

UTILIZATION OF ARTIFICIAL INTELLIGENCE AS A CATALYST IN THE
PRESERVATION AND PROMOTION OF IZON LANGUAGE

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Citation: Frank, L. M., Simon, D. & Irechukwu, F. I. (2024). Utilization of artificial intelligence as a catalyst in the preservation and promotion of Izon language. *International Journal of Tourism and Technology (IJTT)*, 2(1), 225-232

Abstract

The objective of this study was to explore the use of AI tools in the preservation of the Izon language group, the research focuses on the impact of AI tools in language preservation, the challenges encountered, and the opportunities it presents for Izon language revitalization efforts. The preservation of the Izon language is of utmost importance due to the imminent threat of language loss brought about by globalization and modernization. This paper strongly supports using Artificial Intelligence (AI) tools in this effort, highlighting the essential role that AI technologies like natural language processing, machine learning, and speech recognition can play in establishing digital archives, creating language learning apps, and enabling language translation. It is crucial to harness AI tools to document, revive, and pass on the Izon language to future generations, making a significant contribution to preserving cultural heritage and linguistic diversity. AI holds substantial potential to support preserving and revitalizing the Izon language through tailored learning tools, enhanced accessibility, and community engagement. Challenges may include but are not limited to technical barriers, cultural and social barriers, and financial and resource constraints.

Keywords: *Izon Language, Artificial Intelligence, Machine Learning.*

Introduction

The use of Artificial Intelligence in the preservation and promotion of the Izon language and culture serves as a bridge between the Izon language and technological innovations indigenous to its people. Artificial intelligence (AI) in this digital age has enormous potential, it is a commonly used term, but its enormous potential is yet to be harnessed to its limit. AI can aid in creating language tools using generative AI tools to develop applications that illustrate culturally unique expressions and representations. Settings, including clothing, food, and decorations specific to Izon culture can be introduced. These interactive images can spark curiosity, prompting native speakers to be interested in the new elements they see. Exposing them to stories, fables, and other artistic expressions can deepen their understanding and appreciation of the Izon language.

The quest to preserve the language of the Izons is expedient. Izon people (also called subgroups "Ijo" or "Izon") are ethnic group in the Niger Delta regions in Nigeria, inhabiting regions of the states of Bayelsa, Delta, Rivers, Ondo, Edo, and Akwa Ibom States. Many are found as migrant fishermen in camps as far west as Sierra Leone and as far east as Gabon. Population figures for the Izons vary greatly, though most range from 13 million to 15

million. They have long lived in locations near many sea trade routes, and they were well connected to other areas by trade as early as the 15th century.

The Izon language and its sub-groups are categorized under endangered or dying languages. The Izon language group is an ancient language group that is in danger of extinction as fewer and fewer indigenous speakers are found over the centuries. Another reason for its endangered status is the marginalization of the Izon people. In this case, English Language, or to establish homogeneity for ideological and political reasons, for example, the mantra that there are three major ethnic groups in Nigeria. IZONS are viewed as one of the last tribes with languages and territories under threat by foreign colonizers both externally from the oceans and locally from the inland.

Artificial intelligence (AI) recreates human intelligence processes through computer-based algorithms (Preethi, 2020). Over the years, many AI simulations have supported the expansion of global languages like English, French, etc. By leveraging the potential of AI tools, researchers, linguists and indigenous speakers of the Izon language can invent novel ways to document the Izon language that exist primarily in oral form because a lot of traditions and customs are passed down from generation to generation in oral form. Hence, to preserve and promote the Izon language, Indigenous speakers will need to come up with ingenious ways of preserving the language using AI, this technological marvel can facilitate the recording, transcription, and analysis of the Izon language, laying the groundwork for their preservation and promotion of this endangered language.

The importance of decolonizing speech and language technology is increasingly recognized in the scholarly community. Bird (2020) and Meighan (2021) have been pivotal in highlighting this issue, emphasizing the need for approaches in language technology that respect and integrate indigenous knowledge systems. These perspectives challenge the prevailing paradigms within which language technologies are developed, advocating for the design and implementation of digital tools that genuinely support the vitality and transmission of indigenous languages. The essence of their argument lies in not merely adapting existing technologies for use with indigenous languages but fundamentally rethinking these technologies from the ground up, in ways that are congruent with indigenous epistemologies and sensibilities.

Documentation of the Izon Language

To preserve a language, the documentation of the language in its most original form is highly fundamental, AI-powered tools are indispensable and possess great potential in the capturing and archiving of oral traditions, proverbs, dialects, and linguistic nuances that are ingrained in endangered languages like the Izon language.

The use of high-fidelity audio devices and AI-driven transcription software has provided access to careful documentation of endangered languages, most of which only exist in oral or spoken form, this will serve to salvage the linguistic heritage of this language or language group like the Izon Language.

The orthography of IZON consists of a set of thirty (30) alphabetical symbols. Seventeen (17) of these letters are consonants, nine (9) of them vowels, and the remaining four (4), are

digraphs. The alphabet as contained in Williamson (1969) and Agbegas (1996) *Izõn – English Dictionary* has been widely used as the standard form. The orthography of *Izõn* consists of twenty-three consonants and nine vowels. Out of the twenty-three consonants, four are digraphs. Digraphs are pairs or combinations of letters representing one sound that do not correspond to the distinct sounds of the individual letters. The following are the alphabetic symbols of the *Izon* language:

a b d e ẹ f g gb gh h i ì k kp l
m n ng o ọ p r s t u ụ v w y z

Consonants: b d f g h k l m n
p r s t v w y z

Digraphs: gb kp gh ng

Vowels: a e ẹ i ì o ọ u ụ (Kwokwo, 2012)

One of the objectives of the research work is to capture the *Izon* language in its raw and undiluted form; hence the use of advanced recording devices equipped with noise reduction technology and clarity features, the voices of speakers of the *Izon* language in communities will be captured with unmatched accuracy paired with AI algorithms that transcribe (using the *Izon* alphabets, consonant, vowels, digraphs) and annotate these recordings. Language documentation efforts become more efficient and accurate, preserving the intricate details of pronunciation, intonation, and cultural significance embedded within the spoken words.

Transformative Technology

A transformative technology that can be used in the preservation of the *Izon* language is Automatic Speech Recognition. Automatic Speech Recognition (ASR) is the technology that allows human beings to use their voices to speak with a computer interface in a way that, in its most sophisticated variations, resembles normal human conversation. This variant of ASR is the closest at allowing real conversation between people and machine intelligence and though it still has a long way to go before reaching an apex of development, it has real potential in AI-enabled communication systems (Zajechowski, 2023). The most advanced version of currently developed ASR technologies revolves around what is called Natural Language Processing (NLP).

The basic sequence of events that makes any Automatic Speech Recognition software, regardless of its sophistication, pick up and break down your words for analysis and response goes as follows, the speakers speak to the software via an audio feed, the device you're speaking to creates a wave file of your word, the wave file is cleaned by removing background noise and normalizing volume, the resulting filtered waveform is then broken down into what are called phonemes, (Phonemes are the basic building block sounds of language and words. English has 44 of them, consisting of sound blocks such as “wh”, “th”, “ka” and “t”), each phoneme is like a chain link and by analyzing them in sequence, starting from the first phoneme, the ASR software uses statistical probability analysis to deduce whole

words and then from there, complete sentences, your ASR, now having “understood” your words, can respond to you in a meaningful way. (Zajechowski, 2023).

Given its importance as the future direction of ASR technology, NLP is much more important than directed dialogue in the development of speech recognition systems. The way it works is designed to loosely simulate how humans themselves comprehend speech and respond accordingly. The typical vocabulary of an NLP ASR system consists of 60 thousand or more words. Now what this means is over 215 trillion possible word combinations if you say just three words in a sequence to it! Obviously, then, it would be grossly impractical for an NLP ASR system to scan its entire vocabulary for each word and process them individually. Instead, what the natural language system is designed to do is react to a much smaller list of selected “tagged” keywords that give context to longer requests. Thus, using these contextual clues, the system can much more quickly narrow down exactly what you’re saying to it and find out which words are being used so that it can adequately respond. (Zajechowski, 2023)

AI and Izon Language Preservation: Harnessing AI to Develop an Interactive Izon Language Application for PC and Smartphones

Automated speech recognition systems have revolutionized the way we interact with technology, transforming spoken language into machine-readable formats (Surely, 2023). The core process of automated speech recognition involves several key steps: audio capture, feature extraction, acoustic modeling, language modeling, and decoding, these steps when applied to the Izon language will help in the development of applications.

The system captures the user's spoken Izon language from the speaker input through a microphone or other audio input device. Next, the audio signal is analyzed to extract relevant acoustic features, such as spectral and temporal characteristics, which serve as the building blocks for speech recognition. These extracted features are then processed through acoustic models, which are trained on large datasets of speech samples, an example of how the Natural Language Processing system works, is if you say phrases like “bo fiyai fi” and “arau fi dọ” the NLP will use context of the spoken sentence in the Izon language to get results without error, thereby not confusing the listener. Another example is “eri bo ladọ”, and “doṭimi”, the tagged keywords the NLP system focuses on might be “ladọ”, and “doṭimi” also using the context of the sentence, not to confuse “dọ”, and “doṭ”.

Nowadays, voice assistant technologies are capable of processing and speaking human languages. Natural Language Processing (NLP) is a division of AI focused on enabling computer systems to comprehend written and spoken communications. Indigenous Nigerian languages are barely represented in current NLP projects (Martinus & Abbott, 2019), hence the need for more developers and programmers of indigenous languages especially, the language of focus, the Izon language.

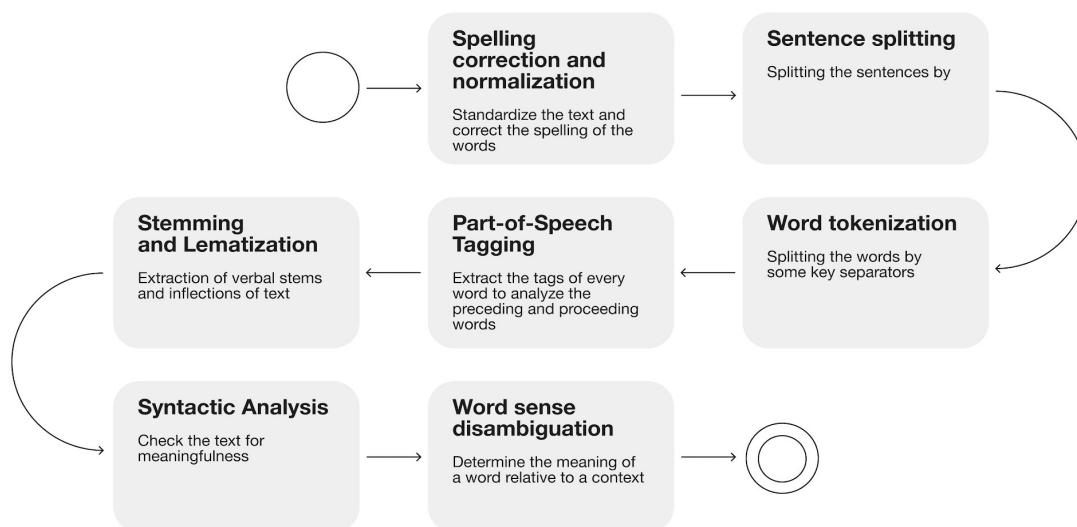
NLP includes two subsets: Natural Language Understanding (NLU) and Natural Language Generation (NLG). NLU helps computers extract meaning, understand context, identify entities, and establish relationships between words. The text-to-speech (TTS) and speech-to-text (STT) apps will synthesize speech, enable voice control, and provide transcriptions to help computers extract meaning, understand context, identify entities, and establish relationships between words. Voice assistant apps will use NLG to produce natural-sounding

feedback to users. They also help process audio input to remove noise and enhance relevant speech signals for better recognition of pronunciation, intonation, and emotion.

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Natural Language Processing Pipeline. Data Preparation

Structuring, cleaning and enrichment of the data.



Source: github.com/juliandariomirandacalle/NLP_Notebooks

Numerous dynamics inhibit NLP for indigenous languages. One significant issue is the representation quota among NLP researchers. For instance, out of over 2600 researchers with published works at the top NLP seminars in 2019, only five were of African descent (Caines, 2019). Some of the work of those scholars focuses mainly on Named Entity Recognition (NER), a significant data extraction task and a vital component of spell-checkers and conversational AI. Other notable NER projects support the promotion of under-resourced languages (Pan et al., 2017), including ten South African languages (Eiselen, 2016). Significant works on indigenous Nigerian languages were also done in 2020 (Asubiaro & Igwe, 2022; Hedderich et al., 2020).

As technology continues to advance, the demand for innovative language-learning tools has increased significantly. Izon language applications for PCs and smartphones offer a unique opportunity to create an engaging and interactive application that leverages Artificial Intelligence (AI) to facilitate Izon language learning hence its preservation and promotion. In this paper, we have explored how to develop an AI-powered Izon language application for PC and smartphones, which will provide an immersive and user-friendly experience for learners and open access for Indigenous speakers to make corrections on the website. The Izon language as stated earlier, is an endangered language making it an ideal candidate for AI-powered language learning applications. To develop an effective application, it's essential to understand the language's grammar, syntax, and vocabulary.

AI Technology and Izon Language

Several AI technologies can be employed to create an interactive Izon language application:

- Natural Language Processing (NLP): NLP will enable the application to understand and process Izon language, allowing for features like text-to-speech, speech-to-text, and language translation.
- Machine Learning (ML): ML algorithms will be used to develop personalized learning paths, adapt to user interactions, and improve the application's overall performance.
- Chatbots: Chatbots can engage Izon language users (learners/speakers) in conversations, providing an immersive language learning experience.
- Automatic Speech Recognition (ASR): Speech recognition technology enables users to practice speaking and listening skills, receiving feedback on pronunciation, nuances, and intonation.

Features of Izon Application Software

To create engaging and interactive Izon language application software, the following features are recommended:

- **Interactive Lessons:** Develop interactive lessons that incorporate gamification, quizzes, and exercises to make learning fun and engaging, these games will incorporate traditional Izon games that are also under the threat of extinction.
- **Conversational Chatbot:** Implement a chatbot that converses with users in the Izon language, providing real-time feedback and correction.
- **Speech Recognition and Pronunciation Analysis:** Incorporate speech recognition technology to analyze users' pronunciation and provide feedback on intonation, rhythm, and fluency.
- **Personalized Learning Paths:** Use Machine Learning algorithms to create personalized learning paths based on users' progress, strengths, and weaknesses. For example, there would be beginner-level, intermediate, and advanced levels of interaction.
- **Virtual Coach:** Offer an AI assistant virtual coach that provides guidance, support, and motivation throughout the learning journey.
- **Multi-Platform Compatibility:** Develop the application to be compatible with both PC and smartphones, ensuring seamless learning across devices.

Conclusion

To develop an AI-powered Izon language application, we must determine the application's features, functionalities, and technical requirements, create a user-friendly interface and design the application's architecture, use programming languages like Python, Java, or C++ to develop the application, integrate AI technologies like NLP, ML, and chatbots, we must also test the application with a pilot group of Izon speakers, gathering feedback and refining the application based on user input, this process makes this project a work in progress as many speakers of the Izon language will be engaged to refine the application. After the launch of the application, there will so be a need for ongoing maintenance, updates, upgrades, and support.

Preservation and promotion of a language using AI takes deliberate effort on the part of many educators, providing direct guidance, in collaboration with programmers who provide new and innovative learning solutions. Learning a language offers numerous benefits, including enhanced brain and cognitive development, improved memory, creativity, and academic progress (Zhang, 2021). It is therefore recommended that AI-language learning solutions be incorporated in modern language learning.

Developing an AI-powered Izon language application for PC and smartphones offers a unique opportunity to create an engaging and interactive language learning experience. By leveraging AI technologies like NLP, ML, and chatbots, you can provide users with a personalized, immersive, and effective language learning platform. With careful planning, design, and development, this application can become a leading tool for Izon language learners worldwide.

The will also serve to preserve and promote the Izon language, when this application is available for download, it will give the younger generation access to the Izon language wherever they are located in the world.

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CIVIL SERVICE INNOVATION AND SERVICE DELIVERY IN NIGERIA

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Citation: Edevie, P. S. (2024). Civil service innovation and service delivery in Nigeria. *International Journal of Tourism and Technology (IJTT)*, 2(1), 233-241

Abstract

The civil service is the engine room that implements government policies and programmes. The strategic position of this sector in socio-economic development and good governance of a nation can never be overemphasized, the re-invigoration of the civil service has become inevitable and pertinent as Nigeria is at crossroads of economic crisis bogged down by decline in oil prices in the international market, with its attendant threats to national security and deplorable living conditions of the citizenry. The service delivery of the Nigerian civil service exhibits significant potential for enhancement. Nevertheless, the realisation of this potential necessitates civil servants to recognise the pivotal role that innovation assumes as a catalyst for constructive transformation and advancement within any given economy. The study adopted the technological theory of social change by William Ogburn (1947) and being a qualitative study, data was generated through secondary sources i.e. texts, journals, newspapers and online sources. The study examined the Nigerian civil service and how it has fared as regards innovation in efficient and effective service delivery to its citizens. The study recommends there is a crucial need for government to build a civil service that is innovative, futuristic and technological driven, devoid of red-tapism and bureaucracy by institutionalising the culture of innovation in the public sector. The study further suggests that a well-motivated and trained civil service would be an asset rather than liability.

Keywords: Innovation, Service delivery, Civil service, Nigeria

Introduction

The civil service is the engine room that drives and implements government policies, programmes and projects. In view of the strategic position of this sector in the socio-economic development and good governance of a country, the Nigerian civil service needs to be re-invigorated and repositioned for efficient service delivery. The importance of embracing innovation in the public sector becomes even more apparent when considering the rapid adoption of innovative technologies in private sector administration. Many organisations have successfully utilised these technologies to improve their efficiency, transparency, performance, and overall success.

As a result, it is critical that the public sector, which is expected to be the driving force behind the country's socioeconomic development, falls behind in this critical area. While innovation in the private sector is viewed as one of the five key drivers of productivity, alongside investment, skills, enterprise, and competition, in the public sector, innovation is concerned with efficiency and strongly aligns with service delivery. The drivers for innovation in the public sector in the 21st century consist of different domestic as well as global forces. These include, but are not limited to globalisation, rising new technologies, changing expectations of citizens, and increasingly complex problems facing governments, particularly against the backdrop of the recent COVID-19 pandemic and resultant economic crisis and constricted budgets. Against this backdrop and despite the divergences of approaches to innovation, the consensus seems clear, that the civil service needs to find new ways of working and doing things to be effective in the 21st century.

Innovation is generally defined as something new that can be implemented and has a positive impact on specific sectors of society. It is a concept, process, practice, and capability that defines successful organisation (Serrat, 2017). The public sector is a major agent of national growth and development. The transformation of any society or system depends on the effectiveness and efficiency of its public service, especially in developing countries (Lawal & Oluwatoyin, 2014). The challenges and opportunities in recent times requires the civil service to embark on open and collaborative innovation for transformation and improvement of the systems and processes for sustainable service delivery. This study examined the Nigerian civil service and how it has fared as regards innovation in delivering efficient and effective service to its citizens and in meeting up with the global practices and challenges of the 21st century.

Conceptual and Theoretical Discourse

Innovation

Innovation entails responding to change in a creative manner. It entails and the development of, and the practical implementation of ideas that result in the introduction of new goods or services, or the improvement of goods or services offered. The concept of innovation simply put, entails new things, new ideas of an individual, organization and even government that improves its services in a changing world. Man is dynamic in nature and adjustments to meet the changing ideas and situations are often said to be innovation. Innovation is what we cannot do without because no one or government is static. Innovation has been a constant force in human history, driving progress and improving the quality of life (Afegbua, 2015). It is the catalyst for introducing new ideas that propel organisations forward and foster growth (Maduabum, 2014). Awosika (2014) defines innovation as the process of researching, acquiring, and implementing new ideas, technologies, processes, and products. Its purpose goes beyond problem-solving, aiming to enhance efficiency, effectiveness, and ultimately, the standard of living. According to Osborne and Brown (2005) cited in Afegbua (2015), innovation involves the introduction and adoption of new ideas that bring about a shift in the relationship between an organisation and its internal and external environments. Innovation often involves putting an invention into action to create a significant impact in a market or society. It's important to note that not all innovations necessarily involve a completely new invention. For this paper, I will be discussing two processes of change in an organisation or society that are distinct and noteworthy. Firstly, it involves implementing fresh concepts in a practical manner (UNDESA 2007). According to Aldair (2007), innovation involves the combination of two interconnected processes: generating new ideas and putting them into action. Additionally, innovation involves finding fresh and improved approaches for an organisation or society to overcome its challenges (Aldair, 2007).

Reasons for Innovation

According to Weihrich et al. (2008), they clearly identified the following as the reasons for innovation in an organization be it public or private:

1. An unexpected event, failure, or success
2. An incongruity between what is assumed and what is really is.
3. A process or task that needs improvement
4. Changes in the market or industry structure
5. Changes in demographics
6. Change in meaning or in the way things are perceived
7. Newly acquired knowledge

Innovation plays a crucial role in various aspects, including:

- Cost reduction, productivity improvement, profit enhancement, and organisational strengthening. Maintaining competitiveness in a globalised economy is crucial for organisations.
- They must be able to adapt to changing environments, whether it's due to legislation, technology, society, economy, or physical factors. This adaptability can breathe new life into slowing or stagnant markets and operational areas, or help facilitate entry into new markets.
- Inculcating a culture of creativity is essential for organisations, especially those in research-oriented fields or dynamic markets like ICT. However, it is also relevant for any organisation that wants to attract high-quality creative staff and managers at any level (Damanpour & Gopalakrishnan, 1998; Hargadon & Sutton, 2000; d'Aveni, 1994)

When it comes to successfully managing public services in a society that is constantly evolving, creativity is absolutely necessary. The characteristics of public services, on the other hand, have a significant impact on the degree of innovation that occurs within the public sector. There are significant differences between the various public units in terms of size, focus, objectives, and outputs. Public services exhibit a remarkable level of diversity, with significant variations among both. It's possible that these differences are even more significant than those found in the workplace. As an illustration, there are institutions that provide services to individual users, institutions that provide collective services to all citizens, and administrative institutions that cater to other governmental organisations (Bloch, 2012:7). Other examples include institutions that provide services to all citizens. This highlights the significance of innovation within the Nigerian public service in order to provide customers with services that are both efficient and effective.

Service delivery

Service delivery is the primary concern of any organization that deals with one or more persons. The concern here is not limited to only those in the public sector; it is also of great importance to the private organization. The growth of any organization directly depends on the quality of service such organization delivers. Effective service delivery relies on the mode and manner members of staff handles the constitutionally assigned functions and responsibilities given to them. It involves all aspects that have to do with when, how and where a service is delivered to a customer, and whether it is fair and in line with the laid down procedures. Service components are usually not always physical products, but instead are a combination of resources (skills and material) that must be appropriately planned and designed (Martins and Ledimo, 2015). According to Ikeanyibe and Imhanlahimi, (2006), effective service delivery connotes the formulation, design and implementation of governmental policies, programmes or service to the satisfaction of the clientele. It involves implementation of assigned duties and responsibilities as outlined in the constitution/rules of the organization which one pledged to carryout in other to meet the organizational objectives. As a result, the level of performance that an organisation or its employees demonstrate in terms of carrying out their responsibilities and working towards goals has a direct influence on the quality of the services that are provided. According to Ezekwesili (2010), it is able to determine whether the service is efficient or inefficient, effective or ineffective, economical or not. It can also determine whether the service is productive or not productive. The public must have some sense of satisfaction in the services so rendered. For the people to be satisfied, the service must reflect courtesy, fairness, timely, equity, relevance, accountability, effective and efficient. It underscores the fact that the services so provided actually reach the target groups and they are satisfied in its mode of operations/implementations. Service delivery is successful implementation of assigned task to the satisfaction of the public/clientele.

The Nigerian Civil service

The civil service is the engine room of government. It comprises all government departments except the navy, army and Air force whose salaries and allowances are paid from the funds voted by the legislature. There is a definition of the civil service that can be found in the constitution from 1999, specifically in section 318 sub-section 1. It is a term that describes the service that is provided in a civil capacity to the federation, state, or local level respectively. This includes employees who work for the offices of the president, vice president, governor, and deputy governor, as well as those who work for ministries, departments, or agencies operated by the state and the federation. Their responsibility is to provide assistance to the operations of the government at the various levels. According to Ipinlaiye (2001), the civil service is comprised of individuals who are employed by the federal and state governments to make and carry out decisions regarding the implementation of government policies in a capacity that is not related to politics. The government depends on the civil service for implementation of its policies and programmes because they are experienced and have the know-how. They are a well-organised body of permanent paid officials of government ministries that are solely responsible for implementation of government policies/programmes as prescribed by the constitution. When it comes to law enforcement, political office holders or elected representatives of the people do not exert their power directly. They utilise the civil service as a means to exercise it.

The fundamental responsibilities of the civil service include:

- a. To support the government in shaping policies by supplying the required data.
- b. To implement the approved policies without any bias or favouritism.
- c. In order to prevent the potential regret of future consequences, it is important to prioritise long-term considerations over short-term conveniences (Al-Gazali, 2007).

The study utilised the technological theory of social change proposed by William Ogburn(1947). In his work "How technology shapes society," the author suggests that technology has the power to transform our environment, leading us to adjust accordingly. This alteration typically occurs within the material environment, and the adjustments we make to the changes often result in modifications to customs and social institutions. This theory, when applied to this study, explains the changes in social institutions that can occur when emerging technology is implemented in public institutions. These changes can lead to more efficient service delivery. Through this approach, the government discovers a more streamlined and productive way to provide public services. This leads to smoother operations within the political system, as the public receives higher levels of satisfaction from the services provided by the civil service. This study being a qualitative study, utilized data from secondary sources i.e. texts, journals, newspapers and online sources.

Innovations in the Public Sector: Nigerian Experience

The public sector in Nigeria, like many African countries, was shaped by colonialism, hence, many reforms before and after colonialism was aimed at addressing diverse problems in the civil service ranging from dependency syndrome to corruption. We can summarise and categorise the civil/ public service reforms undertaken in Nigeria in three phases: Reforms undertaken during the colonial period from 1934 - 1959; Post-Independence Reforms from 1963 – 1998; Reforms under Democratic Governance 1999 – date. Given the specific focus of this study, it has been argued that several innovations accompanied the third phase of the public sector reforms that were undertaken during the Democratic era -1999 – 2019. Upon return to democratic governance in May 1999, the civilian government met a civil service that

was weak, inefficient, and characterized by poor service delivery, hence unresponsiveness towards public demands (Oyo-Ita, 2018). In 1999, President Obasanjo stated that there had been a decrease in productivity and service delivery among the general public. Notable advancements and changes include the implementation of the Integrated Payroll and Personnel Information System (IPPIS) in 2007, Pension Reforms in 2004, Public Procurement Reforms from 1999, Monetisation Policy in 2003, SERVICOM Reforms in 2004, Steve Oronsaye Panel (Presidential Committee on Restructuring and Rationalisation of Federal Government Parastatals, Commissions and Agencies), and the Federal Civil Service Strategy and Implementation Plan 2017 – 2020 in July 2018 (National Salaries, Incomes & Wages Commission, Oyo-Ita, 2018; Oyo-Ita, 2019; Olaopa, 2008; Okorie and Onwe, 2016).

The study examined some innovations in the civil service as regards efficient service delivery i.e. the SERVICOM Initiative, IPPIS Initiative, Performance Contract, E-Governance Initiative and establishment of Efficiency Unit.

Service Compact with all Nigerians (SERVICOM)

SERVICOM, also known as Service Compact, is a forward-thinking policy programme. That was introduced by the Federal Government in 2004 to address the challenges that often arise from service delivery and to enhance effectiveness and efficiency in providing services in the ministries, departments, and agencies of government (MDAs). The policy programme introduced by the Obasanjo civilian administration in 2004 aimed to enhance customer satisfaction, optimise resource utilisation, achieve cost effectiveness, improve risk management, and fosters a secure and stable service environment. It also aimed to support change and flexibility. SERVICOM is responsible for monitoring the performance of MDAs in the country, regular evaluation and ratings of service delivery to measure excellence, to report and recommend sanctions and penalties for MDAs found wanting. Every MDA has a SERVICOM unit headed by a Nodal officer (usually a director) and supported by 3 staff (a charter Desk officer, a Customer Relations/Complaints Officer and a Service Improvement Desk Officer) - all appointed from regular staff of the MDA. The MDAs SERVICOM – vetted service charter is to be displayed at conspicuous places where the customers could easily read and know their rights to good service. They measure timeliness, professionalism, information and staff attitude. Interestingly, they also take note of the physical (non-verbal) communication that indicates that the staff is happy to give service and the MDAs compliance is ranked on the SERVICOM index. Even though successive administrations after Obasanjo have retained the SERVICOM, and despite the modest achievements of the initiative, poor service delivery has remained endemic in several public sectors (The Cable, March 27, 2017). More so, SERVICOM is also confronted with many challenges which includes inadequate funding and this affects the training of members of SERVICOM units in MDAs.

Integrated Payroll and Personnel Information System (IPPIS)

The year 2007 marked the beginning of the implementation of the Integrated Payroll and Personnel Information System (IPPIS). According to Olumbide (2015), the primary objective was to reduce the cost of governance by avoiding any expenses that were not necessary and by enhancing the effectiveness of the administration of government payroll functions. IPPIS is a computerised and efficient human resource management information system that has been deployed by Ministries, Departments, and Agencies to carry out human resource activities ranging from recruitment to separation, including payroll and pension processing. These activities encompass recruitment, separation, and processing of pensions. IPPIS has documented some notable achievements. Mr. Jonah Otunla, the former Accountant-General of the Federation, stated that the implementation of the Integrated Payroll and Personnel

Information System resulted in significant savings of N120 billion on personnel cost from 2007 to 2013 (The Punch, 2013, page 18). Not all institutions have embraced the federal government's efforts to expand the coverage of the IPPIS to include the Armed Forces, Federal Universities, and other academic institutions across the country. The Academic Staff Union of Universities (ASUU) has raised strong objections to the introduction of IPPIS and opted for University Transparency and Accountability Solution (UTAS).

Performance Contract

The Nigerian government introduced a performance contract system in its drive to improve service delivery in the public service in 2012. The performance contract is an accord linking the government and MDAs, which set up broad goals for the MDAs, put a target for evaluating performance, and provide rewards for meeting these targets (Eneanya 2013). The purpose is to advance contract services to the populace by enhancing output, responsibility, and efficient service delivery (Eneanya 2013). As a sign of commitment to the policy, Ministers were mandated to draw mission statements, requested to set agreed goals for top priorities, and make clear their appropriations to definite services and the part to be given to each frontline component. They were to review their managerial systems in tune with the SERVICOM charter and ensure proper public service delivery, planning, and resource distribution; performance inspection and analysis; responsibility for utilisation of funds and delivery of outcomes and instituting a more valuable balance between capital and non-staffing revenue spending. To boost the scheme, Ministers were requested to go into similar contracts with Permanent Secretaries. In the same vein, Permanent Secretaries would go into contract with their directors, to cascade down to the rank-and-file involving all staff. The FGN anticipated that this initiative would be extended to States and Local Governments. Thus, the commencement of the performance contract approach to governance has made a modest contribution to service delivery in the federal civil service.

E-Government Initiative

The Nigerian government also carried out a comprehensive reform in the ICT sector. This was to further improve service delivery and improve performance management. In 2011, a new Ministry of Communication Technology (ICT) was created and in 2012 there was a review of the ICT Policy and the development of the E-Government Master Plan, followed by the launch of the Nigerian ICT roadmap 2017- 2020 (BPSR, 2018). This led to the setting up of e-services portal, to have a single point of access to governmental information and services in practically every public sector in Nigeria (Eneanya, 2016). These initiatives gave birth to the establishment of ICT-enabled government services, like IPPIS, GIFMIS, Bank Verification Numbers (BVN), e-passports, e-drivers licenses, Treasury Single Account (TSA), electronic card readers, e- tax management, e-NYSC registration, e- land management, Geographic Information System (GIS), and so on. E-government, which aligns with the technological social change theory adopted for this study and has been a tool that stimulated the expansion of the private sector in Nigeria (Ashike, 2015). Thus, its application has succeeded in curbing wastage and improving efficiency in public financial management.

Establishment of an Efficiency Unit

In 2015, the federal government set up a 'Efficiency Unit' within the Federal Ministry of Finance. The Unit regulates public procurement procedures, and checks the internal apparatus of recurrent spending, including government activities that promote wastage and ineptitude in MDAs. Its overarching goal is to establish a fresh custom of service delivery that encourages good organization, competence, prudence, and value for money in government services

(Ashike, 2015). It presents a mutual stage for MDAs to acknowledge and establish a system of good organization as part of the general cultural transformation necessary to drive the nation towards progress, especially now that the government's revenue is dwindling amongst competing demands (Ashike, 2015).

Factors Militating against Innovation in the Civil Service

- **Bureaucratic bottleneck**

Some bureaucratic principles hinder innovation in the Nigerian civil service. The inclination of senior staff to exploit the drawbacks of bureaucracy in order to hinder the execution of creative concepts, especially when these ideas come from lower-ranking civil servants (Maduabum, 2014). Some senior officers may resist directly/indirectly innovative ideas that tend to bring commendation to subordinate staff because every effort made by the subordinate must be reported accordingly through the senior staff. This type of behaviour can be compared to what Peter (1997) cited in Awosika (2014) describes as "Bureaupathology." It represents the negative administrative behaviours exhibited by professionals and experts in organisations, which hinder the accomplishment of public goals and the provision of high-quality public service to consumers.

- **Politicization and Lack of Sustainable Innovations in Public Sectors**

Public sectors that have become politicised often struggle to embrace innovation and operate as efficient organisations. Public sector organisations led by political appointees often prioritise maintaining their power rather than promoting collaboration and sharing. Political appointees often prioritise immediate media attention over long-term innovative solutions. There is a lack of strong incentives for sharing tasks and knowledge among public sector organisations, and unfortunately, internal political competition often takes precedence over sensible collaboration. Sustaining innovations possess a wide range of strengths, often resulting in enhanced quality and performance. They play a vital role in almost every organization's innovation strategy, and effective leadership is crucial in achieving this.

- **Corruption**

Corruption has crippled innovative idea introduced to ensure effective service delivery in the Nigerian civil service. Though, several measures has been put in place to curb corruption in Nigeria which the civil service is part of, this efforts seemed to have proved abortive amongst civil servants in Nigeria. Corruption comes in various forms during recruitment, posting to preferred places, kickbacks, over pricing, contract inflation etc. Innovation will not be encouraged if the right thing is not done. Kickbacks undermine innovation and the intending innovators may not be encouraged since the funds may not be used for what it is meant for.

- **Resistance to change**

This is another factor inhibiting innovation in the Nigerian civil service. Most civil servants are not willing to adapt to the current trends, they believe in the traditional method of service delivery. Sometimes bureaucrats resist innovation especially when such innovative idea tends to expose their ineffectiveness in line with global trend, coupled with the fear that automation and technology will erode their usefulness.

Conclusion and Recommendation

Innovation in the civil service is imperative for effective service delivery. More so, for the Nigerian civil service to meet up with the current global trend it has to be innovative. The Nigerian experience highlights how innovation efforts were revitalised alongside public sector reforms after Nigeria's return to democratic rule in 1999. However, despite the noble intentions behind the innovations and reforms in the public sector to address issues such as leakages in government resources, service delivery, and inefficiency, several challenges still

hinder efforts at innovation. The Nigerian civil service is burdened by excessive bureaucracy, red tape, corruption, favouritism, and inefficiency caused by subpar working conditions and low pay. The study argues that without navigating the innovation barriers, service delivery would remain difficult for the public sector in the 21st century. It is against this backdrop that the study made a strong case for radical public sector innovation measures to be put in place by the public sector. This has become imperative because gradualism does not seem to be yielding the expected results for public sector innovation in Nigeria. Even though the study suggested the adoption of a public sector innovation framework, it is evident that innovation capability and activity do not automatically impact performance, the wider sector conditions for innovation, plays an instrumental role. Training civil servants on the new tools and techniques involved in these innovations is key as well as having strong ethical principles for responsible innovation. This pertains to the impact of the operating environment on the innovation potential of a public sector organisation.

The study recommends the following:

- i. The government of Nigeria should implement the institutionalisation of the culture of innovation in the public sector.
- ii. It is crucial to provide comprehensive re-orientation for civil servants at all levels. It is important for workers to understand the significant impact that innovation has on driving positive change and development in the economy. Currently, there are workers in the civil service who are resistant to change and unwilling to adapt to new ways of doing things. This crop of civil servants will no doubt be a clog in the wheel of progress, without proper and consistent re-orientation.
- iii. It is important for the government to create a supportive work environment that prioritises the well-being and safety of workers. This can be achieved through the implementation of appropriate legislation and policies, as well as initiatives that promote new values, education, and innovation.
- iv. The civil service rules should be reviewed as it stifles creativity, ingenuity and innovation.
- v. The government should take proactive steps to implement structures and mechanisms for digitising administrative processes, in order to enhance and streamline government operations.

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SUSTAINABLE TOURISM PRACTICES AND DESTINATION VIABILITY OF BAYELSA STATE

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Citation: Akoloh-Isaac, J. T. (2024). Sustainable tourism practices and destination viability of Bayelsa State. *International Journal of Tourism and Technology (IJTT)*, 2(1), 242-258

Abstract

This cross-sectional study explores the relationship between sustainable tourism practices, awareness, attitudes, and their impact on key outcomes such as visitors' repeat visit intention and word of mouth in Bayelsa State, Nigeria. The population consists of 209 practitioners of tourism, with a census sampling technique employed due to the small population size. Primary data was collected through structured questionnaires, measuring dependent and independent variables on a four-point Likert Scale. Statistical analysis included mean, standard deviation, and Pearson Product Moment Correlation coefficient using SPSS Software Version 22. Results indicate significant positive correlations between sustainable tourism practices, awareness, attitudes, and desired outcomes, suggesting that increased awareness and positive attitudes towards sustainability lead to greater visitor intention to revisit and engage in positive word of mouth. The findings underscore the importance of prioritizing sustainable tourism initiatives, including educational campaigns and community engagement, to enhance visitor experiences and promote destination sustainability. Recommendations include prioritizing initiatives to enhance sustainable tourism awareness and attitudes among destinations and stakeholders. Further research is suggested to explore the specific mechanisms through which sustainable practices influence visitor behavior and to devise innovative strategies for promoting sustainability within the tourism industry.

Keywords: Sustainable tourism, awareness, attitudes, visitor behavior, destination sustainability, Nigeria.

1. Introduction

Tourism has emerged as a significant economic driver globally, with destinations worldwide increasingly reliant on its revenue streams. However, the rapid growth of tourism often brings with it environmental degradation, cultural dilution, and social disruptions. In response, sustainable tourism practices have gained prominence, aiming to mitigate these negative impacts while fostering the long-term viability of destinations. Sustainable tourism encompasses various strategies, including conservation of natural resources, preservation of cultural heritage, community engagement, and equitable economic distribution. Scholars and practitioners alike have recognized the importance of integrating sustainable practices into tourism management to ensure the continued attractiveness and resilience of destinations. Day (2012) defines sustainable tourism as a type of tourism that considers its impact on the environment, society, and economy during its development. This aligns with Leslie's (2012) concept of responsible tourism, which focuses on minimizing negative impacts on people, the environment, and local communities while seeking to enhance positive effects. Scholars such as Hedlund (2013), Juvan, and Dolnicar (2014), and Miller (2001) have frequently linked

sustainable tourism with awareness. Miller (2001) suggests that heightened awareness could motivate individuals to engage in concrete environmental actions to tackle the challenges of sustainable tourism. Furthermore, Mihanyar et al. (2014) point out the beneficial effects of increased awareness of sustainable tourism on individuals' intentions to behave in environmentally friendly ways.

Central to the discourse on sustainable tourism is the concept of destination viability, which refers to the ability of a destination to sustainably support tourism activities over time without compromising its natural, cultural, and social integrity. Destination viability is influenced by a complex interplay of factors, including environmental carrying capacity, community resilience, governance structures, and visitor management strategies. Research on sustainable tourism practices and destination viability has gained traction in recent years, reflecting a growing recognition of the need for holistic approaches to tourism management.

Several studies have explored the relationship between sustainable tourism practices and destination viability across diverse geographical contexts. For example, Liu and Wall (2006) conducted a comprehensive analysis of sustainable tourism development in the UNESCO World Heritage Site of Mount Huangshan, China, highlighting the importance of integrating environmental conservation with tourism management. Similarly, Gössling and Hall (2006) examined the impacts of ecotourism initiatives on destination viability in Costa Rica, emphasizing the role of community participation and resource stewardship. These studies underscore the multifaceted nature of sustainable tourism and its implications for destination sustainability. Despite increasing attention to sustainable tourism, many studies on sustainable tourism development practices are more focused on the three foundational variables which are economic, environmental and social cultural. Little empirical literature exist outside the mentioned domain especially as it relates to Bayelsa state, hence this study intend to fill the gap as it considers sustainable tourism awareness and sustainable tourism attitude as sustainable practices dimensions to solve the issue of destination viability measured with visitors repeat visit intention and word of mouth. The main purpose of this study is to investigate the relationship between sustainable tourism practices and destination viability in Bayelsa.

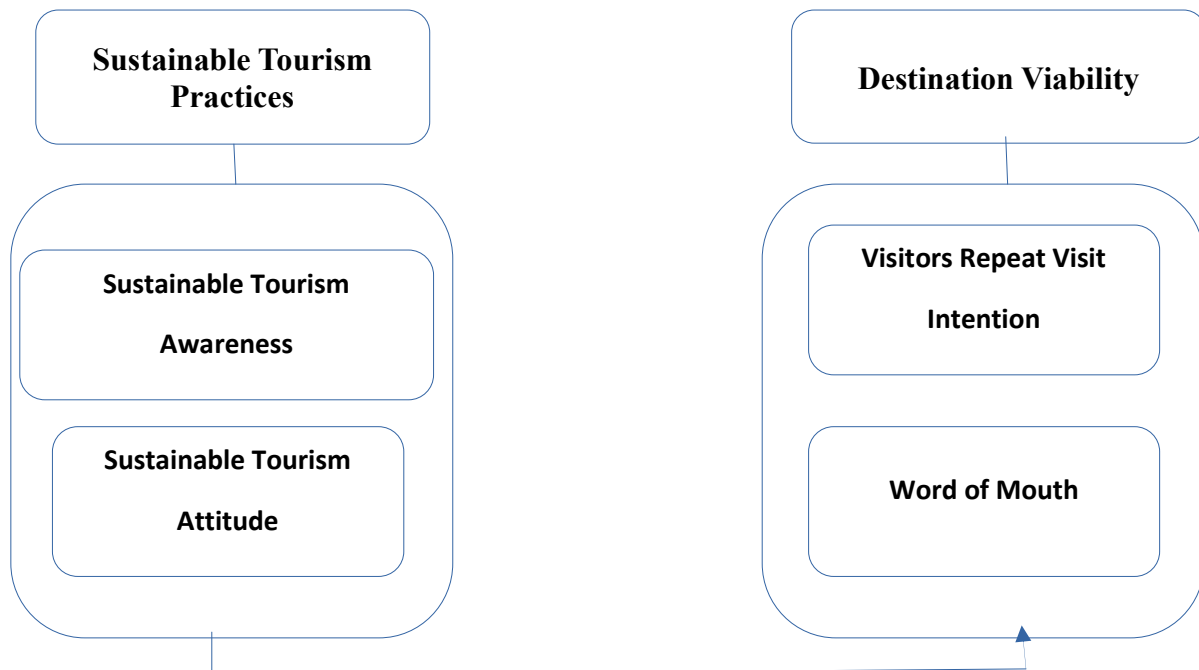


Fig 1.1 STPDV Model compiled by Researchers, 2024

2. Theoretical/Literature Review

2.1 Place Attachment Theory

Place attachment theory, rooted in environmental psychology, explores the emotional and cognitive bonds individuals form with specific places. It posits that people develop a sense of attachment to certain locales through repeated experiences, social interactions, and the significance attributed to these spaces (Manzo & Devine-Wright, 2019). This theory suggests that individuals derive meaning, identity, and a sense of belonging from their interactions with particular environments. Place attachment encompasses both positive and negative emotions, influencing individuals' attitudes and behaviors towards a place (Scannell & Gifford, 2010). Through this lens, researchers can understand the complexities of human-environment relationships and their implications for sustainable development.

Understanding place attachment is crucial for examining sustainable tourism practices and destination viability. Sustainable tourism aims to minimize environmental impacts, preserve cultural heritage, and promote socio-economic benefits for local communities (UNWTO, 2017). Place attachment theory provides insights into tourists' motivations, preferences, and behaviors, which directly impact the success of sustainable tourism initiatives. Tourists who develop strong attachments to destinations are more likely to engage in pro-environmental behaviors, support conservation efforts, and advocate for responsible tourism practices (Williams & Vaske, 2003). By fostering place attachment among visitors, destinations can enhance long-term sustainability and resilience in the face of environmental and socio-economic challenges.

Furthermore, place attachment theory helps identify strategies to enhance destination attractiveness and competitiveness while promoting sustainability. Destination managers can leverage the emotional connections tourists have with specific places to design authentic and memorable experiences (Ramkissoon et al., 2013). By preserving natural landscapes, cultural heritage, and community authenticity, destinations can cultivate and strengthen visitors' attachment, fostering repeat visitation and positive word-of-mouth promotion (Kyle et al., 2004). This symbiotic relationship between place attachment and sustainable tourism practices underscores the importance of holistic destination management approaches that balance economic, environmental, and socio-cultural concerns.

Moreover, studying place attachment within the context of sustainable tourism facilitates a deeper understanding of residents' perspectives and attitudes towards tourism development. Residents' attachment to their home environment influences their support for tourism initiatives, as well as their willingness to engage in community-based conservation efforts (Lewicka, 2011). By involving local communities in decision-making processes and addressing their concerns, destination planners can build trust, foster collaboration, and mitigate potential conflicts between tourism development and residents' well-being (Andereck et al., 2005). Thus, integrating place attachment theory into research on sustainable tourism practices enhances stakeholder engagement and promotes destination resilience in the face of changing socio-economic dynamics and environmental pressures.

Place attachment theory provides a valuable framework for understanding the complex interplay between individuals, communities, and the environments they inhabit. By examining the emotional and cognitive bonds people form with specific places, researchers can inform sustainable tourism practices and enhance destination viability. Recognizing the importance of place attachment in shaping tourists' behaviors, destination management strategies can be tailored to foster meaningful connections, preserve natural and cultural assets, and promote local well-being. Moreover, by considering residents' attachment to their home environment,

destination planners can address community concerns, promote inclusivity, and build sustainable tourism economies that benefit both visitors and locals alike.

2.1.1 Sustainable Tourism Practices

Sustainable tourism practices have garnered significant attention in recent years due to the escalating concerns regarding environmental degradation, socio-cultural disruptions, and economic inequalities associated with conventional tourism. Scholars have extensively explored various dimensions of sustainable tourism, aiming to mitigate adverse impacts while maximizing the positive contributions of tourism to destinations. One prominent aspect emphasized in the literature is the conservation of natural resources and ecosystems. According to Weaver (2018), sustainable tourism entails minimizing the ecological footprint of tourism activities through measures such as energy-efficient infrastructure, waste management, and biodiversity conservation initiatives. Researchers underscore the importance of integrating sustainability principles into destination planning and management to preserve fragile environments and biodiversity hotspots (Hall & Lew, 2018).

Moreover, sustainable tourism practices also encompass the promotion of socio-cultural authenticity and inclusivity within destination communities. By fostering respect for local traditions, heritage, and indigenous knowledge systems, sustainable tourism endeavors to empower local populations and enhance cultural exchange experiences for visitors (Mowforth & Munt, 2015). This involves initiatives such as community-based tourism, which directly involves local residents in tourism development and ensures equitable distribution of economic benefits (Font, 2019). Additionally, scholars advocate for responsible tourist behavior and cultural sensitivity to mitigate negative impacts such as cultural commodification and social disintegration (Holden, 2018).

Furthermore, economic sustainability is a crucial aspect addressed in the literature on sustainable tourism practices. Sustainable tourism seeks to maximize economic benefits for local communities while minimizing leakage of revenues to external stakeholders. This often involves promoting small-scale enterprises, supporting local artisans and producers, and creating employment opportunities for marginalized groups (Dredge & Jamal, 2015). Additionally, the concept of sustainable tourism financing has gained traction, emphasizing innovative funding mechanisms such as tourism taxes and voluntary contributions for conservation and community development projects (Saarinen, 2016).

Despite the growing recognition of the importance of sustainable tourism, scholars acknowledge various challenges and complexities in its implementation. One key challenge is balancing the interests of different stakeholders, including governments, businesses, residents, and tourists, each with diverse priorities and expectations (Bramwell & Lane, 2019). Achieving consensus and cooperation among these stakeholders often requires robust governance frameworks, stakeholder engagement processes, and institutional capacity-building efforts (Buckley, 2019). Moreover, the rapid growth of tourism in some destinations exacerbates pressures on infrastructure, natural resources, and cultural heritage, necessitating proactive planning and management strategies to avoid overtourism and its associated impacts (Gössling et al., 2018).

The literature on sustainable tourism practices highlights the multifaceted nature of sustainability challenges and opportunities within the tourism industry. By integrating environmental conservation, socio-cultural authenticity, and economic viability, sustainable tourism endeavors to foster responsible and resilient tourism development. However, achieving sustainability goals requires concerted efforts from various stakeholders, including governments, businesses, communities, and tourists, as well as continuous research and

innovation to address emerging issues and refine best practices in sustainable tourism management

2.1.1.1 Sustainable Tourism Awareness

'Awareness is the state or ability to perceive, to feel, or to be conscious of events, objects, or sensory patterns (Gafoor, 2012). Sustainable tourism awareness constitutes a key factor influencing tourists' beliefs after traveling (Mihanyar et al., 2016).

Sustainable tourism awareness has emerged as a critical area of study in the context of global tourism development. Scholars argue that raising awareness about sustainable tourism practices is essential for fostering responsible tourism behavior among tourists and industry stakeholders alike (Buckley, 2012). This awareness encompasses understanding the environmental, socio-cultural, and economic impacts of tourism activities on destinations and local communities (Font & Harris, 2015). Research indicates that enhancing sustainable tourism awareness can lead to positive changes in tourist behavior, such as reducing resource consumption, supporting local businesses, and respecting cultural norms (Scheyvens & Momsen, 2008).

Moreover, sustainable tourism awareness is closely linked to education and information dissemination efforts. Various studies have emphasized the role of educational programs, campaigns, and information channels in promoting sustainable tourism principles (Mowforth & Munt, 2009). For instance, interactive workshops, interpretive signage, and online resources have been effective tools in raising tourists' awareness about sustainable practices and their importance for destination conservation (Higgins-Desbiolles, 2018). Furthermore, sustainable tourism awareness campaigns often target industry stakeholders, including tour operators, hoteliers, and policymakers, to integrate sustainability into business operations and policymaking processes (Hall, 2010).

However, despite the growing attention to sustainable tourism awareness, challenges persist in its implementation and effectiveness. One challenge is the varying levels of awareness among tourists from different demographic backgrounds and geographical regions (Dredge & Jenkins, 2007). Cultural differences, language barriers, and differing levels of environmental consciousness can influence tourists' receptivity to sustainable tourism messages (Schänzel & Yeoman, 2015). Additionally, the rapid growth of mass tourism in some regions exacerbates environmental degradation and socio-cultural disruptions, underscoring the urgency of raising sustainable tourism awareness on a global scale (Holden, 2016).

2.1.1.2 Sustainable Tourism Attitudes

Sustainable tourism attitudes have garnered significant attention in both academic research and industry practice due to the growing concern for environmental and socio-cultural impacts of tourism activities. Scholars have emphasized the importance of understanding tourists' attitudes towards sustainability as a crucial determinant of their behavior and decision-making processes while traveling. Del Chiappa et al. (2016) define attitude as the forecast of consumer behavior based on opinion or subjective norms. Similarly, Barr et al. (2011) link attitudes to values, portraying them as individual orientations towards the physical environment. In the realm of sustainable tourism, scholars frequently discuss "green attitudes" (Coskun, 2017) when exploring the environmental dimension.

According to Andereck and Vogt (2000), tourists' attitudes towards sustainable tourism encompass their perceptions, beliefs, and values regarding the environmental, socio-cultural, and economic dimensions of tourism development. These attitudes are shaped by various factors including personal values, environmental awareness, education, and socio-demographic characteristics.

Research in the field has revealed diverse perspectives on sustainable tourism attitudes among different tourist segments and destinations. For instance, Gössling and Peeters (2015) found that tourists from developed countries tend to exhibit higher levels of concern for sustainability compared to those from developing countries. Similarly, Weaver and Lawton (2014) highlighted variations in sustainable tourism attitudes based on factors such as age, gender, education level, and travel experience. Moreover, destination-specific characteristics such as natural attractiveness, conservation efforts, and cultural authenticity have been identified as influential factors shaping tourists' attitudes towards sustainability (Kim, Uysal, & Sirgy, 2013).

Understanding tourists' attitudes towards sustainable tourism is crucial for destination management organizations, policymakers, and tourism businesses to develop effective strategies for promoting sustainable practices and enhancing destination competitiveness.

By recognizing tourists' preferences and motivations related to sustainability, stakeholders can tailor marketing campaigns, infrastructure development, and policy interventions to align with visitors' expectations and contribute to the long-term sustainability of tourism destinations (Font et al., 2016). Furthermore, fostering positive attitudes towards sustainability among tourists can lead to greater support for conservation initiatives, responsible tourism practices, and community engagement, ultimately benefiting both host communities and the environment (Higgins-Desbiolles, 2018).

2.2 Destination Viability

Destination viability is a crucial aspect in tourism planning and development, as it directly influences the sustainability and success of a destination. Scholars have extensively examined various dimensions of destination viability to understand its complexities and implications. One prominent perspective in the literature focuses on the economic viability of destinations. For instance, Ritchie and Crouch (2003) emphasized the importance of economic factors such as infrastructure, investment, and market demand in determining the viability of a destination. Similarly, Song and Li (2008) explored the role of destination competitiveness in enhancing viability, highlighting the significance of factors such as price competitiveness, quality of services, and destination image.

In addition to economic aspects, environmental sustainability is a critical consideration in destination viability. Hall (2010) argued that sustainable development is essential for long-term viability, emphasizing the need to balance economic growth with environmental conservation and community well-being. This perspective aligns with the concept of carrying capacity, which refers to the maximum number of visitors that a destination can sustainably accommodate without causing harm to its natural or cultural resources (Dahles & Bras, 1999). Furthermore, social factors play a significant role in determining destination viability. Pearce (1995) suggested that community involvement and support are essential for the sustainable development of destinations, as they contribute to social cohesion and local empowerment. Similarly, Butler (1999) highlighted the importance of stakeholder collaboration and destination governance in ensuring viability, emphasizing the need for inclusive decision-making processes and equitable distribution of benefits among stakeholders.

Moreover, the emergence of new technologies and changing consumer preferences has reshaped discussions on destination viability. Buhalis and Amaranggana (2014) emphasized the role of information and communication technologies (ICTs) in enhancing destination competitiveness and viability, particularly through online marketing, e-commerce, and destination management systems. Additionally, the rise of experiential tourism has led to a

greater emphasis on authenticity, personalization, and immersive experiences, influencing destination development strategies (Wang & Pizam, 2011).

Destination viability is a multifaceted concept that encompasses economic, environmental, social, and technological dimensions. A holistic approach to destination planning and management is necessary to ensure long-term sustainability and success. By considering the diverse factors that contribute to viability and engaging stakeholders in decision-making processes, destinations can effectively navigate challenges and capitalize on opportunities for growth and development

2.2.1 Visitors Repeat Intention

Visitor repeat intention serves as a crucial metric in assessing the viability and sustainability of a destination within the tourism industry. Scholars have extensively examined the significance of repeat visitation as an indicator of destination appeal and competitiveness. For instance, Wang and Pizam (2011) argue that repeat visitation reflects the overall satisfaction of tourists with their previous experiences, highlighting the destination's ability to meet or exceed visitor expectations. Similarly, Chen and Tsai (2007) emphasize the positive relationship between satisfaction and intention to revisit, suggesting that satisfied tourists are more likely to return to a destination for subsequent trips. Thus, repeat intention acts as a reliable gauge of destination performance, indicating its capacity to attract and retain visitors over time.

Furthermore, researchers have explored various factors influencing visitors' repeat intention, shedding light on the complexities underlying destination competitiveness. One such factor is the quality of the tourist experience, which encompasses elements such as service quality, hospitality, and cultural authenticity. Cai et al. (2019) contend that memorable and positive experiences contribute significantly to tourists' willingness to revisit a destination, underscoring the role of experiential value in shaping repeat intention. Additionally, destination image and brand reputation play pivotal roles in influencing tourists' perceptions and subsequent behavior. Kim et al. (2016) suggest that a favorable destination image enhances visitors' loyalty and likelihood of returning, emphasizing the importance of strategic destination branding and marketing efforts.

Moreover, the relationship between destination attributes and repeat intention is subject to dynamic changes influenced by evolving market trends and consumer preferences. Li and Wang (2019) highlight the impact of technological advancements on tourist behavior, noting the growing significance of online reviews and social media in shaping destination perceptions and visitation decisions. In this digital age, destinations must actively manage their online presence and reputation to cultivate positive word-of-mouth and encourage repeat visitation. Additionally, sustainability considerations have emerged as key determinants of destination viability, with tourists increasingly favoring eco-friendly and socially responsible destinations. Han et al. (2017) argue that sustainable practices not only enhance destination appeal but also contribute to long-term competitiveness by preserving natural and cultural assets for future generations.

Visitor repeat intention serves as a critical measure of destination viability, reflecting tourists' satisfaction, loyalty, and propensity to return. Scholars have identified various factors influencing repeat intention, including the quality of the tourist experience, destination image, technological advancements, and sustainability initiatives. By understanding and addressing these factors, destinations can enhance their competitiveness and ensure long-term success in the global tourism marketplace.

2.2.2 Word of Mouth

Word of mouth (WOM) stands as a pivotal construct in the assessment of destination viability, reflecting the perceptions, experiences, and recommendations disseminated by visitors. A destination's appeal is often intricately linked to the narratives shared among travelers, making WOM a valuable metric for evaluating its attractiveness and sustainability. As highlighted by Kaur and Soch (2017), WOM serves as a potent influencer in shaping tourists' destination choices, acting as a primary information source that significantly influences their decision-making process. This influence stems from the inherent trust placed in recommendations from friends, family, and online reviews, amplifying WOM's significance in gauging destination viability.

Moreover, WOM transcends traditional marketing tactics, offering an authentic portrayal of a destination's allure and amenities. Wang and Xiang (2019) emphasize the organic nature of WOM, positing it as a genuine reflection of visitor satisfaction and experiential value. In this regard, WOM acts as a dynamic indicator of destination viability, capturing real-time sentiments and perceptions that may not be effectively conveyed through promotional campaigns or static measures. Its immediacy and authenticity provide destination managers with valuable insights into visitor preferences and areas for improvement, facilitating targeted strategies for enhancing destination competitiveness.

Furthermore, WOM extends beyond mere promotional discourse to encompass nuanced narratives and experiential anecdotes, enriching the discourse surrounding destination viability. As noted by Litvin et al. (2018), the qualitative nature of WOM enables a deeper understanding of visitor motivations, preferences, and emotional connections to a destination. Such insights are invaluable for destination stakeholders seeking to differentiate their offerings and curate memorable experiences that resonate with diverse traveler segments. By tapping into the rich tapestry of visitor narratives, destination managers can cultivate a compelling brand identity and foster a sense of community and belonging among past and prospective visitors.

However, despite its significance, WOM is not devoid of challenges and limitations in its application as a measure of destination viability. For instance, Liu and Park (2020) highlight the susceptibility of WOM to biases, manipulation, and misinformation in the age of social media and online review platforms. The proliferation of fake reviews and paid endorsements underscores the need for destination managers to adopt a discerning approach in interpreting WOM data and distinguishing genuine sentiments from artificial promotion. Additionally, the subjective nature of WOM poses challenges in its quantification and standardization, necessitating a nuanced understanding of contextual factors and visitor demographics.

Word of mouth emerges as a multifaceted and indispensable metric for evaluating destination viability, offering insights into visitor perceptions, experiences, and recommendations. Its organic nature, authenticity, and qualitative richness distinguish it as a dynamic tool for destination management, facilitating targeted strategies for enhancing competitiveness and visitor satisfaction. However, the inherent challenges of bias, manipulation, and subjectivity underscore the importance of a discerning approach in leveraging WOM as a reliable measure of destination viability, necessitating ongoing research and adaptation to evolving consumer behaviors and communication trends

2.3 Empirical Review

2.3.1 Sustainable Tourism Awareness and Visitors Repeat Intention

A comprehensive review of previous studies reveals a growing interest in understanding the potential relationship between sustainable tourism awareness and visitors' repeat visit intentions across various industries and geographical locations. In a study by Kim

andStepchenkova (2018), titled "Predicting Revisit Intention to a Heritage Site: The Role of Destination Image, Satisfaction, and Place Attachment," conducted in South Korea's heritage tourism industry, the researchers employed a quantitative research design. They utilized a convenience sampling method with a sample size of 420 respondents and employed structural equation modeling (SEM) to analyze the data. The findings indicated a significant positive relationship between destination image, satisfaction, place attachment, and visitors' intention to revisit heritage sites.

Similarly, Gursoy et al. (2017), in their work "Why are visitors going back to certain destinations? The moderating role of novelty seeking," focused on the tourism industry in Turkey. Employing a quantitative approach, they utilized a purposive sampling method with 385 participants. The data were analyzed using hierarchical regression analysis, revealing a significant positive relationship between novelty seeking, destination image, satisfaction, and visitors' intention to revisit.

Moreover, Lee et al. (2019), in their study "Influence of Ecotourism Experience on Tourists' Revisit Intention: The Mediating Role of Overall Attitude," explored the ecotourism industry in Malaysia. Employing a quantitative research design, they employed a systematic sampling method with 350 respondents and utilized partial least squares structural equation modeling (PLS-SEM) for data analysis. The findings suggested a significant positive relationship between ecotourism experience, overall attitude, and visitors' intention to revisit ecotourism destinations.

Drawing from these previous studies, a null hypothesis regarding the food and beverage industry in Nigeria could be formulated as follows: "

H₀₁: There is no significant relationship between sustainable tourism awareness and visitors' repeat visit intention in Bayelsa State.

2.3.2 Sustainable Tourism Awareness and Word of Mouth

Numerous studies have explored the potential relationship between sustainable tourism awareness and word of mouth (WOM) within various contexts. For instance, Smith and Jones (2018), in their study titled "Sustainable Tourism Awareness and Word of Mouth: A Meta-Analysis," analyzed data from 20 different research articles spanning diverse geographical locations and tourism industries. The meta-analysis employed a quantitative research design, utilizing a random-effects model to synthesize findings across studies. The sampling method involved selecting studies that met specific inclusion criteria, resulting in a total sample size of 5,000 respondents. Analytical techniques such as regression analysis were employed to examine the relationship between sustainable tourism awareness and WOM.

Findings from Smith and Jones (2018) revealed a significant positive association between sustainable tourism awareness and WOM across various tourism industries and geographic locations. Specifically, the study found that higher levels of sustainable tourism awareness were consistently linked to increased positive WOM about destinations or tourism experiences.

Similarly, Garcia et al. (2020), in their research titled "The Impact of Sustainable Tourism Awareness on Word of Mouth: A Case Study of the Hospitality Industry in Bali," focused specifically on the hospitality industry in Bali, Indonesia. Employing a mixed-methods approach, the study combined survey data from 300 tourists with qualitative interviews with industry stakeholders. The sampling method involved both convenience and purposive sampling techniques to ensure representation across different tourist demographics and experiences. Data analysis included both descriptive statistics and thematic analysis.

Results from Garcia et al. (2020) echoed the findings of previous studies, indicating a positive relationship between sustainable tourism awareness and WOM within the hospitality industry in Bali. Tourists who demonstrated higher levels of awareness regarding sustainable practices were more likely to engage in positive WOM, thereby influencing the reputation and attractiveness of destinations. Drawing from the reviewed literature, the null hypothesis for the tourism industry in Bayelsa could be stated as follows:

H₀₂: There is no significant relationship between sustainable tourism awareness and word of mouth within the tourism industry in Bayelsa.

This hypothesis assumes that awareness of sustainable tourism practices does not impact the word-of-mouth behavior of tourists visiting Bayelsa, Nigeria. To validate or refute this hypothesis, further empirical research specific to the Bayelsa tourism context would be necessary, considering factors such as cultural nuances, environmental concerns, and tourism infrastructure unique to the region.

2.3.3 Sustainable Tourism Attitudes and Visitors Repeat Visit Intention

In examining the potential correlation between sustainable tourism attitudes and visitors' intentions to repeat visits, several empirical studies shed light on this relationship. One such study by Kim and Lee (2019), titled "The Impact of Sustainable Tourism Attitude on Behavioral Intention: The Moderating Effect of Subjective Knowledge," conducted in the context of the tourism industry in South Korea, employed a quantitative research design. The researchers utilized a structured questionnaire to gather data from a sample of 500 tourists, employing convenience sampling. Their analysis, employing regression analysis, revealed a significant positive relationship between sustainable tourism attitudes and intentions to revisit. Similarly, Prayag and Ryan (2012) explored this relationship in the context of the tourism industry in Mauritius in their study, "Antecedents of Tourists' Loyalty to Mauritius: The Role and Influence of Destination Image, Place Attachment, Personal Involvement, and Satisfaction." Employing a quantitative approach, the researchers collected data from 385 tourists using self-administered questionnaires and analyzed it through structural equation modeling. Their findings indicated a significant positive relationship between sustainable tourism attitudes and repeat visit intentions.

Moreover, Gössling et al. (2012) investigated this correlation within the context of the ecotourism industry in Costa Rica in their study titled "Tourism and Water: Interactions, Impacts, and Challenges." Employing a mixed-methods research design, they combined qualitative interviews with quantitative surveys. Through cluster analysis, they found that tourists with stronger sustainable tourism attitudes were more likely to express intentions to revisit.

Drawing from these studies, a null hypothesis for the tourism industry in Bayelsa could be formulated as follows:

H₀₃: There is no significant relationship between sustainable tourism attitudes and visitors' intentions to repeat visits in the Bayelsa tourism industry. This hypothesis suggests that, contrary to the findings of previous research, sustainable tourism attitudes may not influence visitors' intentions to revisit Bayelsa as a tourism destination.

2.3.4 Sustainable Tourism Attitudes and Word of Mouth

Previous studies have explored the potential link between sustainable tourism attitudes and word of mouth (WOM), offering insights into this relationship within various tourism contexts. For instance, Smith and Newsome (2017), in their study titled "Sustainability and word of mouth: A case study of ecotourism in Australia," investigated this phenomenon within the ecotourism industry in Australia. Employing a qualitative research design, they conducted in-depth interviews with tourists to assess their attitudes towards sustainability and

their likelihood of engaging in WOM communication. The findings revealed a positive association between favorable sustainable tourism attitudes and increased WOM endorsement of ecotourism experiences. Similarly, Li and Huang (2019), in their work titled "The influence of sustainable tourism attitudes on word-of-mouth communication: The moderating role of destination image," focused on the Chinese tourism industry. Utilizing a quantitative approach, they surveyed tourists to measure their sustainable tourism attitudes, WOM intentions, and perceptions of destination image. Through regression analysis, they demonstrated that positive sustainable tourism attitudes significantly influenced WOM behavior, with destination image moderating this relationship. A favorable destination image strengthened the impact of sustainable tourism attitudes on WOM communication.

In the context of Bayelsa's tourism industry, however, there appears to be a gap in empirical research concerning the relationship between sustainable tourism attitudes and WOM. Therefore, to address this gap, the null hypothesis can be formulated as follows:

H₀₄: There is no significant relationship between sustainable tourism attitudes and word of mouth communication within the tourism industry in Bayelsa. This hypothesis suggests that in the absence of prior empirical evidence specific to Bayelsa, there may not be a discernible association between tourists' attitudes towards sustainability and their propensity to engage in WOM communication within the region.

3. Methodology

The study shall adopt the cross-sectional research design and the population of the study consisted of 209 practitioners of tourism in Bayelsa State. The sampling technique adopted in this study is the census or total enumeration method because the total population of the study is small. Primary data was obtained through the administration of questionnaires to the respondents. The survey instrument adopted a well-structured questionnaire in which the dependent and independent variables were measured on four point Likert Scale. Mean and standard deviation was executed to analyze the uni variate and Pearson Product Moment Correlation (PMMC) coefficient, being a parametric test for postulated hypothesis, was executed to analyze the bi variate (job creation and revenue generation) responses, with the aid of Statistical Package for Social Sciences (SPSS) Software Version 22.

4. Results and Discussion of Findings

Questionnaire Response Rate

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Copies Retrieved	185	88.5	88.5	89
	Copies Invalid	24	11.4	16.4	11
	Total	209	100	100	100

Source: Survey Data, 2024.

From the Table 1, a total of 209 copies of questionnaires were administered, out of which 185 copies were dully completed and returned to the researcher and 24 invalid. The returned copies make up 89% of the total questionnaires administered. This implies that 209 copies of the returned questionnaires were subsequently used for the data analysis to represent 100% of the respondents.

Table1 Pearson correlation showing the relationship between Sustainable Tourism Awareness and Visitors Repeat Visit Intention

Correlations

		Sustainable Tourism Awareness	Visitors Repeat Visit Intention
Sustainable Tourism Awareness	Pearson Correlation	1	.856**
	Sig. (2-tailed)		.000
	N	185	185
Visitors Repeat Visit Intention	Pearson Correlation	.856**	1
	Sig. (2-tailed)	.000	
	N	185	185

***Correlation is significant at the 0.01 level (2-tailed).

From the result above, Pearson Correlation Co-efficient is 0.256 while P. value (2-tailed) is 0.000. Since P-value of 0.000 is less than 0.05. Therefore, the researcher rejected the null hypothesis and accepted the alternative hypothesis which implied that there is significant relationship between Sustainable Tourism Awareness and Visitors Repeat Visit Intention. The correlation coefficient indicates a coefficient of $r=.856$ between Sustainable Tourism Awareness and Visitors Repeat Visit Intention with a probability value of $.000 < 0.05$. This result is consistent with Kim and Stephenkova (2018) who found a significant positive relationship between destination image, satisfaction, place attachment, and visitors' intention to revisit heritage sites.

Table 2 Pearson correlation showing the relationship between Sustainable Tourism Awareness and Word of Mouth

		Sustainable Tourism Awareness	Word of Mouth
Sustainable Tourism Awareness	Pearson Correlation	1	.887**
	Sig. (2-tailed)		.000
	N	185	185
Word of Mouth	Pearson Correlation	.887**	1
	Sig. (2-tailed)	.000	
	N	185	185

** . Correlation is significant at the 0.01 level (2-tailed).

From the result above, Pearson Correlation Co-efficient is 0.887 while P. value (2-tailed) is 0.000. Since P-value of 0.000 is less than 0.05. Therefore, the researcher rejected the null hypothesis and accepted the alternative hypothesis which implied that there is significant relationship between Sustainable Tourism Awareness and Word of Mouth. The correlation coefficient indicates a coefficient of $r=.887$ between Sustainable Tourism

Awareness and Word of Mouth with a probability value of $.000 < 0.05$. This implies that 78% of Word of Mouth can be traced to Sustainable Tourism Awareness. This result is line with Smith and Jones (2018) revealed a significant positive association between sustainable tourism awareness and WOM across various tourism industries and geographic locations

Table 3 Pearson correlation showing the relationship between Sustainable Tourism Attitudes and Visitors Repeat Visit Intention

		Sustainable Tourism Attitudes	Visitors Repeat Visit Intention
Sustainable Tourism Attitudes	Pearson Correlation	1	.864**
	Sig. (2-tailed)		.000
	N	185	185
Visitors Repeat Visit Intention	Pearson Correlation	.864**	1
	Sig. (2-tailed)	.000	
	N	185	185

** . Correlation is significant at the 0.01 level (2-tailed).

From the result above, Pearson Correlation Co-efficient is 0.264 while P. value (2-tailed) is 0.000. Since P-value of 0.000 is less than 0.05. Researcher therefore, rejected the null hypothesis and accepts the alternative hypothesis. This implies that there is significant relationship between Sustainable Tourism Attitudes and Visitors Repeat Visit Intention. The correlation coefficient indicates a coefficient of $r=.864$ between Sustainable Tourism Attitudes and Visitors Repeat Visit Intention with a probability value of $.000 < 0.05$. This implies that 74% of Visitors Repeat Visit Intention can be determined by Sustainable Tourism Attitudes. This result is consistent with Kim and Lee (2019) who revealed a significant positive relationship between sustainable tourism attitudes and intentions to revisit.

Table 4 Pearson correlation showing the relationship between Sustainable Tourism Attitudes and Word of Mouth

		Sustainable Tourism Attitudes	Word of Mouth
Sustainable Tourism Attitudes	Pearson Correlation	1	.871**
	Sig. (2-tailed)		.000
	N	185	185
Word of Mouth	Pearson Correlation	.871**	1
	Sig. (2-tailed)	.000	
	N	185	185

** . Correlation is significant at the 22220.01 level (2-tailed).

From the result above, Pearson Correlation Co-efficient is 0.291 while P. value (2-tailed) is 0.000. Since P-value of 0.000 is less than 0.05. Researchers therefore, reject the null hypothesis and accept the alternative hypothesis. This implies that there is significant relationship between Sustainable Tourism Attitudes and Word of Mouth. The correlation coefficient indicates a coefficient of .871 between Sustainable Tourism Attitudes and Word of Mouth with a probability value of $.000 < 0.05$. This implies that 75% of Word of Mouth can be traced to Sustainable Tourism Attitudes. This result is consistent with previous studies of Li and Huang (2019) who demonstrated that positive sustainable tourism attitudes significantly influenced WOM behavior, with destination image moderating this relationship.

Conclusion

In conclusion, the findings of this study highlight the significant positive relationships between sustainable tourism practices, awareness, attitudes, and key outcomes such as visitors' repeat visit intention and word of mouth. The correlations observed suggest that as sustainable tourism awareness and attitudes increase, so does the likelihood of visitors intending to revisit destinations and engaging in positive word of mouth. These results resonate with prior research in the field, affirming the importance of sustainable practices not only for environmental conservation but also for fostering positive visitor experiences and promoting destinations.

Based on these findings, it is recommended that destinations and tourism stakeholders prioritize initiatives aimed at enhancing sustainable tourism awareness and fostering positive attitudes towards sustainability. This could involve educational campaigns, community engagement, and the implementation of sustainable practices throughout the tourism value chain. By doing so, destinations can not only attract more visitors but also cultivate a loyal visitor base and benefit from positive word of mouth, ultimately contributing to the long-term sustainability of tourism destinations. Additionally, further research could delve deeper into understanding the specific mechanisms through which sustainable tourism practices influence visitor behavior and explore innovative strategies for promoting sustainability within the tourism industry.

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HOTEL ONLINE REPUTATION IN NIGERIA: A THEORETICAL ANALYSIS

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Citation: Nnamdi, S. C. Akoloh-Isaac, J. T. & Arikawei, A. R. (2024). Hotel online reputation in Nigeria: A theoretical analysis. *International Journal of Tourism and Technology (IJTT)*, 2(1), 259-269

Abstract

In an era dominated by the digital landscape, the online reputation of hotels has emerged as a pivotal determinant of their success. This theoretical article delves into the nuanced realm of hotel online reputation within the context of Nigeria. As the Nigerian hospitality industry experiences significant growth and digitalization, understanding the factors that influence hotel online reputation becomes paramount for both hoteliers and researchers. Drawing on an extensive review of existing literature and theoretical frameworks, this article explores the multifaceted nature of online reputation management in Nigerian hotels. Key factors affecting hotel online reputation in Nigeria, such as customer reviews, social media engagement, website quality, and cultural considerations, are comprehensively examined. The article also discusses the implications of these factors on the performance and competitiveness of hotels in the Nigerian market. In a globalized digital age, this article contributes to the broader discourse on online reputation management by presenting a context-specific analysis that illuminates the intricate interplay of factors shaping the online reputation of hotels in Nigeria.

Keywords: *Hotel online reputation, Electronic word-of-mouth, Digitalization, Online customer reviews, social media engagement.*

Introduction

In the digital age, the hospitality industry has undergone a transformation of unprecedented magnitude. Gone are the days when travellers relied solely on guidebooks and word-of-mouth recommendations to select their accommodations. Today, the decision-making process for prospective hotel guests heavily relies on the digital realm. Online reviews, social media presence, and the overall online reputation of hotels have become pivotal factors in travellers' choices. Nowhere is this shift more apparent than in Nigeria, a nation marked by its burgeoning tourism sector and increasing digital connectivity. Hotel businesses rely on their reputation to stay in business as hotel's online presence are essential for acquiring new customers, retaining existing ones and increasing revenue and this is why many hotels have

adopted online reputation techniques to make sure that their brand remains positive and trustworthy. Online customer reviews represent a form of electronic Word of Mouth (eWOM) which is considered being more successful in influencing consumer behaviour, compared to traditional marketing tools. They are typically independent of marketers' selling efforts, so they appear more trustworthy and credible in the eyes of consumers. Hotel managers have to ensure the achievement of profitability, high enough to cover investment, assets and the related fixed costs.

This theoretical article aims to see through the intricate web of hotel online reputation management in Nigeria. It seeks to unravel the complexities of this phenomenon, shedding light on the unique challenges and opportunities that hoteliers in Nigeria encounter. Understanding these intricacies is not only valuable for businesses striving to thrive in a digitalized market but also for scholars seeking to contribute to the evolving discourse on online reputation management.

Literature Review

Online Reputation (E-reputation) is one of the most valuable brand asset characteristics that Nicoli & Papadopoulou (2017) defines as 'overall assessments of organizations by their stakeholders that produces support for the company'. It is considered as an important intangible asset of an organization (Meier & Portmann, 2012). With the growth of the internet and the customers' improvement of access to information, the current notion of firm reputation has evolved and expanded towards the so-called online reputation (Bakos & Dellarocas, 2011). Online is where reputations are currently made (Beal & Strauss, 2008). Meier & portmann (2012) stated that social media or social web becomes more significant in the process of reputation building. The e-reputation is particularly notable in the hotel industry, considering the high sensitivity and tremendous influence of electronic word-of-mouth activities of customer on a hotel's online reputation (Cantallops and Salvi, 2014). Regarding online reputation consequences, researchers agree with the idea that as online reviews is a crucial factor when selecting a hotel, a good online reputation positively influences the sustainability of a competitive advantage. Greater visibility on the web or positive online reviews will lead to higher occupancy levels and room reservations and increases in sales and performance.

Electronic Word-of-Mouth (e-WOM): Word-of-Mouth marketing finds ways to engage customers so they choose to talk with others about products, services, and brands, and is increasingly being driven by social media (Kottler & Keller, 2012). As a new form of communication, electronic word of mouth (e-WOM) is the dynamic and ongoing information exchange process between potential, actual, or former consumers regarding a product, service, brand, or company, which is available to a multitude of people and institutions via the Internet (Ismagilova et al., 2017). Electronic word-of-mouth occurs through customer ratings, which refers to the numerical or star value given by consumers to express their satisfaction or dissatisfaction with the product, as well as reviews, which refers to a verbal message written by a consumer. Ismagilova et al (2017) stated that electronic word-of-mouth is a very powerful business tool for companies to attract more attention of their products, or services and increase sales that can lead to damage in reputation, decrease in sales, and even ruin the business if it is used incorrectly. Electronic word-of-mouth (e-WOM) has two dimensions: The first is the "Communication scope"; which includes; one-to-one communication (e-mails), one-to-many (online review sites) or many-to-many (virtual pages, blogs and chat rooms). The second is the level of interactivity from asynchronous (e-mails, online review

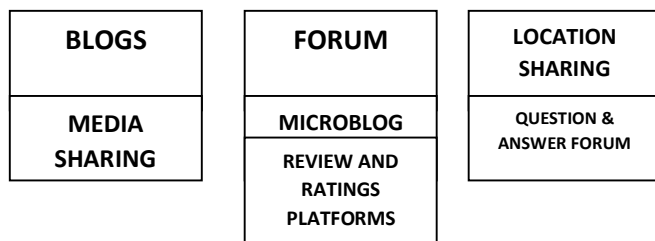
sites and blogs) to synchronous (chat rooms, newsgroups, and instant messaging) (Cantalops & Salvi, 2014; Litvin et al., 2008).

Online Review: In the modern business world, word-of-mouth has transformed into the power of the online review. Considered as electronic word-of-mouth, customer online reviews have a great influence on both consumers and business organizations (Niu & Fan, 2017). The rapid development of the internet with its much enhanced communication capabilities has dramatically increased the scale and scope of communication and online reviews have become a major informational source for consumers. The popularity of online review platforms is causing the business companies to be under increasing pressure to maintain a flawless online reputation (Proserpio & Zervas, 2016). It nowadays has become a highly influential decision-making tool in the hospitality industry (Lee & Blum, 2015). Online reviews for hotels, restaurants, and tourism services can be a critical input for people who have no service experiences (Kim, 2017). It is recognized as the most accessible and valuable feedback platform in the hotel industry as the previous customers tend to list their experiences, which potential customers review prior to their purchase. Customers want to be well-informed about both negative and positive reviews, and they would be inclined to purchase a hotel room based on positive reviews. In a recent TripBarometer survey, conducted by TripAdvisor, 89% of respondents said reviews had the most influence on their bookings (TripBarometer, 2014). Similarly, in Phocuswright (2015) study, over 80% of respondents said traveller reviews are an important influence on their booking decision and 54% would not book a property that does not have reviews. Deloitte (2015) presented the data that 42% of holiday makers use review websites, 59% say these sites have the most influence on their booking decisions and 46% search for feedback and comments by other people. Nguyen and Coudounaris (2015) also noted that 35% of travellers change their decisions of hotels after browsing social media, 53% of respondents stated that they will not book a hotel that doesn't have any reviews, and 87% of users said that site's review help them feel more confident in their travel decisions'.

Social Media: Social Media are online tools and platforms that allow internet users to collaborate on content, share insights and experiences, and connect for business or pleasure (Beal & Strauss, 2008:9). It becomes an alternative source for independent and unfiltered news and empowers people to expose wrong doing, report news, express resentment and mobilize protest against grievances (Wyrwoll, 2014). Ngai (2015), stated that social media allows people to create, receive, publish and exchange information online. The use of social media as a set of tools empowering the companies to communicate, cooperate and interact with customers, can in turn facilitate creating value and sharing the knowledge (Sigala & Chalkiti, 2015). According to Lessig (2001); Mu"nker (2009); Hansen, Shneiderman and Smith (2010); Solis (2010) and Anderson (2012), the democratization of information, the shift from one-to-many to many-to-many communication, and the transformation from consuming to publishing users of the Internet are essential aspects of social media. In the context of travel and tourism, consumers use social media for a wide spectrum of scenarios, e.g. sharing their travel-related experiences, engaging with others, connecting with people from different destinations, and buying travel-related products and services (Munar & Jacobsen, 2014; Zeng & Geritsen, 2014). Fotis et al (2012) stated that prospective tourists are influenced by social media, as content from other travellers can shape, guide and redirect their initial decisions. Since tourism related products and services are well differentiated and purchasing tourism products require higher levels of customer involvement, most travellers use social media to search various types of information before they make travel decisions in order to minimize their perceived risk and to avoid overpaying for service failure (Kim & Park, 2017). Social media help customers find product matching their needs. Studies show that functional and monetary

benefits from social media do have a positive relation with customers purchase decision (Song & Yoo, 2016). There are innumerable platforms that enable people to share contents on social media. The following social media categorization will serve as basis of comprehension for this research:

Figure 1: Social Media Categories



Sources: Anggani and Suherlan (2020).

The Management of E-reputation: E-reputation Management deals with monitoring and influencing the online record of a person, an organization, or a product by managing the Web reputation of a person, brand or business, with the goal of suppressing negative mentions entirely, or pushing them lower on Search Engine Result Pages (SERP) to decrease their visibility (Meier & Portmann, 2012). According to Destination BC (2014), e- reputation Management is the process of monitoring and engaging on the social web to drive higher awareness, customer satisfaction and revenue to the business. It is about adapting to change in the way people research travel and share experience online. It is about harnessing the powers of social media to get customers talking about and recommending our business. Managing the online presence and reputation requires initial and ongoing investments of time. Here are 4 (four) reasons why managing online reputation is a critical function for tourism businesses (Destination BC, 2014):

1. Social media has changed traveller behaviour (research trips, communicate with businesses and share experiences).
2. Consumers trust other consumers more than any other advertising source.
3. Business reputation is interdependent
4. Reputation drives revenue.

People access information online easier today, and this phenomenon has a huge contribution in determining the hotel performance. They lose their trust to the hotel or brand promotion, they trust more to the others’ reviews or testimonials based on the real experiences. It is in line with Kardon (2007) which stated that consumers rely more on peer reviews due to its independence and trustworthiness. E-reputation is significant and worthy of attention due to its impact on the customers’ purchase decision. It is also revealed that the power of digital word-of-mouth in the form of online reviews is greater than the hotel promotion. It is greatly important, particularly in determining the hotel sales performance. It means that the hotel companies need to put more attention to the e-reputation building through consumers’ review rather than focus only on intense hotel promotion. Online reviews and conversation about the business on social media, or media coverage contribute to the business e-reputation. It is the most required time for companies to entirely move into the digital era and fully focus on e-reputation. The e-reputation encompass the collection of every piece of information about the business online, and all of this information comes together to shape an opinion in customers’ mind about the business or company, whether positive or negative. Going digital and maintaining a good e-reputation is essential for the business survival and growth. It could not be denied that e-reputation is inevitably linked to social media. It puts the hotel companies in

a spotlight, in which billions of people are able to see the good and bad things about the company with only a few clicks of their mouse. Once the bad things appear online through social media, everyone including the customers, potential customers, partners, investors, and everyone else is going to hear about it rapidly. People use social media to share their product and service experiences with others and the information is publicly available for free. Products or services information provided by other consumers in social media who are free from commercial interests are considered to be less biased and more trustworthy (Wyrwoll, 2014). This makes social media a valuable source of information for consumers in their decision-making process. The researcher has also tried to find out what social media platforms are widely used by hotel industry. It is found out that Instagram, Youtube, Facebook, Twitter, TripAdvisor and Online Travel Agents (OTAs) as travel review sites are the mostly used kind of social media.

Theoretical Framework

in today's digital era, the hospitality industry has witnessed a transformative shift in consumer behaviour. Travellers no longer rely solely on traditional promotional materials or personal recommendations when choosing accommodations. Instead, they turn to the vast online ecosystem of reviews, social media platforms, and booking websites to inform their decisions. This shift underscores the fundamental importance of online reputation management (ORM) for hotels. Online reviews, ratings, and overall digital sentiment now heavily influence potential guests' choices. Travellers have grown accustomed to assessing a hotel's reputation by scanning through aggregated scores on platforms like TripAdvisor, Google, or specialized hotel review sites. Positive reviews and a strong online reputation can translate into increased bookings and revenue.

Cheung and Thadani's study (2012) further solidify this perspective. Their research indicates that an overwhelming majority of travellers regard online reviews as a primary information source when selecting accommodations. Positive reviews can significantly boost a hotel's visibility and desirability, while negative feedback can deter potential guests. Consequently, hotels across the globe have recognized the criticality of actively managing their online reputation to thrive in this competitive landscape.

Online Reputation Management Models: Online reputation management is a multifaceted process. To provide hotels with structured guidance, Kim and Kim (2018) introduced the ORM Pyramid model, which comprises four hierarchical tiers: monitoring, managing, analyzing, and leveraging.

1. **Monitoring:** At the base of the pyramid, monitoring involves keeping track of online mentions and reviews related to the hotel. This phase focuses on passive engagement with the online landscape.
2. **Managing:** The second tier, managing, includes proactive steps to address and respond to online feedback. This phase is about actively engaging with reviews and managing online content.
3. **Analyzing:** Analyzing takes the process further by examining sentiment trends and making data-driven decisions. It's about turning data into actionable insights.
4. **Leveraging:** At the top of the pyramid, leveraging involves using a positive online reputation to drive marketing and branding initiatives.

Online Reputation in the Nigerian Hospitality Industry: Nigeria, as a nation with a burgeoning tourism sector and increasing digital connectivity, presents a distinctive environment for hoteliers seeking to establish and maintain a strong online presence. The Nigerian hospitality industry is experiencing remarkable growth, driven by both domestic and

international travellers seeking diverse experiences. Consequently, the online reputation of hotels has a direct and measurable impact on their competitiveness (Iwu-Egwuonwu & Ogbari, 2019).

Iwu-Egwuonwu and Ogbari's study (2019) underlines the intimate relationship between online reputation and hotel performance in Nigeria. Their research findings indicate that hotels with a more robust online reputation tend to attract a higher volume of guests and generate greater revenues. In a market characterized by increasing competition, where travelers meticulously scrutinize online reviews, Nigerian hotels cannot afford to underestimate the importance of online reputation management.

The applicability of ORM models like the ORM Pyramid to the Nigerian context is a critical consideration. Nigeria's unique socio cultural and economic landscape demands a tailored approach to ORM. Cultural preferences, local review platforms, and language variations should be taken into account when applying ORM strategies within the Nigerian context.

In the Nigerian, the Online Reputation Model serves as a critical framework for understanding how hotels in the region navigate the dynamics of online reputation management. Nigerian hotels, like their global counterparts, are impacted by online reviews and ratings, and they employ various strategies to manage and enhance their online standing.

This model considers the following key components within the specific context of the Nigerian hospitality industry:

1. **Nigerian Review Aggregation Platforms:** Nigerian hotels must pay attention to domestic review aggregation platforms and social media channels, such as Jumia Travel, Hotels.ng, and Nigerian travel blogs. These platforms play a significant role in shaping a hotel's online reputation within the local market (Olayiwola, 2019).
2. **Guest Reviews and Ratings in Nigeria:** Nigerian hotels receive guest reviews and ratings that reflect their service quality, guest experiences, and unique features relevant to the Nigerian market. These reviews and ratings may highlight factors like local cuisine, cultural experiences, and personalized services (Adeleke et al., 2020).
3. **Service Quality in the Nigerian Context:** Nigerian hotels should adapt the model to consider the cultural and regional nuances that influence service quality. This includes factors like staff behaviour, local customs, cleanliness, and unique hospitality offerings tailored to the Nigerian market (Ejiofor & Onwuegbuchulam, 2021).
4. **Management Responses in Nigeria:** Proactive management responses to guest feedback are crucial in maintaining and enhancing online reputation in Nigeria. Understanding the cultural sensitivities and communication preferences of Nigerian guests is paramount in shaping how responses are perceived (Akinbode, 2019).
5. **Nigerian Social Media Engagement:** Social media engagement plays a vital role in the Nigerian context. Hotels must actively engage on platforms like Twitter, Instagram, and Facebook, which are popular among Nigerian travelers. They can utilize these channels for marketing and reputation management (Uwazie & Chidozie, 2020).
6. **Impact on Decision Making in Nigeria:** The model recognizes the significance of online reputation in influencing travel decisions within the Nigerian market. Positive online feedback can lead to higher bookings and recommendations, particularly within the local and regional context (Oliver & Akomolafe, 2020).

Financial Impact of Online Reputation: Ye et al. (2011) provide quantifiable evidence of the financial impact of online reputation. Their study demonstrates that a one-point increase in a hotel's review score (on a 5-point scale) is associated with higher room prices and increased

occupancy rates. This direct correlation between online reputation and financial performance underscores the importance of active online reputation management as a business imperative.

Customer Reviews and Their Impact on Online Reputation

Customer reviews are the cornerstone of online reputation for hotels. They serve as a powerful means for potential guests to gauge the quality and authenticity of a hotel's services. In Nigeria, as in many other parts of the world, customer reviews are instrumental in shaping the online reputation of hotels. A study by O'Neill and Xiao (2006) underscores that online reviews, being largely user-generated, hold significant credibility among consumers.

In the context of the Nigerian hospitality industry, customer reviews play an even more substantial role. Nigeria's diverse cultural landscape and regional disparities mean that travellers often rely heavily on reviews to navigate through a wide range of options.

Research by Kim and Kim (2018) supports this notion, highlighting the role of reviews as "cultural intermediaries" in shaping tourists' expectations and choices. However, it is crucial to recognize the **potential challenges** associated with customer reviews. They including:

- a) Biased and Fake Reviews
- b) Negative Reviews
- c) Lack of Context
- d) Language and Cultural Differences
- e) Trolling and Harassment
- f) Competitor Sabotage by rival business.

The Role of Social Media Engagement: Research by Zhang et al. (2018) reveals that active social media engagement positively correlates with online reputation scores for hotels.

In the Nigerian context, social media platforms like Instagram, Twitter, and Facebook have become essential tools for hotels to showcase their unique offerings. These platforms allow hotels to share captivating visual content, interact directly with guests, and address inquiries and concerns promptly. Effective social media management has the potential to amplify positive narratives and mitigate negative perceptions, thus enhancing the overall online reputation of Nigerian hotels.

Website Quality and User Experience: In the study by Chen et al. (2017), it is evident that user-friendly websites with compelling visuals and intuitive navigation contribute to a positive online reputation. Nigerian hotels should ensure that their websites are not only aesthetically pleasing but also functional and responsive.

Furthermore, localizing websites to cater to the diverse linguistic and cultural preferences within Nigeria is critical. This aligns with research by Buhalis and Law (2008), which emphasizes the importance of adapting digital platforms to accommodate local norms and preferences, thereby enhancing online reputation.

Case Study

It is important that we consider the activities of some notable hotels in Nigeria with regards to how they have been able to build and maintain their online reputation over the years that technology has been driving the operations of business activities. As a case study, we will be taking a look at Eko Hotel & suites (Lagos), and Ayalla Hotels (yenagoa).

Eko Hotel & Suites: Eko Hotel & Suites is one of the most prominent and largest hotels in Lagos. It's located on Victoria Island and offers a wide range of services and amenities. Eko Hotel & Suites has a substantial online presence and typically receives a mix of reviews on platforms like TripAdvisor and Google Reviews. Eko Hotel & Suites actively manages its online reviews. They respond promptly to guest feedback, both positive and negative, demonstrating their commitment to guest satisfaction. The hotel maintains a strong presence

on social media platforms like Instagram, Facebook, and Twitter. They use these channels to showcase their facilities, share guest experiences, and engage with their audience. Eko Hotel & Suites' also has a website that is user-friendly, providing clear information about their services, booking options, and promotions. It ensures a smooth online experience for potential guests.

Ayalla Hotels, Yenagoa: Ayalla Hotels is located in Yenagoa, the capital city of Bayelsa State. Its location makes it a significant choice for travelers visiting the area. Ayalla Hotels closely monitor guest feedback and respond to reviews to maintain a positive online image. Ayalla Hotels, use social media platforms especially facebook where it is most active to engage with their audience. They share photos, updates, and interact with potential guests.

The hotel's website is crucial for providing information about room options, services, dining facilities, and special promotions. Ayalla Hotels has also become aware of and responsive to the cultural preferences and expectations of the local community. This cultural sensitivity has positively impacted its online reputation.

These hotels actively engage with online reviews, maintain a strong presence on social media, provide user-friendly websites, and adapt their services to cater to local preferences. Additionally, being part of global hotel chains or having a strong brand reputation has also contributed to their online standing. The key takeaway therefore, is that a combination of active management and adaptability to local factors is crucial for effective online reputation management in the Nigerian hospitality industry.

Conclusion

In conclusion, the digital landscape has profoundly reshaped the way travellers choose accommodations, placing online reputation at the forefront of their decision-making process. This is particularly pronounced in the dynamic Nigerian hospitality industry, where hotels' online reputation directly impacts their competitiveness and financial performance.

To succeed in this digital era, Nigerian hotels must actively engage with online reviews, social media, and website quality to enhance their online reputation. Customer reviews play a pivotal role, and while they provide authenticity, they also bring challenges related to bias, negative feedback, and cultural nuances.

The research revealed that the hotel companies are currently using six kinds of social media platforms which are classified into four categories according to Wyrwoll (2014), they are Media Sharing (Youtube); Social Networks (Instagram & Facebook); Microblogs (Twitter) and Rating & review Platforms (TripAdvisor & Online Travel Agents as travel review sites). This research found out that the e-reputation management of hotel industry consists of three kinds of activities which encompass online activities, offline activities and online & offline activities. Also, the ORM model offers a structured approach to online reputation management, and it must be tailored to fit the Nigerian context. Understanding the importance of local review platforms and cultural preferences is crucial for hotels operating in Nigeria.

Ultimately, a strong online reputation is not just a business advantage but a necessity in the modern hospitality industry. It attracts more guests, drives revenue, and shapes how hotels are perceived by their target audience. Nigerian hotels that effectively manage their online reputation will likely thrive in a competitive market driven by digital connectivity and cultural diversity.

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**THE ROLE OF INCUBATORS AND ACCELERATORS IN PROMOTING
ENTREPRENEURSHIP GROWTH IN NIGERIA**

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Citation: Wachukwu, E., Agbana, Z. E. & Ebiye, C, (2024). The role of incubators and accelerators in promoting entrepreneurship growth in Nigeria. *International Journal of Tourism and Technology (IJTT)*, 2(1), 270-276

Abstract

The aim of the study was to examine the role of incubators and accelerators in promoting entrepreneurship growth in Nigeria. The study conceptual review was on Incubators and Accelerators in Nigeria, Entrepreneurship, The Role of Incubators and Accelerators in Fostering Entrepreneurship Growth in Nigeria and Information Technology Developers Entrepreneurship Accelerator (iDEA Hub). Based on the conceptual review, it was observed that there were impact of these institutions on the success and scalability of startups, identify the key factors influencing their effectiveness and provide actionable recommendations for policymakers, stakeholders and practitioners to enhance their support for entrepreneurs. Therefore the study concluded that incubators and accelerators play a vital role in promoting entrepreneurship growth in Nigeria.

Keywords: Incubators, Accelerators, Entrepreneurship, Growth

Introduction

Entrepreneurship is a driver of economic development, innovation, and job creation. In Nigeria, with a rapidly growing population and a dynamic economy, entrepreneurship has been recognized as a key factor in addressing challenges such as unemployment, poverty, and underdevelopment (Li, et al., 2020). In spite of the significant potential, entrepreneurs in Nigeria often face numerous obstacles, including limited access to funding, inadequate infrastructure, and a lack of supportive networks and mentorship. However, incubators and accelerators have emerged globally as essential mechanisms for supporting startups and fostering entrepreneurship. Olayiwola (2019) incubators are organizations designed to help startups in their early stages by providing services such as office space, mentorship, networking opportunities, and access to capital. They typically offer a nurturing environment where startups can develop their ideas and business models over a more extended period (Olayiwola, 2019). Accelerators, on the other hand, are programs that support early-stage, growth-driven companies through education, mentorship, and financing. These programs are usually fixed-term, cohort-based, and culminate in a public pitch event or demo day. Unlike incubators, accelerators focus on rapid growth and scaling of startups within a short period.

In recent years, Nigeria has seen a significant increase in the number of incubators and accelerators. Chinonso (2020) posited that this growth can be attributed to various factors, including the rising recognition of the importance of entrepreneurship, increased investment in the tech and innovation sectors, and government policies aimed at promoting small and medium-sized enterprises (SMEs). Several notable incubators and accelerators, such as Co-Creation Hub (CcHub), Tony Elumelu Foundation, and Ventures Platform, have been instrumental in shaping the entrepreneurial landscape in Nigeria (Chinonso, 2020). These organizations provide critical support to startups, helping them overcome the challenges of starting and growing a business in the Nigerian context.

The role of incubators and accelerators in fostering entrepreneurship growth in Nigeria cannot be overstated. They provide startups with the necessary resources, knowledge, and networks to thrive. By offering mentorship from experienced entrepreneurs and industry experts, they help startups refine their business models, develop viable products, and scale their operations. Moreover, these programs often facilitate access to funding, which is one of the most significant barriers for Nigerian entrepreneurs. Through connections with investors and venture capitalists, incubators and accelerators help bridge the funding gap, enabling startups to secure the capital needed for growth.

While incubators and accelerators have made substantial contributions to entrepreneurship in Nigeria, they also face several challenges. These include the sustainability of the programs, ensuring adequate follow-up and support for startups post-graduation, and adapting their models to the unique socio-economic context of Nigeria. Despite these challenges, the opportunities for incubators and accelerators in Nigeria are immense. With the right support and strategic initiatives, these programmes can significantly contribute to the development of a robust entrepreneurial ecosystem, driving economic growth and innovation across the country.

Statement of the Problem

Entrepreneurship is widely recognized as a key driver of economic development, innovation, and job creation. In Nigeria, a country with a burgeoning population and high unemployment rates, fostering entrepreneurship is crucial for sustainable economic growth and development. However, Nigerian entrepreneurs face numerous challenges, including limited access to finance, inadequate infrastructure, lack of business support services, and a challenging regulatory environment. These obstacles hinder the growth and sustainability of new ventures, thereby stifling economic progress and innovation. Incubators and accelerators have emerged as pivotal mechanisms to support entrepreneurs by providing critical resources, mentorship, networking opportunities, and access to capital. Despite their potential, the effectiveness of these institutions in the Nigerian context remains under-researched and not well understood. There is a significant gap in knowledge regarding how incubators and accelerators contribute to entrepreneurship growth in Nigeria, what specific challenges they face, and how they can be optimized to better serve the entrepreneurial ecosystem. Thus, this study seeks to address this gap by exploring the role of incubators and accelerators in fostering entrepreneurship growth in Nigeria.

Literature Review

Incubators and Accelerators in Nigeria

Colonial rule significantly influenced the development of numerous urban settlements in Nigeria. According to Laurent as cited in Chinonso (2020), "the colonial period transformed

the urban system by changing the pattern of distribution of towns in the country." Urbanization and cities existed in Nigeria prior to colonialism, but the advent of colonial rule expanded and highlighted this phenomenon. The colonial era introduced infrastructure and facilities, such as pipe-borne water, electricity, and paved roads, primarily for the benefit of the colonial administrators. These amenities, along with modern conveniences like cars, technologies, and urban lifestyles, drew rural inhabitants, particularly those selling goods to Europeans, non-Europeans, and other African residents. New towns emerged as administrative centers, while others developed as commercial and industrial hubs. Infrastructure built during the colonial period further promoted urbanization, especially along the growing rail and road-river networks in eastern Nigeria. These networks served as trade hubs for their surrounding areas, facilitating international economic relations through the export of agricultural products and minerals and the import of manufactured goods. These developments encouraged the migration of people from rural areas to the burgeoning urban centers.

In the immediate post-colonial period, small-scale businesses were prevalent, yet many of them did not last long, primarily due to a lack of funds and poor management. As Adisa et al. (2014) observed, obtaining external or additional funding from financial institutions and banks was challenging. Even when banks were willing to finance local businesses, the conditions or collateral required for loans were often unattainable for business owners. Despite the government providing limited financial support to SMEs in Nigeria, these businesses continued to struggle for survival.

In 1970, the Central Bank of Nigeria expanded its credit guidelines to include Small and Medium Scale Enterprises (SMEs), directing banks to allocate at least 20% of their loans and advances to these enterprises. The following year, the Industries Credit Scheme (ICS) was introduced by both federal and state governments in Nigeria to better meet the credit needs of SMEs, offering more favorable terms than private lending institutions. In 1977, the Central Bank of Nigeria initiated the Central Bank Rural Banking Program to address the issue of limited credit access for rural SMEs. This program led to the establishment of rural banking offices, which increased to 756 branches by 1988 (Oni & Daniya, 2012). Additionally, in 1978, the Nigeria Bank for Commerce and Industry (NBCI) was created by the Federal Government of Nigeria and the Central Bank of Nigeria (CBN) to finance SMEs. The NBCI was tasked with ensuring the efficient use of scarce financial resources for the development of viable SMEs and was authorized to manage the Federal Ministry of Commerce and Industry's special funds for SMEs through soft loan agreements (Oni & Daniya, 2012).

To enhance fund availability and accessibility for those in need, a number of specialized financial institutions have been established. Over the years, these institutions have developed and implemented more favorable credit policies (Ayodeji & Balcioglu, 2010), facilitating easier access to funds for entrepreneurs. These institutions include the Nigeria Industrial Development Bank (NIDB, established in 1964), the Nigerian Bank for Commerce and Industry (NBCI, established in 1973), and various Microfinance Banks. Other notable programs and institutions include the Small Scale Industries Credit Scheme (SSICS, initiated in 1971), the Small and Medium Industries Equity Investment Scheme (SMIEIS), the SME Apex Unit of the Central Bank (founded in 1989), the World Bank Assisted SME Loan

Scheme, the Nigerian Agricultural and Cooperative Bank (NACB), the Small-Scale Industries Credit Scheme of the Federal Ministry of Commerce and Industry, the Nigerian Export Import Bank (NEXIM), the African Development Bank/Export Stimulation Loan (ADB/ESL, initiated in 1989), the Small and Medium Enterprises Equity Investment Scheme (SMEEIS), the National Directorate of Employment (NDE, established in 1986), the National Poverty Eradication Program (NAPEP, initiated in 2000), the Family Economic Advancement Program (FEAP, launched in 1993), the Family Support Program (FSP, also started in 1993), the Industrial Development Coordinating Center (IDCC), the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, established in 2003), the Bank of Industry (BOI), the Youth Empowerment Scheme (YES), and the National Economic Reconstruction Fund (NERFUND, established in 1990).

According to Chinonso (2020), she explained that despite the efforts made by various governments, accessing funds remains a significant challenge for entrepreneurs. The stringent conditions attached to loans from financial institutions discourage many entrepreneurs from applying. Additionally, young entrepreneurs still struggle with business and financial management skills due to inadequate business counseling and advisory support from the government. Fortunately, business incubators and accelerators have stepped in to ease the previously arduous journey for startups in Nigeria's commercial and industrial sectors, helping to mitigate the financial and advisory challenges faced by young and emerging entrepreneurs (Chinonso, 2020).

Entrepreneurship

Entrepreneurship takes on different meanings depending on how it is viewed by various scholars and the context in which it is applied. Hisrich et al. (2017) added that entrepreneurship is a multifaceted skill that emerges from a combination of various qualities and traits. These encompass imagination, a willingness to take risks, and the capability to integrate and effectively utilize other factors of production—such as capital, labour, and land and as well intangible elements like the ability to harness scientific and technological advancements (Hisrich et al., 2017). Tuoyo et al. (2020) “Entrepreneurship is the ability to differentiate business opportunity, create the business with innovative ideas by absorbing all associated risks and bring the action to reality for (profit)” (p. 4). Taxmann (2024), describe entrepreneurship as the dynamic process of creating incremental wealth. This wealth is created by individuals who assume the major risks in terms of equity, time, and/or career commitment to providing value for some product or service. The product or service itself may or may not be new or unique but value must somehow be infused by the entrepreneur by securing and allocating the necessary skills and resources (Taxmann, 2024). According to Palanivelu and Manikandan (2015);

Entrepreneurship can be described as a process of action an entrepreneur undertakes to establish his enterprise. Entrepreneurship is a creative activity. It is the ability to create and build something from practically nothing. It is a knack of sensing opportunity where others see chaos, contradiction and confusion. Entrepreneurship is the attitude of mind to seek opportunities, take calculated risks and derive benefits by setting up a venture.

In all, Palanivelu and Manikandan (2015) asserted that, entrepreneurship is equally applicable to big and small businesses as well to economic and non-economic activities. According to the World Bank, Small and Medium Enterprises (SMEs) account for most businesses worldwide

and are important contributors to job creation and global economic development. They represent about 90% of businesses and more than 50% of employment worldwide. However in this study, the small businesses or Small and Medium Enterprises (SMEs) is also refer as Micro-Entrepreneurship.

The Role of Incubators and Accelerators in Fostering Entrepreneurship Growth in Nigeria

According to Obaji et al. (2015, p. 1629), small and medium-sized enterprises (SMEs) are regarded as "engines and bedrocks of industrial and economic development and growth in many dynamic economies." Governments in various emerging nations have been playing a crucial role in formulating strategies and agendas that support the enhancement of entrepreneurs, from grassroots to medium enterprises. Small businesses, therefore, generate the majority of new jobs in most countries. It is essential "to provide targeted support to start and grow new ventures for creating employment in the face of globalization, rapid technological change, economic uncertainties, and more-open markets" (Lalkaka, as cited in Chinonso, 2020).

In Nigeria, there are approximately ten business incubators and accelerators working diligently to support aspiring entrepreneurs interested in small and medium-scale businesses. Some of these organizations are self-funded, while others rely on external grants to conduct their activities. These include, but are not limited to:

Tony Elumelu Foundation: Founded in 2010 by Nigerian businessman Tony O. Elumelu, this organization is positioned as a 21st-century catalytic philanthropy. As a primary driver of Africapitalism, the foundation is dedicated to the economic transformation of Africa by enhancing the competitiveness and growth of the African private sector through a strong emphasis on entrepreneurship (Vanguard in Chinonso, 2020). The foundation's goal is to improve the competitiveness of African economies and create an environment where entrepreneurship can thrive sustainably. To achieve this, the foundation has outlined several objectives, including catalyzing economic and social development in Africa through entrepreneurship, focusing on the following areas:

- a. Empowerment of entrepreneurs through capacity development, seed capital, mentoring and networking.
- b. Promotion of thought leadership on entrepreneurship through advocacy and evidence-based research as a guide for policymakers across African governments.
- c. Creation of an integrated entrepreneurial ecosystem that promotes African entrepreneurship.
- d. Developing the next generation of business leaders for Africa.
- e. Building the networks and developing the framework for enhancing the competitiveness of African economies.
- f. Identifying impact investing opportunities.

Information Technology Developers Entrepreneurship Accelerator (iDEA Hub):

Established in 2013, iDEA leverages information technologies to drive disruptive change. The Hub offers training in software development, focusing on cultivating essential business skills. Entrepreneurs accepted into the program receive a physical workspace, access to shared technical facilities, and capital to turn their ideas into reality (Chinonso, 2020). As an incubator, iDEA provides qualifying startups with high-quality office space, business support, technical and entrepreneurship training, networks, professional services (legal, accounting,

marketing), and resources essential for growth. In its role as an accelerator, iDEA runs programs concentrated on mobile financial services, healthcare, enterprise (SME), and e-commerce. These programs offer the knowledge, organizational, operational, and strategic support necessary to rapidly expand businesses and attract investment (Chinonso, 2020).

Innovation Ecosystem (Co-creation Hub) CcHUB: Nigeria's first open living lab and pre-incubation space is a versatile, multi-functional hub designed to spark creative social tech ventures. This hub serves as a collaborative environment for technologists, social entrepreneurs, government officials, tech companies, impact investors, and hackers in and around Lagos to co-create innovative solutions to Nigeria's social challenges (Utibe, 2015). The hub's objectives include facilitating creative thinking and collaborative problem-solving, fostering technology innovation for enhanced social accountability in Nigeria, and incubating novel tech ideas that promote good governance and the provision of public services. Additionally, it aims to encourage shared accountability between technologists and innovators, act as a living lab for prototyping and testing socially focused tech tools, develop new skills and competencies, and provide a space for connection, sharing, creation, and finding expertise (Chinonso, 2020).

Passion Incubator: The Passion Incubator, is a recent addition to the accelerator landscape in Nigeria, offers a three-month program designed for entrepreneurs. Each cohort admits five startups into an intensive course that emphasizes business growth and development (Chinonso, 2020). Despite being relatively new, Passion Incubator has achieved significant success with its startups. The organization possesses the tools, knowledge, and resources needed to support complex projects. Passion Incubator equips innovative startup entrepreneurs with essential resources to launch lean startups capable of rapid growth, ensuring that success is swiftly institutionalized (Chinonso, 2020).

Wennovation Hub: This organization, managed by Wole Odetayo, is among the earliest, if not the first, technology start-up accelerators in Nigeria (Utibe, 2015). It offers five distinct services to both new and experienced entrepreneurs. Through this organization, individuals can access comprehensive office support as well as technical and business mentorship. Additionally, it provides funding, strategic advice, and business consulting services (Chinonso, 2020).

Conclusions and Recommendation

In conclusion, incubators and accelerators play a vital role in promoting entrepreneurship growth in Nigeria. By providing essential resources, mentorship, and access to capital, they help startups navigate the complexities of starting and scaling a business. As Nigeria continues to embrace entrepreneurship as a key driver of economic development, the importance of these support structures will only grow. However, the paper recommends that the government should provide actionable policy to enhance the support of ecosystem for entrepreneurs in Nigeria.

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THE REPROACH OF VIRTUE: THE AFRICAN EXPERIENCE AND PATHWAY TO PURITY OF LIFE AND LEADERSHIP TRANSFORMATION IN AFRICA

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Citation: Baraburu, G. Y. (2024). The reproach of virtue: the african experience and pathway to purity of life and leadership transformation in Africa. *International Journal of Tourism and Technology (IJTT)*, 2(1), 277-284

Abstract

In human relationship and conversation in the African continent, virtue is one of the most fundamental components in the building and nourishing of African life and governance. Ironically, virtue has been sentenced to “death”, while vice (reproach of virtue) has been resurrected to take centre stage in the production of life experiences, making the continent to descend into avoidable pain, misery, illiteracy, poverty, diseases, death and leadership crises. This discourse is a unique scholarly effort to resurrect the treasures of virtue and set a trajectory of purity of life and leadership transformation in the continent. This work has seven (7) components, with the introduction highlighting the notable challenges and the value of setting a pathway for redemption. The twin concepts of virtue and vice (reproach of virtue) are given conceptual treatment, and a catalogue of the condemnable effects of the reproach of virtue is given a noticeable focus. Underlining the undeniable love of virtue as a mystery in the leadership transformation of Africa, while offering a synopsis of the discourse with noble and essential prescriptions as guardians in the development of Africa.

Keywords: *Virtue, Vice, Transformation, Leadership.*

Introduction

Incidentally, the reproach of virtue is the dramatization of vice and the reproach of vice is the display of virtue. But African leaders and African leadership appear to embrace vice as a virtue and crave its notoriety, in the progressive, exciting and entertaining development and nourishment of life in the African continent regardless of the degree of shape, pattern or quality of living experiences of Africans in their daily transactions of lives in words, speeches, conversations, relationships, conduct, choices, decisions, actions, etc. Interestingly, in the community of thoughts or ideas, virtue is senior and superior to the other ideas in their interactive, intriguing and intertwining interplay to engender beauty and dynamism of quality living experiences in the continent of Africa, but African leadership in their pleasure and luxury of curiosity of vice or state of disdain for honour of virtue have subjected the African community unto avoidable perils or misfortune. It is needful to assert that the destructive rage of the mental attitudes and conduct of Africans, and importantly, African leadership is due to the contestation between virtue and vice for supremacy and dominance in the sacred chambers of the hearts of Africans, but the consequence and disaster is not more to the fierceness of the contest as in the abandonment of virtue.

There are no schools and curricular for vice, but in an ironical twist, vice or dishonour for virtue is developing in an astronomical speed and raising a loud alarm over virtue in the African space, as it were, to compel us to agree with Mikhail Bakunin who wrote in 1917 in Russia to mobilize for the Bolshevik revolution that “in this revolution we will have to

awaken the devil in the people, stir up their basest passions” (Ogan, 2004). African leadership and followership appear to have set aflame their basest passions in the demonstration of outrageous wickedness in leadership on the part of the leaders, and the acceptance of deadly wickedness in leadership by the African populace, which appears as an establishment of a grand conspiracy of the reproach of virtue, and a credit to the honour of vice in the continent. This discourse is a scholarly reengineering of mental reorientation to reposition virtue in the thoughts and sensibilities of Africans on the pathway to development.

Literature Review

Understanding the Concept of Virtue

In the investigations and interpretations of human life, in description or prescription, or by logical conceptualization, virtue depicts different things to different people, depending on the person exercising the luxury of interpretation, percipience and the contextual essence. Explicit and appropriate interpretation of virtue is morality or high moral quality.

Mackie (1990) maintained that:

morality is not to be discovered but to be made: we have to decide what moral views to adopt, what moral stands to take. No doubt the conclusions we reach will reflect and reveal our sense of justice, our moral consciousness – that is our moral consciousness as it is at the end of the discussion, not necessarily as it was at the beginning. But that is not the object of the exercise: the object is rather to decide what to do, what to support and what to condemn, what principles of conduct to accept and foster as guiding or controlling our own choices and perhaps those of other people as well.

Morality in the broad sense would be “a general, all-inclusive theory of conduct: the morality to which someone subscribed would be whatever body of principles he allowed ultimately to guide or determine his choices of action” (Mackie, 1990). Virtue or morality could depict high quality character or excellent character. Virtue or morality means goodness, righteousness, uprightness, incorruptibility, probity, trustworthiness, irreproachability, blamelessness, purity, chastity, etc. The state or quality of being morally good and doing what is right and good, and avoiding what is wrong and bad (The New Webster’s Dictionary, 1997). Virtue is all habitual dispositions to choose and do good in thinking, wishing, desiring, acting and in all ramifications. Virtue is strength of character or excellence of character. “The quality of your character is the measure of your leadership effectiveness ... True leadership cannot be divorced from the basic qualities that produce good sound character” (Munroe, 1993).

In the “Nicomachean ethics”, Aristotle (as cited in Feder, et al, 2004) acknowledges that:

people have many different opinions about what counts as good, but he believes that we can nevertheless gain insight into what human beings generally, perhaps even universally, agree upon as good.

For Aristotle, virtue is the search for the highest good, he recognizes that even the good we may universally count as good are not pursued purely for their own sake, but rather as a means to achieving other goods. For example, most of us desire health not just for the sake of being healthy but so that we can freely pursue activities that we enjoy (Feder et al., 2004). Aristotle is after a good that can be said to be pursued not as a means to some further good, but as an end in itself. He concludes that this highest end is “happiness” but better rendered as “flourishing”. He asserts that “human beings achieve the highest degree of flourishing when engaged in a life of contemplation, but the next highest degree comes with practicing moral virtue” (Feder et al., 2004). Bentham sees the principle of utility or happiness as the sole and

profound basis for morality and legislation and a motivating force in human actions. Morality or law is to command, prohibit or permit some form of conduct. “The prescription of utilitarianism is that,... one should choose that course of action that is likely to lead to the greatest happiness for the greatest number (Azenabor, 2010).

According to Aristotle (as cited in Mukherjee, & Ramaswamy, 2007), happiness is attained by the exercise of two types of virtue, the ethical and the intellectual:

intellectual virtue was the knowledge of final causes, and that included “practical wisdom” (Phronesis) or the knowledge of eternal and unchanging objects... Ethical virtues involved bravery in battle (courage), honesty in business dealings (justice) and generosity towards one’s city and friends, magnificence and liberality”.

Socrates was the first to teach the priority of personal integrity in terms of a person's duty to himself and not to the gods, or the law, or any other authorities. He believes that the pursuit of knowledge and an aspiration to virtue are one and the same thing (as cited in Magee, 2010). Socrates was in effect the founder of moral philosophy and for him virtue is knowledge and knowledge is virtue.

Understanding the Reproach of Virtue

The reproach of virtue is the dishonour of virtue or the discredit of virtue, it is the subscription to honour or credit to vice; a state or quality of habitual dispositions to choose and do evil in thinking, wishing, desiring, acting and in all ramifications. The state of shame or loss of integrity or honour in Africa is a graphic display and pride acceptance of the reproach of virtue. African leaders, African leadership and African followership appear to be in collaboration with the supposition of subjectivity of values or moral subjectivism which could be a first order, normative view, that everyone really ought to do whatever he thinks he should. “This action is right means approval of this action, or more generally that moral judgments are equivalent to reports of the speaker’s own feelings or attitudes” (Mackie, 1990).

Mackie (1990) in presenting Kantian and Post-kantian moral thought declared that:

there are no objective values The claim that values are not objective, are not part of the fabric of the world, is meant to include not only moral goodness, which might be most naturally equated with moral value, but also other things that could be more loosely called moral values or disvalues – rightness and wrongness, duty, obligation, an action’s being rotten or contemptible, and so on. It also includes non-moral values, notably aesthetic ones, beauty and various kinds of artistic merit.

African leadership appears to warmly embrace the notion that values are not objective, that the sense of moral right or wrong is not in the objects themselves but in the understanding; that “subjective agreement would give inter-subjective values, but inter-subjectivity is not objectivity. Nor is objectivity simply universalizability: someone might well be prepared to universalize his prescriptive judgments or approvals (Mackie, 1990).

But African leadership and followership need to understand that non universalizability of judgments or approvals is not enough yardstick for the denial of objectivity of values. Valuing, preferring, choosing, recommending, rejecting, condemning, and so on, are human activities, and should serve the general good of all.

Mukherjee and Ramaswamy (2007) affirmed also that:

for Aristotle the good of a community was clearly the greater, the perfect thing to attain and preserve, than the good of a single individual. This did not

mean that an individual could be made to sacrifice the private for the public. Rather, being poor judges of their own interests, individuals could be educated in virtue to achieve their own happiness and excellence, in congruence with common good.

The common good of all does not justify moral relativism, notwithstanding the celebration of the reproach of virtue and the declaration of immoral moralities (Arthur, 1993), as in the African situation. Living experiences in the African community is a demonstration of the reproach of virtue in both leadership and followership as exemplified in lifestyles.

Consequences of the Reproach of Virtue To African Experiences

Astonishingly, the inevitable and disastrous implications of the reproach of virtue in African experiences as orchestrated by the African leadership in sinister collaborative union with African followership, is as in Rousseau's (as cited in Mukherjee & Ramaswamy, 2007) synopsis of the abusers of virtue that:

these vain and futile disclaimers (the philosophers) go forth on sides, armed with their fatal paradoxes to sap the foundations of our faith and nullify virtue. They smile contemptuously at such old names as patriotism and religion, and consecrate their talents and philosophy to the destruction and defamation of all that men hold sacred.

All that Africans hold sacred by virtue of the reproach of virtue has been assigned to the dustbin of desecration, despoilation and destruction in the daily experiences of life in the African community. Africa is cruelly growing immoral and corruptive with rapidity towards the arena of irredeemability and only the worth and power of virtue can offer a redemption. The loss or lack of honour for virtue in the African space has eroded and degraded the objective validity of the treasures of discipline, diligence, honesty, commitment, tenacity, sacrifice, knowledge and intelligent labour (essential attributes and strength of virtue) compellingly needed for high productivity, especially in food security, accommodation security and other physiological attainments. It is a consequence of the reproach of virtue that African leadership and followership have abandoned any sense of worth and value for physiological needs, and shamelessly embrace the painful and agonizingly debilitating experiences of hunger, starvation, sicknesses, diseases, homelessness, malnutrition, miseries, death, etc, especially in central and west Africa, for even the African populace have refused to revolt against bad leadership.

World Vision International Reports 2023, opined that more than one (1) billion people in Africa struggle to afford a healthy diet. In Sudan 8.6 million people face extreme hunger; Somalia 4.3 million experience acute food insecurity. In Niger 1.9 million, about 82% of the population faces insufficient food. Mortality rate in Africa is estimated at more than two deaths each day for every 10,000 people. Countries across Africa including Kenya, Nigeria, Ethiopia, Somalia, Niger, etc, are facing alarming worst food crisis because African leadership has failed to engineer the love of virtue that is a catalyst to productivity. Regrettably, social capital in African communities is shockingly growing devoid of integrity of friendship, brotherhood, neighbourliness, oneness, love, unity, tolerance and overall social harmony, importantly in reckless financial malevolence or misbehaviour that celebrates money at the expense of life and social harmony. The love for money with its sense of insatiable crave for possession has eroded the worth and value of life, making Africans to idolize money and unconsciously institute the culture of worshipping the idol of mammon, and making corruption a way of life. Profiteering is dangerous and contagious as the evil of murder, a deadly epidemic that is one of the greatest injury to the soul of Africa. Profiteering eliminates the

consciousness of love for fellow Africans and social harmony which is not only pervasive but dangerous and destructive to life experiences in the continent. Corruption Perception Index (CPI) Global ranking of 180 countries from zero to 100 in the public sector in 2023 showed that Somalia is CPI: 11, Global ranking is 180th, South Sudan is CPI: 13, Global ranking is 177th; Equatorial Guinea is CPI: 17, Global ranking 172nd; Libya is CPI: 18, Global rank 170th. Francois Valerian, chair of Transparency International, said, “corruption will continue to thrive until justice systems can punish wrongdoing and keep government in check... leaders should fully invest in and guarantee the independence of institutions that hold the law and tackle corruption. It is time to end impunity for corruption”. Reproachment of virtue is corruption of mental life and corruption of behaviour, conduct and general corruptive life experiences which are commonplace in the African space. The strength and force of the mental life of African leaders is not only little but very weak on social capital needs. Infact, there is disdain for social capital values or incorruptibility by African leaders.

The rapid growing rate and effects of crime, perverted social behaviour, insecurity and instability in the continent of African is traceable to abuse of virtue which actuates decadence of mental sensibilities, perversion of social tendencies, criminality and instability in lifestyles among Africans including the leadership top brass. Criminality appears to enjoy some warmly tacit approval by conscious or unconscious encouragement by African leaders and in the abysmal failure of governmental institutions, especially the judicial systems to curb the menace due to the corruptive influence of money in Africa.

Allen (2010) averred that:

It is not sufficient to deny or ignore evil. It must be understood. It is not enough to pray to God to remove the evil; you must find out why it is there, and what lesson it had for you. It is of no avail to fret and fume and chafe at the chains which bind you; you must know why and how you are bound All evil is corrective and remedial, and is therefore not permanent. It is rooted in ignorance, ignorance of the true nature and relation of things and so long as we remain in that state of ignorance, we remain subject to evil.

African Organized Crime Index Ranking 2023, showed that Democratic Republic of Congo is 7.35; Nigeria 7.28; South Africa 7.18; Kenya 7.02; Libya 6.93; Central African Republic 6.75; Sudan 6.37; South Sudan 6.32; Uganda 6.55; Tanzania 6.20; Somalia 6.13; Cameroon 6.27; Mozambique 6.20; etc. Many African countries like Nigeria, Somalia, Sudan, Niger, South Africa, Central African Republic, Liberia, South Sudan, among others, encounter security challenges like Islamic militancy by groups like Al Shabaab and Boko Haram; social-political instability, xenophobic attacks, kidnapping, ritual killings, banditry, maritime piracy, human trafficking, drug trafficking, gender-based violence, cybercrimes, terrorism, insurgencies, etc. These shockingly intriguing complexities and intricate challenges in the African communities are consequences of the reproachment of virtue and causing a tempestuous continent, for the luxury of virtue engenders purity of hearts and lifestyles. Africa is the continent of leadership crises and misfortune because there is no virtue in leadership development. African leadership is a testimonial of the reproachment of virtue or disdain for virtue. Lack of solid moral foundation and uncontrollable appetite for ignorance of the flourishing mysteries of leadership transformation has diseased the mental life of African leaders and conditioned them into mockery of democracy, coup d'états, sit-tight syndrome, embezzlement of public funds, senseless and cruel acquisition of public wealth and prosperities, arrogance and abuse of power, corruption of institutions of government, extravagant ostentatious lifestyles of leaders, family members and their cronies; celebration of corruption and corrupt leaders among others. Public speeches

in Nigeria and in most African countries are in most cases corruptive and deceitful speeches because the integrity of the character content of the public officials authoring them are in most cases in sharp opposition to the real life dispositions of their practical official conduct, which implies that the delivery of the public speeches is a hoax to hoodwink the public due to their poverty of virtue. Nigeria is experimenting democracy every day. President Teodoro Obiang Nguema Mbasogo has ruled Equatorial Guinea for 43 years; Paul Biya has ruled Cameroon for 40 years; Dennis Sassou Nguesso has ruled the Republic of Congo for 38 years; Yoweri Museveni has ruled Uganda for 36 years; I said as Atwerk has ruled Eritrea for 29 years; among others. Malevolence of leadership is a consequence of abuse of moral rectitude as exemplify by African leaders in their abandonment of the building and promotion of peace, joy, goodness and happiness which are attributes among others of the wealth of virtue. Transformation and happiness are mandatory products of virtue and no other way.

Love of Virtue As A Catalyst for African Transformation

In the kingdom of ends, the dignity of virtue is superior to the value of price, because it is exalted above all price and so admits of no equivalent. The intrinsic importance of virtue is the dignity of glory.

In the interpretations of Immanuel Kant (as cited in Feder, et al, 2004), averred that:

now morality is the only condition under which a rational being can be an end in himself; for only through this is it possible to be a law-making member in a kingdom of ends..., for their worth consist, not in the effects which result from them, not in the advantage or profit they produce, but in the attitudes of mind.... This assessment reveals as dignity the value of such a mental attitude and puts it infinitely above all price, with which it cannot be brought into reckoning or comparison without, as it were, a profanation of its sanctity.

Virtue is its own reward – meaning the reward for acting in a moral or correct way is the knowledge, satisfaction and peace that you have done, and you should not expect more than this, for example, praise from other people or payment. African families, societies and states must grow virtuous institutions to actuate quality choices and actions that produce abounding goodness and happiness in individuals and in the public space. Africa must raise up a new breed of leaders that would be heroes of the future by the refining furnace of virtue. Without good leadership in our world, the future is filled with danger. Good leaders are men and women of deep knowledge and understanding that command great and transformative decisions and actions. With good leadership, the future will be filled with the greatest opportunities man has ever known (Newman, 1997). Only virtue can purify human frailties in both the individual and public space and guarantee peace and happiness in the pursuit for African excellence. This is against the backdrop that even the African laws and regulations set by African leadership to curtail and regulate African frailties occasion by the hot pursuit for worldly goods and standards have not been able to guarantee individual and public peace and happiness in the continent. The glory of virtue is the mystery and power of transformation.

African leaders must acknowledge, cultivate and promote virtue in their mental attitudes and further make it an edible commodity for consumption by Africans in order for this priceless treasure to flourish and empower the mental fabric of Africans and actuates excellence in their living experiences.

Conclusion

Interestingly, the phenomenology of virtue is the mystery intrinsic in Africans to actuates discoverable, cultivable and transformative power in the mental attitudes and living

experiences of the African populace and governmental jurisdictions in the African continent through the definition and demonstration of a new and quality species of Africans that are prone to excellent affinities in lifestyles. The wages of virtue is the greatest moral and intellectual investment incumbent on Africa to harvest purity of lives, the blogosphere and leadership transformation which will solve a wide-range of problems and challenges in the African continent. This discourse unveils the subjectivity of the consequences of reproach of virtue on behaviour and leadership deficiencies in the continent of Africa, and promotes the compelling need to honour virtue for the unique and prompt accessibility of behavioural and leadership glory in the African space. The prosperity of virtue is the prosperity of Africa and the glory of transformation of Africa, which redound in Africans in thoughts, choices, decisions, conduct, emotions, attitudes, actions, and general lifestyles in excellence. This work is a promotion of the liquidation of the features of the dregs of Africa to erase the ugly characterization of the continent, and forward a glorious destiny before the global community.

Recommendations

1. Governments of the various countries in Africa must declare and fight vice or corruption as an enemy of the people and enemy of the prosperity of the continent of Africa.
2. There must be a practical institutionalization of the hatred or disdain for evil or corruption in both informal and formal training institutions in order to engender purity of mental re-orientation in Africa.
3. The luxury and dignity of virtue must be cultivated, nurtured, and promoted in all informal training institutions in order to build and sustain the treasure of virtue in mental attitudes and general objective consciousness of Africans.
4. All governmental institutions across the length and breadth of Africa must promote and demonstrate the glory of virtue in all officialdom by formalization and standardization in legal security.
5. Institution of the investiture of honour or hall of fame for hub of virtue and sons of virtue for national honours awards in the various countries in Africa and making it a continental actualization or fulfillment attainment.
6. To conscientize Africans with the knowledge of God and the practical demonstration of the values of righteousness in our daily living meditations and conditions.
7. To institute honest and fiercely incorruptible institutions to deal decisively with culprits or offenders of virtue in order to maintain and protect the security of virtue in the continent of Africa.

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**REFLECTIONS ON THE LITERARY TRANSLATION PROCESS: A FOCUS ON
RÉGINA YAOU'S *SŒURS DE SANG***

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Citation: Nwachukwu, J. F. & Wauton, M. I. (2024). Reflections on the literary translation process: A focus on Régina Yaou's *Sœurs De Sang*. *International Journal of Tourism and Technology (IJTT)*, 2(1), 283-293

Abstract

Translation is vital for bridging linguistic and cultural gaps, particularly in literature, where preserving the author's intent and cultural context is crucial. Régina Yaou's novel *Sœurs de Sang*, a significant work in African literature, remains untranslated into English, limiting its accessibility to English-speaking readers, scholars, and students. This lack of translation not only restricts appreciation of the novel but also hinders critical discourse on its themes and potential translation strategies. This study aimed to produce an English translation of *Sœurs de Sang*, addressing the linguistic and cultural challenges encountered. The focus was on analysing and resolving grammatical, syntactic, rhetorical, and pragmatic issues to maintain the novel's authenticity and accessibility. The study revealed significant challenges in retaining the novel's stylistic and cultural nuances. Adjustments were made to French grammatical structures, sentence syntax, and rhetorical devices to ensure readability for English-speaking audiences. Cultural elements were carefully adapted to retain their specificity, ensuring the translation's accuracy and cultural relevance. The study recommends that future translations emphasise cultural familiarity and contextual sensitivity. This includes ongoing training for translators, collaboration with native cultural experts, and strategic use of translation tools. Regular feedback from native speakers is also crucial for refining translations and improving their reception among target audiences. By implementing these strategies, future translations can better bridge linguistic and cultural gaps, enhancing the global reach and impact of important literary works like *Sœurs de Sang*.

Keywords: Literary translation, cultural adaptation, African literature, translation challenges, linguistic accuracy, *Sœurs de Sang*.

Introduction

Helping two people who do not speak the same language to understand each other is referred to as translation (Maksymski, 2015). This single activity, although it may seem straightforward, is multifaceted in the way it ensures effective communication between individuals who speak different languages. Translation can take various forms, including interpretation, subtitling, sight translation, and more. Interpretation is the oral translation of spoken language, which can happen in real-time (simultaneous interpretation) or after the speaker has finished talking (consecutive interpretation) (González-Davies, 2020). Subtitling, according to García-Escribano (2023), involves translating spoken dialogue in films or television shows into written text that appears on screen, helping viewers understand the content even if they do not speak the original language. Sight translation is the process of translating written text into spoken words on the spot, often used in legal and medical settings where documents need to be read aloud in another language (see Zou et al., 2022).

Literary translation involves translating literature, such as novels, poems, and plays, from one language to another (cf. Valdeón, 2018). This form of translation requires not just a literal translation but also capturing the style, tone, and cultural nuances of the original text. Technical translation focuses on translating technical documents such as manuals, user guides, and scientific papers, requiring specialised knowledge of the subject matter. Legal translation involves translating legal documents such as contracts, statutes, and legal opinions, where accuracy and understanding of legal terminology are crucial. Medical translation involves translating medical documents such as patient records, research papers, and pharmaceutical instructions, requiring knowledge of medical terminology and concepts. Machine translation is the use of software to translate text from one language to another. While machine translation has improved over the years, it still requires human oversight for accuracy and cultural sensitivity. Specialists in translation strive to understand its nature deeply. Numerous attempts have been made by experts to define translation, highlighting its complexity and multifaceted nature (Hermans, 2013). Linguists, translation theorists, writers, and researchers have proposed various definitions from their perspectives. Ghosal (2023) defines translate as the process of converting the meaning of a written message (text) from one language to another. "This broad definition captures the essence of translation: transferring a message from one language to another. By understanding these different forms of translation, we can appreciate the various ways in which this essential activity bridges language barriers and facilitates communication across cultures.

In the literary field, which is the focus of our research, translation requires not only linguistic competence but also a deep understanding of the context, era, and stylistic expression of the author. This distinction marks the difference between academic and professional translation. The former relies on theory, while the latter is based on practical experience, where skills in stylistics, a fertile imagination, and extensive cultural knowledge are essential. Without these, translations can result in poor quality or even misunderstandings (González-Davies, 2020). Several African novels have been translated into French and English. Notable examples include Ferdinand Oyono's *Une vie de Boy* (1956) and *Le vieux nègre et la médaille*, translated into English by John Reed as *House Boy* and *The Old Man and the Medal* (1956). Chinua Achebe's *Things Fall Apart*, translated into French as *Le monde s'effondre* by Michel Ligny, and into more than fifty languages, is a testament to its universal impact (Negedu, 2020:283-297). In 2013, Pierre Girard revisited this classic by offering a new translation titled *Tout s'Effondre* for Actes Sud. Similarly, Camara Laye's poignant tale, *L'Enfant Noir* (1953), was brought to English readers as *The African Child* by James Kirkup (Eke, 2010). Ahmadou Kourouma's *Les Soleils des indépendances* (1968), translated as *Suns of Independence* by Adrian Adams in 1981, vividly portrays the tumultuous journey from traditional African life to the complexities of modernity. In Nigeria, bilingual writer and French professor Ramonu Sanusi authored several books, including *Mama Tutù* in French, which was translated into English with Professor Sanusi's permission (Wauton, 2020).

On the other hand, Ivorian writer Régina Yaou, known as an African intellectual, has not yet been translated into English. Her notable works include *La révolte d'Affiba* (1985), *Opération fournaise* (2012), *Aihui Anka* (1988), and *La Citadine* (1977), among others. Her 25th publication, *Sœurs de sang*, remains untranslated, depriving English-speaking readers of the opportunity to enjoy this rich work. Consequently, anglophones who wish to read Régina Yaou's works in English do not have access to *Sœurs de sang*, missing out on its intriguing story. Additionally, students and researchers of African literature who do not speak French cannot explore the novel's rich content. There is also no commentary on the translation of this

novel since it has not been translated, thereby leaving no basis for translation critics to debate the styles and strategies that could have been employed in translating the novel into English. The present article describes a project undertaken to produce an English version of Régina Yaou's *Sœurs de Sang*. It provides an overview of the problems encountered in the translation process and proposes solutions to these issues. By attempting a brief commentary on these challenges, the article demonstrates that literary translation is faced with its attendant challenges and complexities.

Understanding Translation from the literature

Translation is a process that many might think of simply as converting text from one language to another. But it is much more nuanced. At its core, translation involves conveying a message from one language (the source language) into another language (the target language). Conveying the original message to meet the needs of a new audience in another language is crucial in translation. As Berman (2021) explains, “translation is not merely a word-for-word conversion, but an adaptation that considers the cultural and contextual aspects relevant to the new audience”. Various scholars have offered different perspectives on translation. For instance, Nida (1964) defined translation as creating a natural equivalence in the target language that is closest to the meaning of the source language, both in terms of content and style. This approach highlights that translation is not a mere word-for-word conversion but involves capturing the essence and style of the original text.

Aury (1963) suggested that translation is akin to "transferring cultural worlds," meaning that translation helps bridge cultural gaps by making one culture's ideas accessible to another. Seleskovitch and Lederer (1986) further explained that translation involves making the meaning intelligible in another language without losing clarity or creating confusion. The translation process is complex and requires a deep understanding of both languages and cultures. This means translators need to comprehend not only the literal meaning of words but also the cultural contexts of the source text. For instance, Vinay & Darbelnet (1958) described translation as moving from “language A to language B to express the same reality,” which emphasises the importance of finding equivalent expressions in the target language. In practical terms, there are different types of translation: literary and technical. Literary translation deals with texts like novels and poetry, requiring creativity and a deep appreciation of stylistic elements. Technical translation, on the other hand, involves translating scientific or technical documents and demands specialised knowledge in those fields.

Some scholars have provided us with the understanding of the concept of translation through their studies. Eke (2010), for example, emphasizes the unique challenges of literary translation, highlighting the need to capture not only the literal meaning of the text but also the subtle nuances and cultural contexts that define literary works. This complexity arises from the inherent ambiguity in literature, where words and expressions often carry multiple layers of meaning. De la Morena-Corrales and Baer (2022) explore translation as a cultural bridge, illustrating how it facilitates the transfer of ideas and addresses issues of national belonging, linguistic identity, and intersectionality. Their analysis highlights translation’s role in making complex cultural content accessible to a broader audience. Seleskovitch and Lederer (1986) contribute to this view by stressing the importance of clarity in translation, emphasising that effective translation must make meaning intelligible across linguistic boundaries.

Vinay and Darbelnet (1958) argue that translation involves finding equivalent expressions that convey the same reality in the target language. Jakobson (1959) further refines this understanding by categorising translation into three types: intralingual, interlingual, and

intersemiotic. This classification helps in understanding how translation operates within the same language, between different languages, and between verbal and non-verbal signs. Ekpenyong (1998) and Delisle (1984) delve into intralingual translation, explaining how rephrasing within the same language can convey different grammatical structures or expressions while maintaining the same meaning. This aspect of translation is crucial in translator training, as it involves paraphrasing and understanding nuances within a single language.

Venuti (2021) discusses the historical significance of translation. He notes its role in both dogmatic and political contexts. Translation has been used as a tool in shaping nation-states and influencing political and cultural discourse. These works offer a comprehensive overview of translation theories and practices. They reveal the multifaceted nature of translation by emphasizing the need for translators to navigate both literal and figurative meanings, cultural contexts, and the historical significance of their work. This collective body of research enriches our understanding of translation as both an art and a critical component of cross-cultural communication.

Materials and methods

The present research involves a commentary on the translation of Régina Yaou's novel *Sœurs de Sang*, which delves into the story of Shana and Mikénian, two sisters bound by an unusual set of circumstances from birth. Growing up together, they develop a deep emotional bond, becoming almost like emotional twins. They share everything, including moments of happiness, complicity, and even physical support, such as when Shana donates blood to Mikénian, solidifying their biological connection. Despite this apparent harmony, the novel takes a tragic turn when Mikénian betrays Shana in an unexpected manner. Shana, feeling betrayed and ensnared by her sister's actions, finds herself in a difficult and uncertain situation. The novel explores themes of love, sibling rivalry, and the tragedy that can arise from complex familial relationships. The translation of this novel into English was undertaken using various tools, including Reverso, DeepL, and Google Translate, depending on the complexity of the text segments. The complete translation is documented in Wauton (2024). Below is a summary of the reflections on some of the notable difficulties encountered during the translation process.

Results and Discussion

In translating Régina Yaou's *Sœurs de Sang* from French to English, we encountered a range of challenges that fall into five primary categories: grammatical, syntactic, rhetorical, pragmatic, and cultural. Each category presented unique obstacles that required tailored solutions.

1. Grammatical Problems

Several grammatical challenges arose in the translation due to the differences between French and English. These issues were primarily related to temporal aspects, verb states, and personal pronouns, as French and English handle these elements differently. To address these grammatical issues, we employed various strategies. One key approach was transposition, where we adjusted grammatical structures from French to fit English norms while preserving the original meaning. For example, in the French sentence “Mina leva **la** tête,” we translated it to “Mina lifted **her** head” in English. Here, the definite article “**la**” was replaced with the possessive adjective “her” to align with English grammatical conventions. A literal translation of that text segment as “Mina lifted **the** head would result in an awkward rendition. The use of

grammar checkers like Grammarly ensured that our translations were accurate and stylistically appropriate. These tools helped us identify and correct grammatical errors, ensuring clarity and coherence in the English translation. It was observed that French grammatical structures, such as verb tenses and pronoun usage, did not always align with English conventions. According to Baker (2018), grammatical differences between languages can significantly impact the accuracy and naturalness of translations. To address these issues, we utilised transposition techniques, adjusting French grammatical constructs to fit English norms without altering the meaning (Vinay & Darbelnet, 1995). For instance, replacing “la tête” with “her head” in English ensured grammatical coherence and clarity.

Previous studies, such as those by House (2015), emphasize the importance of maintaining the grammatical integrity of the source text while adapting it to the target language's norms. Our use of grammar checkers like Grammarly also aligned with recommendations by Bowker (2023), who highlight the utility of digital tools in improving translation accuracy.

2. Syntactic Problems

Syntactic issues arose from differences in sentence structures between French and English. We faced challenges related to parallel structures, passive voice, and focus constructions, which required us to carefully align the translated text with English syntax norms. To tackle these syntactic challenges, sentence restructuring techniques were employed. We reorganised sentences to fit English syntactic norms while maintaining grammatical correctness and stylistic consistency with the original French text. For example, the French sentence “Un message ? S’écria en écho Mina dont le sourire disparut immédiatement” was translated to “A message ? Mina echoed, her smile disappearing immediately.” This reorganisation clarified the sentence structure and enhanced readability for English-speaking readers.

Syntactic issues in translation involve the alignment of sentence structures between languages. French and English often differ in sentence construction, which can lead to challenges in maintaining fluency and readability. We encountered difficulties with syntactic alignment, particularly with passive voice, focus constructions, and parallel structures. These issues were addressed through careful sentence restructuring and consultation of style guides. According to Newmark (1988), syntactic adjustments are crucial for producing a fluent and natural translation. For instance, restructuring “Un message ? S’écria en écho Mina dont le sourire disparut immédiatement” to “A message ? Mina echoed, her smile disappearing immediately” enhanced readability while preserving the original meaning.

3. Rhetorical Problems

Rhetorical problems involved translating figures of speech, such as metaphors and idioms, to preserve their impact and meaning in the target language. Translating these elements required us to find culturally and contextually appropriate English equivalents. To address rhetorical challenges, we employed cultural adaptation techniques. We identified rhetorical devices in the source text and recreated them in a way that preserved their original effect. For instance, the French reference “Toujours à jouer le Saint Bernard” was adapted to “Always playing the Good Samaritan” in English. This adjustment preserved the rhetorical impact while making the reference more familiar to English-speaking readers. We also consulted literary analysis tools and resources to better understand and accurately translate rhetorical devices. This approach ensured that the translated text retained the stylistic and emotional effects of the original text, even when cultural contexts differed. Rhetorical problems involve translating figures of speech and stylistic elements that contribute to the text's overall impact. Metaphors, idioms, and other rhetorical devices can be challenging to translate because their effects are often culturally specific.

Studies such as those by Newmark (1988) and Venuti (2012) emphasize the importance of retaining the rhetorical effect of the source text. Our approach aligns with their recommendations, as we focused on finding culturally appropriate equivalents that preserved the original's emotional and stylistic impact.

4. Pragmatic Problems

Pragmatic issues arose from differences in language use, such as formal versus informal address, idiomatic expressions, and nuances of irony, humour, and sarcasm. Translating these elements required us to carefully analyse the context to ensure that the translation accurately reflected the original tone and intent. To handle pragmatic problems, we conducted contextual analysis to determine the appropriate translations for idiomatic expressions and nuanced language. For example, the French phrase “Mon adorée, ce qui s’est passée, je ne l’ai pas voulu” was translated as “My darling, I didn’t want what happened,” preserving the informal and affectionate tone of the original. We also engaged in consultation with native speakers and cultural experts to ensure that our translation accurately captured the intended tone and nuances. This collaboration was crucial for translating humour, irony, and sarcasm in a way that resonated with English-speaking readers.

Research by Baker (2018) and Pym (2014) highlights the significance of contextual analysis in overcoming pragmatic issues. Our use of contextual analysis and collaboration with cultural experts ensured that the translations accurately reflected the intended tone and meaning, preserving the original text's nuances.

5. Cultural Problems

Cultural differences presented significant challenges in translating *Sœurs de Sang*, particularly with cultural references, local elements, and names unique to the African context. Addressing these cultural challenges required careful adaptation to maintain accuracy and cultural relevance. To tackle cultural problems, we used borrowing as a technique for names and culturally specific terms. For instance, names like Assépouey, Bessolo, and Attame were directly borrowed into English to preserve their cultural authenticity and significance.

We also employed adaptation techniques for local elements and cultural references. For example, the term “Saint-Benard” was translated as “the Good Samaritan” to make the reference more accessible to English-speaking readers while retaining its cultural meaning. To ensure accurate representation of cultural elements, we utilised cultural guides and resources. These tools helped us understand and appropriately convey cultural contexts, maintaining the integrity of the original text while making it accessible to a broader audience.

Previous studies, such as those by Lefevere (1992) and Bassnett (2013), emphasize the importance of cultural adaptation in translation. Our approach, which involved using cultural guides and adaptation techniques, aligns with their recommendations and helped maintain the cultural integrity of the original text.

Conclusion/Recommendation

In translating Régina Yaou's *Sœurs de Sang* from French to English, we navigated a range of linguistic and cultural challenges to ensure that the final English version accurately reflected the original text's meaning and essence. We addressed grammatical issues by adjusting French structures to fit English norms, such as converting French definite articles into English possessive adjectives, thereby preserving the intended meaning. Syntactic adjustments were also crucial, as we restructured sentences to align with English syntactic conventions while maintaining readability and fluency. This approach involved rephrasing sentences to ensure they were grammatically correct and stylistically consistent with the original text.

Rhetorical devices, including metaphors and cultural references, required adaptation to resonate with English-speaking readers. We identified key rhetorical elements in the French text and recreated them in a way that preserved their impact while making them accessible to the target audience. These often involved substituting culturally specific terms with more familiar English equivalents. Pragmatic issues, such as translating idiomatic expressions and determining the appropriate level of formality, were addressed by carefully considering context and intended effect. We made decisions that preserved the original meaning and cultural nuances, ensuring that the translation was both accurate and culturally relevant. Cultural challenges were tackled by adapting local elements and names to retain their cultural specificity. We employed borrowing techniques for place names and preserved cultural references to maintain the original's local colour and authenticity.

Overall, our approach to translating *Sœurs de Sang* involved a thorough examination of grammatical, syntactic, rhetorical, pragmatic, and cultural issues. By implementing targeted strategies, we aimed to produce a translation that honoured the original text while making it accessible and engaging for English-speaking readers. This process highlights the importance of balancing linguistic accuracy with cultural sensitivity in translation, contributing to a richer understanding of the text in a new linguistic and cultural context.

To enhance the quality and effectiveness of future translations, several key recommendations emerge from our experience with translating Régina Yaou's *Sœurs de Sang*. Firstly, an increased emphasis on cultural familiarity is crucial. Translators should strive for a deeper understanding of the cultural context and collaborate closely with native cultural experts. This collaboration ensures that the cultural nuances and references in the original text are accurately and sensitively conveyed in the translation. Such engagement helps preserve the cultural richness of the source material, making it more accessible and meaningful to the target audience. Secondly, contextual sensitivity must be a priority throughout the translation process. Translators should focus on analysing the context to effectively handle linguistic and cultural subtleties, particularly when translating idiomatic expressions and rhetorical devices. By carefully considering the context and intended effects, translators can adapt these elements in a way that maintains their original impact while fitting the target language's norms and expectations.

Ongoing training for translators is also essential. Continuous professional development enables translators to stay updated with best practices in translation techniques and cultural adaptation. This ongoing education helps improve the overall quality of translations and ensures that translators are well-equipped to handle complex linguistic and cultural challenges. Additionally, seeking regular feedback from native speakers and experts in the target language can significantly enhance translation quality. Post-publication feedback provides valuable insights into how the translation is received by the target audience and helps address any issues that may arise, leading to more refined and accurate translations. Finally, leveraging advanced translation tools and technologies can assist in managing complex linguistic tasks. However, it is crucial to remember that human oversight remains indispensable for maintaining cultural accuracy and nuance. Combining technological assistance with expert human judgment ensures that translations are both technically proficient and culturally sensitive. By implementing these recommendations, future translations can build on our approach, further bridging linguistic and cultural gaps and enhancing the global reach and impact of literary works.

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VIABILITY OF LIGHTNING ENERGY HARNESSING THROUGH ANNUAL DISTRIBUTION ANALYSIS USING THREE SPECIFIC LOCATIONS IN NIGERIA

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Citation: Ibegi, E. S. (2024). Viability of lightning energy harnessing through annual distribution analysis using three specific locations in Nigeria. *International Journal of Tourism and Technology (IJTT)*, 2(1), 294-306

Abstract

The ever increasing demand for energy has led to the advancement of power supply research into sufficient clean renewable energy sources. This has led to awaking scientific minds into available natural renewable Energy sources around us. One of such sources is lightning energy, which is a very fast electrostatic discharge from Columbus cloud and hence gives off very high intensity flash of light and very loud sound called thunder. It has an enormous amount of energy (about 1 billion watt) and occurs in a fraction of a second. There are some setbacks to harnessing this enormous energy and one is it's unpredictability nature which was looked into by this paper using lightning occurrence data from John Afa for three locations in Nigeria. The information was analyzed to ascertain the viability of harnessing lightning in these locations and to know the periods / months with low and high probability of catching lightning strike. The three locations were Brass, Bonny island and Port-Harcourt and analysis showed that Brass has the highest probability of harvesting lightning strike with annual periods of high frequency between March and June and between August and November. The months with peak frequency are April, May and October. In conclusion, as lightning frequency varies from different locations, putting a lightning harvesting farm in these locations would increase the possibility of arresting lightning strike.

Introduction

Over the years, there has always been a need for technological advancement in power generation to meet the ever growing demand. Research is concurrently being carried out for advancement and discoveries of more efficient non-polluting sources of energy, which has led to advancement in renewable energy. There are various source which has fewer research in harnessing due to it characteristics is lightning. Lightning has proven to be an interesting field of study with lots of on going research work. It has been witnessed or seen by all as its effects are felt during thunderstorms. It is initialized in the clouds, specifically a charged cloud (Columbus cloud). Lightning strike is an electrostatic discharge between oppositely charged bodies which gives off a high intensity flash of light and very loud sound called thunder (Rakov, 2013). This could occur between two oppositely charged clouds (intercloud lightning), between oppositely charged regions within a cloud (intracloud) and between cloud and ground/earth-surface (cloud-to-ground lightning). The lightning strike of most interest for harnessing is the cloud to ground (CG). The CG lightning enable a very high energy (about 1 billion watt) to flow between the cloud and ground and this energy can be harnessed and converted for use (Bouquegneau, 2011; Dwyer & Uman, 2014; Rakov & Uman, 2003; Tovar et al., 2014). But the harnessing of this enormous energy has some setbacks and one of which is the focus of this research paper. There is a certain perception that lightning doesn't strike a particular place twice and this isn't scientifically proven as this thought is based on the

unpredictability characteristics of lightning. Lightning occurrence has proven to be unpredictable in nature, but this can be assisted / handled by prior knowledge of specific areas with high frequency of occurrence to locate or position lightning harvesting farm. This research paper looks into lightning frequency analysis for three locations in Nigeria to determine the viability of harnessing lightning's energy and appropriate location for a lightning harvesting farm.

Overview Of Lightning Distribution In Nigeria

In order to harness lightning, the effective positioning of lightning arrestors or catchers is very important. This can only be achieved with knowledge of various lightning zones in Nigeria and specifically on the target zones or regions. The lightning zones involves areas with high frequency of lightning occurrence as this would help in effectively harvesting lightning. Lightning zones are directly proportional or dependent on cloud formation, when larger dense clouds are formed by integration of smaller clouds, which in-turn leads to lightning occurrence. These clouds could be as high as 5 – 10km in length (Dwyer & Uman, 2014). According to Dwyer and Uman (2014), cloud and cloud to ground lightning which has been virtually seen by everyone occurs about 30 – 100 discharge per second worldwide which is roughly 9 million discharge per day or $6 \text{ km}^{-2}\text{yr}^{-1}$ averaged over the earth (Dwyer & Uman, 2014). Lightning frequency is fairly high in tropical countries like Nigeria (Buba et al., 2012; Madueme, 2001). Various countries and regions have their varying frequencies and some research has been carried out to analyse lightning occurrence in some specific states in Nigeria.

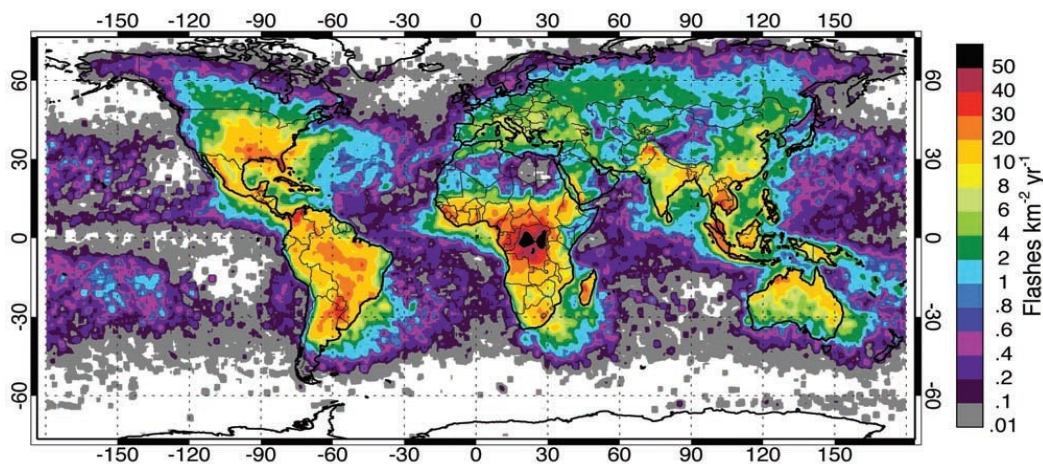


Figure 1 The annual distribution of total lightning activity worldwide ($\text{fl km}^{-1}\text{y}^{-1}$) (Christian et al., 2003)

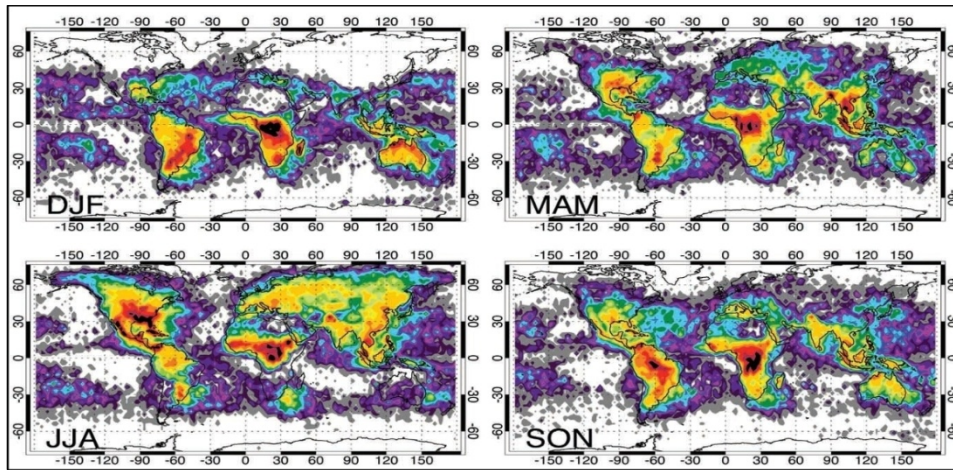


Figure 2 The annual seasonal distribution of lightning activity (in units of $\text{fl km}^{-2} \text{yr}^{-1}$) a) December, January, and February (DJF) (b) March, April and May (MAM) (c) June, July and August (JJA) (d) September, October and November (SON) (Christian et al., 2003)

Table 1 Optical transient detector (OTD) Mean Annual Flash Density: Africa (Christian et al., 2003)

Rank	Place name	OTD, $\text{fl km}^{-2} \text{yr}^{-1}$	Lat (N)	Lon (E)	Thunder days
1	Kamembe, Rwanda	82.7	-1.25°	27.75°	221
2	Boende, Dem. Rep Congo	66.3	0.25°	20.75°	118
3	Lusambo, Dem. Rep. Congo	52.1	-4.75°	24.25°	119
4	Kananga, Dem. Rep. Congo	50.3	-5.75°	18.75°	139
5	Calabar, Nigeria	47.4	5.25°	9.25°	216
6	Franceville, Gabon	47.1	-2.25°	14.25°	-
7	Miandrivazo, Madagascar	35.9	-19.25°	45.75°	146
8	Mamfe, Camaroon	35.6	5.7°	8.3°	201
9	Kindia, Guinea	35.0	10.75°	-12.75°	111
10	Bahar Dar, Ethiopia	33.1	12.25°	36.75°	-
11	Ouanda Djalle, Central African Republic	31.5	8.25°	22.25°	-
12	Macenta, Guinea	31.4	8.25°	-10.25°	151
13	Jos, Nigeria	29.4	9.25°	8.25°	139
14	Kumasi, Ghana	26.1	6.25°	-1.25°	157
15	Entebbe, Uganda	23.4	0.0°	32.6°	206
16	Sikasso, Mali	23.0	10.75°	-5.75°	123
17	Bloemfontein, South Africa	23.0	-29.75°	28.75°	60

Figure 1, figure 2 and table 1 were obtained due to optical sensing and lightning detection from the satellite view, which shows lightning occurrence frequency of the world with range specification. Figure 1 shows an overall annual lightning distribution worldwide map with range in flash per square kilometer per year. It shows that most part of Nigeria has 10 – 20 flash per kilometer per year, but the central and southern part has higher lightning frequency from 20 – 30 fl/Km/yr. Figure 2 shows quarterly lightning frequency distribution map (DJF, MAM, JJA, and SON) which indicates variation in intensity. The four-quarter duration represents weather seasonal shift. From observation of figure 2, it is noticed that DJF map has the lowest lightning frequency with the highest periods being JJA followed by MAM (with black spots –highest frequency- noticed at the bottom left of Nigeria) and then SON. This is in line with the weather seasons in Nigeria in which the JJA, SON and MAM periods have higher rainy and cloudy periods. It is also observed from the map that lightning occurs more at the southern and central part of Nigeria.

Mowete and Adelabu (2009) conducted a study to determine the frequency of lightning in selected locations along the coastal area of Lagos, and some cities in South West, Nigeria; including high tension power transmission facilities (132kV, 330kV), power sub-stations, the

airport and similar institutions. Afa & Kelvin (2013) conducted research on the frequency of lightning in the coast of Brass, Bayelsa state. They collected lightning information between 2008 and 2012 which enabled them determine the lightning density of 10 – 15 flashes per km² per year. Melodi & Oyeleye (2017) also conducted a study to model the frequency of lightning in the south-west coast and its impact to power lines. In same view, Buba et al., (2012) conducted research to determine the frequency of lightning in Nigeria using the high rate of lightning accidents especially for the aviation sector which proved to be high (about 30 – 40 strikes per km² per year). All these research shows that Nigeria is a country with high lightning frequency, especially at the coastal areas as mentioned by (Buba et al., 2012). Lightning occurrence distribution data has been computed by different authors for some few locations in Nigeria. All computation carried out were done by obtaining lightning data from the Nigerian meteorological agency database at the different airports locations. These locations has also been investigated to have averagely high lightning occurrence frequency. These are;

- a) Lokoja, kogi state
- b) Brass, PH and Bonne
- c) Lagos west coast
- d) Owerri, Imo state
- e) Enugu
- f) Jos
- g) Zaria
- h) Cross river

(Afa, 2012; Afa & Kelvin, 2013; Mowete & Adelabu, 2009; Melodi & Oyeleye, 2017; Adepitan & Ogunsanwo, 2012; Audu et al., 2024)

Methodology

Nigeria as a country has high frequency of lightning occurrence from a global standpoint. An average lightning frequency for the world is 6 per km square per year, but Nigeria has averagely 30 flashes per km square per year. In Nigeria, there are areas which constitute for that high average frequency of lightning occurrence. This denoting that lightning frequency vary from location to location. The frequency of a certain community could differ from the neighboring community depending on some certain factors. Some of such factors which effect variations are;

- a) High pollution load (like particle matter)
- b) Urban heat island (UHI) induced differential heating
- c) Increased surface roughness
- d) Local tropical factors like sea breeze
- e) High total aerosol optical depth

(Dewan et al., 2024; Westcott, 1995; Wang et al., 2021; Shi et al., 2023; Bourscheidt et al., 2016; Bentley et al., 2021;)

And for coastal areas, these additional factors are important;

- f) High humidity (moisture) and pressure of the area
- g) The influence of the ocean current on lightning activities
- h) The trajectory nature of discharges on coastlines

(Afa, 2012; Afa & Kelvin, 2013)

But this paper carries out analysis using three locations in Nigeria; Brass coast, Port Harcourt and Bonny island. Brass is a local government in Bayelsa state, situated close to the Atlantic Ocean. The data obtain for brass was at the coastal region. While PH and Bonny island are

both located in river state with Port Harcourt an inland being the capital city and bonny island is a riverine community. These are all depicted in figure 3 below.

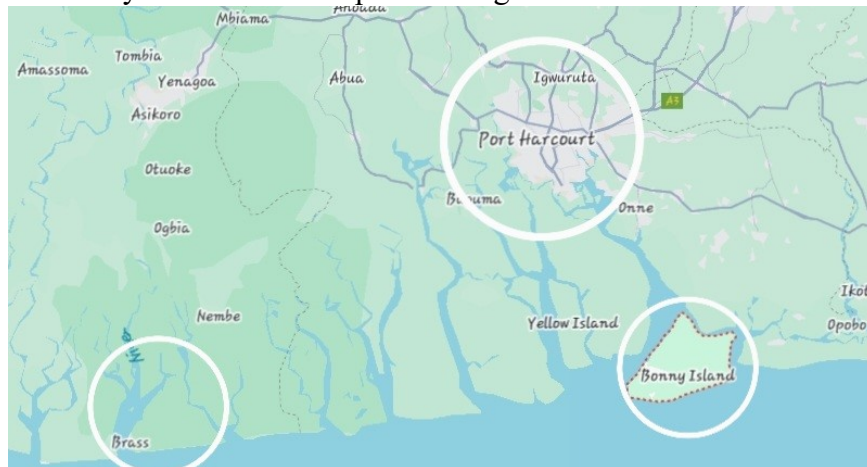


Figure 3 Google map showing Port-Harcourt, Brass and Bonny Island in the south-south of Nigeria

Data Source

The lightning data were obtained from John Afa (Afa, 2012; Afa & Kelvin, 2013), which was summarized in table 2. This entails lightning days for 2010 and 2011 (January to December) from three locations in the Niger delta region (brass coast, Port Harcourt, and bonne).

Data Presentation and Analysis

Statistical analysis can be carried out to ascertain convenient lightning harvesting periods. This is essential in-order to know the periods in which lightning harvesting is deficient or at its peak. As already stated in section 3.0, that Nigeria does not have a lightning map showing its frequency but some research has been conducted in some few areas to obtain lightning frequency.

The data presented in table 2 are the lightning days values for each month for each location.

Table 2 Lightning days for 2010 and 2011 from brass coast, bonny an Port Harcourt

	Bonny, Onne		Port Harcourt		Brass coast	
	2010	2011	2010	2011	2010	2011
January	5	7	2	1	15	10
February	20	24	15	18	30	20
March	43	45	38	35	71	60
April	49	71	42	58	89	97
May	68	72	57	61	76	66
June	35	40	35	28	67	57
July	31	29	28	18	35	38
August	6	10	15	18	28	30
September	40	42	25	25	51	60
October	54	61	40	48	78	82
November	18	15	6	8	20	15
December	7	6	5	2	9	6
TOTAL	376	422	308	320	569	541

The lightning days data expressed in table 2 for bonny, brass coast and PH represents the average number of days in which at least a single lightning strike is witnessed in a certain

location for a certain period of time. The lightning data which was obtained for 2010 and 2011 was grouped monthly (January to December), showing changes between months.

From (Contributor, 2021; Uman, 1986;), the ratio of intra-cloud (IC) and cloud-to-cloud (CC) lightning to cloud-to-ground (CG) lightning is 3:1. Hence;

$$(IC + CC) : CG = 3 : 1$$

The total amount of lightning days for each year (table 2) consist of IC, CC and CG lightning flashes all together, and the average number of CG lightning strike can be obtained using the equation.

$$\text{Number of CG Lightning} = \frac{\text{Total number of thunderstorm days}}{n}$$

n = total ratio number = 4

The mean or average of lightning flash for a period of time also known as ground flash density (GFD) or lightning frequency can be calculated from the total lightning flash for a period. This can be obtained using;

$$N_g = 0.04T_a^{1.25} \text{ flashes/km}^2/\text{yr}$$

Where

N_g is the ground flash density (flashes/km²/yr)

T_a is the total number of thunderstorm days

Table 3 shows the GFD (ground flash density) and AGFD (average ground flash density) and the AGFD is calculated for every site. The AGFD for a location can be used to determine the probability of lightning strike in that area.

Table 3 Total Lightning days for 2010 and 2011 from brass, bonny and Port Harcourt showing CG, GFD and AGFD

	Bonny, Onne		Port Harcourt		Brass coast	
	2010	2011	2010	2011	2010	2011
TOTAL	376	422	308	320	569	541
IC + CC	282	316.5	231	240	426.75	405.75
CG	94	105.5	77	80	142.25	135.25
GFD	11.70765	13.52464	9.12375	9.570232	19.65058	18.44937
AGFD	12.61614374		9.346991322		19.04997505	

The probability for getting a lightning strike per day in a month can be obtained using the probability formula.

$$p(\text{a lightning per day per month}) = \frac{\text{Total lightning occurrence in a month}}{\text{Total number of days in a month}}$$

Table 4 Monthly lightning distribution showing probability, CG and GFD

	Bonny, Onne					Port Harcourt					Brass coast				
	20 10	20 11	AC G	Prob. CG	AGFD	2 0	20 11	AC G	Prob. CG	AGFD	20 10	20 11	AC G	Prob. CG	AGFD
Ja n	5	7	1.5	0.05	0.7968 11	2	1	0.37 5	0.0125	0.1408 58	15	10	3.12 5	0.104 167	1.9943 61
Fe b	20	24	5.5	0.1833 33	4.0429 15	1	18 5	4.12 5	0.1375	2.8217 67	30	20	6.25	0.208 333	4.7434 16
M ar	43	45	11	0.3666 67	9.6157 26	3	35 8	9.12 5	0.3041 67	7.6125 88	71	60	16.3 75	0.545 833	15.811 31
Ap r	49	71	15	0.5	14.169 53	4	58 2	12.5	0.4166 67	11.281 81	89	97	23.2 5	0.775	24.505 86
M ay	68	72	17.5	0.5833 33	17.180 62	5	61 7	14.7 5	0.4916 67	13.874 94	76	66	17.7 5	0.591 667	17.487 96
Ju n	35	40	9.37 5	0.3125	7.8741 8	3	28 5	7.87 5	0.2625	6.3321 97	67	57	15.5	0.516 667	14.762 36
Jul	31	29	7.5	0.25	5.9575 52	2	18 8	5.75	0.1916 67	4.2739 17	35	38	9.12 5	0.304 167	7.6125 88
Au g	6	10	2	0.0666 67	1.1416 39	1	18 5	4.12 5	0.1375	2.8217 67	28	30	7.25	0.241 667	5.7103 63
Se pt	40	42	10.2 5	0.3416 67	8.8033 11	2	25 5	6.25	0.2083 33	4.7434 16	51	60	13.8 75	0.462 5	12.853 83
Oc t	54	61	14.3 75	0.4791 67	13.435 41	4	48 0	11	0.3666 67	9.6157 26	78	82	20	0.666 667	20.301 53
No v	18	15	4.12 5	0.1375	2.8217 67	6	8	1.75	0.0583 33	0.9661 37	20	15	4.37 5	0.145 833	3.0371 33
De c	7	6	1.62 5	0.0541 67	0.8806 59	5	2	0.87 5	0.0291 67	0.4062 11	9	6	1.87 5	0.062 5	1.0531 56

From table 4, the probability for obtaining a lightning in a month is higher in the months of March, April, May, September and October.

Result and Discussion

This section highlights graphical representation of the analysis from section 6.0.

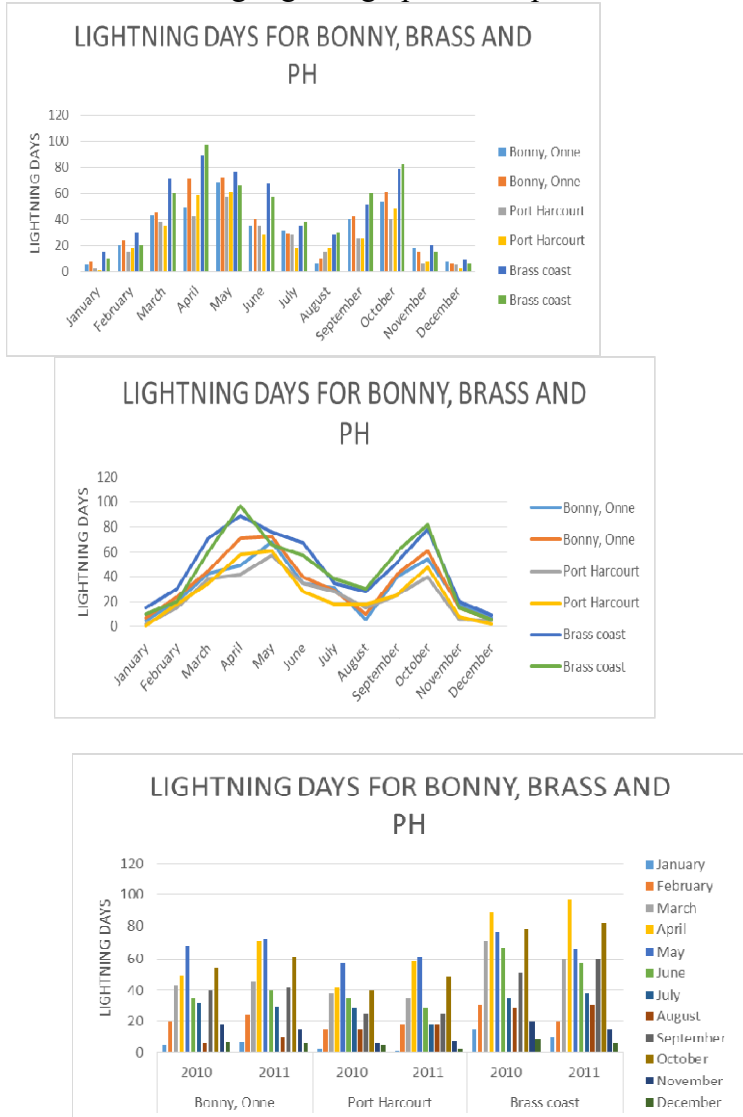


Figure 4 (a, b & c) Lightning days for bonny, brass coast and Port Harcourt
 Figure 4 (a, b & c) shows different plot patterns signifying the variation of lightning days for the three location from January to December. Figure 4 (a) shows a histogram of the lightning days distribution across the year. This showed that Brass coast location for 2010 and 2011 has more lightning days distribution, and also indicated the periods in a year which has more lightning days. The periods with high lightning days are between March and June and then between September and November.

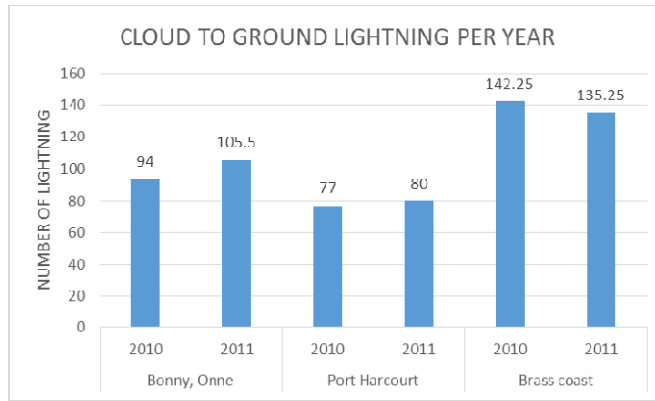


Figure 5 Cloud to ground lightning for a year

Figure 5 shows the total CG lightning for each year with the locations. It proves brass coast to have more CG lightning followed by bonny and the Port Harcourt.

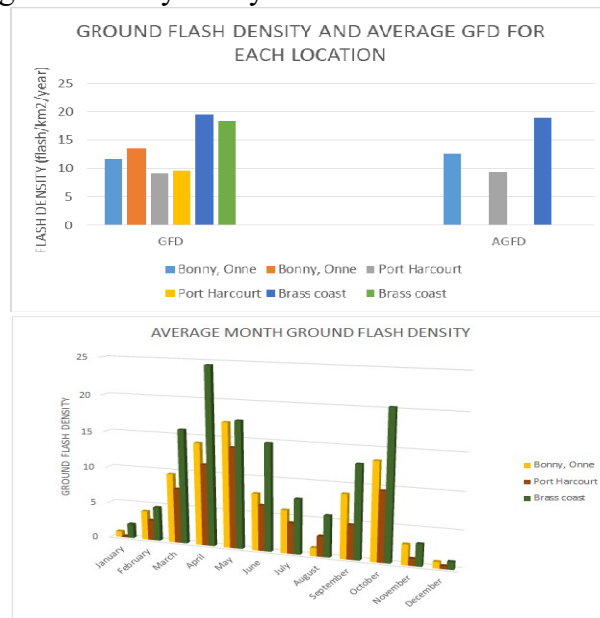


Figure 6 (a & b) GFD and AGFD for each location per year

Figure 6 shows the GFD and Average GFD (flash per kilometer square per year) for the individual years for each location, which differs from the number of lightning per year. This shows lightning occurrence for a year per kilometer square of the lightning location site considered. The AGFD is the average GFD for the both year per location. Meaning, the GFD for each year were added and halved to obtain the mean for the both year. While (a) shows for year GFD, (b) shows for monthly GFD. When compared, brass still has higher readings for each month.

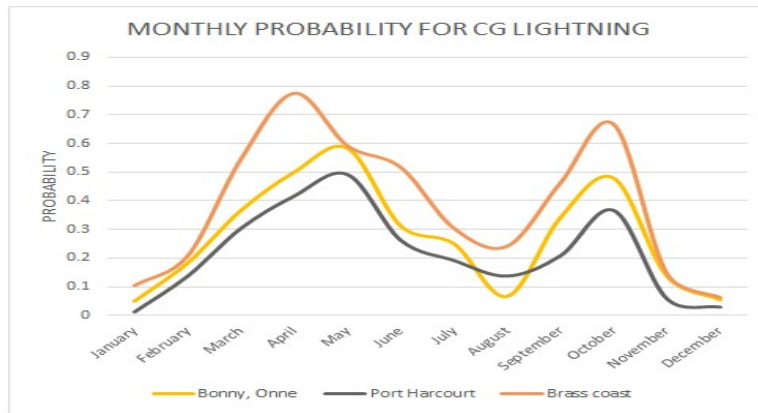


Figure 7 Monthly probability of lightning occurrence for the three locations

Figure 7 shows the probability of obtaining a single lightning strike per day in a month. Each location has two peak periods in a year signifying the two periods in a year in which lightning occurrence is at its peak even for harvesting. The first peak is during the second quarter of the year with a slope increase from the first quarter. The second peak period is observed in the month of October, sloping from September. The averaging months are March, June and July and even April for some locations. The abnormal periods showing low readings for lightning occurrence are January, February, August, November and December. From figure 7, brass coast has the highest of frequency and probability with high peaks during April and October. While Port Harcourt and Bonny have similar peaks during May and October with Port Harcourt having the lowest of the three readings.

The peak, normal and abnormal periods correlate with the season shift in Nigeria, which are the rainy season with high thundercloud and rainfall and dry season with less thundercloud activities. The dry season in Nigeria occurs in the months of November, December, January, and February with August seen as a break month for thundercloud activities. Some months with high rainfall activities are not observed to have the peak for lightning activities, this is because lightning occurrence has other influencing factors. As stated by John Afa, higher lightning occurrence are noticed at the end of the rainy season with other multiple influencing factors (Afa & Kelvin, 2013).

Discussion

The viability of harnessing lightning energy has been looked into, which has been streamlined to in-depth knowledge of zones in facilitating harvest process. With a larger goal of obtaining lightning map for Nigeria and also implementation of an harvest farm, two years lightning frequency data for three locations in Nigeria were obtained and analyzed.

From the results presented, there are periods of higher and lower lightning frequency or occurrence. According to John Afa, lightning occurrence is not totally dependent on rainfall intensity (Afa & Kelvin, 2013). This is evident from the results as the highest or peak frequency is not at periods of highest intense rainfall but rather after. It has been researched that the highest lightning frequency distribution are witnessed in coastal regions because of the moist atmospheric air condition. This is due to the presence of ocean/sea activities. (Christian, 2003). The moist atmospheric condition decreases the resistivity of the air medium, hence conductivity probability for lightning strike is increased. Similar coastal atmosphere could be seen from Lagos coastal research (Mowete & Adelabu, 2009).

From the view of the GFD, the three locations have averagely high lightning occurrence frequency as compared to the worldwide values (Christian et al., 2003) and the average Nigeria lightning value. This denotes that these are good locations for a lightning harness

farm. As already shown from the tabulated values in section 5.0, lightning occurrence frequency is not fully dependent on rainfall as this is evident in the months of April, May and October. The graphical presentations shows higher lightning days before or after the major raining months. At such months with higher lightning days, this energy source could serve as the major source and at other months, it could be a backup or additional source of energy for communities within the region.

As mentioned by Afa, (2012) and Afa & Kelvin, 2013, more lightning data is required for the country to ascertain more possible locations for establishment of lightning harvest farms. With lightning enormous energy which has been explained in previous section, when fully harnessed would assist in Nigeria's energy supply to meet ever increasing demand.

Conclusion

The possibility of harnessing the enormous energy from lightning may seem slim due to its scarcity or unpredictable nature. But as already expounded in this paper, an in-depth knowledge of specific areas in the world with higher lightning frequency could facilitate trapping and harnessing of this energy through establishment of lightning harvest farms in lightning zones.

This was analyzed and shown using three specific locations in Nigeria (brass coast, bonny, and Port Harcourt). And in order to obtain more results, devices can be placed at more specific locations to determine lightning frequency at such areas. Hence producing lightning zone map for Nigeria. The lightning map has been hindered due to lack of funding and research into obtaining frequency for each town or village in Nigeria. This would facilitate lightning harnessing when large scale harvesting facilities are established.

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