.65) and roadside drug sellers (Mean = 1.44, SD = 0.64) were correctly identified as risky practices by most respondents. The low standard deviations indicate consistent responses across the sample for most methods, with slightly more variability in opinions about buying from unofficial sellers.

7.0 Discussions of Findings

The findings of this study provide valuable insights into the role of public service campaigns in raising awareness about fake drugs among Uyo residents. The results address the three research questions posed at the outset of the study.

Regarding the level of exposure to public service campaigns on fake drugs, the study reveals a high level of engagement with NAFDAC's initiatives. This aligns with findings from Uzochukwu et al. (2012), who emphasised the importance of multi-channel communication strategies in public health campaigns. The "NAFDAC and your Health" campaign showed the highest exposure (Mean = 3.87, SD = 0.39), suggesting that targeted health-focused messaging may be particularly effective.

Concerning the role of public service campaigns in shaping awareness, the study demonstrates that these campaigns have successfully educated residents about methods to identify fake drugs. This supports Ude-Akpeh et al.'s (2019) argument for the need for context-specific communication approaches. The high recognition of the NAFDAC registration number (Mean = 2.74, SD = 0.52) as an identification method indicates the effectiveness of regulatory-focused messaging.

Other factors influencing awareness of fake drugs included access to social media, internet, and exposure to NAFDAC campaigns. This finding resonates with Salihu et al.'s (2014) study, which highlighted the importance of digital platforms in disseminating health information. The high influence of constant electricity (Mean = 3.53, SD = 0.88) on awareness underscores the role of infrastructure in facilitating access to information.

The unanimous awareness of fake drugs among respondents (100%) suggests that basic knowledge about the issue is widespread, echoing Isah et al.'s (2018) findings on public knowledge of counterfeit medicines. However, the varied responses to safe purchasing practices indicate that while awareness exists, translating this knowledge into safe behaviours remains a challenge.

These findings collectively suggest that while public service campaigns have been effective in raising awareness about fake drugs, there is still room for improvement in guiding safe purchasing behaviours. Future campaigns may benefit from focusing on practical strategies for avoiding counterfeit medications, particularly in light of the persistent economic factors identified by Uzochukwu and Chinedu-Okeke (2017) that contribute to the proliferation of fake drugs.

8.0 Conclusion

This study examined the role of public service campaigns in raising awareness about fake drugs among Uyo residents. The findings reveal a high level of exposure to NAFDAC's campaigns and a general awareness of the issue of counterfeit drugs. The study demonstrates that public service campaigns have been effective in educating residents about methods to identify fake drugs and promoting safe purchasing practices. However, challenges remain in translating this awareness into consistent safe behaviours. The influence of factors such as access to social media, internet, and constant electricity highlights the importance of a multi-faceted approach to public health communication. While the campaigns have successfully raised basic awareness, there is a need for more targeted messaging to address specific behaviours and overcome economic barriers that contribute to the proliferation of fake drugs. Overall, the study underscores the crucial role of public service campaigns in combating the fake drug menace in Uyo and provides insights for future campaign strategies.

9.0 Recommendations

- NAFDAC should diversify its communication channels, focusing on platforms with high engagement rates like social media and mobile applications, to increase residents' exposure to fake drug awareness campaigns.
- Future campaigns should emphasise practical, actionable methods for identifying and avoiding fake drugs, moving beyond basic awareness to promote behaviour change in purchasing practices.
- Public health initiatives should collaborate with relevant sectors to address infrastructural challenges, such as electricity access, that impact residents' ability to receive and act on information about fake drugs.

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LANGUAGE AND SUSTAINABILITY: A RHETORIC ANALYSIS OF GOVERNOR UMO ENO'S A.R.I.S.E. AGENDA INAUGURAL SPEECH

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Abstract

The profound impact of language on social, economic, and political progress cannot be overstated. When employed effectively, language becomes a potent tool for rallying citizens toward collective action. The present study embarks on a rhetorical analysis of the inaugural address delivered by His Excellency Pastor Umo Eno upon assuming office as the Governor of Akwa Ibom State. The address is analysed to uncover how political leaders use language to communicate their visions and promote sustainable initiatives within their governance framework. The study adopts Aristotle's Rhetoric theory as its analytical lens, focusing on the Governor's use of the rhetorical elements of logos, ethos, and pathos. The address is examined to understand the strategic deployment of these rhetorical elements. The findings reveal Governor Umo Eno's adept integration of Aristotle's Rhetoric components—logos, ethos, and pathos—within his speech, effectively mobilising citizens by clearly articulating the ideas and vision encapsulated in the A.R.I.S.E Agenda, which serves as the foundational objectives of the administration, with a substantial emphasis on sustainability. It asserts the necessity for leaders across all sectors, especially in the political sphere, to harness the power of language to propel sustainable policies and actions.

Keywords: Language, Sustainability, A.R.I.S.E. Agenda, Rhetoric, Manifestoes.

1.0 Introduction

In the realm of politics, inaugural addresses often function as the precipice for unveiling a government's vision and agenda, further expounded in manifestos or strategic frameworks. These orations are not merely ceremonial; they establish the tenor for leadership and governance. In line with Fairclough (2015); Udom (2012); Uduk and Udom (2017), political discourse constitutes a form of social action that operates as a tool for articulating political intents and as a mechanism for accomplishing political objectives. Language in political speeches is meticulously composed to sway, invigorate, and galvanise the public. It molds public perceptions by providing context, framing issues, and delineating agendas. According to van Dijk (1997), the language used by political leaders frequently employ specific discourse techniques, such as metaphors, analogies, and persuasive rhetoric, to influence the emotions and comprehension of policy issues among the audience.

Governor Umo Eno's inaugural address corroborates these findings, employing inclusive and motivational language to resonate with a broad spectrum of audiences in Akwa Ibom State, underpinning unity and progress. The address also delineated his administration's vision, centering on pivotal domains such as agriculture, infrastructure, healthcare, education, and youth empowerment. Overall, the speech conveyed a message of optimism, inclusivity, and dedication to the advancement and prosperity of Akwa Ibom State.

This study endeavors to scrutinise the role of language in political communication, appraise the impact of the inaugural speech on governance and public perception, identify themes and rhetorical strategies in the governor's address, analyse the speech's coherence with sustainable development goals, and proffer remedies for effective political communication. The Impact of Inaugural Addresses on governance and public perception is paramount. Following Campbell and Jamieson (2008), Enang et al., (2014) inaugural addresses have historically been viewed as consequential rhetorical acts in political leadership. These speeches signify the commencement of governance and establish the tone for the political tenure ahead. Findings put forth by Beasley (2012); Udom, (2008) and Lim (2002) underscore the significance of inaugural speeches in conferring legitimacy and garnering public trust. Leaders utilise this opportunity to present their vision and align it with the aspirations and requirements of the electorate.

The analysis of Governor Umo Eno's address reflects a blend of personal narrative and policy outline. His speech aimed to reassure the public about his ability to lead and implement significant changes in agriculture, infrastructure, and youth empowerment. This study explores how political leaders use language to influence public perception and advance their agendas, focusing on Governor Umo Eno's inaugural address. The research aims to uncover the linguistic tools and strategies that make such speeches effective and bridge the gap between political rhetoric and practical governance.

However, the study also critiques inaugural addresses for their frequent disconnect from practical governance, suggesting that political leaders often overpromise and under-deliver. Despite its optimistic tone, Governor Umo Eno's address raises concerns about the feasibility of implementing the ambitious policies outlined. Policy implementation depends on institutional capacity, financial resources, and political stability, which are not always within the leader's control. Monitoring mechanisms and accountability are crucial to bridging the gap between inaugural promises and tangible outcomes. The paper emphasises the need to understand the effectiveness of the governor's communication in reaching diverse audiences within the state. It analyses the speech's language and themes to determine its effectiveness and potential limitations in mobilising public support. Metaphors and symbolic language are also highlighted as important in political speeches, making complex policy issues more relatable and understandable to the public.

This study focuses on an in-depth analysis of Governor Umo Eno's inaugural address, using Aristotle's modes of persuasion—ethos, pathos, and logos—as a basis for the analysis. The use of gratitude, unity, and hope in Governor Eno's address follows the tradition of these rhetorical strategies. The paper concludes with recommendations for bridging the gap between political rhetoric and action, including enhanced communication training for political leaders, regular monitoring and feedback mechanisms, inclusive policy formulation, and using data-driven language to foster public trust.

1.2 Statement of the Problem

Political speeches are avenues through which leaders communicate their ideas and programmes to the citizens. In Nigeria and other parts of the world, inaugural addresses are crucial in setting the tone and rallying citizen's support for any leader's administration. However, sometimes there is a gap between leadership vision and citizens expectations which can be traced to incoherence and lack of clarity in political communication, particularly the inaugural addresses of leaders. It is in view of the above problem that this study attempts an analysis of Governor Umo Eno's Inaugural address to show if leadership vision encapsulated in the A.R.I.S.E agenda inaugural address is in harmony with citizen's sustainable expectations.

1.3 Objectives of the Study

The study is designed to address the following objectives:

i. This study aims to analyse the use of language by political leaders, specifically Governor Umo Eno, to communicate vision and policy intentions and mobilise public support.

ii. By dissecting the contents of Governor Eno's speech, the study assesses how inaugural addresses influence public opinion and set the tone for governance.

iii. The study intends to identify key themes such as gratitude, unity, and development in the speech and explore the rhetorical strategies employed by the Governor in the speech to convey these messages.

iv. This study will evaluate how the governor's stated priorities in the speech align with broader framework of sustainable development goals (SDGs) within Akwa Ibom State.

v. Based on the analysis, the study will recommend strategies for improving the use of language in political communication to enhance engagement and achieve better governance outcomes.

2.0 Conceptual Clarifications

2.1 A brief overview of Akwa Ibom State

Akwa Ibom State was created on 23rd September 1987. It is home to an estimated population of approximately 5.5 million citizens, as reported by the National Bureau of Statistics (2018). The state's economy primarily revolves around extracting crude oil and natural gas, positioning it as the highest oil-producing subnational entity in the country (Akanbi, 2021). Despite its abundant mineral, natural, and human resources, Akwa Ibom encounters notable developmental challenges, emphasising the need for forward-thinking leadership.

Although the state has excelled in various governance areas, it has faced setbacks, particularly in unemployment and socioeconomic inequality. As an illustration, despite ranking second in Foreign Direct Investment (FDI) inflows after Lagos in the second quarter (Q2) of 2017 (National Bureau of Statistics, 2017, as reported by The Mail), the state experienced a sharp increase in unemployment, reaching 37.7% in Q3 2018 (NBS, 2018). This disparity between the state's abundant resources and economic progress underscores the need for leadership to address the growing imbalance and facilitate sustainable development.

2.2 Leadership philosophy and economic development in Akwa Ibom State

In Nigeria, leadership at the subnational level is marked by diverse political, economic, and developmental ideologies. Akwa Ibom State, like other states, has witnessed its leaders constructing their governance philosophy on specific guiding principles to advance the state's development. The state's inaugural civilian governor, Obong Akpan Isemin, introduced the idea of eradicating narrow-minded thinking and promoted ambition in all pursuits. This ideology aimed to foster a progressive, expansive governance and personal development approach.

During the tenure of Obong Victor Attah, the state adopted a collaborative development philosophy encapsulated in the slogan "Come, Let Us Build Together." His administration prioritised instilling a sense of shared responsibility among citizens for the state's infrastructural and economic advancement. Senator Godswill Akpabio focused his developmental framework on “the uncommon transformation” which brought about substantial infrastructural progress across the state. Mr. Udom Emmanuel, Akpabio's successor, structured his administration around the "Dakkada Philosophy," which emphasised citizens' need to rise, embrace self-reliance, and actively contribute to the state's development.

2.3 The A.R.I.S.E. Agenda: A vision for sustainable development

The incumbent governor, Pastor Um Eno, has introduced a distinctive development framework known as the A.R.I.S.E. Agenda. Despite criticisms positing that the A.R.I.S.E. Agenda is merely a reiteration of the Dakadda Philosophy, it is evident that Governor Eno's approach embodies a novel vision with distinct objectives. The blueprint emphasised five key pillars: Agricultural Revolution (A), Rural Development (R), Infrastructure Maintenance and Advancement (I), Security Management (S), and Educational Advancement (E).

The A.R.I.S.E. Agenda represents a comprehensive and forward-thinking roadmap addressing the state's critical areas of economic disparity, infrastructural decay, and human capital development. Its ambitious focus on grassroots development underlines the need to extend governance and development efforts beyond urban centres to rural areas, promoting equitable growth. Governor Eno's rhetoric fosters a spirit of enterprise and self-sufficiency among Akwa Ibom citizens, emphasising collective responsibility and articulating the state's developmental priorities. The agenda strategically positions itself as a blueprint for sustainable development.

While comparisons to previous leadership philosophies, such as the Dakadda Philosophy, persist, Governor Eno's blueprint is distinct in its focus on grassroots development and its comprehensive approach to socio-economic transformation. As Akwa Ibom State progresses, the success of this agenda will depend largely on the governor's ability to effectively mobilise resources and galvanise the populace toward shared goals of progress and sustainable development.

3.0 Theoretical Framework: Rhetorical Theory

The study is based on rhetorical theory, as outlined in Aristotle's influential work, *Rhetoric*. Rhetorical theory delves into the art of effective communication, particularly in public speaking and written discourse, focusing on how language can persuade, inform, or entertain an audience. This theory holds significant philosophical importance as it intersects with philosophy's exploration of the uses and limitations of language.

Rhetorical theory encompasses various rhetorical devices, including figures of speech, logical reasoning, and argumentation strategies. Aristotle's contributions to this field are foundational, extending beyond the technical aspects of persuasion to consider the broader principles and objectives underlying effective communication. Aristotle's work on Rhetoric forms the cornerstone of this academic discipline.

Aristotle's Rhetoric can be divided into two main sections, each containing three parts. The first section examines the tools of persuasion available to rhetoricians:

- Ethos (the character of the speaker)
- Pathos (the emotional state of the audience)
- Logos (the logic and reasoning of the argument itself)

These three elements form the basis of what Aristotle calls "artistic proofs," or evidence created by the speaker.

Aristotle's concepts of ethos, pathos, and logos are central to rhetorical theory and continue to be widely discussed in contemporary rhetoric studies. Ethos involves an appeal to authority or credibility; Pathos involves an appeal to emotions, and Logos refers to an appeal to logic and reason. Additionally, Aristotle introduces three genres of rhetoric: deliberative, forensic, and epideictic, each addressing different uncertainties - future actions, past events, and praise or blame in the present, respectively.

4.0 Rhetorical Analysis and Evaluation of Persuasion

The study of rhetoric has produced a series of evaluative inquiries useful for effective analysis and incorporation of ethos, pathos, and logos. These queries serve the purpose of critiquing rhetorical strategies in other works and guiding one's rhetorical endeavour. The subsequent inquiries are the pivotal points that will be applied to assess the rhetorical efficacy of Governor Umo Eno's Inaugural Address:

Logos:

i. Is the thesis explicit and precise?

ii. Is the thesis substantiated by robust reasoning and trustworthy evidence?

iii. Is the argument rational and methodically organised?

Ethos:

i. What are the qualifications of the speaker, and how do they relate to the topic?

ii. Does the speaker manifest regard for diverse viewpoints and utilise credible, well-documented sources?

iii. Is the tone fitting for the audience and purpose? Does the speaker employ language and terminology suitable for the audience?

iv. Is the document professionally presented and structured?

Pathos:

i. Are vibrant examples, particulars, and imagery deployed to elicit emotional responses from the audience?

ii. Does the speaker appeal to the audience's principles and convictions by utilising relatable examples?

5.0 Application of Rhetorical Theory to Governor Umo Eno's Inaugural Address

This paper employs rhetorical theory to analyse the inaugural address of His Excellency Governor Umo Eno. The study uses the rhetorical principles of ethos, pathos, and logos to illustrate how political leaders utilise language to persuade, particularly in advancing sustainable development and mobilising citizens behind a shared agenda. The analysis will delve into how Governor Eno's address aims to shape public opinion, cultivate emotional connections with his audience, and establish a logical basis for the A.R.I.S.E. Agenda as a model for Akwa Ibom State's development. Ultimately, rhetorical theory provides a comprehensive framework for assessing the efficacy of political communication and its role in shaping public discourse. This study critically evaluates how language is strategically employed to promote political agendas and encourage collective action by focusing on the interplay of ethos, pathos, and logos.

6.0 Methodology

The data for this study comprises the inaugural address delivered by His Excellency Pastor Umo Bassey Eno, the Executive Governor of Akwa Ibom State, South-South, Nigeria. The address was delivered on 29th May, 2023, during his inauguration as the 5th democratically elected Governor of the state. The inaugural address consists of 34 paragraphs of varying lengths, each representing distinct ideas. The paragraphs have been coded as texts for the analysis. This study analyses the data using Aristotle's theory of Rhetoric, focusing on the theory's main components: ethos, logos, and pathos.

7.0 Analysis and Findings

7.1 Logos

In the speech, analysis shows that the Governor adduces strong reasons and credible evidence to assure the people that as a Pastor, and given his humble background, his election and swearing into office is that of the will of God. He does this by copiously quoting from the Bible — a solid and moral Christian authority that will appeal to the sensibilities of citizens of the predominantly Christian State. This can be seen in text 4 and 8 of the speech below:

Text 4- Please permit me at this point to put on my clergyman's hat and quote from St. Luke's Gospel, Chapter 1, verses 46-50 using the King James Version: And Mary said, My soul magnifies the Lord. My spirit has rejoiced in God my Saviour, for He has regarded the lowly State of His maidservant….

Text 8- This moment, therefore, represents the ultimate vindication of those lofty and uplifting words as contained in Psalm 125 KJV: "They that trust in the Lord shall be as Mount Zion, which cannot be removed, but abideth forever.

The embellishment of the introductory part of his speech with personal stories and biblical evidence is to persuade the people to believe in his leadership. He relies on this rhetorical tool to push his A.R.I.S.E agenda forward. In Text 17, he draws on real-life situations by recounting the achievements of Akwa ibomites to demonstrate that the State's golden era has started. The Golden Boy is a name given to the Governor by his wife and popularised by Government media handlers.

Text 17- Today, Hilda Bassey, the Guinness World Record holder in an individual's most extended cooking hours, has epitomized the Dakkada Spirit. Enoh Ebong, the Director of the United States Trade and Development Agency, who is part of President Biden's delegation to the inauguration of President-elect Bola Ahmed Tinubu (GCFR), is of Akwa Ibom ancestry. Ime Udoka, the former Head Coach of the Boston Celtics and now Houston Rockets, has made us all proud. My administration will work hard to produce more of these great and inspirational Akwa ibomites. We will create an environment enabling our youths to thrive since everyone cannot be given political appointments.

Texts 18, 20, 21, and 22 show the Governor's best effort at communicating sustainability. In the cited texts, he reckons on the performance of the immediate past administration to assure the people that his administration will continue the development effort that the State is known for.

Text 18- My fellow Akwa ibomites, in the last eight years, our State has witnessed monumental developmental strides across all sectors, earning national acclaim as

"Nigeria's Best Kept Secret." We owe my Predecessor and Political Father our debt of gratitude. From aviation development, where today we are the only sub-national with a thriving airline in the nation, Ibom Air, to the most innovative Airport Terminal building, the Maintenance, Repair and Overhaul (MRO), the longest Taxiway in the nation, with Category 2 Certification, our story has been one where, as providentially stated in Job 22: 29 "when men are cast down, then thou shall say there is lifting up.
Text 2- My worthy Predecessor, H.E. Udom Emmanuel, had commenced the digitalisation of the Civil Service. We will complete the process of E-governance. We will prioritise the welfare of our civil servants and encourage a spirit of entrepreneurship in line with our Dakkada spirit.

The argument is logical and well-arranged in a seasoned order. For instance, his glowing tribute to the immediate past Governor is in the right place, considering his role in his emergence as the preferred and later candidate of the ruling party, PDP and now Governor of Akwa Ibom State. It is natural and logical that the former Governor, His Excellency Mr. Udom Emmanuel, will be prominently mentioned in the speech. The same can be said of the arrangement. Ideas are arranged chronologically, and events presented in the text are from the earliest to the latest. While the thesis is clear and specific, one can argue that it betrays logic. In that democratic governance, leaders are supposed to be the products of the people, not the products of God's grace, as posited by the speaker in the opening sentence of the address. However, in a profoundly religious sub-national like Akwa Ibom State, ascribing your elevation to the prime position of the State's number one citizen to God can be considered moral and reasonable.

7.2 Ethos

Analysis of the rhetorical element of ethos mainly concerns issues like the writer's qualifications. How has the writer connected to the topic being discussed? Does the writer demonstrate respect for multiple viewpoints by using sources in the text? Are sources credible? Are sources documented appropriately? Does the writer use a suitable tone for the audience/purpose? Is the diction (word choice) appropriate for the audience/purpose? Is the document presented in a polished and professional manner?

Analysis of the speech shows that, as the newly sworn-in Governor of Akwa Ibom State, the speaker is well-qualified, competent and fit to deliver the inaugural address to the state's citizens. The Governor connects himself with the text by x-raying his bleak past and foregrounding his capacity to lead in what he tagged THE GOLDEN ERA. This can be seen in texts 5-8 and 15.

Text 5- If someone had told me years ago that I would stand here as the newly sworn-in Governor of this blessed Piece of Godly Real Estate, a State that is appropriately named after God himself, I would have told him to see a physician for doses of malaria or hallucinating drugs, not because I didn't trust what God can do; not because I was not aspirational, but because the circumstance of existence then, was, to say the least, bleak and uncertain.

The investigation further reveals that the speaker demonstrates and references multiple biblical sources to drive his point. Of course, his political father is also dutifully acknowledged for reasons this paper has already pointed out (see texts 4, 8 and 18). Again, the choice of words and references to people and entities resonate with the people, purpose, and audience. Names and entities like Obong Victor Attah, Hilda Bassey, My Dear Akwa Ibom Youths, My Fellow Akwa ibomites, Maintain Peace Movement (MPN), Female Youths, Traditional Fathers, Fathers in Faith and Entire Evangelical Community, Sen. Godswill Akpabio, Gov. Udom Emmanuel, Air Commodore Idongesit Nkanga (Rtd.), Obong Akpan Isemin, The PDP, Elder Aniekan Akpan, Amb. Assam Assam, Ibom Air, the Smartest Airport Terminal building, the Maintenance, Repair and Overhaul (MRO), and the longest Taxiway in the nation are well known and relatable in Akwa Ibom State and even nationally.

7.3 Pathos

Analysis within the domain of Pathos shows that the Governor employs vivid examples, details and images to engage the reader's emotion and imagination. For instance, in Text 3, he appreciates the past leaders for their individual and collective efforts in positioning the state for greatness. This art of relying on the past to advocate for the future keeps the people emotionally engaged with the history and journey of statehood. His effort is aimed at persuading the citizens through their history rather than convincing them. This affirms Aristotle's consideration of rhetoric not as a tool to convince the audience but as an art form that could help present a persuasive argument (Krogerus & Tschappeler, 2020).

In Texts 6 and 7, the speaker paints a picture of his life and growth through the power of reflection. In text 15, his attention is shifted to the less privileged. All this is aimed at emotionally connecting with the audience irrespective of their social and economic background.

Text 15- To those of you who may be struggling to put food on the table, if I overcome, you too can! To those who may have given up on life because of the circumstances you currently find yourself in, if I overcome, I believe you too can!

Conscious of the role of the youths in the political, electioneering and development processes. The speaker shifts his attention to Akwa Ibom Youths in Text 16. He gets emotional by linking the entire history of the youths to his life trajectory.

Text 16- To the youths of Akwa Ibom State, my story is your story. You cannot achieve anything if you put your heart and mind into it. There is no mountain steep or slippery enough that you cannot climb and get to the apex if, to quote the inspirational words of my political father and my worthy predecessor, His Excellency, Mr. Udom Emmanuel, 'the passion is right'.

In Text 17, he consolidates his emotional attachment to the youths by drawing on examples of youths like Hilda Bassey, Eno Ebong, and Ime Udoka to encourage the youths of a brighter future under his administration. Politicians in Akwa Ibom State often tout Akwa Ibom State as a State named after God, although the history and literal interpretation of the name Akwa Ibom suggest otherwise. This aphorism of naming the state after God has come to stay in the political lexicon of the state. State leaders are always quick to use God to drive their ideas and vision when engaging the people. The Governor engages this sentiment in the opening of his thesis when he attributes his ascension as Governor as a product not of his people but of God's grace (see Text 1).

Again, in Akwa Ibom State, showing gratitude to your helper is a religious and cultural norm rooted in the people's value system. In view of the above, the Speaker consciously and intermittently eulogise his political godfather and predecessor in the speech. He is also conscious of commending past leaders of the state in Text 3. As a Christian-dominated state, the Governor is conscious of appealing to the belief system of the people by quoting copiously from the Bible. (See Text 4 , 8 and 18 above). Wives and women generally are treasured in Akwa Ibom state. In the text, the Governor mentioned his wife, Pastor Patience Umo Eno, two times. He noted the wife of the former Governor, whom he dubbed his Campaigner-in-Chief, Dr. Martha Udom Emmanuel, once and, of course, his deputy, Sen. Akon Eyakenyi, who is a woman, once.

8.0 Rhetorical devices used by Governor Umo Eno and its implications on language and sustainability

Aristotle is of the view that a good speaker must have three things under control: The argument (logos), the presentation (ethos), and the audience (pathos). Analysis of data reveals that the Governor has tried to present his argument clearly, specifically, and logically, adducing credible evidence to push sustainable ideas and initiatives. The findings of this work show that his deployment of logos, ethos, and pathos has an artistic effect on the speech. These rhetorical elements help communicate sustainable initiatives. For instance, in Texts 17 to 21, an analysis of Logos shows that the speaker relies on the strength of his predecessor's performance to communicate his agenda of continuity and sustainability. He assures the people that his A.R.I.S.E government will continue where his political father stopped.

Language is used to communicate sustainability in an easily relatable manner. From texts 23 to 29, the speaker uses simple linguistic choices to communicate his vision for the state as contained in his A.R.I.S.E. agenda document.

Text 23- My dear Akwa ibomites, the first letter in our A.R.I.S.E. Agenda is about agriculture. We will invest heavily in this critical sector and cause a revolution to occur. Agriculture is the new black gold, and we will get our people involved. Food *security and investments in the agro-allied sector will be an abiding article of faith. We will deploy our comparative advantage in the blue economy and ensure that our fishermen get proper financial value for their work.*

It is important to note that the use of terms like the blue economy, agriculture, and fishermen, particularly in a state that is rich in arable land and maritime resources, will stimulate citizens towards sustainable initiatives and practices. In texts 30 to 33, the rhetorical element of pathos is diligently used to appeal to the audience's emotions and sensibilities.

In the texts cited above, the speaker is concerned about the unity of the state, because without peace and harmony, there can be no development, talk more of sustainable development. He dedicates the concluding parts of his address to rallying the people around a common goal, shared vision of statehood, and pledge to be a leader for all, irrespective of partisan leanings. It is worth mentioning that the Governor's success in persuading the citizens is based on his ability to appeal to the audience in the three different rhetoric areas including logos, pathos, and ethos.

9.0 Conclusion

This study aimed to explore the relationship between language and sustainability, and the findings suggest a significant connection between the two. The research has demonstrated that, when effectively utilised, language possesses the power to drive, promote, and enhance sustainable initiatives and practices (Udom & Enyia, 2024). Specifically, the study highlights how the Governor of Akwa Ibom State, Umo Eno, employs rhetorical strategies—logos, ethos, and pathos—to persuade the citizens to actively participate in building a prosperous state. By strategically blending these elements from Aristotle's Rhetorical Theory, Governor Eno has been able to mobilise his audience, which may partly explain the widespread bipartisan support he has garnered since taking office on May 29, 2023. Based on these findings, it is evident that language remains a critical tool for advancing sustainability goals and initiatives. Leaders, particularly in the political realm, must harness the power of language to communicate their agendas and drive sustainable development effectively.

10.0 Recommendations

This study contributes to understanding political communication as a tool for governance by critically examining the use of language in Governor Umo Eno's inaugural address. It proposes actionable steps for enhancing the effectiveness of such speeches in mobilising public support and driving development.

The following are recommendations for improving political communication in inaugural addresses:

- **Enhance communication training for political leaders:** Political leaders should undergo training in effective communication strategies to ensure that their speeches are persuasive and inclusive, resonating with a diverse audience.

- **Regular monitoring and feedback mechanisms:** Mechanisms should be established to monitor the implementation of policies outlined in inaugural addresses, providing transparent feedback to the public and bridging the gap between rhetoric and reality.

- **Inclusive policy formulation:** Policies highlighted in inaugural addresses should be formulated through inclusive processes involving diverse stakeholders to ensure alignment with the needs and aspirations of all citizens.

- **Utilisation of data-driven language:** Political speeches should incorporate data and evidence to support claims and promises, enhancing credibility and fostering public trust.

- **Leveraging digital platforms for engagement:** The government should utilise digital platforms to engage with citizens continuously, provide updates on progress, and ensure transparency regarding policies outlined in speeches.

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APPENDIX

BEING THE INAUGURAL SPEECH BY HIS EXCELLENCY, PASTOR UMO ENO, GOVERNOR, AKWA IBOM STATE, NEST OF CHAMPIONS, UYO, MAY 29TH, 2023.

https://akwaibomstate.gov.ng/the-inaugural-speech-by-his-excellency-pastor-umo-eno-governor-akwa-ibom-state/

LIBRARY SHELF MANAGEMENT STRATEGIES AND SUSTAINABLE STUDENT READING INTEREST: IMPLICATIONS ON ACADEMIC PERFORMANCE

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Abstract

This study explores influence of library shelf management strategies on sustainable student reading interest and academic performance. Employing a descriptive correlational design, the research investigates how the organisation and accessibility of library resources affect students' engagement and reading habits. A total of 190 respondents (students and library staff) were selected through stratified random sampling, while data collected through structured questionnaires and observation checklists were analysed with descriptive statistics, thematic and multiple regression analysis. Findings reveal that library shelf management strategies significantly impact student engagement, explaining 53.6% of the variance ($R^2 = 0.536$, $p < 0.001$). Factors such as clear labelling, organised shelves, and resource accessibility were identified as critical drivers of engagement. Furthermore, there is a strong positive relationship between shelf management strategies, sustainable reading interest, and academic performance, with both variables accounting for 62.3% of the variance in performance outcomes ($R^2 = 0.623$, $p < 0.001$). Shelf management and sustainable reading interest exhibit influence ($\beta = 0.698$) and ($\beta = 0.331$) respectively. These results underscore the importance of effective library management practices in fostering academic success. Therefore, adopting strategic shelf management to optimise library utilisation and support student academic achievement is advocated.

Keywords: Library shelf management strategies, Sustainability, Student reading interest, Implications, Academic performance

1.0 Introduction

The impact of library shelf management on students' interest in reading is a matter of significant importance in the fields of education and library management. The manner in which books are displayed and organised within a library can greatly influence students' engagement with reading materials. Maintaining library shelves in an orderly fashion carries important implications for students' motivation and their ability to locate resources of interest (Smith, 2017). Effectively managed library shelves enable users to easily find materials according to subject matter and call numbers, facilitating the discovery of new topics and authors (Jones, 2020). Conversely, disorganised shelves can overwhelm and deter students from exploring a diverse range of materials. Previous research has explored the relationship between the physical organisation of libraries and patrons' browsing behaviours. Findings suggest that clear signage, logical shelving arrangements, and thematic zoning enhance user engagement and increase the likelihood of serendipitous discoveries (Murphy et al., 2020). For example, a seminal study by Adebayo et al. (2020) highlights the importance of well-organised shelves in improving resource accessibility. The study also noted that libraries with clearly labelled and categorised sections experienced a 35% rise in student engagement compared to disorganised ones. Similarly, Rogers (2018), in observing students at a secondary school library, reported feelings of frustration and shortened attention spans when shelves were poorly maintained or lacked logical sequencing.

The current study seeks to expand upon earlier work by Johnson and Brown (2019) and Mubarak and Salim (2022), which highlighted the importance of incorporating digital indexing systems to enhance resource retrieval efficiency. The authors findings indicated that such systems could reduce search times by 50%, thereby increasing the time students devote to reading. Additionally, periodic updates to book displays and thematic arrangements were shown to improve the visibility of underutilised resources, resulting in a 20% rise in borrowing rates. Consequently, this study aims to explore strategies for library shelf management and fostering sustainable student reading interest, with a focus on implications for academic performance. Specifically, this research investigates correlations between library organisation (measured using a shelf audit tool) and students' self-reported interest, willingness to explore unfamiliar subjects, and frequency of serendipitous discoveries. The findings could assist libraries in optimising shelving procedures to better support exploratory learning and the acquisition of knowledge among students.

Traditionally, libraries have utilised spine-out shelving, where books are arranged with only their spines visible. However, there is a growing recognition of alternative shelving styles and management approaches, such as face-out shelving, where books are displayed with their front covers facing outward. Given the demands of modern schedules and the distractions of various media, encouraging students to read remains a challenge, particularly in the absence of sufficient time, well-stocked libraries, adequate staffing, and organised shelving systems. Inspiring students to select and read books can be difficult, but librarians can alleviate this by moving beyond traditional, outdated shelving methods and adopting innovative strategies to engage their patrons. The monotonous rows of book spines lined up tightly on shelves create an uninspiring and overwhelming experience—just a sea of sameness across the stacks.

The proliferation and accessibility of libraries in schools suggest that students' interest in reading will be stimulated, thereby improving their academic performance. Smith (2011) highlights those students attending schools with librarians consistently meet the minimum academic expectations in reading more often than their peers in schools without librarians. Recent research on library systems conducted by Azmar (2023) revealed that professionally trained and certified school library media specialists positively influence students' academic achievement. Furthermore, the presence of supportive staff was identified as essential for library media specialists to maximise their impact on student achievement. The study also emphasised that socio-economic characteristics remain the strongest predictors of student success. Busayo (2020) underscored the value of school libraries in enhancing students' academic performance, noting that schools with well-resourced libraries and services tend to perform significantly better in reading comprehension and in their ability to effectively articulate ideas related to their readings.

Library collections and resources are essential in supporting students' academic success and development. Research has shown that access to suitable reading materials can significantly impact reading habits and educational outcomes (Smith, 2017; Johns et al., 2019). Effective shelf management is vital for optimising access to and discoverability of these resources. O'Neill and Wavell (2001) highlight that the arrangement and storage of books and other materials can either encourage or hinder students' reading habits and independent learning. As students' needs and preferences evolve alongside the widespread adoption of digital technologies (Jones & Brown, 2011; Garcia et al., 2014), libraries must carefully evaluate traditional shelving systems to ensure they are designed with user experience at their core. Previous studies have stressed the importance of user-centred assessments of physical spaces to identify barriers and opportunities for enhancing modern learning environments (Dewe, 2006; Singh & Kaur, 2009).

The study explores how various elements of shelf design and management influence reading interests of students. It compares traditional shelving models with flexible designs incorporating emerging technologies. By adopting enhanced systems that prioritise user experience, libraries can strengthen their role in supporting student success in the digital era, ultimately contributing to improved academic performance.

1.1 Objectives of the Study

The study aims to identify effective shelving practices that promote discovery, streamline research workflows, and enhance the enjoyment of reading. Specifically, it is to:

i. Examine the impact of library shelf management strategies on students' engagement with library resources.

ii. Assess the role of library shelf management strategies in fostering sustainable student reading interest and its subsequent influence on academic performance.

1.2 Research Questions

i. How do library shelf management strategies affect student engagement with library resources?

ii. What is the relationship between library shelf management strategies, sustainable student reading interest, and academic performance?

1.3 Research Hypotheses:

Ho_1: Library shelf management strategies significantly influence students' engagement with library resources.

Ho_2: Library shelf management strategies positively contribute to sustainable student reading interest, which significantly impacts academic performance.

2.0 Conceptual Clarifications

Classification and Arrangement

- Materials are typically classified using a standardised system such as the Dewey Decimal Classification or Library of Congress Classification. These systems assign unique call numbers to each item based on subject matter.

- Shelf involves arranging materials on shelves according to their classification number. Materials on the same subject are grouped together.
- Books are often arranged alphabetically by the first three letters of the author's last name or by title if no author is given.

Shelf Methods

- **Spine-Out Shelf:** This is the traditional method where books are placed on shelves with only their spines visible. It allows for more books to be stored in a limited space and is commonly used in libraries with large collections.
- **Face-Out Shelf*:*** This method involves displaying books with their front covers facing outward. It has gained popularity as it attracts attention and increases browsing interest, particularly among children and casual readers.

Shelf Process

- **Sorting:** After books are returned and checked in, they are sorted into rough call number ranges. This helps in preparing carts or shelfs for shelf.
- **Pre-Shelf**: Books from one stack location can be put on a cart in precise call number order. Once a cart is prepared, it can be taken to the stack for shelf.
- **Unfinished Carts**: If there are already half-finished carts in the stack, it is advisable to work on those first before starting a new cart.
- **Completion**: At the end of the shelf session, unfinished carts are returned to the circulation desk or left in limited-access areas to be finished later.

Source: ideas.demco.com

Purpose of Library Shelf

The purpose of library shelf goes beyond simply providing storage space for books and other materials. Library shelf serves multiple functions that contribute to the overall organisation, accessibility, and effectiveness of a library. By fulfilling these purposes, library shelf contributes to the overall functionality and user experience of a library, making it easier for patrons to find and access the resources they need. Proper shelf design supports the library mission.

Highlighted below are some key purposes of library shelf:

- **Storage:** The primary purpose of library shelf is to provide a designated space for storing books, journals, magazines, DVDs, CDs, and other library materials. Shelf ensures that items are kept in a systematic and organised manner, making it easier for library staff to locate and retrieve them when needed.
- **Organisation**: Library shelf facilitates the organisation of materials based on classification systems such as the Dewey Decimal Classification or Library of Congress Classification. By arranging items in a logical order, shelf helps users navigate the library and find resources on specific subjects.
- **Maximising floor space**: Efficient shelf systems help maximise the available floor space in a library. Compact shelf, for example, allows for more materials to be stored in a smaller footprint, freeing up space for other library activities such as study areas, collaboration spaces, or multimedia stations.
- **Preservation and protection**: Library shelf should be designed to protect and preserve the materials it holds. Shelf materials should be sturdy and stable, preventing damage to books and other items. Proper spacing between shelves and adequate support for different formats (e.g., adjustable shelves for books of varying sizes) help prevent physical damage and ensure the longevity of the collection. Shelf keeps materials upright and protected from dust, spills, and other damage that can occur when items are not safely stored.
- **Marketing and display**: Library shelf can also serve as a marketing tool by highlighting new arrivals, recommended reads, or thematic displays. Eye-catching displays and dynamic shelf strategies can attract attention, promote browsing, and encourage the discovery of new titles.
- **Browsability and accessibility**: Properly designed shelf allows patrons to easily browse and access materials without assistance. Features like signage, spacing, and ergonomic heights promote accessibility: Properly designed shelf ensures that library materials are easily accessible to patrons. Shelf should be at an appropriate height, with clear signage and

labels, to enable users to locate and retrieve items independently. Face-out shelf, where books are displayed with their covers facing outward, can attract attention and increase browsing interest, particularly among children and casual readers.

- **Discovery and selection**: Intuitive organisation and labelling of shelf helps patrons find and choose items of interest independently. This supports leisure reading and research needs.
- **Space optimisation**: Different shelf types like compact and modular shelf maximises usable floor space for growing collections.
- **Wayfinding**: Signage, colour coding, and shelf location indicators assist patrons in navigating the library space and collection arrangement scheme.
- **Flexibility**: Adjustable shelf allows collections to be reconfigured as needs evolve over time. Space can be allocated efficiently.
- **Tracking**: Library classification and call number systems arranged on shelf aid in organisational control and item inventory.

3.0 Literature Review

Overview of Library Shelf

Library shelving plays a vital role in the storage, organisation, and accessibility of physical collections. A well-designed shelving system maximises the discoverability and usage of printed materials through an intuitive layout. Effective shelving management takes user needs into account and optimises the arrangement to enhance the browsing experience (Wu & Li, 2021). Various types of shelving units are commonly used in libraries. *Compact shelving* employs movable units that retract vertically, significantly increasing the volume of materials that can be housed within a limited space (Morris & Grimes, 1999). *Modular shelving* offers adjustable sections, providing flexibility to reconfigure the system as collections expand or evolve (Hopkins, 2005). *Specialised shelving* accommodates diverse material formats such as media, periodicals, reference works, and oversized books (Dewe, 2006). Innovative shelving design incorporates considerations of accessibility, lighting, signage, and user comfort. Features such as lower shelving heights, ample aisle widths, and proper lighting promote inclusivity and independent navigation (Linn, 2018). Wayfinding tools such as signage, maps, colour coding, thematic layouts, and staff assistance points further aid users in understanding the library's organisational structure (Singh & Kaur, 2009).

Shelving systems must evolve in response to changing user behaviours and academic trends. Regular assessment ensures that shelving remains adaptable, optimising usability while meeting shifting pedagogical demands

(Linn, 2020). Library shelving is integral to the systematic arrangement and display of materials, facilitating efficient browsing and access for patrons. It supports libraries in preserving physical collections, meeting diverse learning needs, and maintaining user engagement in the digital era. Well-designed shelving enhances the academic experience by improving the discoverability and accessibility of knowledge resources (Hopkins, 2021).

Characteristics of Library Shelf

Library shelf plays a crucial role in organising and storing books, magazines, CDs, DVDs, and other materials in a library. The characteristics of library shelf are designed to accommodate different types of materials and ensure efficient use of space. The characteristics of library shelf include considerations such as shelf depth, height, material durability, customisability, accessibility, space efficiency, and aesthetics. These characteristics ensure that library shelf systems can effectively store and organise various materials while optimising the use of space and providing a pleasant environment for library users. Structural characteristics are important for library shelf to withstand heavy usage over extended periods of time. Shelf units need durable construction utilising strong, impact-resistant materials like steel or reinforced composite woods (Morris & Grimes, 1999).

Adjustable, modular designs allow for flexible reconfiguration as collections evolve (Hopkins, 2005). Shelves should be easy to shift and anchor firmly to walls to prevent tipping during retrieval of heavy items (Dewe, 2006). It is amazing to note that Compact shelf with moveable shelves increases usable floor space, optimising collection housing (Ward, 2018). On its own, Mobile shelf tracks support smooth operation even under full loads to facilitate retrieval processes (Jackson, 2020). These robust characteristics preserve the integrity of shelf infrastructure and ensure safe and reliable access to materials. Usability characteristics enhance discovery and accessibility for all patrons.

Clear numbering and section labels follow standardised call number schemes for intuitive browsing (Linn, 2018). Open spacing between shelves and aisles promotes visibility and ergonomic movement (Wu & Li, 2021). Adjustable heights accommodate various physical abilities and preferences (Linn, 2020). Integrated lighting provides subtle illumination for late-night study without damaging materials (Oates & Evans, 2021). These inclusive, self-explanatory attributes empower patrons' independent browsing and selection through a navigable, barrier-free design. Proper characteristics help shelf meet the long-term storage, access, and organisational needs of libraries and patrons. The following form some observable characteristics of shelf design:

- **Shelf Depth**: The depth of library shelf is an important characteristic that determines the types of materials that can be stored. Generally, a shelf depth of 10 inches is the most common and can hold most paperback and large print books, as well as CDs and DVDs. However, oversized materials such as newspapers, magazines, and encyclopaedias require a shelf depth of at least 12 inches.
- **Shelf Height**: The height of library shelf can vary and is typically adjustable to accommodate different needs ranging from 30 to 84 inches, allowing for customisation based on the size of the materials being stored and the available space in the library.
- **Material and Durability**: Library shelf is usually made from durable materials such as metal or other sturdy materials to withstand the weight of books and other materials. The shelf should be able to support the weight of the items stored on it and withstand regular use without bending or warping.
- **Customisability**: Library shelf systems often offer customisable components, such as adjustable shelves and dividers, to provide flexibility in organising and arranging materials.
- **Accessibility**: Shelf systems should be designed to provide easy access to materials for library staff and patrons.
- **Space Efficiency**: Library shelf should be designed to maximise the use of available space. Compact shelf systems, for example, utilise movable shelves on tracks to minimise the amount of floor space required while maximising storage capacity.
- **Aesthetics**: While functionality is important, the appearance of library shelf also plays a role in creating an inviting and organised space.

Benefits of Library Shelf

Library shelf provides numerous organisational benefits. The structured layout allows for logical arrangement of physical collections according to established classification schemes (Dewe, 2006). Signage and numbering assist patrons and staff to easily locate and reshelf items (Singh & Kaur, 2009). Inventory control is maintained through visual confirmation that materials are properly housed (Morris & Grimes, 1999). Space optimisation is achieved through flexible shelf designs that maximise usable floor area (Ward, 2018). Disaster preparation is facilitated by sturdy shelf anchoring that protects collections during seismic events (Farmer, 2017). These advantages promote efficient operations and preservation of valuable resources.

Additionally, effective library shelf benefits users through enhanced accessibility and discovery. Well-designed shelf permits independent browsing and selection of materials without staff intervention (O'Neill &

Wavell, 2001). Wayfinding cues orient patrons to the library layout and collection locations (Linn, 2018). Browsability inspires serendipitous exploration and supports curiosity-driven inquiry (Johns et al., 2019). Accommodating design considers diverse needs such as language preference or physical ability (Linn, 2020). The open layout stimulates engagement by presenting an inviting browsing experience (Hopkins, 2021). These user-centred characteristics foster learning, leisure reading and fulfilment of the academic mission. Itemise below are some benefits of shelf design:

- **Organisation**: Proper shelf arrangement allows patrons to easily locate materials according to call number order.
- **Space efficiency**: Compact shelf with moveable shelves maximise floor space for growing collections.
- **Accessibility**: Adjustable heights and ample aisles promote independent access for all patrons.
- **Discovery**: Clear signage encourages browsing and serendipitous exploration of physical holdings.
- **Preservation**: Sturdy construction and shelf protects items from damage during regular usage or disasters.

Library Shelf and Students Reading Interest

Library shelf plays a significant role in influencing students' reading interest. The way books are organised and displayed can impact students' engagement, motivation, and ability to discover new books. Effective shelf design has been shown to positively impact student reading motivation and habits. Intuitively organised collections with clear wayfinding cues encourage browsing and discovery of new materials that spark interest (O'Neill & Wavell, 2001). Studies have found students are more likely to check out genres and subjects outside their normal preferences when shelf inspires serendipitous exploration (Johns et al., 2019).

Accommodating layouts that feel inviting and non-intimidating also influence reading behaviours, especially for new or reluctant readers (Linn, 2018). Features like varied seating promote extended perusal that supports leisure reading (Wu & Li, 2021). When shelf presents physical holdings as an accessible browsing experience, it cultivates students' reading engagement and enrichment beyond required course work. Additionally, shelf design considers how students prefer to study and interact with materials. Research indicates preferences for quiet solitary study versus collaborative work influence formatting needs (Hopkins, 2021). Flexible, multifunctional shelf supports evolving pedagogical approaches and different learning styles (Dewe, 2006). Assessments increasingly recommend integrating technology like interactive displays and charging stations to complement print collections (Singh & Kaur, 2009). Such innovations keep shelf relevant in meeting modern student interests and demands. With user-centred evaluation, physical spaces can evolve to further foster independent learning through optimised access to reading resources.

Library bookshelf with numerous books arranged in an organised and visually appealing manner can inspire students to have a liking for books and reading. Dynamic Shelf, which involves adding colour, front-facing books, and grouping by theme, can make shelf more engaging and appealing inviting students to try out books and therefore spend longer time interacting with these materials, this done over time can impact the student positively and trigger their interest in reading.

Traditionally, a neatly and perfectly arranged row of book spines on a shelf, help students discover new books of interest. There is therefore need to ditch the static Shelf, where books are organised solely based on author or call number, as such can be uninspiring and overwhelming for readers, dipping their interest in the process and over time. Dynamic Shelf strategies can empower students to independently browse for and find books they want to read. By adding visual interest, clear signage, and sensible groupings, libraries can create a space that anyone can successfully utilise. This approach puts the power into the hands of the readers and promotes independent exploration that spike interesting reading. Libraries that adopt Dynamic Shelf strategies often experience higher circulation rates. By making the collection more appealing, accessible, and enjoyable, libraries can entice more readers to pick up and read books. Front-facing shelf, in particular, has been shown to increase engagement and reading rates. Library shelf has a significant impact on students' reading interest. Dynamic Shelf strategies that prioritise visual appeal, discoverability, and empowerment can enhance students' engagement, motivation, and ability to explore and choose books of interest.

Challenges of Library Shelf Management

Library shelf management poses several challenges that librarians and library staff must address to ensure efficient organisation and accessibility of books. These challenges can range from staffing shortages to user behaviour and the physical design of shelf units. Library shelf management presents various challenges, including staffing shortages, user behaviour, limited shelf space, and inefficient shelf methods. By addressing these challenges through adequate staffing, user education, efficient shelf methods, regular maintenance, and effective space planning, libraries can enhance the organisation and accessibility of their collections.

Library shelf management faces several operational challenges. Growing collections increasingly strain finite shelf space, necessitating ongoing reorganisation and shifting (Morris & Grimes, 1999). Aging infrastructure also requires replenishment, yet budgets have not kept pace with rising costs of durable, high-quality shelf units (Hopkins, 2005). Staffing shortages limit time available for tasks like thorough shelf-reading, adjustments for call number or collection changes, and preventive maintenance (Dewe, 2006). Remote or distance learners rely more heavily on the virtual library as well, increasing demand for digitisation that may cannibalise funds from physical spaces (Linn, 2018). The COVID-19 pandemic further exacerbated challenges through long-term building closures (Wu & Li, 2021). These resource constraints test managers' abilities to maintain optimal shelf usability.

User behaviour trends also introduce management challenges. Students now expect services mirroring Amazon-like ease and speed (Farmer, 2017). Their preference for accessible digital resources risks undermining engagement with physical collections (Singh & Kaur, 2009). Younger patrons in particular orient differently to traditional classification schemes, preferring keyword searches over print browsing (Linn, 2020). Adapting signage, organisation, and shelf interfaces demands experimenting with contemporary models while preserving access for populations relying solely on print. Striking this balance amid shifting user needs and limiting resources presents ongoing challenges.

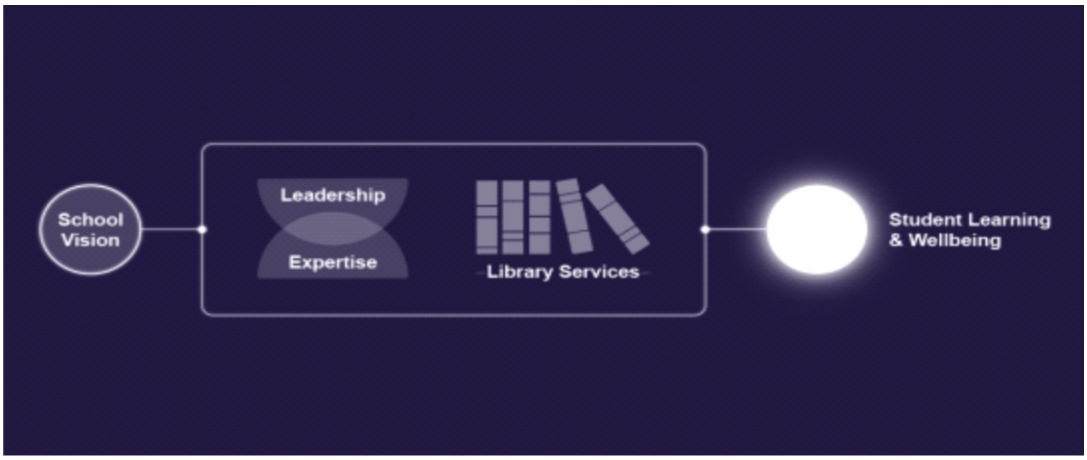
Strategies for Effective Library Management

- **Adequate staffing**: Ensuring sufficient staffing levels for shelf tasks can help maintain organised shelves and timely shelf of books.
- **User Education**: Educating library users about the importance of returning books to their proper place and following the library's catalogue or classification system can help minimise disorganisation.
- **Efficient Shelf Methods**: Implementing efficient shelf methods, such as placing frequently used books at eye level and using clear labelling and signage, can enhance book retrieval and organisation.
- **Regular Shelf Maintenance**: Regular shelf maintenance, including shelf reading and weeding, can help identify misplaced books and remove outdated or damaged materials, creating more space and improving organisation.
- **Space Planning**: Libraries should consider space planning and anticipate future growth when designing shelf layouts. This can involve estimating the amount of growth, leaving adequate empty space on shelves, and considering the use of book carts or other display methods to supplement shelf space.

Framework for Effective Library Shelf Management

Effective library shelf management ensures that materials are well-organised, easily accessible, and properly maintained, promoting user satisfaction and efficient operations. The framework for successful library shelf management comprises several key components, outlined below:

a) **Collection organisation:** Materials should be systematically organised according to a classification system (e.g., Dewey Decimal or Library of Congress). Appropriate signage and consistent shelving practices improve accessibility and usability (Wilson, 2019).
b) **Shelf maintenance:** Regular checks ensure that items are correctly shelved, spine labels are intact, and damaged materials are identified for repair or replacement (Ahmad, & Khan, 2020).
c) **Inventory control:** Periodic inventory audits help identify misplaced, lost, or stolen items. An updated inventory system ensures accurate record-keeping (Chen, et al. 2021).
d) **Space optimisation:** Efficient utilisation of shelf space involves assessing user demand, withdrawing outdated materials, and employing compact shelving systems where necessary (Patel, 2018).
e) **User-centric design:** The shelving layout should prioritise user needs, with frequently used materials in accessible areas and clear labels for easy navigation (Martinez, & Smith, 2017).
f) **Staff training:** Staff should be trained in shelving standards, classification systems, and technologies to maintain efficiency and accuracy in shelf management (Moore, 2020).
g) **Weeding policies:** Regular weeding of outdated, irrelevant, or damaged materials improves the collection's relevance and accessibility (Taylor, 2018).



Source: natlib.govt.nz

4.0 Research Methodology

The study adopted a descriptive research design to explore the relationships between library shelf management strategies, sustainable student reading interest, and academic performance. This design is suitable for understanding how variables interact and influence each other without manipulating the environment. The study population comprises 419 students and library staff at Akwa Ibom State Polytechnic, Ikot Osurua. A stratified random sampling method was used to ensure representation across different academic levels. A sample size of 190 respondents was determined using the Krejcie and Morgan (1970) sampling table. Data were collected through in-person surveys and observations over a 4-week period with a structured questionnaire. The instrument had Likert-scale items to assess the perceptions of students and librarians on shelf management strategies, reading interest, and academic performance.

To ensure validity, the questionnaire was reviewed by experts and piloted. While reliability was tested with Cronbach's Alpha, SPSS, descriptive statistics, regression analysis were adopted for data analysis. Ethical research principle was observed by informing participants of the study's purpose and their right to withdraw at any time.

5.0 Data Analysis and Interpretation

5.1 Response Rate

A total of 200 copies of questionnaire were distributed among students and library staff. Out of which 190 were successfully completed and returned, resulting in a response rate of 95%.

5.2 Analysis of Research Questions

Research Question 1: How do library shelf management strategies affect student engagement with library resources?

Table 5.1: Responses to influence of shelf management strategies on resource engagement.

Item	Statement	Agree (%)	Disagree(%)	X	SD
1	Shelves are well-organised for easy navigation.	150 (78.9%)	40 (21.1%)	4.1	0.8
2	Book arrangement supports frequent utilisation.	140 (73.7%)	50 (26.3%)	3.8	0.9
3	Shelf labels are clear and consistent.	160 (84.2%)	30 (15.8%)	4.3	0.7
4	Resources are easily accessible when needed.	155 (81.6%)	35 (18.4%)	4.2	0.8
5	Shelving promotes exploration of new resources.	145 (76.3%)	45 (23.7%)	3.9	0.9
6	Library staff assist with effective navigation.	170 (89.5%)	20 (10.5%)	4.5	0.6
Total				**4.1**	**0.8**

Field Survey 2024

Table 5.1 shows a high level of agreement (average score of 4.1, SD = 0.8) regarding the effectiveness of shelf management strategies. Most respondents agreed that organised shelves (84.2%) and accessible resources (81.6%) enhance engagement. Assistance from staff received the highest agreement (89.5%), suggesting that human support is crucial for maximising shelf utility.

Research Question 2: What is the relationship between library shelf management strategies, sustainable student reading interest, and academic performance?

Table 5.2: Responses to library shelf management strategies, sustainable student reading interest, and academic performance

Item	Statement	Agree (%)	Disagree(%)	X	SD
1	Shelf organisation fosters sustained interest.	155 (81.6%)	35 (18.4%)	4.2	0.8
2	Reading interest is linked to academic success.	160 (84.2%)	30 (15.8%)	4.3	0.7
3	Shelving reduces difficulty in finding materials.	150 (78.9%)	40 (21.1%)	4.1	0.8
4	Frequent reading enhances academic performance.	165 (86.8%)	25 (13.2%)	4.4	0.7
5	Library structure influences reading frequency.	145 (76.3%)	45 (23.7%)	3.9	0.9
6	Organised shelves save reading time.	170 (89.5%)	20 (10.5%)	4.5	0.6
Total				**4.2**	**0.8**

Survey Field 2024

The data in Table 5.2 highlights a strong agreement (average score of 4.2, SD = 0.8) that library shelf management strategies significantly contribute to sustainable reading interest and academic performance. Notably, 86.8% agreed that frequent reading improves academic outcomes, while 89.5% emphasised the importance of organised shelves in saving time and encouraging consistent reading habits.

5.3 Hypotheses Testing

Hypothesis 1

H_o: Library shelf management strategies do not significantly influence student engagement with library resources.

In order to test the hypothesis, multiple regression analysis was performed on the data (see tables below).

Table 5.3: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.732	0.536	0.531	0.357

Table 5.3a: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.456	1	18.456		
Residual	16.064	188	0.085	144.42	0.000
Total	**34.520**	**189**			

Table 5.3b: Coefficients

Model	Unstandardised Coefficients (B)	Standard Error	Standardised Coefficients (Beta)	T	Sig.
Constant	1.214	0.136		8.926	0.000
Shelf Management	0.523	0.044	0.732	12.021	0.000

The analysis of Hypothesis 1 reveals that library shelf management strategies significantly influence student engagement with library resources; with the regression model accounting for 53.6% of the variance in engagement levels ($R^2 = 0.536$). The findings indicate that shelf management has a strong positive impact ($B = 0.523$, $\beta = 0.732$, $p < 0.001$). This suggests that well-organised, accessible, and clearly labelled shelves substantially enhance how frequently and effectively students utilise library materials. The model's overall significance ($F = 144.42$, $p < 0.001$) validates this relationship, emphasising the critical role of effective shelf management in encouraging resource use. The results further highlight that improving shelf organisation and accessibility can directly boost students' engagement with library facilities, supporting better utilisation of academic resources. Consequently, H_{01} is rejected.

Hypothesis 2

H_o: Library shelf management strategies do not positively contribute to sustainable student reading interest and academic performance.

In order to test the hypothesis, multiple regression analysis was performed on the data (see tables below).

Table 5.4: Model Summary

Model	R	R²	Adjusted R²	Std. Error of the Estimate
1	0.789	0.623	0.619	0.312

Table 5.4a: ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	21.784	2	10.892		
Residual	13.236	187	0.071	112.33	0.000
Total	**35.020**	**189**			

Table 5.4b: Coefficients

Model	Unstandardised Coefficients (B)	Standard Error	Standardised Coefficients (Beta)	T	Sig.
Constant	0.852	0.128		6.656	0.000
Shelf Management	0.462	0.039	0.698	11.846	0.000
Sustainable Reading Interest	0.285	0.052	0.331	5.481	0.000

The analysis of Hypothesis 2 demonstrates that both library shelf management strategies and sustainable student reading interest significantly contribute to academic performance, with the regression model explaining 62.3% of the variance in performance outcomes. Shelf management strategies show a stronger influence ($B = 0.462$, $\beta = 0.698$, $p < 0.001$), indicating that the organisation, accessibility, and clarity of library resources play a pivotal role in supporting academic success. Sustainable reading interest also contributes positively ($B = 0.285$, $\beta = 0.331$, $p < 0.001$), reflecting its importance in maintaining consistent engagement with learning materials. The model's significance ($F = 112.33$, $p < 0.001$) underscores the combined effectiveness of these variables in shaping academic achievements. Consequently, H_{02} is rejected.

6.0 Discussion of Findings

The findings indicate a significant positive relationship between library shelf management strategies and student engagement with library resources, with a strong predictive power ($B = 0.523$, $\beta = 0.732$, $p < 0.001$). The results show that when library shelves are well-organised, clearly labelled, and easily navigable, students are more likely to engage with the resources provided. This aligns with the work of Kumar and Singh (2020), who found that library users preferred facilities with clear categorisation and labelling of materials, leading to higher user satisfaction and resource utilisation. Similarly, Adewole et al. (2019) concluded that accessible library arrangements reduce time spent searching for materials, thereby encouraging students to visit libraries more frequently. The present study adds to this evidence by demonstrating that shelf management strategies not only facilitate access but also create an inviting environment that motivates students to explore and engage with library collections. When resources are difficult to locate due to poor shelf organisation, students often become discouraged and may rely on alternative, less comprehensive sources of information. These findings emphasise the need for libraries to invest in effective shelf management practices to enhance usability and attract more students to fully utilise the available academic materials.

Empirical studies including those of Ibrahim and Kamarudin (2021) demonstrated that students in institutions with well-managed libraries reported higher levels of reading interest and academic performance compared to those in poorly managed facilities. Similarly, Nguyen and Lee (2020) highlighted that consistent reading habits are directly correlated with better retention of knowledge and improved examination outcomes. The current study builds on this by showing how library shelf management directly supports reading habits, which in turn drive academic achievements. Furthermore, the interaction between these variables suggests that sustainable reading interest acts as a mediator, amplifying the impact of shelf management on performance. Poorly managed libraries, on the other hand, may hinder the development of consistent reading habits, reducing the effectiveness of learning resources. These findings highlight the need for schools and institutions to prioritise library management as a strategic factor in enhancing both reading engagement and academic success.

7.0 Conclusion

The results of this study provide insight into the relationship between library shelf management and student reading interests. A statistically significant positive correlation was found between organisation scores on the shelf audit tool and students' self-reported interest in browsing new topics. Disorganised shelf was also linked to fewer serendipitous discoveries of new authors and materials. It is concluded in the study that a well-organised shelf supports exploratory learning behaviours that are valuable for knowledge building.

8.0 Recommendations

Based on the findings of the study, the following recommendations are offered:

- Conduct regular shelf audits using a standardised tool to proactively identify and address areas in need of improved organisation. Routinely monitoring shelf quality can help maximise its benefits.
- Provide ongoing training to student shelf assistants on call number logic and consistency in shelf order. Proper protocol is essential to long-term organisation.
- When reshelf books, take extra care to return materials to the correct location and orientation to maintain an organised, easily navigable flow.
- Consider shelf that is more popular with new arrivals in a separate browsing section to draw additional attention and highlight recent acquisitions.
- Communicate findings to administration about the relationship between shelf and student engagement to encourage continued support for optimal shelf practices.

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VIVIFICATION AND ADAPTABILITY OF ROUTINE ACTIVITY THEORY (RAT): A PARADIGMATIC APPROACH TO DETERRING CYBERCRIMES IN NIGERIA

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Abstract

Internet, with its anonymity has created a platform where e-fraud, cyberterrorism, hacking and other cybercrimes thrive. The ill-implementation of legislation targeting cybercrimes; lack of virtual evidence, knowledge of investigation, and theorisation have continued to negate effective policing of the cyberspace. Some contemporary discourses portend qualitative similitude of cybercrime and 'terrestrial crime', while conjecturing explications radiate within the confines of grand theories of crime causation. Conversely, this paper adopts a descriptive method of analysis, where materials were gathered through secondary sources to explore and vivify Routine activity theory and the extent to which its perspectives and aetiological schema can be transposed to crimes committed in a 'virtual' environment. The parameters of cybercrime are analysed as a security concern, while it is concluded that the strands of the theory are very descriptive of the ravaging landscape of these crimes. Indeed, since it has been discovered in the study that the prevalence of cybercrimes annihilates germane quest for sustainable security and development, utilisation of data surveillance technologies, computer literacy and cybercrime awareness campaign, legislation, intelligence policing and co-operation among stakeholders are advocated as adaptive measures to truncate and wane the scourge of cybercrimes.

Keywords: Cybercrimes, Internet, RAT, Vivification, Virtual

1.0 Introduction

Cybercrimes are any illegal acts committed within a computer network or facilitated by the use of a computer or electronic system, (Comer, 2006 in Awak, 2019). Some of the variants range from hacking, phishing, vishing, password sniffing, web cramming, spoofing, credit card fraud to identity theft. Others involve data kidnapping through industrial espionage, software piracy, cyber and financial fraud, stocks manipulation or fraudulent business deals, as well as computer sabotage and cyber terrorism, (Awak, 2019). Infact, Wall (2001 in Awak, 2019) posits that cybercrime is as sophisticated as the modern technology, and it has the capacity to massively destroy or disrupt the social, economic, political order and stability.

The most worrisome is that the pervasiveness of these emerging crimes seems like a common event in Nigeria despite the debilitating effects, just as the presence of Economic and Financial Crimes Commission (EFCC), who sometimes, plays to the gallery through media trial but fails to cover much of the grounds of cybercrimes have not remedied the situation, (Awak, 2019). This explains why the Nigeria Army in 2020 left its constitutional duties to join in countering cybercrimes before the #EndSARS protestations disrupted the operation, (Awak, 2022).

Many countries, including the United States understood that the economy, in the voice of Karl Marx, is the infrastructure upon which other institutions are rested. This assertion, perhaps, might have informed their swift action to criminalise hi-tech-crimes of any magnitude. These include making, possession or distribution of certain material, such as child pornography, fraud, among others, (Yar, 2006 in Awak, 2022). However, in Nigeria, it took the federal government over fifteen (15) years to enact a law on cybercrimes (Prohibition, Prevention, etc.) Act (2015), after it set up the Nigeria Cyber Working Group (NCWG) in 2000 (Awak, 2022) and the amended version of 2019 by the Nigerian government; though the implementation and policy direction are matters of grave concern.

That the spate of cybercrimes and the inadequacy of safety measures to police the system and its processes are manifest in the geometric number of those enlisted into cybercriminal gangs; however, this does not negate the exponential rate at which ICTs and their applications have spread (Awak, 2022). Certainly, financial, psychological, political and economic losses recorded through cybercrimes are deleterious to Nigeria's economy and overall well-being. Yet, the larger population is stuck in ignorance, digital divide, inequality and inaccessibility to critical ICTs infrastructure. This population is vulnerable, and often, victims of various antics of those lurking around the net.

Irrespective of existing measures to counter cybercrimes, the financial, economic and social fabric of Nigerian society are stultified unabated by activities of cybercriminals, thereby, enunciating adaptability by RAT as a paradigmatic approach in the invention and implementation of stringent measures to curb strangulating pangs of cybercrimes in the country.

As cited in Awak (2022), NIBSS lamented that between July and September, 2019, Nigerian banks lost N552million to fraud related transactions, but as a result of the Covid-19 pandemic and subsequent lockdown in 2020, the loss astronomically peaked at N3.5billion within the same period. In terms of medium of commission of fraud, it is noted by Nigeria Inter-Bank Settlement System (NIBSS) that the highest number of fraudulent transactions are committed on the web channels, while financial fraud transacted through phones recorded a loss of N410 million that constituted about 11.7 percent of the entire loss value. In 2020, an increasing number of small-medium banks and financial institutions across Africa, Asia, and Eastern/ Europe were prey to ransomware attacks from groups with expertise in vending remote desktop protocol/ virtual network computing (RDP/VNC) network access. Today, many developed countries are grappling with Ransomware attacks that seem like fairy-tale to Nigerians and it is worrisome that if such countries like the USA, Britain, among others with all cyber security architecture in place are made to swallow a disruption cost of up to $20b a year, then, when Nigeria becomes aware of the attacks, the cost surely, would be disastrous.

According to Chainalysis, a software company, "Gangs of ransomware hackers made more than $350m in 2020, a 311 per cent jump on the previous year, (Murphy in Financial Times, 2021, P. 6). In ransomware attacks, data and other internet resources are kidnapped and ransom demanded. It is the cyber version of conventional kidnapping that is rampant in Nigeria.

With an alarming rise in vicious cyberattacks on financial institutions in 2020, it is now estimated that 10 percent of all data breaches were related to the financial industry. The most prevalent technique adopted in the commission of bank fraud as contained in NIBSS industry fraud report is social engineering. This was responsible for 11,589 fraud activities and this has made online fraud a growing concern for investors in financial services, (https://businessday.ng/editorial/article/ rising-cyber-fraud-in-nigeria-and-banks-losses/) (cited in Awak, 2022). Since Central Bank of Nigeria (CBN) in 2014 accelerated its effort to deepen cashless transactions, the rapidity of growth in electronic banking fraud has sustained. Hypnotism, ritualisation and social engineering have become veritable tools in the hands of cybercriminals, and explain the apathy towards cashless system as displayed by the people between January 31 and March 5, 2023 when cash crunch made cashless facilities palpable. That Nigerians craved for cash was a consequence of lack of trust in the mobile banking or cashless policy and a serious damage to the economy.

According to Businessday editorial of 20th Feb. 2021, Nigeria Deposit Insurance Commission (NDIC) lamented that Nigerian financial system has been bedevilled by cyber-fraud that leads to heavy financial losses. For instance, in 2018, Nigerian banks lost over N15.5 billion ($41.6m), while N12.30 billion was lost to various forms of frauds between 2014 and 2017. The most astonishing is that of all the financial service-related frauds, about 89 percent was perpetuated electronically, meaning that only 11 percent was non-electronic, (Awak, 2022).

The pervasiveness of cybercrimes in Nigeria led to the country being ranked 3rd in global internet crimes behind UK and USA, (https://www.premiumtimesng.com/news/top-news/241160-nigeria-ranks-3rd-global-internet-crimes-behind-uk-u-s-ncc.hmtl). This, perhaps, justifies the country's position (47th) in Global Cybersecurity Index behind Mauritius, Tanzania and Ghana, (https://m.guardian.ng/technology/nigeria-lags-behind-mauritius-ghana-others-in-cybersecurity-ranking/amp/) (cited in Awak, 2022; Adepetun, 2020). It is also, estimated that financial loss at the global scale by 2025 will not go below $10.5 trillion with daily cybercrime cases optimising at 2,328.

The scourge of cybercrimes is therefore, reflected in the humongous recoveries by EFCC. For instance, between October 2023 and September 2024, 3,455 convictions were secured, while #248,750 billion, $105,423million, $180,300, £53,133.64; €172,547.10 and T1,300.00 IndianRupees, CAD$3,400.00, ¥74,859.00 Chinese Yuan; AUS$ 740,00, 170.00 UAE Dirham, 73,000.00 Korean WO N, CFA7,821,375.00 and R50,000 South African Rands (www.noa.gov.ng/thechangingfaceofanti-corruptionwar).

Indeed, cyber criminals around the world lurk on the net as ever-pervading menace to the financial and economic health of the society, which has provoked growing interests to investigate multisectoral domains of cybercrimes.

2.0 Conceptual Clarifications

2.1 Spam: Spam is the sending of unsolicited bulk email to an email account of another person for the commercial purposes, which may include advertisement for new products, admissions, among other products (Snail, 2009). The negative effect of this act is that when too much are sent, it could lead to the crashing of the account thereby, denying the owner the opportunity to make use of such account.

2.2 Fraud: Computer fraud is any dishonest misrepresentation of fact intended to induce another to do or refrain from doing something which causes loss. In this context, fraud will result in obtaining a benefit by altering, destroying, suppressing, or stealing output, usually to conceal unauthorised transactions or deleting stored data, and misusing existing system tools or software packages, or writing code for fraudulent purposes (Gehring, 2004 in Awak, 2019).

2.3 Software piracy: It has to do with theft of software through illegal copying of genuine programmes or the counterfeiting and distribution of products intended to pass for the original. Piracy describes a significant range of activities, of which, most are unlawful. It involves "…make or making use of or reproducing the work of another without authorisation" (Craig, Honick, & Burnett, 2005, p. 12).

2.4 Email bombing: Email bombing has to do with sending a large number of emails to the victim, which results in the victim's email account (in case of an individual) or mail servers (in case of a company or an email service provider) crashing (Goodin, 2008).

2.5 Harassment: Harassment, to Philippsohn (2001), directs obscenities and derogatory comments at specific individuals focusing for example, on gender, race, religion, nationality, sexual orientation, among others.

2.6 Cyber-terrorism: A cyberterrorist is someone who intimidates or coerces a government or organisation to advance his or her political or social objectives by launching computer-based attack against computers, network and the information stored on them (Comer, 2006). On the other hand, Cyberterrorism is an act of terrorism committed through the use of cyberspace or computer resources (Gordon & Ford, 2004 in Awak, 2022). There are also hacking activities organised by groups within networks and directed towards individuals and families, with a view to causing fear among the people. Terrorists may demonstrate their ICT power by collecting information relevant for ruining peoples' lives through act of robberies, blackmailing, stalking, among others (Wall, 2011).

2.7 Hacking/cracking: This means an illegal intrusion into a computer system and/network. It is a process whereby one uses one's programming abilities to design various programmes with malicious intent to gain unauthorised access to a computer or network. For instance, a hacker could insert a pornographic content just to embarrass the participants of a zoom meeting.

2.8 Virus dissemination: Viruses are programmes that attach themselves to a computer or a file and then circulate themselves to other files and to other computers. They usually affect the data on a computer, either by altering or deleting it. However, Worms merely make functional copies of themselves repeatedly until they eat up all the available space on a computer's memory. Examples of malicious software worms that destroy the system of the victim include Trojan horse, Time bomb, Logic bomb, Rabbit and Bacterium (Awak, 2019).

2.9 Internet time thefts and card cloning: These thefts involve the use of Internet surfing hours of the victim by another person. This is done by gaining access to the login ID and the password. Air time could also be stolen from Internet service provider (ISP) or even global mobile system of communication (GSM). Other cases involve card cloning aided by the installation of fake ATM fingerplates, card reader overlays, hidden cameras and PIN-capture overlays, as well as, dummy keypad to record and capture PIN numbers as they are entered.

2.10 E-mail address spoofing: The sender information shown in e-mails (the "From" field) can be spoofed easily. This technique is commonly used by Spammers to hide the origin of their e-mails and could lead to problems such as misdirected bounces (i.e. e-mail spam backscatter). E-mail address spoofing is done in quite the same way as in writing a forged return address using snail-mail. As long as the letter fits the protocol, (i.e. Stamp and postal code) the SMTP protocol will send the message (Joseph, 2003 in Awak, 2019).

2.11 Victims: Victims of computer or cybercrime include the person and the property of an individual, group of individuals, government, firm, company and communities, rural/urban centres, regions, countries and continents.

3.0 Methodology

Qualitative research approach was utilised in the course of this study since it is an open and emerging approach (Crasswell, 1998 in Awak, 2022). Corroborating Struwig and Stead (2001), it is expedient to examine this topic within qualitative approach, because previous researches on the subject matter are capable of influencing the understanding of events and context of the present study. Therefore, data were derived from secondary sources to navigate the blooming landscape of cybercrimes in Nigeria and the adaptability of approaches of Routine activity theory in the quest to deterring the scourges.

4.0 Review of Related Literature

It is unfathomable and alarming when the speed, spate and frequency of commission of crimes become so ingrained in the socio-political and economic life of a nation. This is why Awe (2006 in Awak, 2011) opines that embezzlement of official funds; trafficking of persons and drugs over the net; the emergence of mafia boys and yahoo-yahoo boys are debilitating to the national economy. As observed by Akosile (2005 in Awak, 2011), sophisticated letters, proposals and business ideas are developed with a view to defrauding unsuspecting investors and they are damaging to the economy, while leaving the image of the country seriously battered. With the rise of social media platforms, the rate at which marriages are broken as a result of new found “love on the net” is frightening and quivering, even as the moral fabrics and conscience collective of families and societies are not spared, (Awak, 2022). Again, phishing and vishing are contingent to privacy abuse, and has raised global concern on cyber-espionage. Indeed, the September 11, 2001 attack at World trade centre, the Pentagon, Boko haram and bandit invasions, kidnapping and other terrorist attacks are perfected and sustained through the net, and have devastated global security and economic concerns, (Awak, 2022, 2011).

The Internet has created a cybercrime-fraud platform where multifarious types of fraud are committed over computer networks, making effective policing almost impossible.

In Nigeria, the introduction of Automated Teller Machines (ATM), cashless policy, e-banking and the rate of unauthorised withdrawals; revelation of bank details of victims’ accounts and cloning of ATM and other identity cards are just few of the harms experienced; while sales of examination scripts over the net, E-mail scam and copyright infringement through warez, child pornography and child grooming, malware and malicious code, denial of service attacks, viruses, cyber stalking and information warfare are damaging to the computer system, internet services, private individuals, groups as well as governments. The geometrical effects of these crimes in the face of ignorant or ill-equipped security agents and normlessness leave much to be desired, and are purveyors of glowing cybercrimes in Nigeria (Awak, 2019).At global scale, cyber criminals are not resting as they attack virtually everything and organisation of interest to them. For instance, in February 2000, Yahoo! website was attacked for three hours (Burke, 2000 in Awak, 2011). On 3rd August, 2000, Canadian federal prosecutors charged Mafia Boy with 54 counts of illegal access to computers, plus a total of ten counts of mischief to data for attacks on Amazon.com, eBay, Dell Computer, Outlaw.net, and Yahoo. Mafia Boy had also attacked other websites (Krebs, 2006 in Awak, 2019). Hacking or gaining unauthorised access to a computer system, programmes or data, opens a broad field for inflicting damage (Rehmeyer, 2007).

With ineffective, inoperable and lopsided implementation of the extant laws, high rate of illiteracy, joblessness and ritualisation of the social media, cybercrimes in Nigeria have become subversive. They are undeterred by the prospect of arrest or prosecution or the presence of the leeway to plea-bargain or the leniency of the punitive measures. The situation is aggravated by e-governance, where government has moved from analogue bureaucracy to digital without compensatory preparation and alertness.

Appreciating the magnitude of this problem, as well as devising possible containment strategies underscores the essence for theorisation.

5.0 Theoretical Stance: Routine Activity Theory (RAT): Lawrence Cohen and Marcus Felson (1979)

Routine activity theorists posit that crime is normal and depends on the opportunities available. If a target is not protected enough, and if the reward is worth it, crime will happen. Crime does not need hardened offenders, super-predators, convicted felons or wicked people. Crime just needs an opportunity, (Birkbeck, & Lafree, 1993 in Awak, 2019). Crime is neither spectacular nor dramatic. It is mundane and happens all the time (Bennett, 1991in Awak, 2019).

Again, crime is relatively unaffected by social causes such as poverty, inequality, unemployment, (Cohen, Kluegel, & Land, 1981 in Awak, 2019). This is explained by the fact that most of the developed countries are equally caught in the web of crimes (including cybercrimes) just as the developing countries.

According to Felson and Cohen (1979), this is because the prosperity of contemporary society offers so much opportunities of crime that is, there is much more to steal and it is much easier to carry it out through the net.

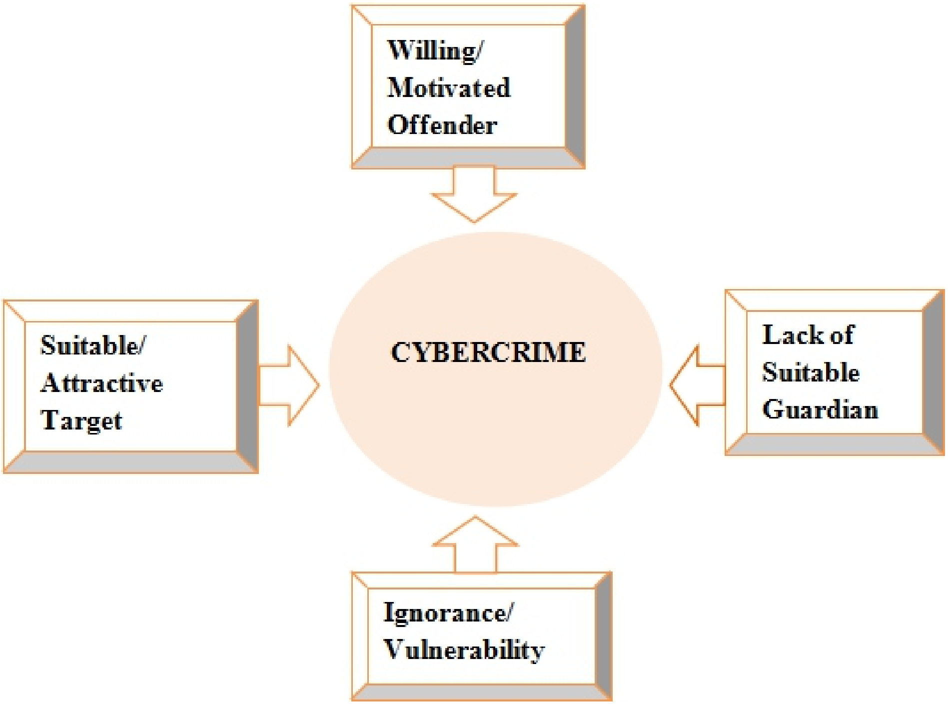
Though Routine activity theory is controversial among sociologists who believe in the social causations of crime, but several types of crime explained in the theory including copyright infringement, cybercrime, employee theft, and corporate crime has justified its existence (Bernburg, &Thorlindsson, 2001). This is because the theory provides a simple and powerful insight into causes and threats of crimes. At its heart is the idea that in the absence of effective controls, offenders will prey upon attractive targets. To have a crime, a motivated offender must come to the same place as an attractive target. For property crimes, the target is a thing or an object (Cohen, & Land, 1980 in Awak, 2019). For personal crimes, the target is a person. If an attractive target is never in the same place so as to motivate offender, the target will not be taken, damaged, or assaulted (with exception to cybercrimes and frauds). Also, there are controllers, whose presence can prevent crime. If the controllers are absent, or present, but powerless in terms of knowledge, working tools, among other crime prevention necessities, crime is possible.

The strands of the theory is summarised as follows:
According to the theory, three things happen at the same time and in the same space before a crime takes place:

- A suitable target is available;
- there is the lack of a suitable guardian to prevent the crime from happening; and
- a likely and motivated offender is present.

Source: Modified version of Felson and Cohen, 1979 in Awak, 2019

Fig. 2: Process of cybercrime causation



Source: Awak, 2024

An analysis of each of these scenarios unveils the following:

(a) **An attractive/ suitable target:** The first condition for any crime to occur is that a suitable target must be available. There are three major categories of target. A target can either be a person, an object or a place. The qualities of the targets include *availability, visibility, accessibility, removability, disposability, valuable, inertia, concealable*, and *enjoyable*. Furthermore, no matter how suitable a target is, an offence will not occur unless a capable guardian is absent and a likely offender is present. Infact, the *social situations* in which actors find themselves mediate decisions about whether or not they will act on their inclinations (Yar, 2005 in Awak, 2022).

(b) **Absence of a capable guardian:** The capable guardian whose presence would discourage a crime from taking place must be absent. A capable guardian has a 'human element', that is usually a person whose mere presence would deter potential offenders from perpetrating an act. A capable guardian could also include electronic monitoring devices such as Close Circuit Television (CCTV), Internet surveillance device and other intelligence devices, provided that someone is monitoring it at the other end of the camera. Other capable guardians are police patrols, security guards, neighbourhood vigilantes, doorstaff, vigilant staff and co-workers, friends, and neighbours (Awak, 2022).

Some of the guardians are formal and deliberate, like security guards; some are informal and inadvertent, such as neighbours, parents, teachers, peers and others. A target with an effective guardian is less likely to be attacked by a potential offender than a target without a guardian. If the guardian is absent, weak or corrupt, little protection is provided to the target. It is also, possible for a guardian to be present, but ineffective (Miethe & Meier, 1990 in Awak, 2019). For example, a CCTV camera is not a capable guardian if it is set up or sited wrongly. Staff might be present in a cyber café or shop, agencies of criminal justice such as the police without sufficient training, cyber intelligence or awareness to be an effective deterrent.

(c) **Willing/motivated offenders:** When a suitable target is unprotected by a capable guardian, there is a chance that crime will take place. The final element in this picture is that a likely offender has to be present. RAT looks at crime from an offender's point of view. A crime will only be committed if a likely offender thinks that a target is suitable and a capable guardian is absent and that there is a knowledge lacuna by the owner of the target. It is their assessment of a situation that determines whether a crime will take place or would be deferred (Awak, 2022; Grabosky, 2001).

(d) **Ignorance/ vulnerability:** Crime will occur when the motivated offender is convinced that the owner of the attractive target is ignorant or vulnerable to the antics of offender. For instance, lack of ICT knowledge, inability to read and write, willingness to accept "audio" business proposal and over-trust or confidence in a third party whereby they become privy to security codes or PIN. The emerging twist of ritualisation of the net where victims are believed to be hypnotised and excessive greediness add to dimensions of vulnerability.

5.1 Operational tools

It must be stated that all of the people in this theory use tools to help accomplish their criminal or crime control objectives. Tools that gang members use may include books, guns, flashdrives, laptops, computer, cyberspace, phones and cars. Offenders without access to tools are less likely to be able to escape handlers, enter unauthorised places, and overcome targets or victims, guardians, and managers. Guardians may use light to increase surveillance, engraving devices to mark property, and legislation to help reduce the chances of victimisation. Place managers can use gates, fences, cybersecurity, close circuit devices, signs and other tools to regulate conduct. With effective tools, handlers, victims, guardians, and managers will have a greater chance of keeping crimes from occurring. The tools used are often highly specific to the crime in question. The tools an offender needs for a burglary (e.g., a screw driver, machete, axe, among others) are likely to be different from those needed for a robbery (e.g., a gun, knife, hammer, and others) and virtual equipment needed for cybercrimes.

However, in this respect, at least, the challenge to formal guardianship presented by cyberspace is only a more intensified version of the policing problem in the terrestrial world; as Felson (1998, p. 53) noted, “The police are very unlikely to be on the spot when a crime occurs.” In cyberspace, as in the terrestrial world, it is often only when private and informal attempts at effective guardianship fail that the assistance of formal agencies is sought, (Grabosky, & Smith, 2001).

Routine Activity theory and its modus operandi are very relevant to the present paper. It has proved that if the offenders are well guarded such that little opportunity occurs for crimes, the society would be better for it. It goes further to show that if the agencies of criminal justice are properly trained, managers of cyber café are alert, neighbours, enterprises and neighbourhood are united against any dimension of cybercrimes that the scourge could be deterred. Indeed, a paradigm shift in containment approaches and adaptability to the currency of the time is apt and compelling.

6.0 Adaptability and Paradigmatic Approach

a) The cost of prosecution, the discretion of the prosecutor and the implementation of the extant laws are often called to question. Prevention, closure of opportunity and removal of targets, along with problem-solving policing innovate policing culture of security agencies.

b) The application of cap-and-trade approach is very innovative and a novel strategy aimed at reducing cybercrimes. By this approach, crime-reduction assigns a monetary cost to organisation for failure to take proactive action for a specific crime. Here, Nigerian Communications Commission, global systems of mobile communication (service providers), banks and any other financial or business institutions, whose platforms were used in the commission of crimes shall pay heavy fines or made to refund to victims of cybercrimes whenever they are duped since it is their failure to secure the information high way that led to such a breach. The study pushes for a legislation and implementation of this policy.

c) De-radicalisation exercise discourages enlistment into cybercriminal gangs.

d) Establishment of ICTs centres, provision of counselling services and life-skills trainings can facilitate adaption and compliance, as well as innovate the cultural, attitudinal and perceptual constructs of the people.

e) Avoiding the use of O.MG cables is non-negotiable. Stealth as one of the features of OMG cables aligns most with the concepts of adaptability and pragmatic approach. This is because the implant is reputed to staying dormant until a payload is deployed. It does not require any logs or detections. It behaves like a normal USB 2.0 cable with 5v charging, 480mps data transfer spoof of any USB identifier (VID/PID), extended USB identifier and network MAC address.

   The Elite models contain a passive hardware keylogger designed for FullSpeed USB keyboards with detachable cables. It can store up to 650,000 keystrokes.

Fig. 3: Samples of O.MG cables

Photo credit: Thenationthailand.com **Photo credit:** Google.com

According to the Nationsthailand Newspaper, "Oh my God" (OMG) was developed by Mike Glover. The cable is meant for charging of phones. Besides this, it has the capability that allows hackers to gain unauthorised access to any device it is plugged into, and would usually grant access to open applications, steals passwords or download viruses or malware of the device it is plugged in. Its popularity and wide usage is thwarted by high cost since not everyone can afford a cable sold at about $180.00. However, irrespective of its high cost, acquisitions are mostly done by high profile targets.

7.0 Conclusion

The effort of this paper has been to investigate and discuss the findings of emerging criminal problems that are posing new challenges to the government, public, agencies of criminal justice and indeed, all people, and placed it within a theoretical anchorage for better elucidation.

It is the view and the conclusion of the paper that as globalisation is brought about by the ICT revolutions, so also, are the latent implications including cybercrimes that excuse no country or individuals. Cybercrimes are high-tech and sophisticated crimes committed by intelligent criminals and as such, deterrent can be achieved with sophisticated stringent measures, faithful implementation of all extant rules, superb cybersecurity intelligence and denial of opportunities for cybercrimes to flourish.

8.0 Recommendations

- Culprits when caught should be tried without delay and if found guilty, they should be swiftly visited with condign punishment. To achieve this, Cybercrimes (Prohibition, Prevention, etc.) Act (2015), Amendment Act (2024) and similar legislations must be implemented to the letter, irrespective of who is involved.
- Public enlightenment to understand and effect necessary actions on the three P's (phishing, patches and passwords) of cybercrimes.
- Social media platforms, content providers and cyber cafes must be censored and monitored where those abetting cybercrimes should be arrested and prosecuted or even close down.
- Every person and organisation must take personal responsibility to protect by refraining from acts that are capable of making them vulnerable to attack and susceptible to manipulation by cybercriminals. They must be careful with the passwords, PINs, codes to the system and other mobile applications, just as installation of strong anti-virus software in the system and regular update and other cybersecurity measures are important.
- Enterprise security measures such as communication, coordination and collaboration must be designed to align with industrial cyber security needs.
- It is not advisable to login passwords and other details on the net especially when the site is strange to the user. It should be noted that any web address with "***http://***" is questionable and any login could be easily manipulated for some sinister activities because it provides no security. However, an address with "***https://***" is a secure address.
- The best data and information protection is to avoid connecting to suspicious Wi-Fi networks or using any charging cables found idling around someone's table or office or room.
- Users of ATM should be aware of the print-out receipt and details of their account in order to forestall any cloning of their cards that could result in loss of heavy amount of money.
- Bridging digital divide should be targeted with aggression.

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