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GREEN MARKETING PRACTICES AND SALES PERFORMANCE OF FOOD AND BEVERAGE FIRMS IN PORT HARCOURT

Ezekiel-Hart James Carr[1], Anyahie A. Azunwo[2] and Oluchukwu Ngozi Ibegbu[3]
Department of Petroleum Marketing and Business Studies,
School of Business Studies and Management Technology,
Federal Polytechnic of Oil and Gas, Bonny, Rivers State
[1]Email: carrhartx2@yahoo.com/07037876795
[2]Email: azucorporate@gmail.com/07032212144
[3]Email: ugojioly@gmail.com/08038252709

Abstract
The study drawing from its conceptual frame-work was set out to achieve four (4) objectives and addressed four (4) research questions and four (4) hypotheses. The population of the study consists of 140 registered food and beverages firms gotten through the Ministry of Commerce and Industry, Rivers State. A sample size of 103 was derived using Krejcie and Morgan sampling technique 1970. The data collected for this study were analyzed through descriptive and inferential statistics. The Spearman Rank-order correlation technique was employed to test the various hypotheses formulated through the aid of Statistical Package for Social Sciences (SPSS). The result of the findings showed a significant relationship between green marketing practices and sales performance of food & beverages firms in Port Harcourt. The study therefore concluded that; green marketing practices is significant at satisfying customer needs and wants and will also preserved the natural environment. The study recommends that, food and beverages firms particularly those that are still practicing conventional marketing should switch from conventional marketing to green marketing as it would enhance sales performance.
Keywords: Green, Marketing Practices, Product, Packaging, Sales & Performance.

Introduction

Environmental problems such as environmental pollution and degradation, excessive wastes disposal, climate change and global warming have changed the purchasing patterns of customers as many customers are now demanding for green products that do not only meet their immediate needs but will also preserve the environment from damage. (Kushwaha & Kumar, 2014). Green products are products that are environmentally friendly; this kind of product will not degrade the environment. The growing demand for green products requires food and beverage firms to respond to the market changes by adopting green marketing practices.

Green marketing practices is a marketing orientation that aimed at satisfying customer needs and wants without damaging the natural environment (Onditi, 2016). It is a marketing orientation that takes the environment into consideration while striving to satisfy customer needs and wants. Chen and Chai (2010) defined green marketing as the process of identifying, anticipating and satisfying consumer needs in a profitable and sustainable way. Additionally (2010) described green marketing as the marketing of products that are presumed to be environmentally safe. It involves a range of activities which include product modification to incorporate the green element, changes in material sourcing and selection to ensure green procurement practices, modification of the production process to minimize the amount of carbon emission released into the environment during production, changes in packaging system to incorporate sustainability features, modification of promotional and advertising strategies to emphasize the environmental benefits of the product and the distribution of products in the most sustainable way.

Green marketing practices has come to change the way in which marketing is being practiced by business organizations by integrating sustainability issues into marketing practices. It is a marketing philosophy that has gained much importance across the globe in view of the increasing environmental challenges facing countries of the world. Any company that develops new product or improves an existing product with environmental inputs in mind can be said to have green marketing initiatives (Mallen-Ntiador, 2017). Such company modifies its production process to integrate sustainability element into it, selects its material suppliers based on sustainability practices, modify its

packaging practices by integrating environmental friendliness into it, promotes its products on the basis of its environmental benefits and modify its distribution practices by incorporating sustainability philosophy into it to protect the environment from pollution during distribution processes.

Gao and Mattila (2014) stated that a company with green marketing philosophy can take advantage of the opportunity created by the changing consumer tastes and preference for green products, and build a competitive landscape for itself by dominating new market and increasing sales and profitability. Obviously, companies with green marketing tend to encourage the use of products with environmental benefits. They produce green products in order to encourage sustainable consumption pattern which will go a long way in safe guarding and protecting the environment from depletion, excessive wastes, pollution, climate change and global warming.

Many customers are now demanding for green products because of their environmental benefits. Surpriadi and Astuti (2017) submitted that many customers are buying more of green products that can satisfy their needs even though the prices of these products are much higher than the unsustainable products in the market. Before now, customers were demanding for unsustainable products because they can satisfactorily meet their needs and their prices are relatively cheaper when compared to green products in the market. However, as customers become increasingly aware of the environmental problems such as climate change, global warming, environmental pollution and degradation, ozone depletion, excessive wastes, etc. and how they affect their living standard and health status, they began to switch from their unsustainable consumption lifestyle to sustainable consumption lifestyle. Today, the demand for green products has increased tremendously and as such customers will remain loyal to those companies that produce green products that can satisfy their needs. As the demand for green products increases, manufacturing firms are expected to respond to the changes in market demands in order to satisfy their customers' needs.

Green marketing practices can help food and beverage firms to increase sales performance since many customers have readjusted their consumption pattern and realigned the satisfaction of their needs with more environmentally friendly products that companies would offer (Kushwaha & Kumar, 2014). Since customers are increasingly demanding for products with sustainable solutions to their needs, food and beverages firms can take advantage of this opportunity to create green products that can satisfy customers' needs and wants. By creating environmental products, green marketing tends to deliver superior customer value which will in turn increase sales performance. Macharia et al (2017) remarked that a company with green marketing orientation analyzes customers' needs and develops a sustainable solution that can provide superior value to customers. They further stated that green marketing can enable a company satisfy customer needs in the most sustainable way and gain a competitive advantage over its rivals in the market. It is against this backdrop that this study aims to examine the relationship between green marketing practices and sales performance of food and beverage firms in Port Harcourt.

Statement of the Problem
Due to environmental degradation and pollution, there has been heightened need by consumers to consume eco-friendly products. Consumer patronage towards food and beverage firms has declined has as a result of shift from mundane consumption pattern towards green products. The need to embrace green marketing practices by food and beverage firms in terms of modifying product design to incorporate the sustainability element, modify manufacturing process to reduce the amount of carbon emission released into the environment during production, selects their material suppliers based on sustainability practices, integrate environmental friendliness into their packaging system, promotes their products on the basis of environmental benefits and distribute their products in a sustainable way stands as the focal means in savaging the declining nature of consumers.

It is believed that green marketing practices can help food and beverage firms in Port Harcourt to increase customer patronage towards their brand. Although there is no empirical evidence within the Port Harcourt context that justify this claim as empirical studies that examined the relationship between green marketing practices and sales performance of food and beverage firms in Port Harcourt are remarkably absent or scanty. This has created a gap in knowledge which needs to be filled. It is in view to fill this gap in literature and contribute to the existing knowledge on green marketing that motivated the researcher to embark on this study.

Conceptual Framework
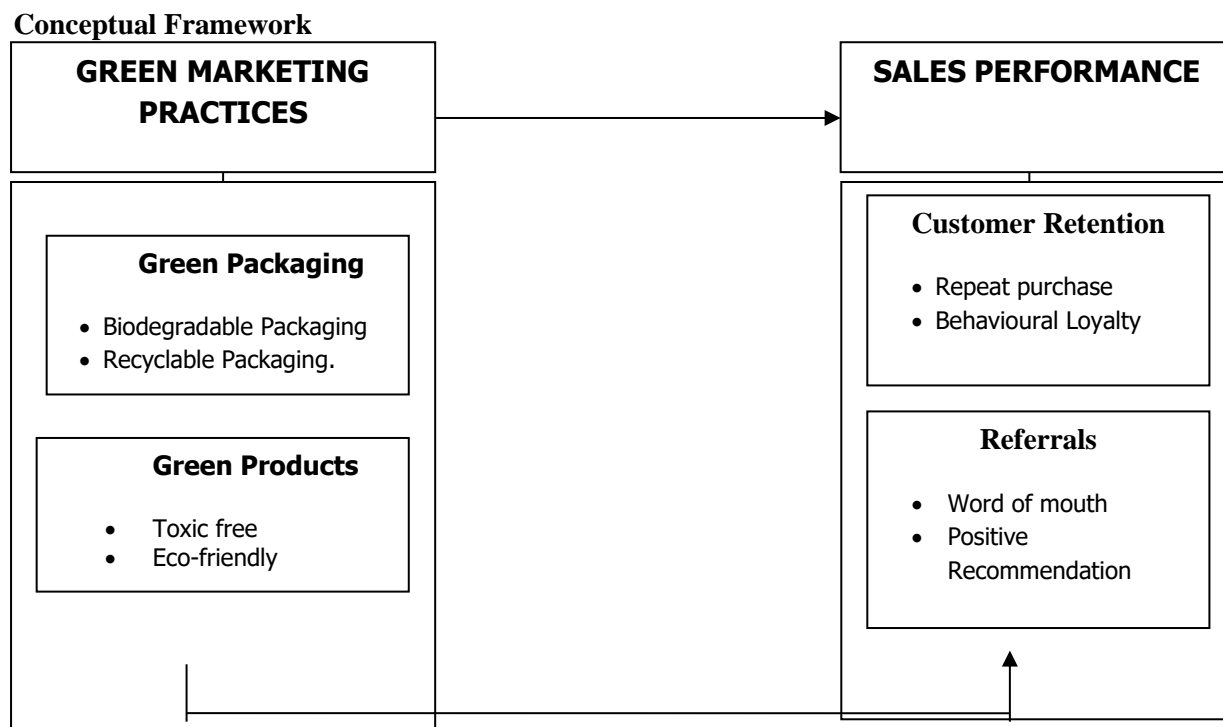
Fig.1.1 Conceptual framework of showing the relationship between green marketing practices and sales performance of food and beverage firms.
Source: Alabo and Anyasor (2021).

Aim and Objectives of the Study

The aim of this study was to examine the relationship between Green Marketing Practices and Sales Performance of Food and Beverages Firms in Port Harcourt. The specific objectives of the study are as follows to:

1. determine the extent of relationship between green packaging and customer retention of food and beverages firms in Port Harcourt.
2. investigate the extent of relationship between green packaging and referrals of food and beverages firms in Port Harcourt.
3. examine the extent of relationship between green product and customer retention of food and beverages firms in Port Harcourt.
4. examine the extent of relationship between green product and referrals of food and beverages firms in Port Harcourt.

Research Questions

In order to adequately address the objectives of the study, the following research questions were raised:

1. To what extent does green packaging relate with customer retention of food and beverages firms in Port Harcourt?
2. To what extent does green packaging relate with referrals of food and beverages firms in Port Harcourt?

Research Hypotheses

Ho_1: There is no significant relationship between green packaging and customer retention of food and beverages firms in Port Harcourt.

Ho_2: There is no significant relationship between green packaging and referrals of food and beverages firms in Port Harcourt.

Review of Related Literature
Conceptual Review
Here, efforts were made to review various concepts used in the study.

Concept of Green Marketing
American Marketing Association (AMA) stated that green marketing approach is the marketing of products that are mainly focused on environmental safety; it incorporates business activities which consist of packaging modification, production process, and green advertising (Yazdanifard & Mercy, 2011). Green marketing is also described as any promotional activity which highlights the environmental ethics as business fundamentals and it can perceive an advantage of switching consumer behavior towards a brand (Peattie & Charter, 2003).

Green marketing is the production and sales of products to those consumers who are mindful of environmental protection to meet their needs. It is the process and activities that involve providing environmentally friendly goods or services to satisfy customers by the firm (Rex & Baumann, 2007). Kotler and Armstrong (2008) contended that such products must meet the acceptable environmental standards consisting of recyclable and reusable packaging, enhanced pollution control methods and energy efficiency in operations. Green marketing relates to business practice which advocates sustainable development. It involves marketing of goods and services that are seen to be eco-friendly and promote environmental preservation in a sustainable manner.

Diglel and Yazdanifard (2014) noted that it comprises a range of activities which involves the modification of the production process, alteration of product lines and improvement in packaging, as well as transforming advertising. Ottman (2011) characterized the concept as an integration of ecological concerns into business aspects such as production, promotion, distribution and packaging as well as marketing communications. Prakash (2002) regards green marketing as an environmentally considered tactic that consists of revealing information to consumers at different levels like industry, firm and product level. Welford (2000) described green marketing as a management process of recognizing, anticipating and satisfying consumers' needs and wants while being sustainable as well as profitable. Grant (2008) submitted that green marketing refers to planning, development and promotion of goods or services which satisfy consumers' needs without negatively affecting the environment and by means that preserve natural raw materials and reduce energy usage.

Dimensions of Green Marketing
Green Packaging
Green packaging is the use of materials and manufacturing methods for the packaging of goods that has a low impact on both energy consumption and on the environment (Merton, 2016). Green packaging is defined as a packaging that can be recycled or made of recycled materials (Goncalves, 2013). The Europe and European Organization in Ramme and Heimann (2015) defines green packaging as a well-designed packaging that meets the requirements of the product while minimizing the economic and environmental impacts of both the product and its package.

The European Organization for Packaging and the Environment in Goncalves (2013) stated that green packaging is made from responsible sourced materials such as recyclable and sustainable renewable materials and resources and is designed in a way to minimize the negative environmental impact. It further stated that green packaging is produced and using sustainable energy sources such as bio-fuel and solar energy and is recovered conveniently after use. Price pertains to a group of monetary values that are replaced by the benefits and the possession or use of products or services. In this regard, customers use their monetary power to benefit from the product or service, and those consumers who desire green products shoulder higher prices emanating from the additional costs of the production process (Al-Salaymeh, 2013).

Green Product
The words like green products and eco-friendly products have often been used interchangeably by marketers. Green product refers to products or services that are not harmful to use by the consumer, and to the natural eco-system/environment. Product is the most essential part of whole green marketing strategy, and the heart of green marketing-mix (Fan &Zeng, 2011) thus indicating the environmental friendliness of all the elements of the product, such as the materials used in its production, the production process, the package of the product, etc. Obviously, many

concerned green marketing proponents including Tseng and Hung (2013), Singh and Pandey (2012), Kumar and Shree (2018), Diglel and Yazdanifard (2014), Eneizan and Wahab(2016) among a host of others unanimously agreed that green products are ecologically safe products that facilitate the long term objective of protecting and preserving the natural habitat and minimize the adverse environmental impacts; protect or boost the natural environment by conserving energy and/or resources and reducing or eliminating use of noxious agents or toxic-free ingredients, pollution, and wastes during product design and actual production, and certified as such by an acknowledged organization. Green products come in various forms; some are recycled from former goods and then reused such that they are considered efficient -they save water, energy or gasoline, and money. They are 'green' packaged and have certified green evidence labels.

Customer Retention

Huit (2000) defined customer retention as "the process by which consumers interpret price and attribute value to a good or service." Khan and Hussain (2013) opined that customers who are willing to pay higher prices for a product or service tend to be brand conscious and prestige sensitive. Ibojo (2015) defined customer retention as reliance on or confidence in the person or process services are acts, deeds or performances. Buttle (2004) customer retention is the number of customers doing business with a firm at the end of a financial year expressed as a percentage of customers that were active at the beginning of the year.

Customer retention has been shown to be a primary goal in firms that practice relationship marketing. While the precise meaning and measurement of customer retention can vary between industries and firms that appears to be a general consensus that focusing on customer retention can yield several economic benefits (Buttle, 2004). As customer tenure lengthens, the volumes purchased grow and customer referrals increase. Building long-term relationship with customers is considered an essential precondition for the economic survival and success of most service firms today (Ibojo, 2015).

Referrals

Referral marketing allows your customers to become your company's advocates by recommending your brand to their friends and family. While referral marketing does require promotional efforts and the incentive of rewards to get customers to cooperate, there are many benefits of referral marketing, and you should certainly be using this strategy to expand your consumer base. The most compelling benefit of referral marketing is that customers trust referrals. Recent consumer polls indicate that recommendations and reviews are trusted more than conventional advertisements. Meanwhile, people are four times more likely to buy when referred by a friend. Customers who participate in referral programs are much more likely to stay with your company. Because engaging new consumers is generally more expensive than retaining your current customers, this is often among the top benefits of referral marketing (Fournier, 2018). Referral marketing allows you to increase your outreach by using your customers as your company's advocates. While there are venues and occasions that are simply off-limits to traditional advertisements, there are virtually no limits to your customer telling a friend or co-worker about a good product or company. Because many people have a diverse circle of friends, customer referrals will also allow you to expand your client base. Referred customers already have a positive opinion of your company because they have been referred by a peer.

Theoretical Review

The study was underpinned by Legitimacy theory.

Legitimacy Theory

According to the Legitimacy theory which is central to the social contract (implicit or explicit), firms have a contract with the society as a whole. This social contract is conveyed via the expectations of the society. These expectations are not fixed, thereby changing over time (Islam & Craig, 2008). Every organisation has a moral obligation to meet the expectations of the societal members. When a company satisfies the expectations of the society, it would be viewed and treated as legitimate and vice versa (Deegan & Jeffry, 2006). According to Deegan and Jeffry (2006), only a company that is viewed as legitimate has the right to employ the society's human and natural resources. Therefore, organizations are mandated to respond to the varying expectations of the society so as to be able to maintain their legitimacy (Islam & Craig 2008). Leonidou et al., (2014), adopted the legitimacy theory to develop and test hypotheses

linking various dimensions of environmental claims made in green advertisements with advertising greenness. The researchers carried out a content analysis of 383 green magazine advertisements and found that in consensus with legitimacy theory, the stronger the advertisement greenness, the more acceptable are the issues raised. Using an integrated theoretical framework to explain corporate social responsibility (CSR) practices by organizations, Fernando and Lawrence (2014), adopted three theories, namely legitimacy theory, stakeholder theory and institutional theory. The authors noted that all three theories are very relevant and have been used extensively in CSR literature. By means of legitimacy theory, Bhattacharyya (2015), sheds more light on the issue of corporate social responsibility in emerging economies. The researcher carried out a survey of the attitudes of Indian managers, toward 18 social and 16 contemporary environmental issues. The study findings indicate that respondents are concerned about issues on social responsibility and are in strong support of environmental responsibilities. Consumers and other stakeholders expect Organizations to consider the societal implications of their activities.

Relevance of the theory
Legitimacy theory emphasize that when organizations ensure that their activities do not have adverse effect on the consumers, environment and the society at large, they are viewed by the consumers as being legitimate. The consumers in turn respond positively towards the company brand and product. Such response can be in form of product purchase, brand loyalty or positive perception of the company's image hence, legitimacy theory is very relevant in explaining the relationship between green marketing and sales performance because the theory argues that stakeholders and consumers expect food and beverages firms to protect the environment in the course of their business activities. The theory believes that when a company is able to protect the environment from pollution and degradation in the course of doing business and take the social welfare of the people into consideration, stakeholders and consumers will be satisfied with the organization and they will label it as being legitimate.

Empirical Review

S/N	Author and Date	Title	Location	Findings
1	Alabo and Anyasor (2021)	The effect of green marketing on sustainability of brewery firms in Nigeria using the South-East geo-political zone of Nigeria.	South-East of Nigeria.	The study found all the constructs: green product, green price, green place (distribution), and green promotion to be significantly and positively related to sustainability of breweries in South-East of Nigeria.
2	Surpriadi and Astuti (2017).	Carried out a study to determine the influence of green products on customer satisfaction in the hotel industry.	China	The implication of this finding is that green products offered by hotels in China increase customer satisfaction level.
3	Pathak (2017)	Examined the role of green marketing in satisfying the customers and its impact on environmental safety.		The study equally revealed that customers are satisfied with companies that integrate environmental consciousness into their product, packaging, advertisement and manufacturing process. The study also revealed that environmental knowledge and consciousness have significant influence on consumer environmental attitude.
4	Macharia et al (2017).	Examined the relationship between green marketing	Kenya	The findings showed that all the dimensions of green marketing

<table>
<tr><td>practices and customer satisfaction in the soft drink industry.</td><td>practices (green products, green price, green promotion, green place, green brand positioning, and green process) have significant relationship with customer satisfaction.</td></tr>
</table>

Methodology

The study adopted correlational survey research design. The population of the study consists of 140 registered food and beverages firms gotten through the Ministry of Commerce and Industry, Rivers State. A sample size of 103 was derived using Krejcie and Morgan sampling technique 1970. The data collected for this study were analyzed through descriptive and inferential statistics. The Spearman Rank-order correlation technique was employed to test the various hypothesis formulated through the aid of Statistical Package for Social Sciences (SPSS) version 21.0

Data Analysis and Results

Demographic Analysis

Questionnaire Distribution and Retrieval

Issued	103
Returned	95
Useful	80
Not useful	15

Source; survey Data, 2024

The table above shows the questionnaire distribution and retrieval. The researcher issued 103 copies of the questionnaire and from consistent visit, retrieved 95, 80 were useful and 5 were not useful. This represent 78% response rate and it was considered significant for the study.

Gender of Respondents

	Male	Female
Gender of Respondents	48	32
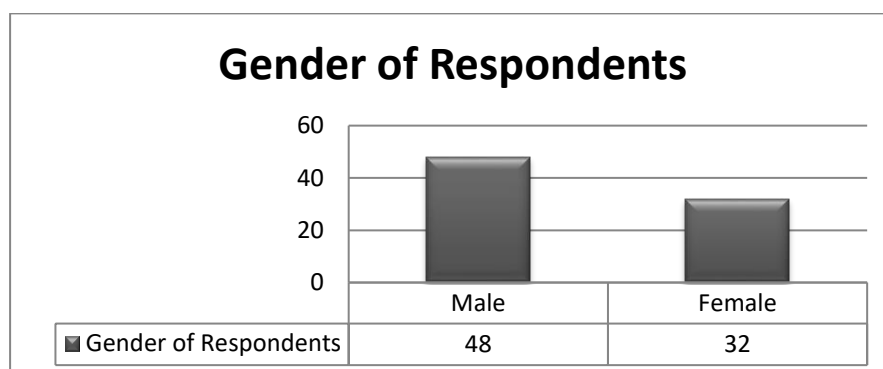
Source: Survey Data 2021

The above chart shows the gender of respondents as a means of ensuring that both male & female are represented in the study 48(61%) of the respondents are male and 32 (39%) are female. This shows that majority of the respondents are male.

Bivariate Analysis
Here, efforts were made to test the hypotheses formulated for this study.

Test of Hypothesis One (1)

Ho$_1$: There is no significant relationship between green packaging and customer retention of food and beverages firms in Port Harcourt.

Correlations			green packaging	customer retention
Spearman's rho	green packaging	Correlation Coefficient	1.000	.768*
		Sig. (2-tailed)	.	.023
		N	80	80
	customer retention	Correlation Coefficient	.768*	1.000
		Sig. (2-tailed)	.023	.
		N	80	80

*. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS output, 2024

The table above presents the result of correlation analysis between social media marketing and sales growth of food & beverages firms in Port Harcourt. The result indicates that there is a strong correlation between social media marketing and sales growth (rho = .768*) and this correlation is significant at 0.05 level as indicated by the symbol *. Based on this result, the null hypothesis (Ho$_1$) is rejected and the alternate hypothesis is accepted. This means that there is significant relationship between social media marketing and sales growth.

Test of Hypothesis Two (2)

Ho$_2$: There is no significant relationship between green packaging and referrals of food and beverages firms in Port Harcourt.

Correlations			green packaging	referrals
Spearman's rho	green packaging	Correlation Coefficient	1.000	.802*
		Sig. (2-tailed)	.	.017
		N	80	80
	referrals	Correlation Coefficient	.802*	1.000
		Sig. (2-tailed)	.017	.
		N	80	80

*. Correlation is significant at the 0.05 level (2-tailed).

Source: SPSS output, 2021

The table above presents the result of correlation analysis between green packaging and referrals of food & beverages firms in Port Harcourt. The result indicates that there is a strong correlation between green packaging and referrals (rho = .802*) and this correlation is significant at 0.05 level as indicated by the symbol *. Based on this result, the null hypothesis (Ho$_2$) is rejected and the alternate hypothesis is accepted. This means that there is significant relationship between green packaging and referrals.

Summary of Findings

From the results of the bivariate analysis, the following findings were discovered:

1. That, green packaging showed a strong, positive and significant relationship with customer loyalty of fast food firms in Port Harcourt.
2. That, green packaging showed a strong, positive and significant relationship with repeat purchase of fast food firms in Port Harcourt.

Discussion of Findings

Green packaging showed a strong, positive and significant relationship with sales performance. This finding is in line with the study of Nwadike et al (2020) who stated that companies that switch from conventional packaging to green packaging intend to meet the functional and economic needs of the present generations without compromising the ability of future generations to meet their own needs.

Green product showed a strong, positive and significant relationship with sales performance. This finding is in line with the study of Onditi (2016) who submitted that integrating green initiatives in product strategy, pricing strategy, promotion strategy and distribution strategy significantly influences sales performance.

Conclusions

From the foregoing analysis, it is evident that green marketing practices has a positive and significant relationship with sales performance of food and beverages firms in Port Harcourt. The empirical results of this study confirmed this as a positive and significant relationship was found between green packaging and sale performance of food and beverages firms in Port Harcourt. The study also found a positive and significant relationship between green product and sales performance. Based on these findings, it was concluded that green marketing practices is significant at satisfying customer needs and wants and will also preserved the natural environment.

Recommendations

Based on the findings and conclusions, the following recommendations are made:
1. That, food and beverages firms particularly those that are still practicing conventional marketing should switch from conventional marketing to green marketing as it would enhance sales performance.
2. That, food and beverages firms especially those in Port Harcourt should produce only green products such as organic, non-toxic and bio-degradable products as it would increase customer satisfaction level.

References

Alabo, R. L. & Anyasor, O. M. (2021). Green marketing and sustainability of breweries in Nigeria. *European Journal of Business and Innovation Research. 9*, (1), 1-30.

Al-Salaymeh, M. (2013). The application of the concept of green marketing in the productive companies from the perspective of workers. *Interdisciplinary Journal of Contemporary Research in Business, 4*, 634-641.

Buttle, F. (2004). C*ustomer relationship management: Concepts and tool;* Oxford.

Chang, N. & Fong, C. (2010). Green product quality, green corporate image, green customer satisfaction, green customer loyalty. *African Journal of Business Management*, 4 (13), 2836-2845.

Diglel, A., & Yazdanifard, R. (2014). Green marketing and its influence on buying behaviour and the attitudes of purchasers towards eco-friendly products. *Global journal of Management and Business Research, 7*(11), 11-18.

Fournier, S. (2018). Consumers and their brands: Developing relationship theory in consumer research. *Journal of Consumer Research, 24,* 343-373.

Gao, Y.L. & Mattila, A.S. (2014). Improving consumer satisfaction in green hotels: The roles of perceived warmth, perceived competence and CSR motive. *International Journal of Hospitality Management*, *42*, 20-31.

Grant, J. (2008). Green marketing. *Strategic Direction, 24*(6), 25-70.

Gremler, D.D., Gwinner, K.P. & Brown, S.W. (2001). Generating positive word-of-mouth communication through customer-employee relationships. *International Journal of Service Industry Management, 12*(1), 44 –59

Hartmann, P., Ibanez, V., & Sainz, F. (2005). Green branding effects on attitude: functional versus emotional positioning strategies. *Marketing Intelligence & Planning, 23* (1), 9-29

Hashem, T.N., & Al-Rifai, N.A. (2011). The influence of applying green marketing mix by chemical industries companies in three Arab States in West Asia on consumer's mental image. *International Journal of Business and Social Science, 2* (3), 92-101.

Ibojo, B.O (2015). Impact of customer satisfaction on customer retention: A case study of a reputable Bank in Oyo, Oyo State, Nigeria. *International Journal of Managerial Studies and Research (IJMSR) 3(2)42-53*.

Jeevarathnam P.G., & Tushya, L.G. (2016). The influence of green marketing on consumer purchase behaviour. *Environmental Economics, 7*(2), 77-85.

Kerin, R.A., Hartley, S.W. & Rudelius, W. (2004). *Marketing: the core*. McGraw -Hill.

Khan, I. (2012). Impact of customers' satisfaction and customers' retention on customer loyalty: *International journal of Scientific and Technology Research, 1* (2)11-18.

Macharia, R.W., Kibera, F.N., Munyoki, J.N. & Kinoti, M.W. (2017). Relationship between green marketing practices and customer satisfaction in the soft drink industry in Nairobi, Kenya. *European Journal of Business and Management*, *9*(6), 69-81.

Mallen-Ntiador, T.N.E. (2017). *Green marketing practices and customer satisfaction in selected hotels in Ghana. M.Sc. Thesis,* University of Ghana, Ghana.

Nwadike, G. U., Idenedo, W. O. & Okoro, R.C. (2020). Green product marketing and achievement of global environmental sustainable goals in south-south of Nigeria. *International Academic Journal of Management and Marketing*, 6 (5), 74-94.

Onditi, A. (2016). Green marketing and customer satisfaction. *Journal of Marketing and Consumer Research*, 29 (2), 37-45.

Pathak, D. (2017). Role of green marketing in satisfying the customers and its impact on environmental safety. *International Research Journal of Interdisciplinary & Multidisciplinary Studies*, *2* (12), 17-29.

Singh, S. (2012). Green marketing: challenges and strategy in the changing scenario. *International Journal of Advanced Research in Management and Social Sciences,1*(6),164-173.

Sivesan, S., Achchuthan, S. &.Umanakenan, R. (2013). Green marketing practices and customer Satisfaction: A special reference to leather goods. *Global Journal of Management and Business Research, Accounting and Auditing*, *13* (3), 53-60.

Surpriadi, B. & Astuti, W. (2017). Green product and its impact on customer satisfaction. *Open Journal of Business and Management*, *19* (8), 35-42

SYSTEMS THINKING AND STRATEGY IMPLEMENTATION OF 4-STAR HOTELS IN THE SOUTH-SOUTH OF NIGERIA

Dr. George Solanky Ayanate, Dr. Apugu Samuel Gbenebari Claudius
Department of Management, Faculty of Management Sciences,
Ignatius Ajuru University, Rumuolumeni, Port Harcourt, Nigeria

Abstract
The study investigated the relationship between systems thinking and strategy implementation of 4-star Hotels in South-South, Nigeria. The study adopted a cross-sectional survey in its investigation of the variables. Primary data was generated through structured, self- administered questionnaire. The population of study consists of all the 4-star Hotels operating in South-South Nigeria, 15 of such Hotels in South-South, Nigeria, 152 senior managers of the Hotels were chosen through purposive sampling procedure to provide responses to the items on the research instrument. The reliability of the instrument was achieved by the use of the Cronbach Alpha coefficient with all the items scoring above 0.70. The hypotheses were tested for bivariate relationship using Pearson Product Moment Correlation analysis as the Statistical tool with the aid of Statistical Package for Social Sciences version 20.0. The findings revealed that there is a significant relationship between systems thinking and strategy implementation of 4-star Hotels in South-South, Nigeria. The study concludes that the adoption systems thinking positively enhances strategy Implementation of 4-Star Hotels in the South-South of Nigeria. Therefore, the study recommends that hotel management should develop a clear strategy and implementation plan that outlines specific goals, objectives, and actions to be taken. The strategy should be flexible enough to adapt to changing circumstances but should also be specific enough to guide decision-making and resource allocation.

Keyword: Systems Thinking, Strategy Implementation, 4-Star Hotel

Introduction

Operating environment for businesses is very dynamic following increased effects of globalization and development in information communication technology among other variables. In order for organization to align their operations to the dynamic operational environment, they have to constantly formulate and implement strategies (Johnson & Scholes, 2008). A strategy is an important component of organization planning towards the attainment of organizational objectives. The strategy translates plans into actions and the intended results so as to deliver on organizational objectives. Failure to achieve the set targets signifies weak strategy which has been poorly operationalized (Rajaseker, 2014). Well implemented strategies promote overall organizational performance while poorly implemented strategies manifest themselves in poor performance results – these outcomes are also well expressed and manifested by hotel organizations.

Hotels are a major feature of the hospitality industry, which accounts for about 5% of the total GDP of the Nigerian economy (Ofobruku & Obia, 2012). Hotels are as such important to the nation's economic growth and development. Ofobruku and Obia (2012) noted that hotels drive the hospitality industry and are also arguably competitive in their services offerings and behaviour with regards to sustaining market positions through customer patronage. Effective strategy implementations by hotels serves to boost their performance and competitiveness, as it enables them achieve their plans and goals within their various markets.

Strategic implementation as such describes the organization's activities, actions and behaviour tailored towards the actualization of its strategic plans and goals (Johnson & Scholes, 2008). In this way, it details the process of integrating workplace arrangements and relationships (structure), rules and frameworks (policies) and efforts, skills, experience as well as finance (resources) in the actualization of intended outcomes. Strategic implementation as such reflects the process in which organizational features are utilized and integrated to its advantage. It is therefore transitional and involves substantial monitoring and control activities which serve to align features such as budgets, timing and resource utilization with the expectations of the organization. Johnson and Scholes (2008) argued that it involves the development of supportive frameworks and the availing of required funds and expertise in the achievement of organizational strategies and goals. The purpose of this paper therefore was to examine the relationship between

systems thinking and strategy implementation of 4-star hotels in the South-South of Nigeria. The specific objectives of the study included:

i. What is the relationship between systems thinking and structural implementation of 4-star hotels in the South-South of Nigeria?
ii. What is the relationship between system thinking and functional policy implementation of 4-star hotels in the South-South of Nigeria?
iii. What is the relationship between system thinking and resource deployment of 4-star hotels in the South-South of Nigeria?
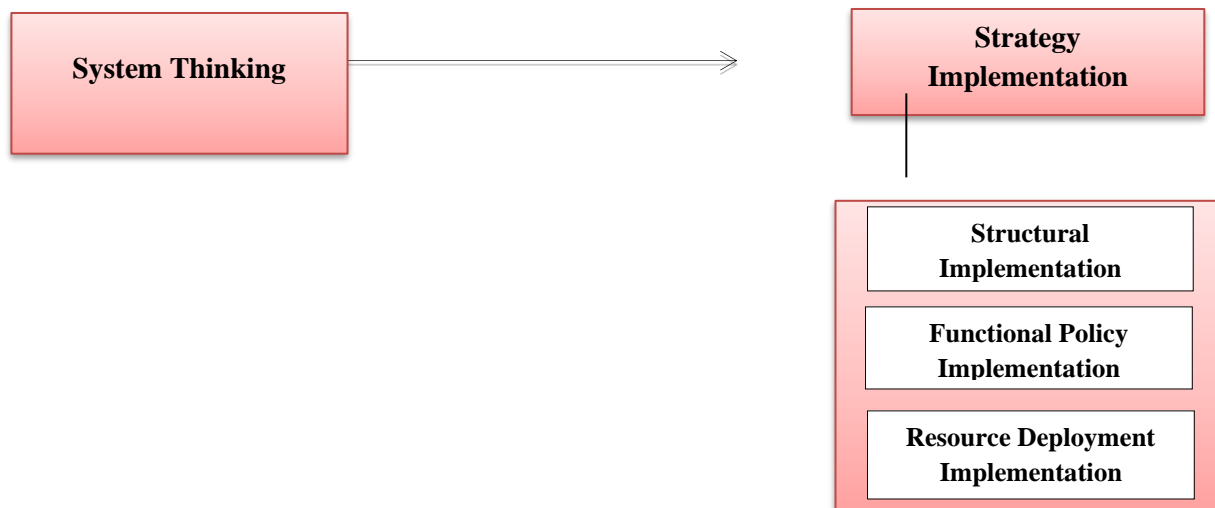
Figure 1: Conceptual model for the relationship between system thinking and strategy implementation
Source: Desk Research (2023)

Literature Review

Theoretical Foundation
Transformational Leadership Theory
The transformational approach to leadership has evolved based on two seminal perspectives, Max Weber's Theory of Charisma (1947) and Burns' (1978) Transforming Leadership Theory. Bass (1985) coined the term transformational leadership, describing such leaders as change agents that elicit and transform followers' beliefs, attitudes and motivations. These leaders provide a vision and develop an emotional relationship with their followers, increasing the latter's consciousness and belief in higher goals, above their own interests. The specific behaviours of these leaders are classified into four dimensions: (a) idealized influence, (b) inspirational motivation, (c) intellectual stimulus, and (d) individualized consideration.

According to Bass (1985) idealized influence, or charisma, refers to the attributes ascribed by followers to their leader, according to their perceptions of the leader's power, confidence and transcendent ideals. These perceptions are driven by specific behaviours of the leader that reflect his/her values and beliefs. It is this emotional component of leadership that drives followers to forgo their own comfort in favour of the collective interest, that is, in the search for a greater good.

System Thinking
Systems thinking are based on the system philosophy and emphasizes on the interconnectivity of parts or features of a whole. The systems approach enables the linking of objects of various types to a single whole, to organize different forms of activity into one whole. From the classical viewpoint, a system is a combination of two or more elements, when every element of the whole influences a behaviour of other elements and the behaviour of each element

influences the behaviour of the whole (Senge, 2007). The systems thinking conception differs from the way of a reductionist, analytic or mechanistic thinking.

Traditional analysis focuses on the separating the individual pieces of what is of interest; in fact, the word "analysis' actually comes from the root meaning "to break into constituent parts". Systems thinking, in contrast, focuses on how the thing of interest interacts with the other constituents of the system – a set of elements that interact to produce behaviour – of which it is a part. Generally, the usage of systems thinking in practice is defined by Senge (2007) that it simplifies life by helping one see the deeper patterns lying behind the events and the details. Systems thinking may appear more complex and multilevel than analytic or reductionist thinking, it helps to detect the order in the complexity and is more accommodating to human understanding of reality. Systems thinking is a discipline for seeing the structure that underlies complex situations, and for discerning high from low leverage change" (Senge, 1990).

Literature linking leadership and systems thinking is thematically widely developed but usually limits itself to a pragmatic or a model level (Senge, 2007; Boland, 2006; Kvedaraviþius, 2006). Many authors (Wall, 2005; Kets De Vries, 2004) emphasize the importance and relevance of systems thinking in the leadership, however, theories are difficult to be summarized, since they are based on different attitudes to both systems think7ing and leadership. Although the attitudes of the authors of systems thinking are conceptually similar, they are difficult to compare because there is no unanimous methodological basis for comparing these attitudes. Different authors emphasize the importance of different factors to leadership, highlight different aspects, and use different terms for defining the role of the leader (architect, designer, methodologist, constructor) (Kets De Vries, 2004).

Strategy Implementation

The concept of strategy and the discipline of strategic management discipline was originated in the 1950s and 60s. Selznick (cited in Thompson, 2013) introduced the idea of matching the organization's internal factors with external environmental circumstances. Chandler (cited n Thompson, 2013) showed that a long-term coordinated strategy was necessary to give a company structure, direction, and focus. He coined the concise adage: "structure follows strategy." Ansoff (cited in Porter, 2016) developed the gap analysis still used today in which we must understand the gap between where we are currently and where we would like to be, then develop what he called "gap reducing actions" then Drucker (cited in Thompson, 2013) states that an organization without clear objectives is like a ship without a rudder. As early as 1954, he was developing a theory of management based on objectives which evolved into his theory of Management by Objectives.

Strategy which is necessary and useful for managing organizations is a concept that is diverse and has been defined different by different scholars. Strategy involves matching the resources available, skills of the organization, the risks involved, and the environmental opportunities with the goals and purposes of the organization (Thompson, 2013). The strategy of the organization has a mandate of guiding and providing direction for the events of the business. The businesses should therefore make strategic choices and define strategy in terms of its purpose to the surroundings because strategic decisions affect the business's response to the environment (Mintzberg and Lampel, 2009).

The main objective of strategy is to offer directions to the business that allows it to attain the goals while reacting to the threats and opportunities in the surroundings (Pearce & Robinson, 2011). Strategy is viewed in terms of the choices of the products and market and product. Additionally, strategy is said to be the regular thread among a business's market and activities (Aristotle, 2014). Furthermore, strategy is defined as the scope and direction of a business that matches ideally the consequences of its fluctuating surroundings particularly its customers and markets so as to meet the expectation of the stakeholder (Johnson & Scholes, 2008). Strategy is a combined and incorporated plan which relates the strategic benefits of the business to the drawbacks of the setting and that is planned to guarantee that the basic goals of the business are attained through appropriate accomplishment by the firm (Jordan & Messner, 2012).

Strategy is defined by other scholars as a pattern or a concept that unites firm's main objectives, actions and policies into a cohesive whole (Mintzberg & Lampel, 2009). Furthermore, strategy is described as the conception of exceptional and susceptible situation of trade-offs in competition (Porter, 2016). This involves a group of actions that show neatness match together, which reinforce one another, are consistent, and guarantee effort optimization. Moreover, strategy is defined as the scope and direction of a business over the long run that attains benefit for the

business through its alignment of the required resources within a varying setting, and fulfils the expectations of the stakeholder (Johnson & Scholes, 2012).

Strategy implementation is a connecting loop between formulation and control. Herbiniak (2006) argued that while strategy formulation is difficult, making strategy work and executing it is even more difficult. Similarly, Cater and Pucko (2010) concluded that while 80% of firms have the right strategies, only 14% have managed to implement them well. To determine the relationship between strategy formulation and implementation, Egelhoff (1993) investigated when it is best for organizations to think about strategy implementation: at the time of strategy formulation or afterward. Another question of even more importance to an organization is whether it is more difficult to formulate strategy than to implement it. In other words, should executives and organizations formulate innovative and perhaps unique strategy that can offer a competitive advantage and then attempt to implement it or identify the organization's capability first and then formulate a workable and practical strategy? For example, a well-formulated strategy is meaningless if it is not implemented well. However, too much consideration of various aspects of implementation might result in formulating a strategy that is not competitive and, therefore, implementing it would be a waste of time and resources.

Structural Implementation
The structure of the organization is the basis for organizing responsibility, authority, and accountability. It enables firms to bring together functions, people, and other resources for the purpose of achieving objectives. It provides the means for clarifying and communicating the lines of responsibility, authority, and accountability. The contingency approach to management indicates that the most appropriate organizational structure depends not only on the organizational objectives but also on the situation, which includes the environment, the technology employed, the rate and pace of change, the managerial style, the size of the organization, and other dynamic forces (Wilson, 1986). The three most common generic organizational structures are the functional structure, the divisional structure and the matrix structure (Pascale, 1990).

By following well-documented prescriptions for success, managers should theoretically be able to easily identify and realize the ideal structure for their organization. However, further consideration finds that theory does not necessarily lend itself effectively to practice (Mintzberg, 1991). Certain structures undoubtedly are more conducive to realizing particular corporate goals and strategies. However, because of the complexity of an organization's situation, it is difficult to identify the single ideal structure. Dynamic changes in organizational goals and resources as well as its environment may preclude a static ideal structure. For instance, one company may start as a pre-bureaucratic company and may evolve up to a matrix organization.

An organization structure is the hierarchical arrangement of lines of authority, communications, rights and duties of an organization. The Organizational structure determines how the roles, power and responsibilities are assigned, controlled, and coordinated, and how information flows between the different levels of management. A structure depends on the organization's objectives and strategy. In a centralized structure, the top layer of management has most of the decision-making power and has tight control over departments and divisions. In a decentralized structure, the decision-making power is distributed and the departments and divisions may have different degrees of independence. An organizational chart illustrates the organizational structure (Peters and Waterman, 1982).

Functional Policy Implementation
Organisational policies is supported by Lewins (1951) to be a defining factor of the effectiveness of its strategies and outcomes. However, this is premised on the evident level of commitment to the policy by members of the organization. Organisational policy commitment is defined as belief in and proactive endorsement of specific major organisational initiatives or courses of action based on perceived agreement between personal values and organisational values as they are expressed through organisational policies. Rainaye (2019) demonstrated that specific organizational policies may represent a salient target for employee commitment through their structured courses of action that serve to focus and crystallize employees thinking and behaviour.

Organizational policies are specific elements of the work environment that directly impact employees daily work activities, their interactions with co-workers, and their employer-employee relationships. Organizational policies

embody corporate values that guide the decision-making of managers and supervisors and shape employees „work experiences, immediately affecting their behaviours, work relationships, compensation, and sense of security. Nwachukwu, Zufan and Chladkova (2020) argued that commitment to organisational policies, as specific major courses of action that embody a set of values against which employees can measure congruence with their own values, and that are common to any number of organizations, offers a target that enables individuals to focus and maintain their commitment while transcending organizational boundaries.

Findings regarding the relationship between organizational policy and strategic success of the organization suggest that, for practitioners who are considering the development and/or implementation of major organizational policies, it is important to bear in mind that employees negative responses to current or anticipated policies may not simply be an indication of refuse, but may be a natural result of unpleasant past experiences with similar policies. Organisational success in achieving its organisational outcomes in line with its policies depends on its leadership. By adopting appropriate leadership actions, managers can affect influence and drive its organization towards the structuring and implementation of adequate policies, reflective of change and innovation (Mosaderghard & Yamohammadian, 2006).

Resource Deployment Implementation
Hill and Jones (2004) classified a firm's resources into two broad categories: tangible resources and intangible resources. Tangible resources are those which are regularly shown in the balance sheet of the firm (Collis & Montgomery, 2004), and include: physical resources (Hill & Jones, 2004) such as land, buildings, plant, equipment, inventory (Collis & Montgomery, 2004; Hill & Jones, 2004); natural resources, raw materials, semi-finished goods, waste products, by-products, and stored finished goods; services and distribution facilities (Collis & Montgomery, 2004); and money (Hill & Jones, 2004). Intangible resources are those that usually form critical functions for competitive advantage or disadvantage (Collis & Montgomery, 2004). They are not physical and instead relate to things that are created by a firm's employees (Hill & Jones, 2004), such as brand names, reputation, and human knowledge (Collis and Montgomery, 2004; Hill and Jones, 2004); experiences, patents, copyright, and trademarks (Hill & Jones, 2004); and technological knowledge (Collis and Montgomery, 2004). In addition to tangible and intangible resources, Collis and Montgomery (2004) added a third category known as organizational capabilities, which they defined as a mixed grouping of "assets, people and procedures" by which firms convert their inputs to outputs.

Similarly, resources can be seen only as physical resources and human resources (Collis & Montgomery, 2004). Tosi (2009) have only added financial resources. Including further categories will allow the types of resources to be identified more accurately. Secondly, some categories are hidden or mentioned only indirectly by the authors. For instance, although Hill and Jones (2004) classified resources into tangible and intangible resources, their definition of resources highlighted the significance of the five categories of Hofer and Schendel. To illustrate, Hill and Jones (2004) defined resources as the "capital or financial, physical, social or human, technological, and organizational factor endowments that allow a company to create value for its customers. Moreover, they classified money (financial resources) under tangible resources.

Additionally, although Barney (1991) reported that resources can be classified into physical, human, organizational (Barney, 1991) and financial resources (Barney, 1995), technological resources are also mentioned indirectly in his description of physical resources. Specifically, he stated that "physical resources include the machines, manufacturing facilities, and buildings firms use in their operations" (Barney, 1995). It appears that Barney (1991) has combined physical and technological resources under one category. To be specific, according to the meaning of technology, as defined by Tosi (2009), it is clear that technological resources can be represented by the "machines" and the manufacturing facilities" in Barney's (1991) description of physical resources. Indeed, Amit and Schoemaker (1993) also highlight the significance of the technological factor, noting that technological resources are one of the main resources for the company to produce products or services.

System Thinking and Strategy Implementation
Relying on the system thinking approach to leadership Haines (1998) accentuates six competencies areas that are essential to leadership: enhancing Self-mastery, building interpersonal relationships, facilitating empowered team, collaborating across functions, integrating organizational outcomes, creating strategic alliances (Centering Your

Leadership, Model). Haines (1998) model is the new instrument for leadership development based on systems thinking concept: "Thinking of leadership development as a system, instead of just providing training programs, is an entirely new way of thinking. When one drives competitive edges to their essence, leaders are the only true sustainable edge over the long term" (Haines, 1998). Gharajedhagi (2006) gave a new philosophical sense to leadership in the modern context by proposing an interactive management model and describing systems thinking as a platform for designing business architecture. The best way to understand the system is to construct it, to get a handle on emergent properties. We need to understand the processes that produce them, controlling, influencing, and appreciating the parameters affecting the system's existence (Gharajedaghi, 2006)

Daneshgar and Zahedi (2022) have referred to the following features in systems: goal, elements/constituents, relations, environment, resources, state, hierarchy, and complexity. The nature of some features requires further investigation. Some points were discussed about elements and ambiguities. In exploring environment in terms of internal and external space of system, the need for bordering system can be recognized. Defining and characterizing border is a case that is not possible and scholars have emphasized it. Thereupon, identifying the internal or external factors can be area of debate for systems scholars. Such an insight may provide not precise specification of the factors affecting behaviour and performance of system in the condition that the two types of internal and external environments are intended to be investigated. Hierarchy is based on system and microsystems. The microsystems themselves involve other sub-microsystems and this trend continues. As each system is comprised of inputs, processing, output, feedback, and environment, making distinction among these five parts of system and microsystems' structure and accepting their limits.

From the foregoing discourse, the study hypothesized thus:

Ho₁: There is no significant relationship between systems thinking and structural implementation of 4-star hotels in the South-South of Nigeria

H₀₂: There is no significant relationship between systems thinking and functional policy implementation of 4-star hotels in the South-South of Nigeria

H₀₃: There is no significant relationship between systems thinking and resource deployment implementation of 4-star hotels in the South-South of Nigeria

Methodology

The study adopted a cross sectional survey research design. The population of this study was made up of 162 employees, managers and supervisors of the four telecommunication companies in South-South, Nigeria. Since the entire population of 162 employees of the four (4) telecommunication companies in South-South, Nigeria was small, the entire population was adopted as a census. Primary data was collected using a 5-point Likert scaled questionnaire.

Data Analysis and Results

H₀₁: There is no significant relationship between systems thinking and structural implementation of 4-Star Hotels in South-South, Nigeria

Table 1: System Thinking and Structural Implementation

	System Thinking	Structural Imp.
Pearson Correlation	1	.970**
Sig. (2-tailed)		.000
N	138	138
Pearson Correlation	.970**	1
Sig. (2-tailed)	.000	
N	138	138

**. Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher's Desk, 2020

Table 1 presents a Pearson product coefficient r of .970** which indicates that, there is very strong positive relation between system thinking and structural implementation. Again, the p-value is 0.000 which is less than 0.05; hence, from the decision rule there is a significant evidence to reject the null hypothesis and that there is a very strong positive relationship between system thinking and structural implementation of 4-star hotels in the South-South of Nigeria.

H_{02}: There is no significant relationship between systems thinking and functional policy implementation of 4-Star Hotels in South-South, Nigeria.

Table 2: System Thinking and Functional Policy Implementation

	System Thinking	Functional Policy Imp.
Pearson Correlation	1	.965**
Sig. (2-tailed)		.000
N	138	138
Pearson Correlation	.965**	1
Sig. (2-tailed)	.000	
N	138	138

**. Correlation is significant at the 0.05 level (2-tailed).
Source; Researcher's Desk, 2020

Table 2 presents a Pearson product coefficient r of .965** which indicates that, there is very strong positive relation between system thinking and functional policy implementation. Again, the p-value is 0.000 which is less than 0.05; hence, from the decision rule there is a significant evidence to reject the null hypothesis and that there is a very strong positive relationship between system thinking and functional policy implementation of 4-star hotels in the South-South of Nigeria.

H_{03}: There is no significant relationship between systems thinking and resource deployment of 4-Star Hotels in South-South, Nigeria.

Table 3: System Thinking and Resource Deployment Implementation

	System	Resource Dep.
Pearson Correlation	1	.964**
Sig. (2-tailed)		.000
N	138	138
Pearson Correlation	.964**	1
Sig. (2-tailed)	.000	
N	138	138

**. Correlation is significant at the 0.05 level (2-tailed).
Source; Researcher's Desk, 2020

Table 3 presents a Pearson product coefficient r of .964** which indicates that, there is very strong positive relation between system thinking and resource deployment implementation. Again, the p-value is 0.000 which is less than 0.05; hence, from the decision rule there is a significant evidence to reject the null hypothesis and that there is a very strong positive relationship between system thinking and resource deployment implementation of 4-star hotels in the South-South of Nigeria.

Discussion of Findings

This finding establishes a relationship between system thinking and structural implementation. Review of literature establishes that Daneshgar and Zahedi (2022) have referred to the following features in systems: goal, elements/constituents, relations, environment, resources, state, hierarchy, and complexity. According to the literature, in exploring environment in terms of internal and external space of system, the need for bordering system can be recognized. Defining and characterizing border is a case that is not possible and scholars have emphasized it, thereupon, identifying the internal or external factors can be area of debate for systems scholars. Scholars on system thinking disagrees on various opinion, however, a good proportion to the existence of a positive relationship between system thinking and structural implementation (Daft, 2013) Such an insight may provide not precise specification of the factors affecting behaviour and performance of system in the condition that the two types of internal and external environments are intended to be investigated.

The finding is support of similar studies earlier reviewed. Relying on the system thinking approach to leadership Haines (1998) accentuates six competencies areas that are essential to leadership: enhancing Self-mastery, building interpersonal relationships, facilitating empowered team, collaborating across functions, integrating organizational outcomes, creating strategic alliances. Haines (1998) model is the new instrument for leadership development based on systems thinking concept: further review shows that "Thinking of leadership development as a system, instead of just providing training programs, is an entirely new way of thinking. This means that thinking is of noble importance to leadership styles. For example, when one drives competitive edges to their essence, leaders are the only true sustainable edge over the long term (Haines, 1998). Gharajedhagi (2006) gave a new philosophical sense to leadership in the modern context by proposing an interactive management model and describing systems thinking as a platform for designing business architecture. He further stated that the best way to understand the system is to construct it, to get a handle on emergent properties and make use of it for optimal performance. It is very important for leaders and managers of the organization to understand the need to understand the processes that produce them, controlling, influencing, and appreciating the parameters affecting the system's existence (Gharajedaghi, 2006). This system thinking verily support the functional policy implementation of the hospitality firms, most especially the hotels in the south-south Nigeria.

Conclusion and Recommendation

This study concludes that the adoption systems thinking positively enhance strategy Implementation of 4-Star Hotels in the South-South of Nigeria. Implying that systems thinking which is an approach to problem-solving that emphasizes the interconnectedness and interdependence of various components within a complex system can be applied to identify the key components that contribute to the success or failure of these hotels.

Therefore, the study recommends that hotel management should develop a clear strategy and implementation plan that outlines specific goals, objectives, and actions to be taken. The strategy should be flexible enough to adapt to changing circumstances but should also be specific enough to guide decision-making and resource allocation.

References

Amit, R., & Schoemaker, P. J. (1993). Strategic assets and organizational rent. *Strategic management Journal*, *14*(1), 33-46.

Aristotle, T. (2014). *The Nicomachean Ethics, 15th Edition.* London: Penguin Books,

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, *17*(1), 99-120.

Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York: Free Press

Boland, R., Jelinek, M. & Romme, G. (2006). Organization Studies as a Science of Design, *Organization studies*, 28, 1269-1271.

Burns, J. M. (1978). Leadership. New York: Harper & Row. Publishers.

Cater, T., & Pucko, D. (2010). Factors of effective strategy implementation: Empirical evidence from Slovenian business practice. *Journal for East European Management Studies*, 15(3), 207-236

Collis, D. J., & Montgomery, C. A. (1997). Corporate strategy: Resources and the scope of the firm. Chicago: Irwin.

Daneshgar, S., & Zahedi, R. (2022). Investigating the hydropower plants production and profitability using system dynamics approach. *Journal of Energy Storage*, *46*, 103919.

Egelhoff, W. G. (1993). Great strategy or great strategy implementation-Two ways of competing in global markets. *MIT Sloan Management Review*, *34*(2), 37.

Gharajedaghi, J. (2006). Systems Thinking: Managing Chaos and Complexity//San Diego: Elsevier.

Haines S. G. (1998). Systems Thinking & Learning, Massachusetts: HRD Press.

Hill, C. W. L. & Jones, G.R. (2001). *Strategic management theory*, Houghton-Mifflin Company, Boston, MA.

Hrebiniak, L. G. (2006). Obstacles to effective strategy implementation. *Organizational Dynamics*, 35(1), 12-31.

Johnson, G. & Scholes, K. (2008). Exploring Corporate Strategy. 8th edn. Prentice Hall: London

Jordan, S., & Messner, M. (2012). Enabling control and the problem of incomplete performance indicators. *Accounting, Organizations and Society*, 37(8), 544–564.

Kets de Vries, M.F.R. (2004). What Makes the Leader Great? *Strategic Directions*, (20), 8, 4-9.

Kvedaraviþius, J. (2006). Organizacijĭ vystimosi vadyba. – Kaunas: Vytauto Didžiojo universitetas.

Lewin, K. (1951). *Field theory in social science*. New York: Harper & Row.

Mintzberg, H. (1979). *The Structuring of Organizations*. Englewood Cliffs, NJ: PrenticeHall Inc.

Mintzberg, J. & Lampel, K. (2009). Patterns in Strategy formation. *Management Science*, 24(9), 934-948.

Nwachukwu, C., Zufan, P., & Chladkova, H. (2020). Employee commitment to strategy implementation and strategic performance: organisational policy as moderator. *International Journal of Business Excellence*, *20*(3), 398-418.

Ofobruku, S. A., & Obia, E. (2012). Quality assurance in the hospitality industry: nigeria experience. *HATMAN Journal of Hospitality and Tourism*, *2*(1), 118-124.

Pascale, R. T. (1990). Managing on the Edge. How Successful Companies use Conflict to Stay Ahead. London: Viking Penguin Inc.

Pearce, J. A. & Robinson, R. B. (2011). *Strategic Management: Strategy Formulation and Implementation. 3rd Edition,* Richard D. Irwin Inc

Peters, T. J., & Waterman, R. F. (1982). *In seach of excellence*. New York: Harper & Row.

Porter, T. (2016). States, markets and regimes in global finance. Springer.

Rainaye, R.A. (2019). An Empirical Investigation of the Influence of Organizational Policies and Organisational Leadership on Organisational Commitment. *International Journal of Business and Management Invention*, 1(1), 65-68

Rajasekar, J. (2014). Factors affecting effective strategy implementation in a service industry: a study of electricity distribution companies in the sultanate of Oman. *International Journal of Business and Social Sciences*, 5(9), 169-183.

Senge, P. (1990). *The fifth discipline: The Art and Practice of the Learning Organization*. London: Century Business

Senge, P. (2007). Collaborating for systemic change. *Sloan Management Rev*iew, 48(2):44–53

Thompson, P. (2013). Financialization and the workplace: extending and applying the disconnected capitalism thesis. *Work, Employment and Society*, 27(3), 472-488.

Tosi, H. L. (2009). *Theories of organization*. Sage.

Wall S. J. (2005). The Protean Organization: Learning to Love Change, *Organizational Dynamics*, 34, 37-46.

UNION ORGANIZATION AND UNION MANAGEMENT: CONFLICT IN NIGERIAN ORGANIZATION

Ezekiel-Hart, Queen James[1]
School General Studies, Federal Polytechnic of Oil and Gas
Bonny, Rivers State, Nigeria
+2348067156589
[1]E-mail: queenirondi@gmail.com

Ezekiel-Hart, James Carr[2], And Livinus Achi Kalu[3]
Department of Petroleum Marketing and Business Studies and Management
Technology, Federal Polytechnic of Oil and Gas Bonny, Rivers State, Nigeria
[2]E-mail: carrhartx2@yahoo.com/+2347037876795
[3]E-mail: livinusachikalu@yahoo.com/08064316947

Abstract
Organization no matter how small must have set goals and target. To meet the set goals and targets, organizations employment and women with different ethnic, social and economic backgrounds and individual goals and targets in life. Most often individual goals and targets tend to conflict with the origination's goals and targets. The goals and target of individual worker in the organization very often conflict with one another because individuals have different nations/objectives of joining an organization. There is, therefore, bound to be conflict and quarrels among workers in an organization. In this paper union organization and union management conflicting Nigeria organizations had examined, by taking into consideration different perspective views of workers union and management.

Key words: Conflict, Different Ethnic, Union Management and Union Organizations

Introduction
The root of industrial relations was derived from the societal concepts and attitudes towards work over centuries. Early Greeks did not recognize the dignity of labour; work to them is unpleasant and was only reserved for the lower classes, in fact, the concept then was that only slave can work. With the development of Christianity, work was then seen as means of developing healthy body and healthy soul, and as a means of serving God.

With the industrial revolution and rise in mass urban society, work was views in the concept of the functions of labour in an industrial society. This gave rise to the economic framework of Adam Smith, David Richardo, Thomas Malthus, John Stuart Mill, and Alfred Marshall which form the basis for conceptualizing the role of labour in the society in 1800. These economic frame works treated labour as any other factor of production subject to the laws of supply and demand, hence treating labour as commodity.

Trade unions especially among workers in the newly industrialized societies are protest organizations. They may change during their course of growth due to changes in environment from protect towards co-operation.

In the traditional system of industrial relations with unchecked freedom organize and autonomously control the internal affairs of the organization by the workers themselves unions are organized on the basis of craft interest or common interest arising from employment in the same industry or common interest-as workers in general in an organization. Unions are categorized as craft unions, industrial unions, and general unions, occupational unions, such as white-collar unions, company unions or "grass root" unions.

The conflict between workers and management is greatly influenced by the nature of workers' organizations and their structure. Conflict between individuals or groups is inevitable in modern society. A glaring example of group conflict in Nigeria is the union-management conflict which has many ramifications in its historical process. In a developing country like Nigeria, the totality of work stoppage because of a conflict is enormous, and there is a tendency to place the blame for these stoppages on the unions. An analysis of union management conflicts provides the key reasons which are discussed in the succeeding paragraphs.

Union of Politics

Political partiers make inroads into the labour movement essentially because of two reasons- Historical, and indeed the Trade Union Ordinance itself Before 1938 when the Trade Union Ordinance ushered in formal trade union activities, what looked like trade unions had existed in Nigeria inform of workers associations? Crafts and professional trades were already organized into associations called African Guilds and Crafts Association.

Yesufu (1962) observed that group activities of the sort being described were strongly rooted in the tribal structure and were widespread. The main functions of the trade associations were to organize mutual aid to distressed members and to regulate trade practices.

Between 1935 and1960, trade union activities in Nigeria witnessed tremendous   growth. The factors that gave rise to the growth can be adduced as:(1) the1938 Trade Union Ordinance (2) Cost of Living Allowance of June, 1942; (3) The General Defense Regulation, 1942; (4) The General Strike, of 1945; (5) Influence of the National Leaders; and (6) The Shooting of the 21 Coal Miners at Iva Valley site at Enugu in1949.

The Genial Defense Regulation was government "infamous order "that outlaws strike and lockouts for the period of emergency. Due to the hardship being experienced by the workers all over the place, the government order had a negative effect it ignited trade union activities and the union leader through the help of budding nationalist leaders formed the Central Trade   Union. The Trade union Congress of Nigeria (TUCN).

The economic crisis occasioned by the Second World War resulted in a lot of militancy among the trade unions particularly the blue-collar workers.

The militant posture of the railway workers union led to a successful   general strike in 1945. Shortly following successful general strike, union activities increased, and more unions were formed.

Since records have shown that the nationalists were instrumental to the formation of TUCN, the activities of the National Leaders could have been more involving. Their political dispositions at that time could have influenced   the attitude toward. The trade union since trade unions were already seen as a force to reckon with and a ready tool for their national struggles. The national leaders encouraged the formation of more unions to join force in gaining political independence from the colonial administration.

By now the mixing up of politics with the Labour movement was complete in every way. The problems at a stake then was whether it was a pious desire to provide responsible leadership of educated people from outside or a realization of the low level of educational attainment, lake of opportunities for gaining experience and absence of a tradition for self-help amongst the workers then (Kennedy, 1966) to fight alone in their struggles we really do not know. We do know that many political leaders who are also members of union executives have neither the *time* nor the inclination for labour problems. In fact, they have no clear understanding of the realities at the shop floor. Yet the working class, which is already organized under a banner, and is growing in numbers, was found useful for attaining the political purpose. Thus, it worked both ways.

Ignorance of the Workers

Despite legislation, exploitation of workers by management is not very uncommon in Nigeria. This is mostly due to the ignorance of workers and their concern for short-run gains rather than long-term benefits. The union leadership has equally contributed to it, Kennedy (1966), makes an interesting observation on union leadership in Nigeria. He says, that an outsider is struck by the social differences between the leader and the led, by the "authoritarian, paternalistic, and patronizing attitude "of one and almost unquestionable obedience and deference by the other. In many decisions, workers just don't seem to have a say. The leaders know best and they take decisions for workers. We know of course, that all leaders cannot be saints.

Numerous studies point out the unhealthy and dangerous condition under which workers have to work. Studies by Chandra and Sign (1983), and Prasad (1984) show that workers are made to work for more than 12 hours a day. Also, a study by Kogi (1989) in eight developing countries shows that in Nigeria, there was an urgent need to take on a

priority time, work place environment, safety and welfare and social services. These studies in the un organized sector is so pathetic.

Government and Unions

The government is committed to the encouragement of Labour movement in Nigeria. The commitment should be shrined in the plan that the workers have right association, organization and collective bargaining and be accepted without reservation as a fundamental basis for mutual relation. The attitude to union should not be just a matter of toleration. They should be welcomed and helped to function as part and parcel of industrial system.

To safe guard the labour interest, the government should enact more Acts and decrees on various aspects of labour relations and management's obligation to labour. Despite this, governments interference should be accepted as necessary because, its total withdraw would leave the field open to unscrupulous employers who may try to wipe out the union movement or advantage 1abour leaders who may exacerbate the industrial conflict. Based on all these, the union movement in Nigeria should be stronger than any other union movement in many democracies of the world. However, much government encouragement also has its drawbacks, Over the years most unions have become strong head and unwieldy. What they cannot get through collective bargaining they get through a variety of questionable means such as intimidation, gherao, go slow tactics, tool down strike, assault and harassment of managers, supervisors, and workers who do not toe the union line etc. they also have the legal remedy of adjudication available to them, which, incidentally, in a majority of cases gives judgment favouring the workers and unions vis-a-via the management.

Crough (1966) states that "excessive freedom to choose their options may make unions to sabotage the system that gives them the freedom "Perhaps this is true in Nigeria than elsewhere. The government is the largest employer in Nigeria. Interestingly, the officers who have power to discipline the unions are also been appointed by the government in directly. They face the dilemma of controlling the strike on the one hand and let the political purpose be served on the other. The unions have gone beyond the limits, and to a large framework created by the government had a "net retardation effect up on the natural growth of vitality of trade unions as worker's originations" (Johri, 1967).

Conflict Resolution

The union-management conflict cannot be eliminated. Perhaps, it is necessary not to totally eliminate it. Several writers on inflict have suggested numbers of alternative technique for conflict resolution. We find it literature" acceptable alternatives goals "technique (Sherif and Sherif 1953), "clinical" approach (Roger, 1961), problem solving and image exchange technique (Blake and Mouton, 1964) and "third party" approach (Walton, 1969). Given the complexities of the issues involved and linkages of labour movement with other aspects of life in Nigeria, perhaps the following three strategies would really help in resolving the union-management conflict in Nigeria.

Collective Bargaining

The most significant lead in managing the union management conflict has to come from enforcing the collective bargaining process, in Nigeria, collective bargaining is accepted as an answer to many malaise, but it is hardly practiced.

Kennedy (1966) identifies the following uses of collective bargaining;
- It provides a system of decision-making that is independent of political influence.
- It brings orders in union-management relationship.
- It makes larger demands on union leaders.

The government has encouraged tripartite settlements rather than those arrived as a result of collective bargaining. It has perpetuated the system of conciliation and adjudication through labour courts and tribunals making unions in the process dependent on government.

Collective bargaining can be an alternative for conflict free interaction between union and management because of the following reasons:

- There is an increase of white-collar employees in the country, who are better educated and better informed.
- The white-collar employees have started forming their own unions (called associations). A large number of associations exist in Nigeria, and their numbers is growing.
- Collective bargaining requires proper understanding and investment of time and energy from the labour politicians who seem to have little or no time of union activities.
- An increasing number of workers who have minimum high school education and same from urban areas and nucleus families (Sharma, 1974) are putting pressure on the union leaders to convey their demands to management rather than define demands for them.
- Some well-known labour politicians have lost political elections in the recent past surfacing doubts in the mind of workers if the leaders can provide effective leadership without formal political power.
- The stage is set for collective bargaining and all that is required is the will to get in to it. The process of collectives bargaining would also facilitate growth of internal leadership in a variety of ways.

Participation in Management
Through many enactments, the government has provided opportunities for unions share the responsibility of decision making in the organizations. Joint management council workers committee, production committees, is some mechanisms that are now legitimately available to unions which have so far remained the exclusive domain of the management. Unfortunately, not many unions are coming forward to accept the opportunities.

Many unions which consider themselves as champions of workers' cause, are too shy to come out of their shell and take active interest in organizational decision-making. They see participation as a management tool to get more production with fewer workers by creating an aura of communication and shared beliefs. They seem to lack the necessary competence to be effective team members. They suffer from role conflict. When decisions have to be taken in such committees do they represent the interest of the workers or of the organization? They are afraid that, if they become party to pre-management decisions they would lose all linkages and credibility with their constituents. Hence, the success of participation, *despite* legal sanction, is limited.

Participation, however, is an urgent reality for the survival of the labour movement in Nigeria, and perhaps away of the causes of conflict discussed above because of the following reasons:
1. Participation provides what Sherif calls super ordinate goals.
2. Participation opens opportunities for mutuality's and cooperation.
3. Participation requires an investment of time and effort. Halfhearted leaders, whose interest in labour movement is nominal, would have to provide room for more committed leaders.
4. Close working with management on issues of common interest would offer an environment to dispel misconceptions and help develop an atmosphere of trust and goodwill.
5. Participation in education is to develop confidence necessary to become self-sufficient and self-dependent.

Internal Leadership
Synder (1975) has suggested three conceptual approaches to the analysis of industrial conflict.
- Protest generated by a rapid social change, particularly the rapid rate of industrialization and urbanization.
- Strike as an outcome of the failure of bargaining process particularly the gap between actual and expected rates of real wage change.
- Strike activity as a form of collective action, to the extent that is, an organizational capacity for such action.

While the first two may not be all that Significant in Nigeria, the organizational capacity for strike has certainly been the most predominant approach. This capacity has been built and perpetuated by labour politicians for political purposes and in the process, they have ignored the constituents. There is an awakening among the working class. Ideological differences among leaders or wrangling over political issues seem to have little relevance for them an at work place. The rank- and-file are showing their dissatisfaction with one leader by "voting with their feet "*i.e.,* changing loyalty from leader to another or one union to another by just walking over to them, labour politicians has thus, failed to deliver the goods.

Conclusion

If unions have to function as part of modern society they must be depoliticized and establish themselves as primary trade unions. The key requirement for effective unionism would be sufficient supply of qualified and committed leadership from the rank and file. It must be built up by conscious human efforts requiring members to company with high standards of group. The internal leadership, thus developed would have to be tolerant and accept dissent as a healthy input rather than disruption of power. The new leadership would have to respond to present and long-term objective and challenges. The form and content of union organizations have to go much beyond the traditional practices. They would provide credibility to their proclaimed intentions, and show that, what is humanly possible is also humanly desirable.

Emphasis on collectives bargaining, willingness to equally participate in decision-making, and encouragement for internal leadership are preconditions for the necessary self-confidence. These are not mere ideals that will remain frustratingly out reach. Finally, the labour movement is all set for independent survival and ready to begin a new era in conflict-resolutions between the union and the management. However, time along will show if such a situation will develop in this country.

References

Baridam, D.M. (1990): Organizational Behaviour. Lecture Series Monograph, Uniport.

Brown, L.D. (1983): Managing Conflict at Organizational Interfaces. *Addison Welleze Publishers Co. Inc.*

Chandra, N. and Singh, C.S.K (1983): "Working Conditions of Brick Klin Workers". *National Labour Institute Journal 9, pp. 45-55.*

Crough, H. (1966): Trade Unions Polities in India. Bombay Manaktala.

Johri, C.K. (1967): "Unionism in Developing Economy A Study of the Interaction Between Trade Unionism and Government Policy in India", 1950-1965, Bombay. Asia.

Kennedy, V.D. (1966): Unions, Employers and Government Bomday, Manaktala.

Kogi, K. (1985): "Improving Working Conditions in Small Enterprises in Developing Asia". Genva, *International Labour Organization.*

Prasad, K.V.E. (1984): Wages and Working Conditions of Mine Workers in Singhbhum District Bihyar, *National Labour Institute Journal 10, pp. 121-128.*

Roger, C. (1961): One Becoming a Person Boston, Houghton, Mifflin.

Saiyadain, M.S. (1977):"Workings Participation in Decision Making: *Research and Hypotheses". Productivity, 17, pp. 547-561.*

Sharma, B.B. (1974): The Indian Industrial Workers. Bombay, Vikas.

Walton, R.D. (1969): "Interpersonal Peace-Making Confrontation, and Third-Party Consultation" Reading, Mass, Addison Wesley.

FINANCIAL SECTOR REFORMS AND ECONOMIC GROWTH IN NIGERIA

Kalu, Livinus Achi

Department of Petroleum Marketing/ Management
Federal Polytechnic of Oil and Gas Bonny
Email: livinusachikalu@yahoo.com

Abstract

This study analyzed the financial sector reforms and economic growth in Nigeria for the period 1990-2020. The financial sector reform variables used included monetary policy rate, electronic banking transactions, exchange rate and credit to private sector. These represented the independent variables of the study. Economic growth was proxy of real gross domestic product as the dependent variable. The data were sourced from the Central Bank of Nigeria Statistical bulletin 2020 edition and World Bank statistical bulletin. The pre-tests carried on the data revealed that they were all stationary at first difference. Findings from the error correction model estimates showed that monetary policy rate, electronic banking transactions and credit to privates have positive effects on economic growth of Nigeria. However, only credit to private sector showed significant effect on growth. Exchange rate negatively affected growth in the model. The study concluded that there is positive effect of the financial sector reforms on growth of the Nigerian economy but the reforms have not expectedly had significant effect on economic growth, particularly, MPR, e-banking and exchange rate reforms. It was recommended that the regulatory authority (Central Bank of Nigeria) should urgently address the policies made in respect to exchange rate, ensure service efficiency in electronic banking channels and maintain the existing anchor rate (MPR) as the country strives to achieve optimal economic growth.
Keywords: Economic Growth, Electronic banking, Financial Sector Reforms & ECM.

Introduction

Economic growth of a nation is one of the signals to the healthy nature of its economy. It is one of the indices used to measure the success of a nation's economy. Nations strive to grow their economies through systemic reforms for their immediate and long-term survival. According to Sanusi (2011), the financial system is more than just institutions that facilitate payments and extend credit. It is the central nervous system of a market economy and contains a number of separate, yet interdependent components, all of which are essential to its effective and efficient functioning.

These components include financial intermediaries such as banks and insurances companies which act as principal agents for assuming liabilities and acquiring claims. The second component is the markets in which financial assets are exchanged, while the third is the infrastructural components which are necessary for the effective interaction of intermediaries and markets. The three components are inextricably intertwined.

A well-developed financial system by means of reforms has the capacity to mobilize house hold savings, allocate resources efficiently, diversify risk, induces liquidity, reduce information and transaction costs and provide an alternative to raising fund through individual savings and retained earnings. These reforms have resulted in the emergence of stronger banks with a more efficient payment system and improved financial system (Iganiga, 2010).

There were several banks collapse, job losses, non-conformity in operations of the banks to reforms Act and wide varying interest margins, much reliance on fluctuations of foreign exchange, banking sector corporate crimes and eventual retardations in economic growth (Sanusi, 2012). Again, Nigeria's growth performance still remains unimpressive. The country's real gross domestic growth rate which was 9.54% in 2010 declined to -1.92% in 2020 and slightly rose to 3.40% in 2021Q1. The question raised is whether financial sector reforms in Nigeria have positively impacted on the economic growth of the country. To take a position in this study, it is necessary to carry out a study on financial sector reforms with particular reference to the banking sector which is pivotal to the financial sector, and how these reforms have affected economic growth in Nigeria from 1990 through 2020.

Literature Review
Theoretical Review
Several theories have discussed financial rector reform and economic growth in Nigeria.

Endogenous Growth Theory
This is an economic theory which argues that economic growth is generated from within a system as a direct result of internal processes rather than external processes. Romer developed it in 1986 as against exogenous growth theory developed by Robert Solow in the 1950's.

The endogenous growth theory is the concept that economic growth is due to factors that are internal to the economy and not from external ones. The theory is built on the idea that improvements in innovation, knowledge and human capital lead to increased productivity, positively affecting the economic outlook. It argues that improvements in productivity can be tied directly to faster innovation and more investments in human capital from governments and private sector institutions.

The theory is of the view that reliance on capital (human), labour knowledge, training, education and technological innovation by government will lead to economic growth.

The Lucas (1988) version of new-endogenous growth theory assumes that investment in education leads to the production of human capital which is the crucial determinant in the growth process. According to the model, it is the investment in human capital rather than physical capital that has spill-over effects to increase the level of technology.

Empirical Review
Ezeocha, (2020) analyzed the Nigerian experience in the banking sector reforms. The study tried to ascertain the effects of the reforms on financial deepening and real sector. The study adopted the method of ordinary least squares regression. It was discovered that relationship between loan and the Gross Domestic Product (GDP) is inversely related and a reduction in GDP through bank loans and advances. The study concluded that significant relationship exist between financial reforms and growth in the economy. Policy consistency by authorities and permitted planning to accommodate the reforms within periods were recommended.

Ishioro, (2017) investigated economic growth and government reform policies in Nigeria's reform-bound economy using 1970 to 2013 time series data. The study applied distributed lags in the regression model to establish the relationship between CBN reforms and Nigeria economic growth. The study revealed that the reform had significant relationship with interest rate when compared to other variables used in the study. Credit to the private sector was statistically insignificant. Also inflation was statistically insignificant. The study recommended for strict adoption of reform policies to enhance banks performance and economic growth.

Mbaeri, Adioha and Uzokwe Nnamdi (2013) conducted a study on the reforms in the banking sector and Nigeria economic growth using regression analysis to test their sourced data. Test revealed that there was improvement in economic growth by banking sector reforms of the government. It was recommended that private sector credits and advances should be supervised to ensure proper implementation and judicious utilization.

Chijindu, (2012) studied the impact of banking credits on Nigeria's economic growth from 1987 to 2012. The study x-rayed the pre-Structural Adjustment Programmme (SAP) period using data from past periods (time series data). The OLS regression was used to test the hypotheses stated. Result found that credits from both public sectors and private sector accumulated banks credits and had significant impacts on growth of the economy within the period studied. It was concluded that for the growth of Nigeria economy, government should inject more credits to the private sector with little interest.

Sanusi, (2012) inquired into the Banking Reform and its Impact on the economy of Nigeria. The paper was exploratively analyzed and found that various reforms adopted have assisted in surmounting the challenges confronted by the banking sector in Nigeria and improved the performance of banks.

Methodology
This paper adopted the ex-post facto research, because it was on annual time series data collected from the central bank of Nigeria statistical bulletin over the period, 1990 – 2020.

Model Specification
This model is based on the endogenous growth model which was modified by Romer and Robert Lucas as the new economic growth theory. The theory placed more emphasis on capital. Capital here is controlled by the financial sector and when there are reforms in the financial sector, capital mobility is enhanced and the overall economy reaps the ensuing reward. Thus, borrowing from the model of Ishioro (2017), we modify their specification by introducing the electronic banking factor as a measure of financial sector reform while also retaining private sector credit and replacing interest rate with monetary policy rate. The specification is expressed in a linear equation form as; RGDP = f(MPR, EBT, EXR, CPS) … i

Putting the above model in econometric form, we have:

$RGDP = \beta_0 + \beta_1 MPR + \beta_2 EBT + \beta_3 EXR + \beta_4 CPS$ … ii

We now include the time period denoted by "t" and the disturbance term in the equation above thus:

$RGDP_t = \beta_0 + \beta_1 MPR_t + \beta_2 EBT_t + \beta_3 EXR_t + \beta_4 CPS_t + \varepsilon_t$ … iii

Where;

RGDP = Real gross domestic product at 2010 constant price

MPR = Monetary policy rate   EBT = Electronic banking transactions (value in naira)

EXR = Exchange rate   CPS = Credit to the private sector

β_1, β_2, β_3 and β_4 = Unknown parameters of the mode to be estimated

β_0 = Intercept of the model ε_t = *Stochastic error term*

t = time period i.e. 1990 – 2020

A-priori expectation: $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, and $\beta_4 > 0$. That is to say that the coefficients of the four explanatory variables are expected to be greater than zero i.e. positive.

Data Analysis and Results
Unit Root Test – Since the variables are time series, we test for the presence of unit root in order to ascertain the order of stationarity of the variables and whether the statistical properties of the data are stable over the time period studied (Egbulonu, 2005). The test is summarized below:

Table 1: Summary of the Unit Root Test (p-values in parenthesis)

Variables	ADF test statistics @		Decision Rule	Order of integration
	Level	**1st difference**		
RGDP	-1.2109 (0.6558)	-4.2236 (0.0027)	Stationary at First Difference	I(1)
MPR	-2.6446 (0.0956)	-6.8488 (0.0000)	Stationary at First Difference	I(1)
EBT	-0.2471 (0.9209)	-4.5493 (0.0053)	Stationary at First Difference	I(1)
EXR	-1.8648 (0.3435)	-5.0529 (0.0003)	Stationary at First Difference	I(1)
CPS	-2.4935 (0.1273)	-3.7273 (0.0089)	Stationary at First Difference	I(1)
Critical value at 5% Level = -2.9678 Critical value at 5% 1st difference = -2.9719				

Source: Extracted from Eviews Output

The unit root test was conducted for each of the variables as summarized in the Table 2 above. The probability values are shown in parenthesis and we can observe that all the variables became stationary after first difference. The *p-values* at first difference are all less than the 0.05 critical value. Therefore, we conclude that real GDP (RGDP), monetary policy rate (MPR), electronic banking transactions (EBT), exchange rate (EXR) and credit to private sector (CPS) are stationary at first difference. The variables are therefore said to be integrated of order one i.e. I(1). This justifies the test for long run relationship using the Johansen cointegration test.

Estimation of the Error Correction Model – The ECM model estimates are summarized in the Table 2 below:

Table 2: Summary of the Ordinary Least Square Regression Estimates

Variable	Coefficient	Std. Error	t- Statistic	Prob.
C				
	8.458801	0.195187	43.33688	0.0000
MPR	0.050199	0.050267	0.998650	0.3288
EBT	0.006136	0.011329	0.541635	0.5935
EXR	-0.033950	0.033886	-1.001905	0.3273
CPS	0.267282	0.033985	7.864800	0.0040
ECM(-1)	-0.215156	0.042620	-5.048240	0.0000
R-squared	0.988744	Mean dependent var		10.58286
Adjusted R-squared	0.986186	S.D. dependent var		0.485240
F-statistic	38.64959	Akaike info criterion		-2.702978
Prob(F-statistic)	0.000000	Durbin-Watson stat		1.635392

Source: Extracted from Eviews Output.

The error correction estimates are summarized in the Table 4 above. Monetary policy rate (MPR) as one of the financial sector reform variables increased Nigeria's real GDP by 0.0502 units for the period studied. This shows that for every unit increase in MPR, the Nigerian economy grows by 0.0502 units annually. The probability value of 0.3288 shows that the increase was not significant.

Similarly, electronic banking transactions (EBT) increased Nigeria's real GDP by 0.0061 units annually. This implies that increase in electronic banking transactions as a result of continuing reforms in the financial sector will result to 0.0061 units increase in economic growth. The *p-value* 0.5935 is greater than 0.05 critical value hence the increase was not significant.

However, exchange rate shows a negative coefficient decreasing Nigeria's real GDP by 0.0339 units. This is an inverse relationship and it entails that for every unit change in exchange rate, the Nigerian economy shrinks by 0.0339 units annually. The *probability value* of 0.3273 indicates that the decrease in real GDP occasioned by changes in exchange rate was not significant.

Interestingly, credit to private sector (CPS) showed positive and significant effect on economic growth increasing real GDP significantly by 0.2673 units annually (*p-value* = 0.0040).

The intercept value of the model is estimated at 8.459 meaning that when we hold the explanatory variables constant at zero, the Nigerian economy (represented by real GDP) grows by 8.459 units annually, all things being equal.

Furthermore, the adjusted R-square gauges the robustness of the model and explains the degree of fitness of the model. It is estimated at 0.9862 meaning that the financial sector reform variables explains up to 98.62 percent of the changes in real GDP over the period studied. This is a very good fit and confirms the predictive quality of the model.

As a way of checking for possible violations of the economic classical assumptions, we confirm the presence or absence of Autocorrelation by checking the Durbin Watson (DW) Statistic. The value is 1.6354. The DW value confirms that there is negative Autocorrelation in the model as it is closer to two. This is based on the rule of thumb which states that if the DW value tends towards 2 than to 0, then we conclude that there is negative autocorrelation.

Looking at the F-statistic (38.649), we can confirm that the financial sector reform variables (MPR, electronic banking transactions, exchange rate and credit to private sector) have significant joint effect on the growth of the Nigerian economy. The *p-value* of 0.0000 confirms the joint significant effect of the variables.

Discussion of Findings

The findings revealed that monetary policy rate, e-banking transactions and credit to private sector increased growth by 0.0502, 0.0061 and 0.2673 units respectively. However, only credit to private sector showed significant positive effect on the growth of the Nigerian economy. The implication of this is that the financial sector reforms has benefitted the private sector more by way of increased bank credit to the sector. Umah (2020) noted that there are now various channels through banks advance credits to the private sector via electronic banking and this has enhanced and opened up the economy. However, electronic banking transactions being an off-shoot of financial sector reforms has not significantly increased Nigeria's economic growth for the period. Perhaps, this may be adduced to the many financial leakages experienced over the years.

However, Ishioro (2017) and Dele (2007) found contrary opinion to this as they posited that financial sector reforms have not favored bank credits especially to the private sector.

The negative effect of exchange rate on growth shows that the reforms in the financial sector has not helped Nigeria's exchange rate policies as the country still grapples with fluctuating exchange rate leading to slow or retarded economic growth. Notwithstanding, the negative effect of exchange rate on growth was not significantly felt in the economy. This may be as a result of the many reform policies aimed at stabilizing the macro-economy. The study found a joint significant effect of the financial sector reform variables on economic growth accounting for up to 98.62% of the changes witnessed in the economy.

Recommendations

Based on the findings made, the study finds it necessary and exigent to advance the following recommendations:

i. The regulatory authority (Central Bank of Nigeria) should urgently address the policies made in respect to exchange rate. The negative effect of exchange rate on growth shows that reforms involving exchange rate policies have not worked in recent times. There has to be a strong stance on "black market" rates by way of making FX available to the productive sector of the economy so as to boost the local currency.

ii. Electronic banking transactions should be made seamless and stress-free so as to encourage more people to embrace the channel. The reforms in this aspect is a welcome development but there has to be service efficiency in order to make ebanking transactions to have the expected impact on economic growth.

iii. Monetary authority should maintain the monetary policy rate at the current rate of 13.5 percent as it has shown positive strides on the economy. This study contends that it is only a matter of time before it significantly grows the economy, as expected.

iv. The central bank of Nigeria and the Securities and Exchange Commission should prevail on banks and capital market to create more savings instruments with attractive interest rates to attract more domestic and foreign savings in Nigeria. This increased savings in the system would be channelled toward productivity investment.

References

Adams, J.A (2005). Banking sector reforms: the policy challenges of bank consolidation in Nigeria. *A paper presented at the 46th Nigerian Economic Society (NES) Annual Conferences Lagos 23rd-25th August.*

Adeyemi, B. (2011). Bank failure in Nigeria: a consequence of capital inadequacy, lack of transparency and non-performing loans. *Banks and Bank System*, *6*(1). 1 – 11.

Agba, A. V. & Enofe, E. E. (2007). "bank consolidation in some selected countries: lessons of experience. *Journal of banking, Chartered Institute of Bankers of Nigeria*, *2*(1).

Amire, C. M. & Amire, P. O. E., (2016). "The effect of corporate external restructuring on the performance of financial institutions in Nigeria: A Review. *International Journal of Economics and Financial modeling. 1*(1), 1 – 11.

Akingbola, E. B. O. (2006). *The new face of banking in Nigeria: lessons and challenges the Nigerian banker*. Kent Publication.

Anyanwu, C. M. (2012). An overview of current banking sector reforms and the real sector of the Nigerian economy, central bank of Nigeria. *Economic and Financial Review*, *48* (4), 61- 68.

Beck, K, Cull. R & Jerome, .H (2012): Bank privatization and performance: empirical evidence from Nigeria. *Journal of Banking and Finance, Elsevier, 29* (8-9), *2355-2379.*

Chijindu, B. (2012). *Impact of banking credit on economic growth in Nigeria*. M.Sc. Thesis

Dele, E. B. (2007). *Banking sector reforms and the Nigerian economy: performance, pitfalls and future policy options*. An MSc. Thesis

Egbulonu, K. G. (2020). Unit root, cointegration and model estimation selection in econometrics research. *Unpublished lecture note on Econometrics*.

Emefiele, G. (2014). Entrenching macroeconomic stability and engendering economic development in Nigeria: *A paper presented by the new CBN Governor on CBN policy statement.*

Explaining theories of economic growth. -theories-of-economic-growth/

Ezeocha, C. M. (2020). Banking sector reforms and economic growth: the case for Nigeria. *International Journal of Management Science and Entrepreneurship 19(7), 3 – 26.*

Gidigbi, M. O. (2017). An assessment of the Impact of Banking Reforms on Economic Growth and bank performance in nigeria. *Cbn. Journal of Applied Statistics, 8*(2). 143 – 214.

Iganiga, B.O. (2010). Evaluation of the Nigerian financial sector reform using behavioral models. *Journal of Economics, 5*(3), 65-75.

Ishioro, B. O. (2017). Banking sector reforms and economic growth: recent evidence from a reform-bound economy. *Binus Business Review, 8*(1), 49-60.

Mbaeri C. C. Adioha, N.F. & Uzokwe Nnamdi J. (2013). Bank reform and economic growth in Nigeria. *International Educative Research Foundation and Publisher,* (1), 66 – 72.

Mike, A. O. (2009). Nigeria's banking sector reforms: the journey so far. *Economic and Policy Review.*

Nwanyanwu, Igbara & Igbara, J. (2021). Effect of corporate crime on small-scale business in Niger Delta: a challenge to Nigeria economy, *International Journal of Advanced Academic Research, 6(3), 45 – 59.*

Nwanyanwu, O.J. (2008), An analysis of banks' credit on Nigerian economic growth. *Jos Journal of Economics, 4*(1), 45-55.

Okoi, I, O., Ocheni, S. I. & Orok, A. B. (2019). Impact of banking sector reforms on economic growth in Nigeria. *European Journal of Scientific Research,154*(2), 230-240.

Obamuyi, T. M., & Olorunfemi, S. (2011). Financial reforms, interest rate behaviour and economic growth in Nigeria. *Journal of Applied Finance and Banking*, *1*(4), 39-55.

Ogujiuba, K. (2011). Financial sector reforms in Nigeria: issues and challenges *International Journal of Business and Management*, *6*(6), 222 – 322.

Ogunleye G. A. (2005), "Empowering the regulatory and supervisory institutions to meet the challenges of the financial sector reforms." being a paper presented at the national workshop on development of the Nigerian financial markets.

Okoi, O. I., Ocheni, S. I & Orok, A, B. (2019). Impact of banking sector reforms on economic growth in Nigeria. *European Journal of Scientific Research*, *154* (2), 230240.

Onodje, O. & Olaniyan, A. 2008). Positioning Nigeria's banking sector for global competitiveness and economic growth through foreign bank entry: issues and challenges. *Paper presented at the 49th Annual Conference of the Nigerian Economic Society (NES).*

Sanni, H. T. (2007), "The consolidation of the Nigerian banking industry: causes, consequences and implications for the future."*Journal of Banking, Chartered Institute of Bankers of Nigeria,* June, 2(I).

Sanusi, L. S. (2012). Banking reform and its impact on the Nigerian economy. *CBN Journal of Applied Statistics*, *2*(2), 115-122.

Sanusi L. S. (2012). Banking Reform and its Impact on the Nigerian economy *CBN Journal of Applied Statistics, 2* (2), 115 – 122.

Sylvanus, I., Ikhide, O. & Abayomi, A. (2011). Banking sector reforms, macroeconomic instability and the order of economic liberalization: the evidence from nigeria.. *AERC Research Paper 112 African Economic Research Consortium.*

Umah, C. C. (2020). Electronic banking transactions and its implications on financial sector reforms in Nigeria. *Research Journal of Finance and Contemporary Business, 1(3), 2231*

COMPARATIVE EFFECTIVENESS OF MODELING AND RATIONAL EMOTIVE BEHAVIOUR THERAPY IN ADDRESSING DISCIPLINE ISSUES AMONG SCHOOL ADOLESCENTS IN LAGOS EAST

Sanusi, Azeez Adekunle
Sanusiazeez090@gmail.com
(+234)8060491038
Department of Psychosocial Rehabilitation
Ogun State Polytechnic of Health and Allied Sciences, Ilese-Ijebu

Abstract
Indiscipline among in-school adolescents in Lagos East is very depressing to all and posed a threat to the norms of the society. Some adolescents in the state engaged in drug abuse, indecency, examination malpractices, premarital sex and cultism among others which eventually led to number of problems which did not affect them alone but the entire society. This study investigated the effectiveness of two therapies Modelling and Rational Emotive Behavior Therapy (REBT) in curbing the scourge of rampant misdemeanor among in school adolescents. Quasi experimental design and control group was hired in this study. Secondary school students from three public secondary schools in the Lagos east senatorial district were included in the sample at random. Adolescent Indiscipline Questionnaire (AIQ) was designed to prompt responses from the participants. Results shown that there was no significant effect of gender on in-school adolescents' indiscipline. No variance was discovered based on location because the effects of treatments were both experienced in the rural area and urban areas. However, there were significant key effects of conducts on indiscipline at the instances of both therapies as the indiscipline rates dropped significantly related to control group.This study confirmed that Modelling and REBT were effective at reducing indiscipline among in -school adolescents in Lagos East. It is thereby suggested that various agents of socialization like family, religious institutions etc, should put all hands on decks. The adoption of Modelling and REBT therapies in reducing any occurring acts of indiscipline among in- school adolescents should be reinvigorated.

Keywords: Efficacy, Modelling, Rational Emotive Behaviour Therapy, Indiscipline, Therapy & Adolescents.

Introduction

Indiscipline among adolescents across the globe is worrisome. Indecency, premarital sex, raping, violence, disobedience to school rules and regulations and to societal rules, drug abuse, truancy, examination malpractices, removal of belts, crazy haircut, cultism, beating up teachers, derailment from school activities, being difficult to control by parents and teachers, using contraceptives and premarital abortion among others. This menace has no geographic or racial boundaries which has made it a contemporary issue which every stakeholder must make efforts to control. A sanity in the contemporary society will bring about sanity, orderliness, progress, cooperation, unity and harmony which will fast-track all round development. Going by the current trends, indiscipline may hamper progress, unity, development and future good leadership selection which needs urgent attention.

The position of adolescents in the Society is a special one because the future of the Society rests on the nature of its young population. However today, it is widely acknowledged that the 21st century youths are bedeviled with varieties of gross indiscipline and misconducts which negate the expected norms and values in serene societies. Indiscipline as one of the anti-social behaviours has eaten deep into our society. In a scuffle to diagnose and offer curative and solutions to the menace, it was perceived that indiscipline in the 21st century is increasing geometrically due to the influence of several factors. As alleged and reported in our national and international news and reviews of literature. Indiscipline as a global sensation has spread its tentacle across the sphere of the society. Gone are the days when there was disparity between the right and the wrong. Wrong doing, indecency, deviance and all sorts of misbehaviors have today seemed to have become acceptable norms. This does not exclude the adolescents and an average school age youth. An in-school adolescent is a potential gambler, cybercriminal, gangster, sex addict, rapist, and truant, cheater in examinations, indecent or member of a cult.

It is intimidating that a group of school students happily identified themselves as "Marlians". Marlians are those group of people typically teenagers, who are fans, lovers and associates of Nigerian- American musician called Azeez Shina Fashola nicknamed Naira Marley. Majority of these adolescents renowned him as their role model and their activities are associated with deviance, disobedience, and mannerlessness like indecent dressing, truancy in school, sagging and so on. (Hez, 2020). They revealed or viewed listening to teachers is an aberration, attending classes is a mistake, carrying out school homework or assignment is an error, using belt is weird, wearing pants is barbarism, passing an examination is unnecessary and being a graduate is waste of time or rip-off. This is just some of the demonstrated countless situations manifesting among expected future hopes of the country.

Indiscipline is the general name for all forms of misconducts which an individual can think of, nevertheless, indiscipline is not peculiar to adolescents only, even some so - called adults. It is better to correct adolescents so that they can avoid abnormal behaviours at earlier stage to prevent the society from its detriments like; highway robbery, kidnapping, banditry, insecurity or insurgency, baby factory business, advance fee fraud and all sorts of indecency among others. If adolescents have been taught the right way, youthful exuberance will be well managed so that they can be involved in many productive activities and do away with criminal affinities.

One of the therapies through which erring adolescents can be corrected is modelling. It is said that adolescents learn by watching and copying the activities of others most especially peers, parents, and elders. The individual serves as figure that they watch, hear and imitate are referred to as models. This modelling technique of behaviour modification implies the presentation of a model (real or symbolic) that is systematically observed and learned from. There are different types of modelling, namely live modelling, audio-taped modelling, filmed modelling, picture modelling, self modelling, covert modelling, negative modelling and role played modelling (Nwankwo, 2019).

Rational Emotive Behaviour Therapy (REBT) is a behaiour modification therapy which applications in the directions of thoughts of individuals. An individual may think positively or negatively which Albert Elis referred to as rational or irrational thinking. Before an individual or adolescent embarks on certain misbehaviours, he or she will definitely think about it. On the other side of the coin, positive thinking leads to positive feat or behaviours. Thus Rational Emotive Behaviour Therapy (REBT) helps to direct the thinking of adolescents towards encouraging good behaviours and shun bad ones.

Closely linked to the hazard is the point that many in-school adolescents desire to be a "school "2" goers", school two goers are the category of students who left home in pretense. They made the parents and guardian realized that they are going to school but they will never attend classes. They usually hide in their hideouts called "school two". They believe schooling is not needed, attendance is not necessary, and that education is a rip-off. Their purpose is meant for something else than acquiring skills nor qualitative education which the parents, guardians, teachers, school, government and society planned for them. So many adolescents of this days engaged in pre-marital sex, gambling, drug abuse, consumption of alcoholic drinks, recruit new members, haven potential intakes initiate and train their members. They believed they find it comfortable, happy and derived pleasure in demonstrating unwanted or bad behaviours.

Current Instances expose that the restive nature of secondary schools students in Lagos State has got to an ugly peak when the students of two neighboring high schools engaged in one show of supremacy which led to the injury sustained by Divisional Police Officer in the area as stones hurled hit him on his forehead. The nervousness like a wild fire in the dry season is spreading and urgent actions need to be taken to the curb the menace.

In many instances, the teachers, both male and female had a herculean task combating and curtailing the students who were throwing stones inside the school compound from a nearby location outside the fence of the school to distract the peace of the school especially the recently written examinations. It was also observed that students fomenting trouble were those who repeated their classes during last session. At other Schools, it took a handful of security agents to get some incontrollable students arrested and taken to police station. The teachers at many secondary schools used to do good jobs retrieving dangerous weapons such as axes, machetes and others. Men of Nigeria Police were usually invited to get some of the students arrested and taken to the station. Instances like these are not peculiar to Lagos State but cut across the thirty-six states in the country.

These scenarios of in-school adolescents' indiscipline cut across the gender and geographical boundaries. It does not exempt male nor female at the same time, are residents of rural and urban areas also affected the same way. One of the major acts of indiscipline among in-school adolescents is cultism. This does not have gender nor geographical boundaries. In-school adolescents among both sexes and locations used to visit neigbouring schools to cause chaos. They used to fight using dangerous weapons, charms to attack one another, which resulted in maiming and at times death of some of them. It is expected that Rational Emotive Behaviour Therapy (REBT) and Modelling will go far as therapies in reducing elements of indiscipline among adolescents especially those in secondary schools. The reason is not farfetched, if irrational thought of education is a scam can lure adolescents to undesirable behaviours in schools, then, Rational Emotive Behaviours Therapy (REBT) of Albert Ellis should be able to assist them to think straight and rationally to eschew indiscipline.

Concept of Indiscipline
According to Adewale (2019) the word indiscipline was imitative from the root discipline which semantically deduced from a Latin word "discipulus" which means orderly conduct as a result of training which means indiscipline literally means complaint conduct. Indiscipline may be said to be as old as when started to organize himself into society and accordingly made laws to order the affairs of men in the social set up.

Indiscipline is not the issue that has not been known by all, as people in one way or the other have been involved with indiscipline gets on diurnal base. Numerous scholars moment especially those in secondary academy parade some form of indiscipline ranging from stealing, murder, cheating etc. These acts involve both grown-ups and youths, the rate of indiscipline is relatively intimidating in the ultramodern world.

Indiscipline may be a form of swinging from the set rules guiding behavioural conductive, an individual doing or engaging in conditioning in a wrong way and thereby neglecting the rules and regulations. For case, there's a rule which says "All climbers shouldn't cross the express way rather should cross over by climbing the over-head ground". The below rules is as clear as demitasse and if any one contradicts the rule, the person will be nominated as "Indiscipline". According to Ajibili (2018) Indiscipline continued a source of great concern to stakeholders as it has generated a lot of emotional, internal and physical damages in the society. The critical tool used in metamorphosis of the existent in particular and the society in general is education. Secondary education in Nigeria is meant to prepare the learners for precious living conditions with the society and training for farther education in order to live precious living conditions within any community and contribute toward the social, provident, and political advancement of the nation. Hence, the National Policy on Education (2004) easily stated that education in Nigeria is a mechanism "par excellence" for producing public advancement. It has encountered active involvement by non-governmental and government interference.

It's thus necessary for the nation to spell out in clear and unambiguous terms the gospel and objects that accentuate its support in education. School rules and regulations in utmost cases affect scholars further than any other thing because they were enacted the school authority to put in place orderliness to guard and cover the students while in school. In the same tone, Ajibili (2018) sees indiscipline as those forms of defiance or rebellious behaviour carried out by students whether within or outside the school. It connotes willful defiance of constituted authority. According to Ajibili it could be done by one person or a group of people. It's a situation whereby scholars set aside the academy rules and regulations and do what they like and leave undone what they're anticipated to do. The Oxford Advanced Learner's Dictionary (2000), defines indiscipline as lack of control in the gets of a group of people. In other words, it's the incapability of a person to live in agreement with rules. Indiscipline is regarded as an act that doesn't conform to the societal values or morals. Still, it has been observed that cases of indiscipline pullulate in the study area. This range from truancy, fighting, crying, snatching other learner's property, bulling, cheating, viewing pornographic accoutrements and hang preceptors among others.

Misconception of Indiscipline to Civilization
Yakub (2018) clarify that differences live between civilization and indiscipline while the former predicts progress, advancement and moving down from barbarism. The latterly constitute deviance, rebellion and villainies that can beget annihilation in the society. While civilization will bring comfort, convenience, aesthetics and modernization, indiscipline will breed corruption, insecurity and barbarism. Station like harlotry, cultism, bleaching, half bareness,

sagging, defiance, gambling, bulling, cybercrime, etc. aren't civilization as perceived by numerous people moment but indiscipline acts. numerous adolescents believe that toning the skin will enhance their beauty while some joker are wearing observance rings, plate their hairs and some womanish adolescent wear and tear trousers, dress half nakedly, involving in lawless sexual affairs or have multiple coitus mates. Anyway, this affect both manly and womanish likewise. Cyber criming, abuse of medicines, seriousness, defiance to parents, preceptors and senior one including those in positions of authority. Diversion of academy freights for particular use, using technological bias for abnormal purposes among others.

In the past many of adolescents do help parents in ménage chores, husbandry, running of errands and in business. Numerous parents complained that when they were growing up, they used to work for their parents but currently because of "civilization" parents are working for their children. The conception of civilization bandied over and the likes aren't civilization but acts of indiscipline. However, cultism, medicine abuse, truancy, adulterous coitus examination malpractices and so on also constitute indiscipline among adolescents in academy.

Theoretical Stances in Literature
1. Stage Theory
Stage theory can be seen from the cognitive perspective. Piaget says adolescence is a period of abstract thinking processes and logical computation of problems within the environment. Adolescence is regarded as the height of intellectual activities. According to David Elkind, prominent feature during this period is the appearance of cognitive capabilities with the adolescent having tendencies to introspect a realistic as well as idealistic values and also to evaluate himself from the perspective of others and consider alternative possibilities in dealing with varied situations.

Elkind also argues in favour of egocentricism during adolescence as being the most obvious parameter of cognitive development. This is manifested in the development of formal operations within the adolescences, this period is also characterized by conquest of thought, use of proposition logic, manipulation of abstract ideas and deeper mental construction of objects and ideas, the adolescent is in either actual or fantacised social situations whereby he takes on imaginary ideas, and construct these ideas within his framework of mental activity. This invariably leads to self-consciousness which makes the adolescent spends long time looking at the mirror.

2. Instability Stage/Destruction Theory
This stage is characterized by emotional storm and stress which create instability within the adolescents. As pointed out by Rogers (2013), this period is bedeviled with emotional difficulty tomfooled in internal conflict. It is a period which hall described as being emotionally unstable during which the adolescent child is naturally intoxicated with energy and ideas without the need for intoxicants. During this period, the adolescence quick shock impulses which is heightened emotionally and which may lead to "TUNNEL VISION"!

Ackerman saw adolescence period as a time for antisocial behaviour, sexual promiscuity, and over-conformity with peers, despair and dis-orientation in his relationship with family and community. Hall contended that this period is characterized by lack of emotional steadiness, lack of enthusiasm and sympathy and susceptibility to external influences. On the product of this tumultuous activities during the adolescence period is the development of anxiety. The adolescent leaves his childish innocence and grows into achieving personal distance from social needs and family aspirations. In the extreme case, the adolescent grows into an extrovert or a neurotic, or psychotic individual.

The Sociological Schools of thoughts
Sociologists have diverse opinions on what contributes to indiscipline and the plausible way out of these swamps posed by nature and circumstance. Their thoughts ranges from mild consideration of the societal influence to the biological incursion.

1. Adolescents
Adolescents should do away with indiscipline. Indiscipline activities at this stage may mar their future. At the other side of the coin, eschewing indiscipline may make their future. They should be selective in the choice of peers. Those peers that are advocator for "education is a scam" today may be the same to blame them or deprive them of golden opportunity because they did not acquire relevant skills in the future. Any negative activity carried out now will

bounce back and be reaped in manifolds. That is why adolescents need to be extra ordinary careful. What goes around usually comes around and the future life of achievements for adolescents is longer than this current stage.

2. Parents

The task of teachers would be very easy if parents teach their children from home and charity begins at home. The home is the first and the most important agent of socialization. Parents should rise up to their responsibilities. If parents are dutiful, the tasks of teachers would be reduced but any lapses or negligence on the part of the parents will go a long way in causing havoc in the life of any child. Parents should not leave their responsibilities for teachers and the school.

3. Teachers

Teachers should carry out the roles of loco parentis which means teacher playing the roles of parents while students are in the school. The expected roles of a teacher within and outside the four walls of the class rooms goes beyond only teaching, it also includes impartation of morals, attitudes and skills. Teachers should be good examples for students to emulate.

4. Counselors

Counsellors should not fold their arms, they should be up and doing in carrying out expected roles. Most counselors in school setting are subject and class teachers. They teach, counsel and have access to confidential information about the children. Counsellors should use the virtue of intimacy to change the life of in - school adolescents for better. Counsellors are expected to live by good examples.

5. School Management

Administrators in school should provide enabling environment for efforts towards reducing Indiscipline among school children. School management has influence on both students and staff. They should be democratic, friendly and generous to the teachers thereby motivating the teachers and form synergy in making reforms in the lives of in - school adolescents. To achieve this, collective responsibilities of all stakeholders is the key.

6. Religious Organizations

Since most in - school adolescents belong to one religion affiliation or the other, religious clerics, scholars, ministers, sermon givers, preachers, instructors, Sunday school teachers, mukadams, religious subject teachers should brace up. No religion preaches indiscipline. The holy books are components of moral instructions. Stakeholders should organise fellowships, religious gatherings where morals, manners and etiquettes are admonished to the adolescents in school settings. Some of the so-called religious subject teachers dodged these responsibilities because it does not involved money. Let us serve God through these children.

7. Government

Government functionaries should do the needful by providing necessary logistics. This is because they have the most effective tools to turn things around in the school and the larger society. Government should put adequate measures in place, provide sufficient human and materials resources, motivate the teachers, make classrooms conducive for both the teachers and students. If all these are in order, overcrowding becomes things of the past things will change for the better and indiscipline rate will drastically reduce. If adequate facilities are not provided and the classrooms are not conducive, schools too open and unfenced will propel the students to move out freely and join bandwagon and perpetrate indiscipline. Government should make education a priority.

8. Society

Larger society, community leaders, traditional and religious leaders should assist the course of indiscipline reduction. The training of children and moral upbringing of in - school adolescents should not be left to the parents and teachers alone. Other stakeholders is the society should brace up. Controlling of indiscipline among in - school adolescents should be communal in nature. If every member of the society is fighting eradication of indiscipline among in - school adolescents, the adolescents involved in one misbehaviour or the other will have a rethink and turn out a new leaf. Members of the society should join the advocacy train and preach the gospel of "War Against Indiscipline".

Contribution to Knowledge

This research work shall be useful to trainees, experts, stakeholders and anyone who lays his or her hands on it. This is through various literature consulted, self-designed questionnaire, scaling system, the two therapies as reliable strategies for behaviour modification. Indiscipline activities, misconceptions and prevalent cases in respective locations as well as analysis of covariance as a way of exposing future researchers to a unique method of data analysis. The aforementioned indiscipline potentials also served as contemporary or emerging challenges in the society which can be used to prevent the future outbreak of indiscipline whether within or outside school settings.

Conclusion

The information generated from this research work has proved that indiscipline is widespread in the society in which school communities were not left out. In the list of numerous indiscipline activities going on among in school adolescents, drug abuse, truancy, premarital sex, examination malpractices, indecency and cultism are the most prevalent in the observed jurisdiction. Numerous factors that are responsible for Indiscipline among school children and teenagers are collapse or lapses of the agents of socialization: Family, school, peer group, religious institutions, mass media, clubs, community and the general society.

Indiscipline among school children has no geographic nor gender boundaries, it is been perpetrated in similar ways. Modelling is a very good therapy for reducing misbehaviors among in school adolescents. Rational Emotive Behavior Therapy (REBT) brings about critical (rational) thinking among school adolescents as it controls their thoughts thereby putting their thoughts, actions, habits and behaviors under control as indiscipline rate dropped. It was made known that education can never be a scam because for any individual to harvest in a place, he must definitely have invested therein. Likewise, whoever takes a short cut shall be cut short.

References

Abigail Goldman (Winter 2010). The Heart of the Matter: *Online or off, couples still have to click.*

Abrahms D.; Viky G.; Masser B.; Gerd B. (2003). "Perceptions of stranger and acquaintance rape: The role of benevolent and hostile sexism in victim blame and rape proclivity". *Journal of Personality and Social Psychology. 84 (1): 111–125.*

Achebe, C. (1998). The Trouble with Nigeria. Enugu: *Fourth Dimension Publishing Co. Ltd.*

Adams, I. (2007). '100,922 Nigerians Die Road Accidents in 15 Years.' *Daily Independent, a Nigerian Daily Newspaper, July 10, p. C2.*

Adedokun, J.A. (2013*).* Relationship between Academic Performance of students from broken homes and intact homes. Nigeria *Education Review vol 28 (2) pp 49-50.*

Adekoya, A. (2007). '96 months of Obasanjo: A gruel of mixed tastes.' *Sunday Vanguard, a Nigerian Weekly Newspaper, May 26, p. 17.*

Aderanti, R.A. (2017). Adolescent Delinquent Behavioural Prevalent patterns: An issue in counseling psychology. *In journal of Applied Education and vocational Research* (JAEUR) vol 2, No 3 pp 270-281.

Adewale, G (2014). Examination malpractices. A stigma on school effectiveness in Nigeria *Adolf Berger, Encyclopedic Dictionary on Roman Law, pp. 667 (raptus) and 768 (vis)*

Agbase, D. (2001). 'From the editorial suite.'Newswatch, a *Nigerian Weekly Magazine, June 25, p. 11.*

Agnes W.R. (2015). Juvenile Delinquency: causes and control 2" ed Los Angeles: *Roxbury Publishing Company.*

Ajani, J. and Igbikiowubo, H. (2006). 'Security: the bane of a nation.' *Sunday Vanguard, a Nigerian Weekly Newspaper, October 1, p. 20.*

Ajero, C. (2007). 'Chaining the Ombudsman,' Newswatch, a *Nigerian Weekly Magazine, June 25, p. 24-*

Ajibili, A.A. (2018). *MisBehaviour Among Adolescent.* Lagos: Raytel Communications.

Akanni O.G, & Odofin B (2015) Reducing Examination Malpractice in Nigerian schools through effective Continuous Assessment (C.A) *American journal of educational Research, 2(i) pg 91-11*

Akaramga S.I. &Ongong J.J. (2013) The phenomenon of examination malpractices. An example of Nairobi and kenya universities Journal of educational and Practice, 4 (18) 87-96.

Akintunde, K. (2007). 'A War Postponed.' Newswatch, a *Nigerian Weekly Magazine, June 25, p. 26-28.*

Alex Benzer (March 2, 2009). Why The Smartest People Have The Toughest Time Dating.

Ali Binazir (February 8, 2010). Why Do Smart Guys Have A Tough Time Dating?

Amin, Avni; MacMillan, Harriet; Garcia-Moreno, Claudia (2018-04-03)."Responding to children and adolescents who have been sexually abused: *WHO recommendations".Paediatrics and International Child Health. 38 (2): 85–86.*

Amy M. Buddie; Arthur G. Miller (2001). "Beyond Rape Myths: A more complex view of perceptions of rape victims". Sex Roles. 45 (3/4): 139–160. *Archived from the original on 2013-05-09. PDF copy Archived 2012-01-18 at the Wayback Machine*

Ana, G. (2017) Stealing. Retrieved from *https://www.healthline.com/health/stealing on 6th June, 2021*

ASUSS, (2021). Students Unrest in Schools. A Report from Academic Staff Union of Secondary Schools (ASUSS).

Baarda, Benjamin I.; Sikora, Aleksandra E. (2015). "Proteomics of Neisseria gonorrhoeae: the treasure hunt for countermeasures against an old disease". *Frontiers in Microbiology.6: 1190.*

Baker, Kimberly M. (2008). "I am just not sure what we are going to do with her": Ambivalence and conflict in drug court decision-making. *Unpublished doctoral dissertation, The University of Texas,*

Bandura, A. (1973). *Aggression: A social Learning Analysis Eaglewood:* Cliff N.J. Prentice hill.

Barbour, Rosaline &Kitzinger, Jenny (1999). Developing focus group research: Politics, theory and practice. London: Sage.

Basile, KC; Smith, SG; Breiding, MJ; Black, MC; Mahendra, RR (2014)."Sexual Violence Surveillance: Uniform Definitions and Recommended Data Elements, Version 2.0" (PDF).Markovchick, Vincent (2016). "Sexual Assault".Emergency medicine secrets. *Philadelphia, PA: Elsevier. pp. 516–520. ISBN 9780323355162.*

SUBSTANCE ABUSE, LOCUS OF CONTROL AND SELF-WORTH AS PREDICTORS OF OPPOSITIONAL DEFIANT DISORDER AMONG SECONDARY SCHOOL STUDENTS IN ABIA STATE

Abangowe, Temple[1] & Prof. P. U. Ekeh[2]
Department of Educational Psychology, Guidance and Counselling
Faculty of Education
University of Port Harcourt
Email: abangowetemple@gmail.com

Abstract
This study investigated the substance abuse, locus of control and self-worth as predictors of oppositional defiant disorder among secondary school students in Abia State. The study was guided by five research questions and their corresponding null hypotheses. The design for the study is correlational research design. A sample of 689 secondary school students was drawn using multi-stage sampling procedure. Six instruments were used for the study. They are, Substance Abuse Scale (SAS), Locus of Control Scale (LCS), Self-Worth Scale (SWS) and Oppositional Defiant Disorder Scale (ODDS). Research instruments was validated by the two experts in the field of Measurement and Evaluation. Both Face and content validity of the instrument was don. The construct validity was also dong using Cronbach Alpha technique. To ensure the reliability of the instruments Cronbach alpha (α) technique was used for both the instruments. Copies of the instruments were administered on 20 students who was not part of the sample for the study and then after the scores obtained was subjected to Cronbach alpha technique. The alpha coefficients of 0.75, 0.82, 0.67, 0.74 and 0.77 was obtained for the drug abuse, locus of control, self-worth, and ODD respectively, while the total item reliability was 0.76. Data was collected by the researcher with the help of some research assistant. Research question 1 and 4 were answered using simple regression while research question 2, 3 and 5 were answered using multiple regression. Also hypotheses 1 and 4 were tested using simple regression associated with ANOVA while hypotheses 2, 3 and 5 were tested using multiple regression associated with ANOVA. However it should be noted that all the hypotheses were tested at 0.05 level of significance. And all the analysis was carried out through the use of a statistical packaged known as SPSS (Statistical Package for the Social Sciences) version 23. Result revealed that substance abuse and locus of control independently and collectively predict oppositional defiant disorder among secondary school students in Abia State while self-worth dose not significantly predict oppositional defiant disorder among secondary school students in Abia State, it was recommended that families, teachers and school counsellors should help lessen the stress of students to avoid resorting to drug use as an escape route.
Key words: Students, Substance Abuse, Locus of Control, Self-Worth and Oppositional Defiant Disorder

Introduction
Oppositional defiant disorder (ODD) and the willingness to perpetrate violence are unfortunately still very current issues among adolescents in secondary schools in Nigeria. Not only have students who are victims of this violence suffered alone; but they have also vented their frustration on other members of society. The behaviour of perpetrators of violence is associated with many risks and damages which can over the long term significantly impede their potential for development. The rate of oppositional defiant disorder (ODD) among secondary school students in Nigeria seem to be alarming and had attracted widespread complains. Behaviours such as violent protest, fighting, vandalism, killing and other forms of aggressive behaviour in schools and larger society have become an issue of concern. Also, the trend of oppositional defiant disorder among in-school adolescents in Abia State seem to be growing worse on a daily basis and the negative impact of this behaviour has become alarming as the society and the school watch helplessly. Behaviours such as substance abuse, cultism, lying, non-compliance to given rules, gambling, corruption, stealing, keeping of bad companies, confused moral values, destruction of property, killing of fellow students, robbery, examination malpractice, bullying are some of the signs of oppositional defiant disorder among in-school adolescents in Abia State.

Following many incidents of bullying in secondary schools in Abia State, Kanu (2017) conducted a survey involving 75,010 school aged children to determine the extent of bullying and vandalization. The researcher reported that bullying and vandalization was serious and widespread in secondary schools. According to Dike (2018) Peer

victimization has become highly prevalent in schools with some studies showing that as many as 50% of high school students report having victimized or being victimized. This prompted the researcher to carry out the study to establish the socio-psychological variables as predictors of oppositional defiant behavior among the secondary schools' students in Abia State.

Supporting the above findings is the observation of the researcher when some of the secondary schools in Ugwunagbo and Osisioma Ngwa LGAs were visited. Where the researcher observed that most of the schools have being deserted by students due to frequent bulling received by the senior school mates. And when the few teachers on ground were interviewed it was observed that this is due to negligence of the state government in maintaining the school facilities, so the students have turned it to be place to perpetrate violence against each other.

ODD among secondary students is considered a behavioural disorder. Such behaviour involves physical violence against students and the teacher, abusive language, tantrums and emotional outbursts. Onukwufor (2012) opined that aggression can occur in various forms such as words or deeds and this a great sigs of ODD. Oppositional defiant disorders in form of words are those verbal hostilities or abuses which are intended to harm another person psychologically. They include acts such as cursing, compulsive swearing, threatening (verbally), shouting etc; on the other hand, oppositional defiant disorders in form of deeds are those physical violent behaviours that are intended to cause physical or bodily harm or injury to another person. They include such acts like: beating, hitting, kicking, slapping, punching etc.

ODD does not only disrupt classroom instructions, but also affects the physical and professional well-being of a teacher. Cookey & Iwuama, (2017) observe that ODD is one of the major worldwide concerns in all segments of societies. People frequently read or hear about gang battles, shootings, bombings or actually becoming victims of such actions. These events are some of the most extreme examples of the ODD that take place every day. Cookey & Iwuama (2017) explained that, ODD among secondary school students refers to all forms of youth violent acts perpetrated within the school setting which is geared towards inflicting physical harm to the victims and affects the schooling process. The state of oppositional defiant disorder has reached alarming stage that they have become worrisome to genuine stake-holders in the educational sector (Hutchinson, 2018). Signs and Symptoms of oppositional defiant disorder include fights, bullying, use of a weapon to cause harm, stealing, forced sexual activity, deliberate fire setting, lying, running away overnight without returning for a lengthy period, and truancy (APA, 2018).

The oppositional defiant disorder is often associated with conduct problems, such as vandalism, drug abuse, weapon carrying, alcohol abuse, rape, examination malpractices, school violence, bullying, cultism, truancy, school dropouts are on the increase in Nigerian cosmopolitan cities (Saheed, 2019). For professionals working with children and adolescents, oppositional defiant disorder and other disruptive behaviors serve as the most frequently observed mental health concerns (Baker, 2017). The global prevalence of oppositional defiant disorder ranged from 2% to 10% (American Psychiatric Association, 2013). In Nigeria, there is scarce literature on oppositional defiant disorder. However, some Nigerian studies reported a 14.5% - 15.8% oppositional defiant disorder prevalence rate among in-school adolescents (Frank-Briggs & Alikor, 2018; Ojuope & Ekundayo, 2020). More up-to-date information on oppositional defiant disorder prevalence and aetiology are imperative to serve as baseline data for oppositional defiant disorder preventive strategies.

According to the Ministry of Education (2018), 32% of students from ages 12 to 18 state that they have been victims of bullying at their schools. In addition, an overwhelming 24% of students among 101 polled, students reported feeling unsafe and unhappy in their schools (Oladaye, 2019). Fifty percent of high school students in his study reported having bullied others or having been bullied at some point. The study of Oladaye did not reveal the causes of students bullying their fellow students. The present study sought to establish the socio-psychological predictors of oppositional defiant among students in secondary school, hence filled the knowledge gap. Parental factors have been linked to the likelihood of children engaging in certain oppositional defiant. There in, this study examined variables such as substance abuse, locus of control and self-worth as predictors of oppositional defiant disorder among secondary school students.

Substance abuse is a patterned use of a substance (drug) in which the user consumes a substance in amounts or with methods neither approved nor supervised by medical professionals. Substance/drug abuse is not limited to mood-altering or psychoactive drugs. If an activity is performed using the objects against the rules and policies of the matter (as in steroids for performance enhancement in sports), it is also called substance abuse. Substance abuse, as well as its etiopathogenic (the cause and subsequent development of a disease or abnormal condition.) and possible treatment methods have already been thoroughly studied by researchers. From the systematic study of substance abuse treatment for the past 30 years, seven factors emerged as the most important. Studies have shown that the afore-mentioned factors both linked to the best and worst possible treatment results for a client. As far as the interaction between each factor and the addiction treatment is concerned, most studies indicate that readiness for therapy, self-efficacy, expectations on the treatment outcome and the perceived social support, are directly associated with positive results in treatment, such as longer and more committed engagement in treatment (Simbee, 2018). Substance abuse have a notable impact on the development of oppositional defiant disorder across generations. Evidence suggests that parents who abuse alcohol and other drugs are more likely to have children with signs of oppositional defiant disorder. ODD have common symptoms of poor self-regulation, low patience and impulsivity. Many substances have the potential to reduce judgment and emotional regulation, which could combine with oppositional defiant disorder symptoms to create more numerous or intense effects like anger, aggression and recklessness. In this way, drugs and alcohol can increase unwanted behaviors linked to oppositional defiant disorders.

Locus of control is a personality construct developed by Julian B. Rotter in 1966, which refers to an individual's perception of the locus of events as determined internally by his or her behaviour versus fate, luck or external circumstances (Ziegler, 2016). Locus of control refers to the tendency to perceive outcomes in life as a result of one's own actions and thus being within one's own control (i.e., internal locus of control), as opposed to being determined by external factors, such as chance or powerful others (i.e., external locus of control). Locus of control was initially described as a personality trait referring to a person's stable beliefs of personal efficacy. It is a belief about whether the outcomes of individual's action are contingent on what we do or on events outside our personal control. Locus of control is equally the degree to which individuals believe that things that happen to them are due to internal versus external factors. These beliefs are rooted in individual's actions and behavior. Locus of control plays a major role in one's behaviour and possible reactions on what is happening or should be happening. A person with dominant external locus of control is convinced that anything that happens is the result of fate, luck or external powers and these believe often cause feelings of anger, frustration, depression and aggression which are signs of oppositional defiant disorder (Swart, 2014).

Self-worth is the internal sense of being good enough and worthy of love and belonging from others. Self-worth is often confused with self-esteem, which relies on external factors such as successes and achievements to define worth and can often be inconsistent leading to someone struggling with feeling worthy. Low self-worth is having a generally negative overall opinion of oneself, judging, or evaluating oneself critically, and placing a general negative value on oneself as a person (Hawks, 2019). People with low self-worth often criticize themselves and abilities, brush off compliments or positive qualities, focus on mistakes, what they didn't do, or what other people seem to do or have. Base on the above assertion the researcher is motivated to investigate the socio-psychological variables as predictors of oppositional defiant disorder among secondary school students in Abia State.

Statement of the Problem
Conflict arising from student's defiant behaviour can present damaging consequences if not checked, to the students involved, their peers, parents and the school authority. Oppositional defiant disorder is an alarming issue of concern among stakeholders in education essentially because the school is an institution designed for teaching and learning, and such task can only be successful in a conducive environment devoid of intimidation, harassment, insecurity and fear.

Adolescents' oppositional defiant disorder is destructive and has led to rioting, demonstration, gangsterism, and even cultism which makes the school environment unconducive for learning most especially in some rural communities in Abia State. The situation is so critical that some students tend to feel less safe and unsatisfied with school life in a school with high level of oppositional defiant disorder displayed by other students. For such students, and particularly the victims, the school is no longer a place of concentrated work and learning.

Oppositional defiant disorder among secondary school students possess serious challenge to school counsellors whose responsibility is to help the students resolve the conflicts within them, do away with maladaptive behaviours and learn the accepted ways of behaving in the society.

In extreme situations, lives have been lost, properties destroyed and some students have been arrested for committing crimes caused by oppositional defiant disorder in Abia State. Oppositional defiant disorder has also resulted in negative consequences which affects the educational and social life of adolescents. Often, students are being suspended or expelled from school due to oppositional defiant disorder. Therein, it is imperative that this study investigates the substance abuse, locus of control and self-worth as predictor of oppositional defiant disorder among secondary school students in Abia State.

Aim and Objectives of the Study
The aim of this study investigated substance abuse, locus of control and self-worth as predictor of oppositional defiant disorder among secondary school students in Abia State. Specifically, the study achieved the following objectives: To:

1. find out the extent to which substance abuse predict oppositional defiant disorder among secondary school students in Abia State.
2. investigate the extent to which locus of control (internal and external) independently predict oppositional defiant disorder among secondary school students in Abia State.
3. examine the extent to which locus of control (internal and external) jointly predict oppositional defiant disorder among secondary school students in Abia State.
4. find out the extent to which self-worth predict oppositional defiant disorder among secondary school students in Abia State.
5. investigate the extent to which substance abuse, locus of control and self-worth jointly predict oppositional defiant disorder among secondary school students in Abia State.

Research Questions
In other to achieve the objectives of the study, the following research questions were answered.
1. To what extent does substance abuse predict oppositional defiant disorder among secondary school students in Abia State?
2. To what extent does locus of control (internal and external) independently predict oppositional defiant disorder among secondary school students in Abia State?
3. Do locus of control (internal and external) jointly predict oppositional defiant disorder among secondary school students in Abia State?
4. To what extent does self-worth predicts oppositional defiant disorder among secondary school students in Abia State.
5. Do substance abuse, locus of control and self-worth jointly predict oppositional defiant disorder among secondary school students in Abia State?

Hypotheses
The following null hypotheses guided the study and were tested at 0.05 level of significance.
1. Substance abuse does not significantly predict oppositional defiant disorder among secondary school students in Abia State.
2. Locus of control (internal and external) does not independently predict oppositional defiant disorder among secondary school students in Abia State.
3. Locus of control (internal and external) does not jointly predict oppositional defiant disorder among secondary school students in Abia State.
4. Self-worth does not significantly predict oppositional defiant disorder among secondary school students in Abia State.
5. Substance abuse, locus of control and self-worth jointly do not predict oppositional defiant disorder among secondary school students in Abia State.

Methodology

The research design adopted for this study is correlational research design. The population of the study comprised all the 16,670 senior secondary students (SSS1 and SSS2) in Abia State. The sample size comprised of 701 senior secondary school students drawn through multi-stage sampling techniques and purposive sampling. This involved the use of stratified and simple random sampling techniques to draw three Local Government Areas for the study. Stratified and simple random sampling were used to draw five secondary schools each from the three Local Government Areas. One hundred SSS1 and SSS2 students were randomly selected from each of the schools drawn for the study. The Oposional Defiant Disorder Scale (ODDS) instrument was administered to the 1,000 students. Through questionnaire they filled 701 manifested signs of ODD and were used as sample for the study. Four instruments were developed by the researchers for the study. They are the Oposional Defiant Disorder Scale (ODDS) which is made up of 29, Substance Abuse Scale (SAS) which is made up of 10 items, Locus of control Scale (LCS) which is made up of 20 items and Self-Worth Scale (SWS) which is made up of 10 items. The instruments were validated by three experts in Educational Psychology, Measurement and Evaluation. Test-retest method was used to determine the reliability of the instruments. The interval between the first and the second test was 2 weeks and the reliability co-efficient obtained were as follows: ODDA 0.73, SAS 0.68, LCS 0.72 and SWS 0.82. Five research questions and five hypotheses were formulated which guided the study and were tested at 0.05 level of significance. Simple regression and multiple regression and analysis of variance (ANOVA) were the statistical methods applied for data analysis. The response pattern for the instruments were based on likert-type four scale of strongly agree, agree, disagree and strongly disagree.

Results

Research Question 1: To what extent does substance abuse predict oppositional defiant disorder among secondary school students in Abia State?

Table 1: Simple regression table showing the prediction of substance abuse on oppositional defiant disorder

R	R^2	Adjusted R^2	Adj Error of the estimate
.141	.112	.110	20.96169

Data presentation on the prediction of substance abuse on oppositional defiant disorder showed that an R value of 0.141 was gotten with an R^2 value of 0.112 and an adjusted R^2 of 0.110. On the basis of the R^2 value obtained, it can be seen that substance abuse accounted for 11.2% variation in the oppositional defiant disorder among secondary school students in Abia State.

Hypothesis 1: Substance abuse does not significantly predict oppositional defiant disorder among secondary school students in Abia State.

Table 2: Analysis of variance associated with simple regressions table showing the prediction of substance abuse on oppositional defiant disorder.

Source of variance	Sum of squares	Df	Mean square	F	p.value
Regression	512.619	1	512.619	1.167	.042
Residual	301862.545	687	439.392		
Total	302375.164	688			

When the above value was subjected to an ANOVA associated with simple regression, an F-value of 1.167 was obtained at 1 and 687 degrees of freedom, with an associated p-value of 0.042 which was less than the chosen alpha for the study, 0.05. This result showed that substance abuse significantly predicts oppositional defiant disorder among secondary school students in Abia State. The null hypothesis was therefore rejected.

Research Question 2: To what extent does locus of control (internal and external) independently predict oppositional defiant disorder among secondary school students in Abia State?

Hypothesis 2: Locus of control (internal and external) does not independently predict oppositional defiant disorder among secondary school students in Abia State.

Table 3: Values the Locus of Control in predicting oppositional defiant disorder among secondary school students

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	34.761	4.933		7.046	.010
INTERNAL LOCUS OF CONTROL	.769	.121	.240	6.360	.010
EXTERNAL LOCUS OF CONTROL	-.036	.253	-.015	-.141	.888

Observation of table 3 the reveal that the unstandardized partial regression coefficient denoted as B obtained are 34.741 for constant, 0.769 for internal locus of control and -.036 for external locus of control. Since the B coefficient, is the measure of the shape of the regression love that determines the amount of changes in the oppositional defiant disorder dependent variable for every unit change in the independent variable so that moved equation to be used in predicting oppositional defiant disorder using the dimensions of locus of control is $Y = 34.761 - 0.769x_1 + -.036x_2$ where Y_1 is the prediction value of oppositional disorder while X_1 and X_2 represent any given value, on internal and external locus of control respectively.

Moreso, it is also shown is table 3 that relative contributions of each dimension of locus of control (Beta) obtained are 0.240 and -.015 respectively for internal and external locus of control, considering their values, It is obvious that internal locus of control had the greater impact follow by external locus of control which had inverse impact. Considering their associated t-value and their corresponding p-values, it could be dedicate that the t-value for internal locus of control yielded a significant contribution in predicting oppositional defiant disorder. This is because the probability levels was less than that of the chosen alpha level of 0.05 ($p<0.05$) while external locus of control is greater than 0.05 ($P>0.05$), this it made an insignificant inverse prediction on oppositional defiant disorder among secondary school students.

Research Question: 3: Do locus of control (internal and external) jointly predict oppositional defiant disorder among secondary school students in Abia State?

Table 4: Summary multiple regression of the jointly prediction of locus of control on oppositional defiant disorder

R	R^2	Adjusted R^2	Adj Error of the estimate
.239	.057	.055	20.38457

Table 4 Shows that the joint prediction of locus of control (internal and external locus of control) yielded an R value of 0.239, this is, alongside a coefficient of determination R^2 of 0.057 and an adjusted coefficient of determination an (adj R^2) of 0.055, it is deduced that 5.5% of the changes in oppositional defiant disorder are dependent on the changes of the, combined effect of locus of control (internal and external locus of control). On the other hand, the remaining, 94.5% of the changes in oppositional defiant disorder among secondary school students are attributable to the factors outside locus of control (internal and external locus of control).

Hypothesis 3: Locus of control (internal and external) does not jointly predict oppositional defiant disorder among secondary school students in Abia State.

Table 5: Summary of analysis of Varian association with multiple regressions on the relationship between locus of control (internal and external locus of control) and oppositional defiant disorder

Source of variance	Sum of squares	Df	Mean square	F	p.value
Regression	17320.992	2	8660.496	20.842	.010
Residual	285054.172	686	415.531		
Total	302375.164	688			

Results in table 4.5 shows that the calculated F-value of 20.842 was obtained at df of 2 and 686 at 0.010 level of significance (P <0.05). Therefore locus of control (internal and external locus of control) had a significant prediction of oppositional defiant disorder among secondary school students in Abia State. The null hypothesis was therefore rejected.

Research Question 4: To what extent does self-worth predicts oppositional defiant disorder among secondary school students in Abia State?

Table 6. Summary of simple regression of the prediction of oppositional defiant disorder by self-worth

R	R^2	Adj.R^2	Std error of the estimate
.060	.014	.012	20.94124

In response to research question one, the result showed that a linear regression coefficient obtained for the prediction of oppositional defiant disorder by self-worth among secondary school students in Abia State, R value was 0.060, while the coefficient of determination, R^2 was 0.014, and the adjusted R^2 was 0.012. Based on R^2 value, it therefore indicates that 04.0% of the variations in oppositional defiant disorder among secondary school students can be attributed and explained by their self-worth while the remaining 99.6% can be attributed to other factors.

Hypothesis 4: Self-worth does not significantly predict oppositional defiant disorder among secondary school students in Abia State.

Table 7: Simple Linear Regression coefficient of the prediction of oppositional defiant disorder by self-worth

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	1101.166	1	1101.166	2.511	.114
Residual	301273.998	687	438.536		
Total	302375.164	688			

Furthermore, in testing the corresponding null hypotheses, the result indicated that an F-value of 2.511 was obtained at 1 and 687 degrees of freedom with an associated p-value of 0.114. Since the obtained p-value was higher than 0.05, it therefore indicates that self-worth does not significantly predict oppositional defiant disorder among secondary school students in Abia State. The null hypothesis was therefore retained.

Research Question 5: Do substance abuse, locus of control and self-worth jointly predict oppositional defiant disorder among secondary school students in Abia State?

Table 8. Summary of multiple regression of the joint prediction of oppositional defiant disorder by substance abuse, locus of control and self-worth

R	R^2	Adj.R^2	Std error of the estimate
.265	.770	.661	20.31895

The answer to research question seven as shown in Table 8 indicated that a multiple regression coefficient of 0.265 was obtained on substance abuse, locus of control and self-worth as they jointly predict oppositional defiant disorder among secondary school students in Abia State, with the coefficient of determination, R^2, of 0.770, and an adjusted R^2 of 0.661. From the R^2 value of 0.770, it therefore suggests that 77% of the variations in oppositional defiant disorder among secondary school students can be attributed and explained by the substance abuse, locus of control and self-worth.

Hypothesis 5: Substance abuse, locus of control and self-worth jointly do not predict oppositional defiant disorder among secondary school students in Abia State.

Table 9: Multiple Linear Regression coefficient of substance abuse, locus of control and self-worth as it jointly predict oppositional defiant disorder among secondary school students in Abia State

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	21217.696	7	3031.099	7.342	.010
Residual	281157.468	681	412.860		
Total	302375.164	688			

Furthermore, in testing the corresponding null hypotheses, the result indicated that an F-value of 7.342 was obtained at 7 and 681 degrees of freedom with an associated p-value of 0.010. Since the obtained p-value was less than 0.05, it therefore indicates that substance abuse, locus of control and self-worth jointly do predict oppositional defiant disorder among secondary school students in Abia State.

Discussion of the Findings

Substance Abuse and Oppositional Defiant Disorder
From the analysis of research question three and the corresponding null hypothesis in table 4.1, it was shown that substance abuse significantly predict oppositional defiant disorder among secondary school students in Abia State. This prediction was found to be statistically significant when tested at 0.05 level of significance. This result means that students who scored high in the section of substance abuse also scored high in oppositional defiant disorder while those who scored low in substance abuse also scored low in oppositional defiant disorder. This result is not surprising to the researcher because young people who persistently abuse substances often experience an array of problems, including academic difficulties, health-related problems/mental health, poor peer relationships, and involvement with the juvenile justice system which may lead to ODD. Additionally, there are consequences for family members, the community, the nation and the international community. Also substance-abusing youth often are alienated from and stigmatized by their peers because they can cause bodily harm to people without notice. Adolescents using alcohol and other drugs often disengage from school because they perform poorly in school and depriving their peers and community activities of the positive contributions they might otherwise have made but rather increase crime and violence in the community and increase the number of juveniles and adults in jail.

This result is similar to that obtained by Ibrahim (2012) who investigated the relationship between types of drugs used with aggressive behavior among adolescents. Results showed that the majority of adolescents (95 percent) indicated an aggressive behavior of moderate to high level. The result of the study also found that adolescents who have been using heroin (r = 0.016, p <0.05) and morphine drugs (r = 0.181, p <0.05) showed significant correlation with aggressive behavior. But the both study differs in the variables used. As the present study used oppositional defiant disorder while Ibrahim study used aggressive behavior although the both studies are similar to a reasonable extent.

Locus of Control (Internal and External) Independent Prediction of Oppositional Defiant Disorder
From the analysis of research question two and the corresponding null hypothesis in table 4.3, it was revealed that the unstandardized partial regression coefficient denoted as B obtained are 34.741 for constant, 0.769 for internal locus of control and -.036 for external locus of control. Since the B coefficient, is the measure of the shape of the regression love that determines the amount of changes in the oppositional defiant disorder dependent variable for every unit change in the independent variable so that moved equation to be used in predicting oppositional defiant disorder

using the dimensions of locus of control is $Y = 34.761 - 0.769x_1 + -.036x_2$ where Y_1 is the prediction value of oppositional disorder while X_1 and X_2 represent any given value, on internal and external locus of control respectively.

Moreso, it is also shown is table 4.3 that relative contributions of each dimension of locus of control (Beta) obtained are 0.240 and -.015 respectively for internal and external locus of control, considering their values, It is obvious that internal locus of control had the greater impact follow by external locus of control which had inverse impact. This result means that students who scored high in the section of internal locus of control also scored high in oppositional defiant disorder while those who score low in their internal locus of control also scored high in oppositional defiant disorder. This result is not surprising to the researcher because internal locus of control refers to an individual's perception about the underlying main causes of events in his/her life which is being attributed to self. So the way an individual interpret what happened to him/her will determine the state of his/her social behaviour.

This study is in agreement with the finding of Shlomo (2019) who investigated the relationship between locus of control and aggressive reactions to frustrating situations in middle-class and culturally deprived children. It was hypothesized that subjects with internal locus of control would react to frustration with 'positive' aggression more frequently than would subjects with external locus of control, that deprived children would respond with 'negative' aggression more frequently than would middle-class children, and that the latter would respond with 'positive' aggression more frequently than would the former. In addition, the influence of social status and sex on the relationship between locus of control and aggression was examined. The results support the hypothesis regarding the relationship between locus of control and type of aggressive response. No significant relationship was found between social status or sex and type of aggressive response to frustration. The both study differs in the area of variables used as the present study used ODD and his study used aggressive behavior.

Locus of Control (Internal and External) Joint Prediction of Oppositional Defiant Disorder
From the analysis of research question three and the corresponding null hypothesis in table 4.5, it was shown that locus of control (internal and external locus of control) had a significant joint prediction of oppositional defiant disorder among secondary school students in Abia State. The prediction is statistically significant at 0.5 level of significance. This result implies that students who scored highly on the section of locus of control are prone to score high in their oppositional defiant disorder. However, the reported prediction indicates that all those who score high in locus of control (internal and external) also scored high in oppositional defiant disorder. The result that locus of control (internal and external) jointly predict oppositional defiant disorder among secondary school students in Abia state is not surprising to the researcher. Because the initial result obtained showed that one of the locus of control dimension which is internal locus of control had a very level of prediction on oppositional defiant disorder among secondary school students in Abia state could be a probable explanation for the for the result.

This result is similar to that obtained by John (2019) who discovered how anger, locus of control, and impulsivity are related to aggression. Two pathways to aggression were examined: a cognitive/schema pathway and an emotion/impulsivity pathway. Results indicated that anger and impulsivity were positively associated with aggression. Internal locus of control for success was negatively associated with aggression. In addition, impulsivity mediated the relation between anger and aggression.

Self-worth and Oppositional Defiant Disorder
From the analysis of research question one and the corresponding null hypothesis in table 4.1, it was shown that self-worth does not significantly predict oppositional defiant disorder among secondary school students in Abia State. The null hypothesis was therefore retained. This prediction was found to be statistically not significant when tested at 0.05 level of significance. This prediction of self-worth on oppositional defiant disorder means that as the score on self-worth increases, there is corresponding decrease in oppositional defiant disorder and vice versa.

This no prediction of self-worth on oppositional defiant disorder means that the level of student's self-worth have nothing to do with their oppositional defiant disorder. This may be as a result of self-worth being an individual's belief in his or her capacity to execute behaviours necessary to produce specific performance attainments. Self-worth reflects

confidence in the ability to exert control over one's own motivation, behaviour, and social environment. This to say that when an individual is able to control what motivates him/her the social life of the individual will improve. Meaning that it has nothing to do with oppositional defiant disorder but other social life of the individual.

The result from this study is dissimilar to that obtained by Niloufar (2011) who examines the relationships between self-worth and symptoms of depression, anxiety, worry and social avoidance in a large sample of normal students (n=549). The results distinguished that there is a significant and negative relationship between total self-worth, physical self-worth and academic self-worth and depression. Also significant and negative relationships were found between total self-worth, physical self-worth and emotional self-worth and anxiety. Emotional self-worth and physical self-worth had significantly a negative relationship to worry. On the other hand, social self-worth and physical self-worth were significantly and negatively related to social avoidance. The finding from both studies differed in that the sample size used and the result obtained varied. Also the study is similar with the findings of Eunju (2014) who examined whether the instability of self-esteem (i.e., a high intraindividual variability in self-esteem) is differentially associated with different types of aggressive behavior by using a sample of 235 preadolescent children. The results indicated that the state component of self-esteem, not the trait component, had a significant association with aggressive behaviors. When controlling the trait component, the state component was positively related to reactive aggression and negatively related to proactive aggression.

Summary of findings
During the execution of this research the researcher encountered certain challenges, some of which were limited literatures for review. But despite this the study yielded meaningful result which are summarized below.

1. Substance abuse accounted for 11.2% variation in the oppositional defiant disorder among secondary school students in Abia State. This result also showed that substance abuse significantly predicts oppositional defiant disorder among secondary school students in Abia State.

2. The relative contributions of each dimension of locus of control (internal and external) (Beta) obtained are 0.240 and -.015 respectively for internal and external locus of control, considering their values, It is obvious that internal locus of control had the greater impact follow by external locus of control which had inverse impact. Also considering their associated t-value and their corresponding p-values, it could be dedicated that the t-value for internal locus of control yielded a significant contribution in predicting oppositional defiant disorder. This is because the probability levels was less than that of the chosen alpha level of 0.05 (p<0.05) while external locus of control is greater than 0.05 (P>0.05), this it made an insignificant inverse prediction on oppositional defiant disorder among secondary school students in Abia State.

3. It is deduced that 5.5% of the changes in oppositional defiant disorder are dependent on the changes of the, combined effect of locus of control (internal and external locus of control). Therefore locus of control (internal and external locus of control) had a significant prediction of oppositional defiant disorder among secondary school students in Abia State.

4. The result therefore indicates that 04.0% of the variations in oppositional defiant disorder among secondary school students can be attributed and explained by their self-worth while the remaining 99.6% can be attributed to other factors. It therefore indicates that self-worth does not significantly predict oppositional defiant disorder among secondary school students in Abia State.

5. The final result therefore suggests that 77% of the variations in oppositional defiant disorder among secondary school students can be attributed and explained by the substance abuse, locus of control and self-worth. Also it therefore indicate that substance abuse, locus of control and self-worth jointly do predict oppositional defiant disorder among secondary school students in Abia State.

Conclusion
Based on the finding of this study, it is a clear evidence that oppositional defiant disorder and other deviance behaviours came in to existence as a result of lack of monitoring and supervision, inefficient communication and

understanding between parents and their children, over control and under control, harsh and corporal punishment and poor parental discipline which are occurred as a result of poor educational status are some of the causes' of oppositional defiant disorder among adolescents. The finding of this study concluded that oppositional defiant disorder of adolescents is the product of substance abuse, locus of control and parental disciplinary practices.

Recommendations
The following recommendations were made:
1. Family, teachers and school counsellors should help lessen the stress of students to avoid resorting to drug use as an escape route.
2. Students should be thought the best way of attributing any event that happens to them. This will help them build a healthy social life.
3. Parents and teachers should find out the possible ways of improving the self-efficacy or self-worth of the students. This will boost their sense of self-importance and relevance.
4. Parents should instill a sense of greater trust between them and the child in order to improve his social development. And this will help to reduce the rate of oppositional defiant disorder among secondary schools students.

Contributions to Knowledge
Besides the contributing to the existing literature in this area of study, this study may be the first of its kind to show whether or not substance abuse, locus of control and self-worth predict oppositional defiant disorder in this part of the country to be specific. Also, this study be first to establish the socio-psychological variables as predictors of oppositional defiant disorder among secondary school students in Abia State.

Thus, by these acts, this study has added to the existing literature on substance abuse, locus of control and self-worth as predictor of oppositional defiant disorder among secondary school students which future researchers can make reference to.

References
American Psychiatric Association (2018). *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Arlington, VA: APA.

Berk, L. E. (2017). *Development through the lifespan. (4th ed.). Boston: Pearson Education Inc.*

Cookey, N.R & Iwuama, B.C. (2017). Comparism of forms and incidence of school violence among urban and rural secondary school students. *Journal Educational Psychology University of Port Harcourt. 2(3) 77-92.*

Dike, A. (2018). Proactive and reactive aggression: An analysis of subtypes based on teacher perceptions. *Journal of Clinical Child Psychology, 21*, 210–217.

Eunju, J. L. (2014). The relationship between unstable self-esteem and aggression: differences in reactive and proactive aggression. *Journal of Experimental Child Psychology, 89*, 338–355.

Frank-Briggs, A., & Alikor, E. A. (2018). Conduct Disorder among Children in an Urban. *International Journal of Psychosocial Rehabilitation. 17*(1) 89-104

Hawks, M. A. (2019). Self-esteem and culture: Differences in cognitive self-evaluations or affective self-regard? *Asian Journal of Social Psychology*, *10*(3), 162-170.

Hutchinson, G.W (2018). Oppositional disorder: fact or fiction? *J Am Acad Child Adolesc Psychiatry; 27*(2):157–162.

Ibrahim, F. (2012). Substance Abuse and Aggressive Behavior among Adolescents. *Asian Journal of Social Science 8*(9), 12-22

John, L. (2019). The Relation of locus of control, anger, and impulsivity to boys' aggressive behavior. *Journal of the American Academy of Child and Adolescent Psychiatry, 32*, 1145–1154.

Kanu, J. P. (2017). Prevalence of bulling among secondary school students in Abia State. *Child Development, 56*, 1018–1041.

Keenan, K., & Shaw, D.S. (2013). *Starting at the beginning: Exploring the etiology of antisocial behavior in the first years of life*. In B.B. Lahey, T.E. Moffitt, & A. Caspi (Eds.), The causes of conduct disorder and serious delinquency. 153–181.

Ojuope, A. V., & Ekunudayo, O. O. (2020). Conduct Disorder and Its Relationship with substance abuse. *International Journal of Education Learning and Development, .1, (2), 73-84.*

Oladaye, J.E.F. (2014). Parenting the Nigerian adolescents towards smooth transition to adulthood. In: *Contemporary Issue and Research in Adolescents*. Omoade Printing Press. 297-288.

Onukwufor, J. N. (2013). Physical and verbal aggression among adolescent secondary school students in Rivers State of Nigeria. *International Journal of Education Learning and Development, .1, (2), 73-84.*

Saheed, M. (2019). *Temperament and behavioral precursors to oppositional defiant disorder and conduct disorder*. In H.C. Quay, & A.E. Hogan (Eds.), Handbook of disruptive behavior disorders (397–417).

Shlomo, R. (2019). The relationship between locus of control and type of aggression in middleclass and culturally deprived children. *Personality and Individual Differences. 11(4)* 327-333

Simbee, D. (2018). Prevalence of substance use and psychosocial influencing factors among secondary school students in Dodoma municipality. Published dissertation for Master of Medicine (Psychiatry), Muhimbili University of Health and Allied Sciences.

Swart, E. A. (2014). Regulating the expectation of reward via cognitive strategies. *Nat. Neurosci. 11,* 880–881.

TIME MANAGEMENT PRACTICES IN DIGITAL MARKETING ON PRODUCTION FIRMS IN RIVERS STATE

Anyahie A. Azunwo
&
Ezekiel-Hart James Carr
Petroleum Marketing and Business Studies
Federal Polytechnic of Oil and Gas
Bonny, Rivers State

Abstract
Time management is key to managing businesses globally. The study examines time management practices in digital marketing on production firms in Rivers State. Three research questions and one hypothesis were used in the study. The study employed the descriptive survey research design. The study used one hundred twenty (120) managers from various production firms in Rivers State. Ten (10) firms were selected as sample for the study using random sampling technique. The research work used an instrument titled "Time Management Practices in Digital Marketing on Production Firms" (TMTDMPF). The instrument was subjected to a pilot test program in selected production industries in Delta State. The test-retest method was used to obtain the reliability of the study. The instrument was administered to the respondent to fill in some selected firms in Delta State. The responses obtained from the managers within the two weeks interval was collated and calculated using Pearson Product Moment Correlation Coefficient to obtain a reliability coefficient of 0.83. This was considered adequate for the study. For method of data analysis used for the study, the simple mean, standard deviation, charts and Spearman Ranks-Order Correlation. The findings of the study revealed that items 1, 2 and 3 are highly effective to the fact that allocating time for every marketing task enhances efficiency in service delivery, using a time management app will help us organize our life and plan our time more effectively and designation of task improves digital marketing proficiency are required time management skills in marketing. Also, findings revealed that time management skills enhance sales record in digital marketing, time management skills earn reputation of digital marketers and time management skills create room to earn more on digital marketing. Based on the findings obtained from the study it was recommended that production firms should adopt time management strategies in enhancing marketing output using digital skills. Also, managers of industries should be trained through seminars on the application of modern digital marketing skills.
Keywords: Time, Management, Digital, Marketing, Production and Firms

Introduction
The current global economy had migrated from the analogue system of business operation to digital systems. The introduction of modern gadgets had influenced the system of business development. Most transactions are done online and customer interacts with business managers using the digital platforms. Digital marketing entails the use of internet, social media, search engines, mobile devices, display advertising and other channels to reach consumers, so the maxim, if an enterprise cannot be found in social media, then it does not exist, seems to depict consumer behavior nowadays.

The application of digital network is imperative for brands, and it should be advanced in to Small and Medium Enterprises (SMEs) if they want to stay viable and grow. However, it seems that many SMEs do not use the full potential of these new digital tools (Gilmore, 2007). ,ost businesses are a substantial part of the world economy. For instance, in Europe 99% of companies are SMEs (of which 92% are micro-enterprises) and those companies provide more than 75% of private sector jobs (European Commission 2012); in the United States (US) economy, SMEs represent 99.7% of all employer firms and employ half of U.S. workers (Small Business Administration 2014). The importance of these companies cannot be unheeded. Most organization hooks up their business network using the online platform.

Businesses generally aim to grow considering time factor in terms of market share, assets and to ensure that they attract and retain customers to remain profitable while having durable competitive advantages over its competitors.

According to Jobber & Ellis (2013), marketing concepts are based on the basic principles of implementation which are very vital for business development. They also stated clearly that marketing is not an abstract concept, but rather a decisive test that has on the corporate indices such as profitability and market share. SMEs need to grow in order to ensure survival and be able to compete in the market.

According to Ayyagari et al. (2007) stated that in both the developed and the less developed countries, SMEs contribute roughly 75 % of the manufacturing sector's formal employment. The growth of SMEs in any country is therefore very imperatives as it implies an economic growth. One of the major factors of growth of SMEs is sales which generate income. This can be attained by marketing their products and services to create awareness and make their products and services preferred as compared to that of competitors. Therefore, the size, availability of resources and life cycle of the company, marketing objectives will always differ hence different marketing methods or strategies.

Time utility is a necessary factor that has a strong hold on people's service delivery and other necessary activity that is part of man's daily routine. The time factor is a control system that has an independent control of its own. Time as a factor has the ability to either affect your working schedule positively or negatively, this happens as a result of a man's knowledge towards time management. If time is not efficiently utilized then it will be abused and can become the reason for lack of good marketing productivity. Time management is something we need to master to be productive.

In the field of digital marketing, the skill of time management plays a significant role in the growth of your career. It is easy for digital marketers to get distracted because of the amount of time spent on your phone, so it is essential to stay focused on the tasks you need to complete. Digital marketing is often confused with online marketing. Digital marketing is the process of promoting a brand, service or product on the internet. Put simply, Digital marketing differs from traditional marketing in that it involves the use of online channels and methods that enable businesses and organizations to monitor the success of their marketing campaigns, often in real time, to better understand what does and doesn't work.

The first approaches to digital marketing states that it is a projection of conventional marketing, its tool and strategies, on internet (Otero and Rolan, 2016). Satya (2015) defined it as 'online marketing', 'web marketing' or internet marketing. The term digital marketing becomes very popular overtime, especially in certain countries. In USA online marketing is still prevalent, in Italy it is referred as web marketing but in UK, and worldwide, digital marketing has become the most common term, especially after the year 2013.

The 21st century has witnessed the developing of a web presence in most companies. E-mail was common place and there was technology allowing people to manage this fairly easily. Customer relationship management (CRM) systems had been in place for some time to manage databases. Some companies were placing banners on websites with a similar approach to press advertising. Forward thinking companies were working on their search engine strategy and even working with some affiliates. All of these was online marketing and, in time, online marketing teams and specialists will begin to appear. (kingsnorth, 2016).

Statement of the Problem
Most marketers find it very challenging in utilizing time while marketing products on the Internet, majority of their problem is caused by online distractions and negligence of time allocation. This has become a day-to-day challenge for many business owners who market their products on digital platforms, therefore causing them to err on proper target objectives in winning patronisers of their commodity. This study will provide insight on how time management can be achieved in digital marketing.

Purpose of the Study
In the field of digital marketing the skill of time management plays a significant role in the growth of a marketer's business career. Therefore, adequate understanding must be put in place in the study of this research theory in order for marketers to earn the technical knowledge of what it means to use time and maximize it at every point in a digital setting. Specifically, study sought to:

1. Develop model on how industrial marketers carry out daily plan as a digital Marketer?
2. Develop time management skill required for digital marketer?
3. Find out the perception of digital marketers on the efficacy of time management skills.

Research Questions
The following research questions were developed and used for the study:
1. What is the required model needed by industrial marketers in piloting daily plan as a digital Marketer?
2. What are the time management skills required for digital marketer?
3. What is the perception of digital marketers on the efficacy of time management skills?

Hypothesis
There is no correlation between time management skills in production and quantity of products sold within one week using digital marketing platform.

Scope of the Study
The study is limited to time management practices in digital marketing on production firms in Rivers State. It is also limited to the adoption time management model used and perception of digital marketers on the efficacy of time in digital marketing.

Literature Review

Conceptual Frame Work
Time Management
Time is of essence for a business to strive in a competitive market. When business ambitions are not adequately pursued with time, it leads to bad debt. As the conception of time determines our behavior, our life (Hall, 1959; Pant, 2016), several studies on perception and management have been carried out. In the business field, from the classic studies of McCay (1959), Drucker (1967) or Lakein (1973) to the most recent of Hassan (2003), Kannan and Tan (2005) and Cockerell (2016), there has been great interest in analyzing the planning and organization of time, in order to determine its link with performance or income. The relationship of time management with non-strictly economic variables such as anxiety, physical and psychological well-being has also been analyzed (Macan, 1994; Ho, 2003; Misra and McKean, 2000; Pérez-González et al., 2003; Strazdins et al., 2011; Boixadós et al., 2012).

Businesses are scheduled based on long- and short-time achievements. The attainment of the final goal undoubtedly involves prioritizing the different tasks, short-term and long-term planning and specifying "skills such as focusing on urgent and important tasks, rather than those that are not important or do not move you towards the goals, elaborate list of decisions, avoid procrastination or persevere when things are not working" (Tortajada et al., 2015,). When business goals do not meet the required time frame for achieving profit it causes confusion in the organization.

In short, all the activities are determined by the organizations intention to achieve the objectives set without anxiety, stress or the feeling of inability to take on all the tasks. In the current knowledge society, information and communication technologies (ICTs) pose great challenges and offer immense opportunities. They not only transform the previous modalities of learning and socialization, but also the relationship between knowledge and learning processes (Shulman, 1987; Duderstadt, 1994).

It is therefore essential to redefine the concept of knowledge using digital marketing skills, to enhance business growth (Tejada Fernández, 2000), the forms of transmission of it and its ontology. ICTs and digitalization enable self-training and cooperative learning, so the entrepreneurs and industrialist have ceased to be mere transmitters of technical knowledge to become suppliers of methods of analysis and reasoning, in short, of capabilities, not only aimed to the elite, but to the society as a whole with which it is "more reflexively connected" (Delanty, 2001).

The growth of knowledge from collective exchange (Levy, 2000), the largest and fastest distribution of information (Lara, 2005), requires controlling this environment in which these processes are developed, where it is very easy to

get distracted; in short, effectively manage the limited resource that is time. The challenge is to learn to live surrounded by apparent multiple possibilities (Bauman, 1991) in a globalized world dominated by uncertainty (Barnett, 1999).

The advancement of science and technology has placed business in the digital world. Commence and trade can be easily monitored in any part of the world using gadgets. Buying and selling of goods are easily done online. The term digital marketing was first used in the 1990s, but digital marketing has roots in the mid-1980s when the softAd Group, now ChannelNet, developed advertising campaigns for automobile companies, where in people would send in reader reply cards found in magazines and receive in return floppy disks that contained multimedia content promoting various cars and offering free test drivers. Digital marketing now became more sophisticated in the 2000s and the 2010's; the proliferation of devices' capability access digital media at almost any given time has led to great growth of digital advertising; statistics produced in 2012 and 2013 showed that digital marketing was still a growing field.

Methodology

The study employed the descriptive survey research design. The descriptive survey design was used mainly because questionnaires were distributed to respondents to get feedback data. According to Nworgu, (2009) survey design is employed for studies aimed at exploring opinions of a given population or its representative sample on existing practices and conditions. The study used one hundred twenty (120) managers from various production firms in Rivers State. The population was obtained from the ministry of works in Rivers State. Ten (10) firms were selected as sample for the study using random sampling technique.

The research work used an instrument titled "Time Management Practices in Digital Marketing on Production Firms" (TMTDMPF). The instrument is a three-point rating scale consisting of Highly Effective (HE), Moderately Effective (ME) and none- Effective (NE). The response scales were weighed as 3, 2 and 1. The instrument was subjected to a pilot test program in selected production industries in Delta State. The test-retest method was used to obtain the reliability of the study. The instrument was administered to the respondent to fill in some selected firms in Delta State. After two weeks interval, the same instrument was administered to the same set of production managers. The responses obtained from the managers within the two weeks interval was collated and calculated using Pearson Product Moment Correlation Coefficient to obtain a reliability coefficient of 0.83. This was considered adequate for the study.

For method of data analysis used for the study, the simple mean, standard deviation, charts and Spearman ranks-Order Correlation.

Data Analysis

Research Question one: What is the required model needed by industrial marketers in piloting daily plan as a digital Marketer?

Figure 1: Modification of the 6 C's of online Consumer motivation based on digital marketing

Content creation based on general acceptability of digital world.

Customization of product brand and unique feature using digital platforms

Creating a digital commuity to petronise and update products brand using platforms

Placing the organisation product at a convenient growth point in the digital world.

Cost Reduction through creation of promo to appeal on customer petronage

Development of varieties to suit consumers Choices

The modification of the model developed by Dave in 2004 spelt out the 6 C's which are content, customization, community, convenience, cost reduction and choice. In the modification of the model the following were developed with respect to digital marketing. The modification includes:
1. Content creation based on general acceptability of digital world.
2. Customization of product brand and unique feature using digital platforms
3. Creating a digital community to patronize and update products brand using platforms.
4. Placing the organisation product at a convenient growth point in the digital world.
5. Cost reduction through creation of promo to appeal on customer patronage and
6. Development of varieties to suit consumers' choice.

The model is design to effect time management and easy marketing of products by consumers.

Research Question Two
What are the time management skills required for digital marketer?

Table 1: Time management skills required for digital marketer

S/No	Items	Mean	Standard Deviation	Decision
1	Allocating time for Every marketing task enhances efficiency in service delivery	2.55	0.24	Highly Effective
2	Using a time management app will help us organize our life and plan our time more effectively.	2.56	0.24	Highly Effective
3	Designation of task improves digital marketing proficiency	2.77	0.29	Highly Effective

The findings of the study revealed that items 1, 2 and 3 are highly effective to the fact that allocating time for every marketing task enhances efficiency in service delivery, using a time management app will help us organize our life and plan our time more effectively and designation of task improves digital marketing proficiency are required time management skills in marketing.

Figure 2: Chart of time management skills required for digital marketer
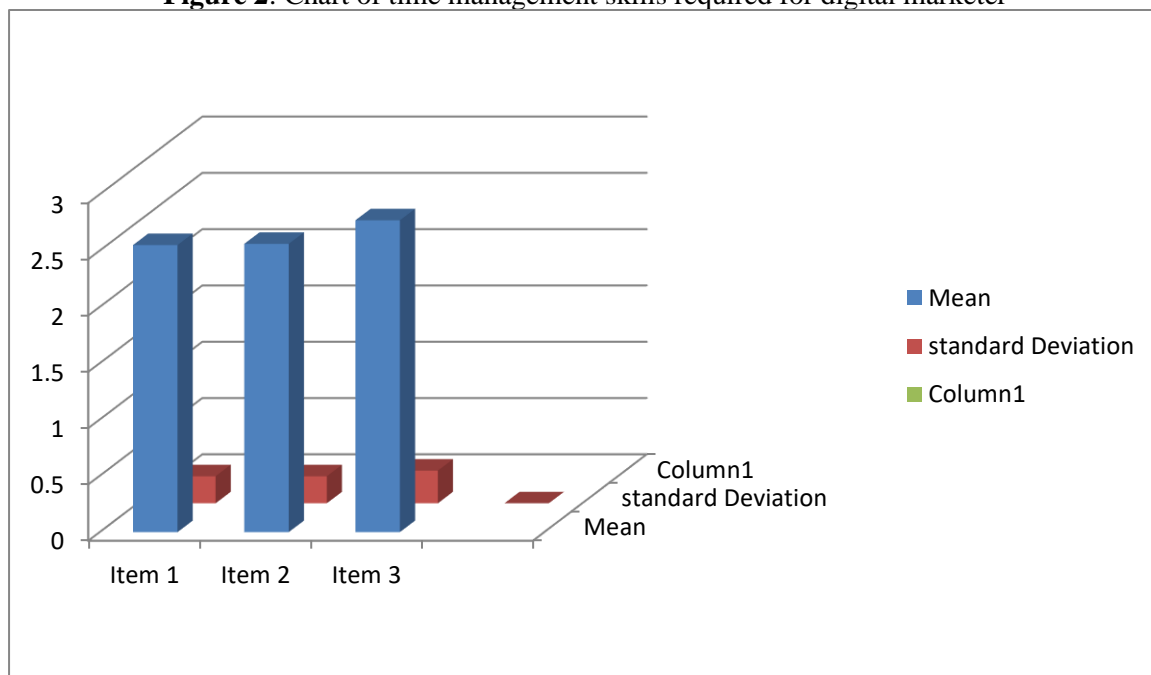
Data obtained from table 1, research question 2 showed that items 1, 2 and 3 had a mean of standard deviation of 2.55; 0.24, 2.56; 0.24 and 2.77; 0.29 respectively. This shows a high effect of allocating time for every marketing task, using a time management app and designation of task are required time management skills in digital marketing.

Research Question Three
What is the perception of digital marketers on the efficacy of time management skills?

Table 3: Perception of digital marketers on the efficacy of time management skills

S/No	Item	Mean	Standard Deviation	Decision
4	Time management skills enhances sales record in Digital Marketing	2.87	0.33	Effective
5	Time management skills earn reputation of digital marketers.	2.59	0.26	Effective
6	Time management skills create room to earn more on digital marketing	2.91	0.34	Effective

The findings from research question 3 of the study revealed that items 4, 5 and 6 opined that time management skills enhance sales record in digital marketing, time management skills earn reputation of digital marketers and time management skills create room to earn more on digital marketing.

Hypothesis
There is no correlation between time management skills in production and quantity of products sold within one week using digital marketing platform.

Table 4: Correlation between time management skills in production and quantity of products sold within one week using digital marketing platform.

Production managers	Time taken for Sales (hrs)	Rank for Quality of Products	Rank for Speed of Sales	Difference in Rank (d_1)	d^2_1
1	106	8	11	-3	9
2	124	9	12	-3	9
3	130	11	4	7	49
4	125	7	8	-1	1
5	105	9	9	0	0
6	90	5	5	0	0
7	107	6	8	-2	4
8	95	7	9	-2	4
9	102	9	7	2	4
10	99	11	5	6	36
					$\Sigma = 116$

$rs = 1 - 6 \Sigma d2/ (N (N-1))$
$rs = 1- [(6 \times 116)/ (10 (102-1))]$
$rs = 1- [(6 \times 116)/ (10 (102-1))] = 1- 696/ 990$
$rs = 1- 0.70 = 0.30.$

Since r critical value at 0.05 level of significance at N=12 is 0.497 and r-calculated value is 0.300. The null hypothesis was accepted as the r-calculated value is less than r-critical value. Therefore, it was stated that there is no correlation between time management skills in production and quantity of products sold within one week using digital marketing platform.

Figure 3: Correlation between time management skills in production and quantity of products sold within one week using digital marketing platform.
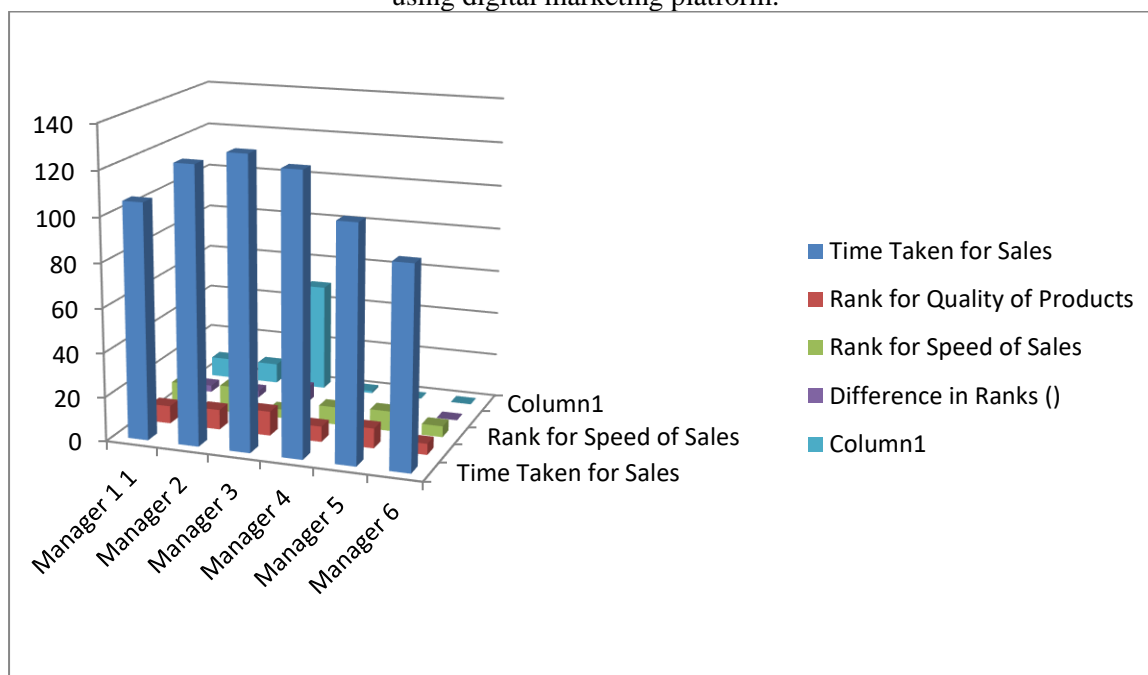
Findings from figure 3 illustrate the correlation between time management skills in production and quantity of products sold within one week using digital marketing platform. The data revealed that manager 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 had sales speed with respect to time at 106, 124, 130, 125, 105, 90, 107, 95, 102 and 99.

Summary of Findings
Below is the summary of findings:
1. Data obtained from table 1, research question 2 showed that items 1, 2 and 3 had a mean of standard deviation of 2.55; 0.24, 2.56; 0.24 and 2.77; 0.29 respectively. This shows a high effect of allocating time for every marketing task, using a time management app and designation of task are required time management skills in digital marketing.
2. The findings from research question 3 of the study revealed that items 4, 5 and 6 opined that time management skills enhance sales record in digital marketing, time management skills earn reputation of digital marketers and time management skills create room to earn more on digital marketing.
3. Findings from figure 3 illustrate the correlation between time management skills in production and quantity of products sold within one week using digital marketing platform. The data revealed that manager 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 had sales speed with respect to time at 106, 124, 130, 125, 105, 90, 107, 95, 102 and 99.

Discussion of Findings
The findings of the study revealed that items 1, 2 and 3 are highly effective to the fact that allocating time for every marketing task enhances efficiency in service delivery, using a time management app will help us organize our life and plan our time more effectively and designation of task improves digital marketing proficiency are required time management skills in marketing. According to Chaffey, (2004) digital marketing skills require good time management to achieve success in a competitive market.

Also, findings revealed that time management skills enhance sales record in digital marketing, time management skills earn reputation of digital marketers and time management skills create room to earn more on digital marketing. According to Hellsten, (2012), time management skills create loyal customers in the business world.

Conclusion

The study showed that allocating time for every marketing task enhances efficiency in service delivery, using a time management app will help us organize our life and plan our time more effectively and designation of task improves digital marketing proficiency are required time management skills in marketing. Also, time management skills enhance sales record in digital marketing, time management skills earn reputation of digital marketers and time management skills create room to earn more on digital marketing.

Recommendations

Based on the findings obtained from the study it was recommended production firms should adopt time management strategy in enhancing marketing output using digital skills. Also, managers of industries should be trained through seminars on the application of modern digital marketing skills.

References

Ayyagari, M., Beck, T. & Demirguc-Kunt, A. 2007. Small and medium enterprise across the globe. *Small business economics, 29 (94)*

Barnes, E., Slingo & Woollings, T. 2012. A methodology for the comparison of blocking climatologist across indices, models, and climate scenarios, 38

Boixadós, M., Hernández-Encuentra, E. and Pousada, M. (2012), "Personal time management and quality of life in the network society", in Stoilov, T. (Ed.), *Time Management, nTech, New York, NY, 19p., ISBN: 978-953-51-0335-6, available at: www.intechopen.com/books/timemanagement/personal-time-management-and-quality-of-life-in-the-network-society*

Chaffey, D. (2004). E-Business and E-Commerce Management. Pearson Education UK, Harlow. (This book was republished every 3 years since this time, now named Digital Business and E-commerce management).

Cockerell, L. (2016), *Time Management Magic: How to Get More Done Everyday*, Emerge Publishing LLC, Tulsa, OK.

Delanty, G. (2001), *Challenging Knowledge. The University in the Knowledge Society*, Society for Research into Higher Educational & Open University Press, Buckingham.

Drucker, P.F. (1967), *The Effective Executive, Harper & Row*, New York, NY.

Duderstadt, J.J. (1994), "The university of the 21st century", presented at the Meeting of the *American Society for Information Science,* Portland, OR.

European Commission 2012. http://trade.ec.europa.eu/doclib/docs/2015/april/tradoc_153348.pdf

Gilmore, A. 2007. Entrepreneurial and SME marketing: *Journal of research in marketing and entrepreneurship* 13 (2)

Hassan, R. (2003), *The Chronoscopic Society: Globalization*, Time and Knowledge in the Network Economy, Peter Lang Publishing, Oxford.

Hellsten, L.M. (2012), "What do we know about time management? A review of the literature and a psychometric critique of instruments assessing time management", in Stoilov, T. (Ed.), *Time Management, InTech, pp. 1-27, doi: 10.5772/38364, available at: www.intechopen.com/ books/time-management/*

Jobber, D. & Ellis, F. 2013. *Principles and practices of marketing*, 7th edition, McGraw-Hill Education. 909-918

Kannan, V.R. and Tan, K.C. (2005), "Just in time, total quality management, and supply chain management: *understanding their linkages and impact on business performance", Omega, Vol. 33 No. 2, pp. 153-162.*

Lara, P. (2005), "Use of digital content: information technologies, knowledge society and University: monograph", *Journal of University and Knowledge Society, Vol. 2 No. 2, pp. 1-5.*

Lakein, A. (1973), *How to Get Control of your Time and Life,* Nal Penguin, New York, NY.

Levy, P. (2000), "La cibercultura y la educación", Pedagogía y Saberes, No. 14, pp. 23-31, *Available at: doi.org/10.17227/01212494.14pys23.31*

McCay, J. (1959), *The Management of Time,* Prentice Hall, Englewood Cliffs, NJ.

Macan, T. (1994), "Time management: test of a process model", *Journal of Applied Psychology*, Vol. 79 No. 3, pp. 381-391.

Misra, R. and McKean, M. (2000), "College students' academic stress and its relation to their Anxiety, time management, and leisure satisfaction", *American Journal of Health Studies, Vol. 16 No. 1, pp. 41-51*

Nworgu, B. G. (2006) *Educational Research: Basic Issues and Methodology*, Ibadan; Wisdom

Publishers.

Pérez-González, F., García-Ros, R. and Talaya González, I. (2003), "Learning styles and Management skills of academic time in secondary education", *Revista Portuguesa de Educação, Vol. 16 No. 1, pp. 59-74.*

Shulman, L.S. (1987), "Knowledge and teaching: foundations of the new reform", *Harvard Educational Review, Vol. 57 No. 1, pp. 1-21.*

Small Business Administration 2014

Strazdins, L., Griffin, A.L., Broom, D.H., Banwell, C., Korda, R. and Dixon, J. (2011), "Time Scarcity: another health inequality?", *Environment and Planning A, Vol. 43 No. 3, pp. 545-559.*

Tejada Fernández, J. (2000), "Education within the framework of a global society: some Principles and new demands", Faculty, *Curriculum Magazine and Teacher Training, Vol. 4 No. 1, pp. 1-13.*

Tortajada, L.A., Herrero, M.A., Noguera, P., Morais, S. and Atienza, J. (2015), "How will we Evaluate the transversal competence 'planning and time management' to a first-year student?", Network Congress, *Universitat Politècnica de València.*

THE NEXUS BETWEEN HUMAN RESOURCE MANAGEMENT AND ORGANIZATIONAL SUSTAINABILITY IN CORPORATE FIRMS IN RIVERS STATE

Nwachukwu, Precious Ikechukwu[1] & Okwu, Oroma[2]
[1]Lecturer, Department of Business Administration and Management,
Federal Polytechnic of Oil and Gas Bonny, Rivers state
nwachukwupi27@gmail.com
[2]Lecturer, Department of Management and Administration,
Rivers state university, Rivers state.
oroma@ust.edu.ng

Abstract
The study examined the relationship between Human resource management and organizational sustainability. This correlational study was conducted as a cross-sectional survey. The population of this study is eight hundred forty-three (843) staff members of sixty (60) functional manufacturing and service firms in Rivers State. The study looked at how organization can sustain its environmental, social and economic goal through human resource management practices. The study discovered that most organization seldomly focus majorly on sustainability human resource management with less emphasis on organizational sustainability. The study concluded that, Human Resource Management have a positive impact on the overall organizational sustainability and performance. However, Organizational sustainability requires a holistic approach (i.e. both sustainable human resource management and organizational sustainability) that balances the needs of the organization with the needs of society and the environment. It was recommended that Management should adopt an integrating sustainability approach that incorporates both sustainable human resource management and organizational sustainability so as to balance both organizational need and societal need.

Keywords: Human Resource Management, Sustainability & Organization

Introduction

Global competition, rapid technological advancement, deregulation of markets, changing customers and investors demands and ever- increasing product -markets competition are challenges encouraging organizations to consider people as their most valuable resource. By placing the appropriate individuals in the appropriate locations at the appropriate times, human resource management is a fundamental management technique that guarantees an organization is ready to meet its present and future demands. There is now a widespread understanding that good human resource (HR) management practices may help a business sustain and preserve a competitive edge (Guest. 2016). One of the main issues in a corporation is human resource management. This is due to the important role they play in using other organizational resources, since they do so in order to assist organizations in meeting their sincere goals. The combination of these resources results in improved and sustained organizational performance. However, it is also worthy to note that without effectual performance of employees' organizational sustainability over time becomes challenging.

Human Resources Management (HRM) is the function within an organization that focuses on recruitment of, Management and providing direction for the people who work in the organization. The organizational function known as "human resource management" (HRM) is in charge of handling matters relating to people, including pay, hiring, growth management, organization development, safety, wellness, and benefits as well as employee motivation, communication, administration, and training. Many firms refer to historically administrative personnel activities together with growth management, employee relations, and resource planning as "human resources." It may be viewed in a more thorough way. Planning, recruiting, selection, orientation, training, evaluation, motivation, and remuneration are administrative tasks that are related to human resource management (Storey, 1992). Organizations employ several HRM techniques to meet their necessary objectives. A company's overall performance and sustainability are ensured by effective human resource management, which includes a welcoming environment, pay appreciation for performance, providing feedback to employees, a fair system for employee evaluation, an award

ceremony, employee empowerment, extrinsic and intrinsic motivational rewards, recruitment and retention, training and involvement of employees, and performance evaluation.

Sustainability implies continuation and in the process of thriving for continuous operations firms need to realign business and investment practice to ensure long-term prosperity. According to Hahn and Scheermesser (2006), companies do have to seek alignment with sustainability because of ongoing environmental changes, as well as challenges with government and society. To ensure the long-term viability of businesses, it is crucial to provide the people (workforce) and organizational framework required for successful operations in the twenty-first century.

Organizational sustainability hinges on the principle of strengthening the environmental, social as well as the economic systems within firms' operation (Chartered Institute of Personnel and Development, 2012). According to Dyllick, T., and Hockerts, K. (2002), this idea is seen to be crucial. They see the idea of sustainability as involving continuous business operations and helping enterprises succeed without underestimating organizations' future need (Kolk, A., 2008). Therefore, it is crucial for management, leaders, as well as employees, to act and be viewed as having been ethical in their responsibilities. Organizations must be financially, institutionally, and ethically robust in order to continue operating.

Statement of the Problem
The major goal of every business is to survive and maximize profit over time. To ensure the continuity of businesses, organizations adopt a wholistic strategies which will be beneficial both to the organization and its environment now and in future. However, firms these days restrict sustainability to their staff members only without engaging in additional CSR initiatives which promotes organizational sustainability. Businesses frequently overlook the significance of wholistic organizational sustainability in favor of sustainable human resource management, which over time may be harmful to the firm.

Also, firms tend to focus on profits alone and give less attention to other sustainable factor (environmental and social factors). Firms are equally liable to their environment, social and ecological environment. Similarly, firms tend to establish sustainable human resources policies which begin with the people thereby giving less attention to organizational sustainable factors such as economic, social, environmental. It is in line with this background that this paper aims to fill-in this gap.

Objectives of the Study
1. To examine the relationship between Human resource management and organizational sustainability in corporate firms in Rivers state
2. To examine the relationship between Human resource management and organizational performance in corporate firms in Rivers state

Hypothesis 1: There is no significant relationship between human resource management and organizational sustainability in corporate firms in Rivers state

Hypothesis 2: There is no significant relationship Human resource management and organizational performance in corporate firms in Rivers state.

Review of Related Literature
Concept of Human Resource Management
Human resource management (HRM) is the process of managing human resources (employees) in an organization. It involves recruiting, hiring, training, managing, and developing employees to achieve organizational goals and objectives. HRM is in charge of making sure the company has the proper people and the knowledge and skills they need to do their jobs well. Additionally, HRM oversees employee relations, salary, performance reviews, and benefits. Creating a successful and enjoyable work environment where workers may flourish and contribute to the success of the company is the ultimate objective of human resource management. An organization's HRM department focuses on the management level. It includes of procedures that assist the company in efficiently managing workers

throughout the many employment stages, such as pre-hire, staffing, and post-hire. According to Akram et al. (2016), HRM methods have a direct impact on employee motivation, behavior, and skill development.

Organizations use different HRM practices to achieve their appropriate goals. Accurate human resource management in an organization, such as a friendly environment, pay appreciation for performance, providing feedback to employees, a fair evaluation system for employees, an award ceremony, employee empowerment, extrinsic and intrinsic motivational rewards, recruitment and retention, training and involvement of employees, and performance evaluation, guarantee overall organizational performance. Sustainable human resource management has a significant impact on organizational Sustainability. Sustainable HRM may affect organizational, employee morale and goodwill, productivity and efficiency, the quality of work, innovation and creativity, and employee attitudes in the workplace, according to David et al. (1999).

In a similar vein, research by Denison (1990) shows that HRM directly affects organizational performance. An organization that widely and deeply promotes sustainable HRM and incorporates it into management decisions would have much greater investment and sale returns than firms that do not do so.

Organizational Sustainability

According to Brundlandt (1987), sustainability implies being able to meet the need or requirements of the present generation without jeopardizing the ability to do so in the future. Despite the fact that the term "sustainability" has many different sources and thus many different meanings, this article focuses on the organizational point of view. Business sustainability is simply the capacity to continue operating (Dombin, N. A. 2012). The process through which firms manage their financial, social, and environmental risk, duty, and opportunity is referred to as business sustainability. This approach is simply referred to as managing the three Ps (People, Planet and Profit). Similar to this, organizational sustainability from a stakeholder's perspective to a firm's level entails meeting the demands of both direct and indirect stakeholders (employees, customers, shareholders, pressure groups, communities, governments, etc.) without jeopardizing the ability of firms to meet the demands of future stakeholders (Dyllick & Hockerts, 2002).

The Triple-P point of view, created by Elkington (1997), may be used to analyze sustainability related to organizational context. The triple P, denotes people, planet as well as profit and is based on the notion that organization is sustainable if a certain minimum performance is achieved relatively in the areas of people, planet as well as profit. Because businesses are equally responsible for the social and ecological environments, this perspective on organizational sustainability emphasizes the need for organizations to maintain a balance between the economic objective (profit) as well as the objective of the social (people) and ecological (planet) environment. Sustainability is a now evolving approach that promotes the use of human, natural and financial resources to improve the economy, the environment, and society in an integrated way for the benefit of current and future generations. The ability of an organization to function and operate in a way that satisfies its current requirements without jeopardizing the ability of future generations to satisfy their own needs is referred to as organizational sustainability. This encompasses the sustainability of the environment, society, and economy.

Environmental sustainability: involves minimizing negative impacts on the environment, such as reducing waste and emissions, conserving natural resources, and using renewable energy sources. Environmental sustainability lay emphasis on ecosystem integrity, carrying capacity and biodiversity. Serageldin (1993) averred that environmental sustainability demands maintaining natural capital as both a provider of economic inputs referred to as 'source' and an absorber known as 'sink' of economic output called 'waste'

Social sustainability: involves promoting social equity and justice, including fair labor practices, diversity and inclusion, and community engagement. Equity, empowerment, participation, sharing, cultural identity, accessibility, and institutional stability are key components of social sustainability. The goal is to reduce poverty and promote economic growth in order to protect the environment. It forces businesses to internalize social costs, upholds and promotes social capital development, forgoes individual exploitation by incentivizing self-renewing structures, and

supports democracy by broadening the range of available personal options and distributing resources and property rights fairly (Dyllick & Hockerts, 2002).

Economic sustainability: involves maintaining financial stability and profitability while also investing in long-term growth and development. This includes responsible financial management, ethical business practices, and innovation. Economic viability, according to Azapagic (2003), is essential because it generates revenue and employment, both of which typically advance social welfare. Sales, earnings, return on investment, taxes paid, cash flow, and employment generated are all indicators of an economy's sustainability (Savitz, 2013).

Nexus between Human Resource Management and Organizational Sustainability
Management of human resources (HRM) is essential for maintaining organizational sustainability. HRM is in charge of managing the organization's personnel, including hiring, choosing, training, growing, managing performance, and paying employees. In order for the company to fulfill its goals and objectives, it is imperative that certain functions are in place. While The capacity of an organization to continue operating over the long term while limiting its effects on society and the environment is referred to as organizational sustainability. HRM can contribute to organizational sustainability in several ways, including:
1. Recruitment and selection: HRM can ensure that the organization recruits employees who share its values and commitment to sustainability. For example, HRM can screen candidates for their environmental awareness and track record of sustainable practices.
2. Training and development: HRM can provide training and development programs that promote sustainability and help employees develop the skills and knowledge they need to implement sustainable practices
3. Performance management: HRM can set performance goals that align with the organization's sustainability objectives and provide feedback and incentives to encourage employees to adopt sustainable practices.
4. Compensation: HRM can link compensation to sustainability performance, rewarding employees who contribute to the organization's sustainability goals.

Bridget I. Ibobo (2021). The study examines the relationship between business ethics and sustainability of Micro, Small and Medium Scale Enterprises in Delta State, Nigeria. The study employed cross sectional research design in examining seventy-three (73) firms. The population of the study is made up of owner manager of SMEs (Hotels and Guesthouse) in Asaba metropolis. Census was adopted in which all the seventy copies of the questionnaire distributed to the respondents. Data were analyzed with the aid of Spearman's Rank Correlation Coefficient to examine the relationship existing between the study variables. Findings revealed the existence of significant relationship between the dimensions of business (transparency and integrity) and the measures of organizational sustainability given as economic, social and environmental sustainability

Anuja Raveenther (2020) assessed how the various factors of sustainable HRM practices create an impact on the organizational performance in banking sector operating in Trincomalee District in Sri Lanka. The study conveniently chose 143 managerial staff and collected data by administering a questionnaire consisting of 19 items under 4 sustainable HRM variables or factors. Quantitative analysis has been made to find out the impact of the above mentioned factors on the overall organizational performance. The study concluded that, all factors namely human resource recruitment and retention, performance management, training and development and organizational ethic have a positive influence on the organizational performance of banking sector in Trincomalee District.

Nyameh Jerome (2013) studied the impact of sustainable human resource management and organizational performance. The paper suggests and recommends that sustainable human resource management can be carryout in all field of human endeavor

Farman et al. (2017) conducted a study on the relationship between human resource management and organizational performance in telecom sector. The data were collected from top managers, middle level managers and the first line HR managers of 50 offices including head offices and regional offices of 160 questionnaires including some interview and open-ended questions based on the measures of performance and Human Resource Planning. The results from the factor analysis on HRP measures selection, training, and incentives and the organizational performance measures

which are job satisfaction, efficiency, employee motivation and technology constitutes significant and a positive relationship with other.

Methodology

This correlational study was conducted as a cross-sectional survey. The population of this study is eight hundred forty-three (843) staff members of sixty (60) functional manufacturing and service firms in Rivers State. To obtain their thoughts on the nexus between Human resource management practices and organizational sustainability, the data was gathered utilizing a standardized questionnaire that was personally delivered over a two-week period. These respondents were chosen base on their vast knowledge, experience and duration in the respective organization. Random sampling was used in the investigation. The study sample was determined by using Taro Yamane formula,$(n= N/1+N(0.05)^2$ which was arrived at 273 ,however, only 268 was valid after cleansing of the data, which were later used for further analysis. . SPSS (Statistical Package for Social Sciences) was used to analyze data using Pearson product correlation moment in bivariate analysis to test the relationship between the variables as was stated in the hypothesis above.

Result and Discussion of Findings

Hypothesis 1: There is no significant relationship between Human resource management and organizational sustainability in corporate firms in Rivers state

Table 1.1: Relationship between Human resource management and organizational sustainability

	Correlations			
		Human resource management	Organizational sustainability	Decision
Human resource management	Pearson Correlation	1	.161	Rejected
	Sig. (2-tailed)		.005	
	N	268	268	
Organizational sustainability	Pearson Correlation	.161	1	
	Sig. (2-tailed)	.005		
	N	268	268	

*S= Significant p<0.05

As shown in Table 1.1, Pearson Product-Moment correlation was used to evaluate the relationship between Human resource management and organizational sustainability in corporate firms in Rivers state. The test was statistically significant: r(268) = .161, p < 0.05. Hence, there is significant relationship between Human resource management and organizational sustainability in corporate firms in Rivers state. Thus, the null hypothesis one was rejected.

Hypothesis 2: There is no significant relationship Human resource management and organizational performance in corporate firms in Rivers state.

Table 1.2: Relationship between Human resource management and organizational performance

		Human resource management	Organizational performance	Decision
Correlations				
Human resource management	Pearson Correlation	1	.100	Accepted
	Sig. (2-tailed)		.085	
	N	268	268	
Organizational performance	Pearson Correlation	.100	1	
	Sig. (2-tailed)	.085		
	N	268	268	

**S= Not Significant p<0.05

As indicated in Table 1.2, Pearson Product-Moment correlation was used to evaluate the relationship Human resource management and organizational performance in corporate firms in Rivers state. The test was not statistically significant: $r(268) = .100$, $p > 0.05$. Hence, there is no significant relationship between Human resource management and organizational performance in corporate firms in Rivers state. Thus, the null hypothesis two was accepted.

According to the survey, there is a strong correlation between the Human resource management and organizational sustainability in corporate firms in Rivers state. Corporate firms in rivers state economic, social and environmental concerns are sustained when their business policies and programmes supports effective Human resource management practices. This result concurs with those of Anuja Raveenther (2020) who assessed how the various factors of sustainable HRM practices create an impact on the organizational performance in banking sector operating in Trincomalee District in Sri Lanka.

Similar findings were made in table 1.2, which revealed no connection between Human resource management and organizational performance in corporate firms in Rivers state. This discovery can be as a result of corporate firm's low emphases on effective sustainable human resource management practices in the form of recruitment, training and development, succession planning, compensation management, handling of diversity, motivation, retention etc. Most businesses don't see the need for effective management of workforce which have over the year had a great negative impact on the organizational wellbeing. In addition employees who sees that organization pay less attention or are not committed towards their general welfares and growth, tends to be demotivated and less committed towards work and improving performance within organization .This finding is in conflict with the work of Farman et al. (2017) who conducted a study on the relationship between human resource management and organizational performance in telecom sector.The results from the factor analysis on HRM measures selection, training, and incentives and the organizational performance measures which are job satisfaction, efficiency, employee motivation and technology constitutes significant and a positive relationship .Thus, effective human resource management yields result when employees interest are captured, sustained and are in tandem with organizational believes.

Conclusions
Sustainability in organizations is viewed from the prism of socially responsible, environmental concern to economically rational viewpoints. Thus, this paper has analyzed human resource management practices as a possible perspective that can have positive impact and success in organizational sustainability and has raised awareness for long-term side effects from HR activities on today's organizations, and future HR base. From the analysis, there is a positive relationship between Human resource management and organizational sustainability. Organizations emphasize on sustainable human resource management practices with less attention to overall organizations sustainability. This study concluded that, Human Resource Management have a positive impact on the overall organizational sustainability and performance. However, Organizational sustainability requires a holistic approach that balances the needs of the organization with the needs of society and the environment. Furthermore, HRM plays

a critical role in ensuring organizational sustainability by managing the workforce in a way that supports the organization's sustainability objectives.

Recommendations

It is recommended that:
I.   Organizations should articulate their sustainable HRM clearly, if possible, explicitly in codified form. For example, this could be done by publishing the sustainable HRM in the employee's handbook.
II. Management should adopt an integrating sustainability approach that incorporate both sustainable human resource management and organizational sustainability so as to balance both organizational need and societal need.

References

Akram, A. J., Ungku Norulkamar, N. U. A., & Khalid, A. D. (2016). The impact of human resource management practices on employees performance: the case of Islamic university of Gaza in Palestine. *International Review of Management and Marketing*, 6(4), 16-25.

Denison, D.R., 1990. Corporate culture and organizational effectiveness. New York: Wiley.

David, C., S. George and H. Bill, 1999. Business strategy an introduction. Butterworth Heinemann Limited.

Dombin, N. A. (2012). Business ethics: A catalyst for rapid economic growth. *Journal of Educational and Social Research, 2*(10), 30-37.

Dyllick, T., & Hockerts, K. (2002). Beyond the business case for corporate sustainability. *Business Strategy and the Environment, 11*, 130-141.

Elkington, J1994, "Triple Bottom Line". *The Economist*.

Guest, D. (2016). Human resource management and performance: A review and research agenda. *International Journal of Human Resource Management*, 8(1), 263–276.

Hahn, T. & Scheermesser, M. (2006). Approach to Corporate sustainability among German companies. *Corporate Social Responsibility and Environmental Management*, 13(3), 150-165.

Kolk, A. (2008). Sustainability, accountability and corporate governance: Exploring multinationals' reporting practices. *Faculty of Economics and Business*, 17(1), 1-15.

Serageldin, I. (1993). Development partners: Aid and cooperation in the 1990's. Stockholm: SIDA

Storey, J., 1992. Developments in the management of human resources. Oxford: Blackwell

INSURGENCY AND HUMANITARIAN CRISIS IN NORTH-EASTERN NIGERIA: ASSESSING THE VULNERABILITY OF VICTIMS TO HUMAN TRAFFICKING USING INTERNALLY DISPLACED PERSONS (IDPs) NARRATIVES

M. D. Enaikele and S. Momoh
damohle16@gmail.com   +234-70-2663-2120,   Whatsapp: +234-80-2033-4102
Department of General Studies
Federal College of Fisheries and Marine Technology, Lagos, Nigeria

Abstract
Since the inception of the Boko Haram insurgency in north-eastern Nigeria, women and children who are victims of the humanitarian crisis have been forcefully abducted, lured, recruited and trafficked for sexual exploitation, forced marriages, forced labour, suicide bombing and as child soldiers. This study attempts to assess factors seemingly responsible for the vulnerability of the internally displaced persons (IDPs) to trafficking, illuminates some relevant legislations that are in place to curb the menace of human trafficking in Nigeria, and articulate the challenges confronting the administration of criminal justice in prosecuting suspected human traffickers in Nigeria. The study was conducted among the IDPs at Uhogua Village, in Edo state where there is an IDPs camps of inmates from the north-east of Nigeria. Purposive sampling method was used to source respondents for the focus group discussion for the IDPs narrative, the key informant interview and direct observation. The IDPs narrative confirm that lack of economic opportunities and loss of means of livelihood reinforced by limited access to basic needs such as food, water, education, shelter, as well as overcrowding, healthcare and sanitation problems are some factors responsible for the vulnerability of IDPs to human trafficking. There are several legislations in place to curb the menace of human trafficking, yet, there are several challenges confronting administration of criminal justice in prosecuting suspected human traffickers in Nigeria. Finally, the study recommends that efforts should be made to end the insurgency and rehabilitate the internally displaced persons.
Keywords: Insurgency, North-eastern Nigeria, IDPs, Vulnerability & Trafficking.

Introduction
Since 2009, north-eastern Nigeria has been enveloped in palpable insecurity, from constant insurgency of Boko Haram. Boko Haram insurgency in north-eastern Nigeria has been aided by the prevailing economic dislocation in the Nigerian society, the advent of party politics and the associated desperation of politicians for political power (Adesoji (2010). The group was initially an organized religious sect but was later hijacked by local political elites for organizing local politics and social order in north-eastern Nigeria (Sanni 2011). The group later became known internationally as a terrorist organisation following its sectarian violence in Nigeria, especially because of its manner of attacks like targeting the police, military formations, government facilities and offices of international agencies like the United Nations, banks, innocent civilians, religious leaders, churches, mosques, markets and schools, amongst others (Enaikele, et. al, 2017).

Since inception of the Boko Haram insurgency in 2009, their violent attacks have reportedly killed well over 10,000 people (Sanni 2011). As at 2020, an estimated 1.9 million people have been internally displaced and over 7 million people were in need of humanitarian assistance because of their displacement and loss of livelihood (Reliefweb,2019). The crisis has worsened over the years and the impact of the conflict on women and children cannot be overestimated. According to an Amnesty International Report (2016), Boko Haram militants have abducted and forcefully recruited women and children, who are trafficked for sexual exploitation, forced marriages, forced labour, and as child soldiers and suicide bombers. For example, since 2014 that Boko Haram had abducted 98 girls from Government Girls Secondary School, Chibok, Borno State, the continued captivity of most of the girls nine years after is a reminder that the crisis is far from being over as plethora of schools have thereafter been invaded and girls abducted, raped, killed and some forced into sex-slavery to service members of the Boko Haram insurgent group (The Guardian Newspaper, 14th April, 2023).

One of the attendant effects of the displacement and loss of livelihoods resulting from the Boko Haram insurgency is the vulnerability of victims (especially women and children to trafficking. The United Nations Office on Drugs and Crime (UNODC, 2018) reports that trafficking of women and children has a high potential in terms of magnitude in conflict, war and disaster-prone regions. The Internally Displaced Persons (IDPs) are among the most vulnerable to trafficking due to their precarious situation, lack of protection and limited access to basic needs, such as food, water, shelter, healthcare and lack of economic opportunities resulting from their displacement (UNODC, 2018).

Over and above this, though human trafficking may take different forms in different regions around the world, but the recent global economic crunch, poverty, ethno-political conflicts, wars, terrorist activities, natural disasters and the contemporary climate change scenarios have profoundly influenced the alarming dimension with which people are being pulled-up as clients for human traffickers (UNHCR,2000). In north-eastern Nigeria where women and children are potentially facing the problem of exploitation under the guise of religious belief, traffickers often capitalize on the hardships faced by the victims under the limited access to basic needs, such as food, security, water, shelter and healthcare, to lure, abduct or recruit women and children. Women and children who are victims of insurgency and humanitarian crises in this region are more vulnerable as prey for the traffickers who are quick to lure helpless innocent women and children with false promises of better living conditions and employment opportunities outside the camps. Once they are lured away, the traffickers quickly subject them to commercial sexual exploitation, forced labour, forced marriages and other forms of exploitation, including child soldiers.

Following this, since human trafficking has occupied a prominent position among the social ills that pervade the Nigerian society, this study shall attempt to raise awareness of the issue among the internally displaced persons (IDPs) who are victims of Boko Haram insurgency. By so doing, the study shall also assess the vulnerability of these internally displaced persons (IDPs) to trafficking using their narratives. The essence is to provide insights and an understanding into factors seemingly responsible for the vulnerability of the IDPs to human trafficking. Above all, this paper shall attempt to examine some relevant legislations that are in place to curb the menace of human trafficking in Nigeria, and articulate the challenges confronting the administration of criminal justice in the prosecution of suspected human traffickers in Nigeria

Theoretical Framework
Since the industrial revolution of the eighteenth century, sociologists have vigorously developed a body of empirical studies that spurred the structural application of several theories to explain the phenomenon of conflict. The intellectual crystallization of the novel theoretical perspectives of conflict theory is very complex. Though conflict theory is not a single and an all restricted theory, it nevertheless has several ideological perspectives that allow its wide applications to capture a phenomenon like insurgency and how this could lead to humanitarian crises and vulnerability of internally displaced persons to human trafficking.

There are several (conflict) theoretical perspectives to explain a phenomenon like insurgency, and the attendant humanitarian crises that forced many internally displaced persons to flee their homes due to violence and insecurity occasioned by the conflict. These perspectives all have a common structural approach, which posits that different groups pursuing different interests are more likely to clash and produce some degree of conflict like insurgency. This conflict theoretical perspective therefore provides a useful framework for understanding the root cause of the Boko Haram insurgency because the Boko Haram group was initially an organized religious sect, later hijacked by desperate local political elites for organizing local politics and social order in north-eastern Nigeria (Sanni 2011). These local political elites believe that the then political and social arrangement was only benefitting some groups at the expense of others. Hence, these differences in interests led to the insurgency and attendant humanitarian crises that later eventually forced many persons to flee their homes due to violence and insecurity, thus becoming internally displaced persons (IDP). This displacement has equally left these internally displaced persons with lack of economic opportunities, limited access to basic needs, such as food, water, shelter, healthcare and education, thereby making them even more vulnerable to human trafficking.

The Marxist perspective of conflict theory considers the phenomenon of conflict from the material basis of society. That conflict is characterized notably by unequal access to wealth and power between individuals and groups. This

conflict theoretical perspective provides yet another useful framework for understanding the root causes of the Boko Haram insurgency. That since power and wealth are largely being held by the bourgeoisie who are themselves the ruling class, the desperate local political elites who hijacked the Boko Haram insurgency group that was initially an organized religious sect, to reorganize the local politics and social order, felt they need to challenge the existing political and social order which they believed was benefitting the ruling class more at the expense of others. So, the violent means used by the desperate local political elites to challenge the existing political and social order snowballed into insurgency that forced many persons to flee their homes due to violence and insecurity. These internally displaced persons were consequently left with lack of economic opportunities, loss of means of livelihood, limited access to basic needs, such as food, water, shelter, healthcare and education, thereby making them more vulnerable to human trafficking.

According to the United Nations Office on Drugs and Crime (UNODC), trafficking in persons is a crime that thrives in times of conflict and crisis (UNODC, 2018). As for insurgency in the north-eastern Nigeria, which began in 2009, over1.9 million people have been internally displaced, many of whom have been forced to flee their homes to seek refuge and humanitarian assistance in IDP camps because of their displacement and loss of livelihoods (UNHCR.2020).

Materials and Methods
The study was conducted in Uhogua IDPs camp in Edo state. The camp is located closer to a Church, The International Christian Centre and Uhogua Community Primary School. The inmates (men, women and children) at Uhogua IDPs camp are internally displaced persons (IDPs) from north-eastern Nigeria as a result of Boko Haram insurgency. The North-eastern Nigeria geo-political zone comprises six states namely: Borno, Yobe, Adamawa, Bauchi, Gombe and Taraba states. The countries that border north-eastern Nigeria are Cameroon and Chad in the east and Niger Republic in the north
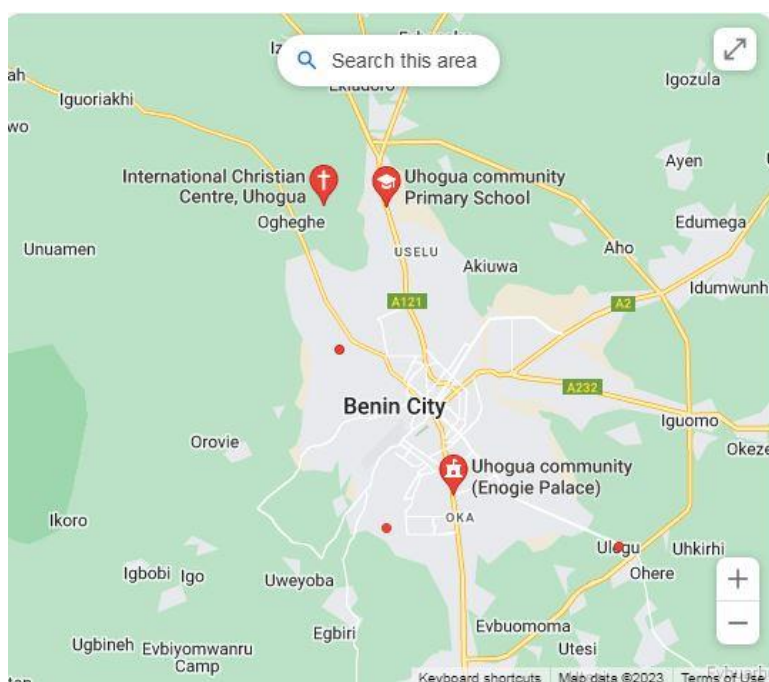
Fig. I: *Uhogua community in Edo State, Nigeria. https://tinyurl.com/2mcbmnu5 Retrieved February. 2024.*

The method used for gathering data to assess the vulnerability of the internally displaced persons to human trafficking in Uhogua IDPs camp involves collecting and analyzing the IDPs narratives. The study sourced the IDPs narratives through focus group discussion (FGD). The study made use of focus group discussion to probe into factors seemingly responsible for the vulnerability of the IDPs to human trafficking. The group discussion was conducted under a calm and informal atmosphere. With few questions, respondents were encouraged to talk freely on and around their experiences and the problem of insurgency while the researcher acts as moderator to guide the discussion. This role

played by the researcher provides opportunity to seek clarification, where necessary, to make their narratives presented in form of discussions sounds interesting and, to explain why the study is being held. Two sessions of focus group discussions (FGD) were held with men and two with women at the IDPs camp. Each of the section had five (5) participants. Their narratives were relied on to provide insights and an understanding into factors seemingly responsible for the vulnerability of the IDPs to human trafficking. The narratives sourced through the focus group discussions are inclusive and participatory because they provide a bottom-up approach by focusing on the IDPs experiences. Other sources of qualitative data used for the study includes key informant interview and direct observation. The purposive sampling method was also employed to gather respondents for the focus group discussion and the key informant interview to illuminate and source narratives for the study. The key informants used for the study include some officials of National Agency for the Prohibition of Trafficking in Person (NAPTIP), non-governmental organizations (NGOs) and a traditional chief at Uhogua Village.

Results and Discussion

Official statistics on human trafficking of internally displaced persons who are victims of insurgency in north-eastern Nigeria is very scanty and inconsistent because such cases are generally under-reported. For example, the NAPTIP National Report on internally displaced persons shows that only 12 victims of trafficking were from north-eastern Nigeria among the 1,146 persons rescued from human trafficking between April and September, 2017 (NAPTIP, 2017). What is curious is that this figure is strangely low considering the humanitarian crisis associated with displacement, and increasing vulnerability of the internally displaced persons to human trafficking due to the nature of the violence perpetrated by the Boko Haram insurgent group in north-eastern Nigeria.

Factors and Challenges Seemingly Responsible for Vulnerability of the IDPs to Human Trafficking

The study was conducted among the inmates of Uhogua IDPs camp that were internally displaced persons from north-eastern Nigeria, as a result of Boko Haram insurgency. The study relied on collecting and analyzing qualitative data (the IDPs narratives, key informant interview and direct observation) to provide insights and an understanding of the factors seemingly responsible for vulnerability of the IDPs to trafficking.

Lack of economic opportunities and loss of means of livelihood reinforced by women and child- headed household victims of Boko Haram insurgency in north-eastern Nigeria, is one important factor seemingly responsible for vulnerability of the internally displaced persons to human trafficking. Especially, the internally displaced persons who are farmers are pulled-up and forced to flee their homeland after losing their means of livelihood. They could not plant, harvest their crops nor tend their livestock.

Virtually all the narratives reveal that poverty and hunger are good indicators and sufficient evidence to suggest that internally displaced persons are more vulnerable to human trafficking especially because food insecurity remains the most visible descriptor of poverty. Though the effect of violence on food security has always been noted to be associated with poverty and hunger, but a cursory look at consequences of Boko Haram insurgency on hunger and poverty in north-eastern Nigeria, confirm the narratives of the IDPs that hunger and poverty have profoundly influenced the alarming dimension with which internally displaced persons are being pulled-up as clients for human traffickers who easily capitalize on the hardships faced especially by women and children under the limited access to food, water and shelter, to recruit them as vulnerable prey. One of the internally displaced persons states that the proliferation of illegal orphanage homes pretending to be offering services, illicitly engage in sale of babies and children to human traffickers.

Confirming this, another internally displaced persons states that even in the IDPs camp in Maiduguri, where the problems of overcrowding, inadequate shelter, hunger and improper disposal of waste were largely pronounced, the protection of women and children who are more vulnerable to human trafficking, is relatively weak. The human traffickers are quick to lure the helpless women and children with false promises of better living conditions and employment opportunities. Once they are so lured away, the traffickers then subject them to commercial sexual exploitation, forced labour and other forms of exploitation. Commenting on this, an official of the National Agency for the Prohibition of Trafficking in Person (NAPTIP) noted that at Maiduguri, where there are four major IDPs camps namely: Dalori 1, Dalori 2, Teachers' Village and Bakassi, relevant national agencies like The Nigeria Agency for

the Prohibition of Trafficking in Persons (NAPTIP), Nigeria Immigration Service, Nigeria Custom services, Nigeria Security and Civil Defence Corps, Nigeria Army, Nigeria Police force, The Federal and State High Courts, and The Nigeria Human Rights Commission, formed a team of combined government agencies to enforce the protection of IDPs against human trafficking. The efforts of these government agencies are also complimented by international agencies like United Nations High Commission for Refugees and Displaced Persons, International Committee of Red Cross, United Nations Office for the Coordination of Humanitarian Affairs and International Organization for Migration.

A simple analysis of the implicit impact of the Boko Haram insurgency on trafficking of Women and children is that women and children are more vulnerable to human trafficking during violent conflicts. Women and children are generally worse hit under the protracted Boko Haram insurgency in north-eastern Nigeria, especially because the level of child sexual abuse and teen-age pregnancies are quite alarming. Yet, Boko Haram insurgency has made access and affordability of primary health care difficult especially for women and children. All these have given rise to complex humanitarian emergencies associated with impact related to displacement. A key informant confirms that health related problems are high in the DPs camps associated with overcrowding, unclean environment, inadequate water supply and improper disposal of waste fluids, which could largely influence the vulnerability of internally displaced persons to epidemics.

Article 28 Section 1 of the United Nations Convention on the Rights of the Child stipulates that "state parties should recognize the rights of the child to education" but the Boko Haram insurgency has decimated the number of children in school. The increasing attacks on schools in north-eastern Nigeria had denied the right of 1.15 million children to education. Especially, the attacks on schools have forced over 1,500 primary schools to close, destroyed 910 secondary schools, displaced over 19,000 teachers between 2009 and 2022 and claimed the lives of more than 2,295 teachers (The Guardian Newspapers 19th April, 2023).

Insurgency related to death of parents of children of school age has equally produced many orphans, which also has taken so many of these children away from school. This loss of access to education would definitely have notable consequences on the future of the children because these children have been out of school for years, leading to a generation that lacks basic literacy and numeracy skills. Contrarily, Quranic education attracts more attendance of young boys who mostly end-up as "Almajiris" who are easily prone to trafficking and abduction as child soldiers and suicide bombers for terrorist activities of the insurgent group. The situation is even worse for the girl child, especially because in conflict situation girls suffer greater loss in education compared to boys. In north-eastern Nigeria, the girl child, is seldom allowed to enroll in schools for religious reasons mostly associated with purdah culture and early marriage. The implicit impact of the Boko Haram insurgency on trafficking of girls who are not in school is that they are more vulnerable to kidnapping and abduction for use as suicide bombers or as sex slaves to membrts of the insurgent group. Child sexual abuse and teen-age pregnancies are also very rampant among the young girl child who are not in school.

Above all, since the Boko Haram insurgency exhibits extreme violence that has considerably disrupted economic activities and caused loss of means of livelihood, poverty and hunger, and has forced several women and children to flee their homes in search of safety, it is reasonable to conclude that its frequency of attacks, sophistication and magnitude of violence are sufficient to cause complex humanitarian emergencies associated with internal displacement of persons, where women and children are most vulnerable to human trafficking, and exploitation.

Relevant Legislations in place to curb Trafficking in Persons in Nigeria
Human trafficking is a crime against all known laws. It contravenes both natural and sacred laws. Because of the human degrading nature of the crime of trafficking and in order to suppress these practices and bring perpetrators to justice, the response at national and international levels have put in place a number of laws, treaties, conventions and protocols dealing with human trafficking (Goliath, 2008). It is true that some of these legal instruments may not specifically address or mention human trafficking, however, it is useful to observe that certain elements of these legal instruments reveal that human trafficking has always been seen as not different from slavery, being primarily for sexual exploitation or forced labour (Goliath, 2008).

According to Enaikele and Olutayo (2011), at the international level, there are a number of treaties, laws, protocols and conventions that Nigeria is signatory to. Prominent among these are the United Nations Convention on the Declaration of Human Rights (1948); the United Nations Convention on Elimination of All Forms of Discrimination Against Women (1979); the United Nations Convention on the Rights of the Child (1989); the International Labour Organization (ILO) Convention on Forced Labour and Minimum Wage (1999); the United Nations Optional Protocol to the Convention on the Rights of the Child, especially on the Sales of a Child, Child Prostitution and Child Pornography (2002); and the United Nations Convention Against Transnational Organized Crime (2000). Others include the African Charter on Human Rights (1980); the Protocol on the Rights of Women in Africa (1981); Africa Charter on the Rights and Welfare of the Child (1990), and the Economic Community of West Africa States (ECOWAS) Declaration and of Action against Trafficking in Persons (2001).

At the national level, the 1999 Constitution provides for the respect and dignity of human persons. It provides in section 34(1) that no person shall be subjected to torture, in human or degrading treatment or held in slavery or required to perform compulsory labour. The rights of the citizens to the dignity of the human person against slavery, servitude, forced labour, prostitution and other forms of sexual exploitation is also enshrined in the Criminal Code of Southern Nigeria (Cap 42, 1990) and the Penal Code of Northern Nigeria (Cap 89, 1963); Labour Act (Cap 198, 1990); and the Trafficking in Persons Law Enforcement and Administration Act (2003). The anti-human trafficking Act is the most recent and crucial because it specifically addresses human trafficking. This anti-human trafficking law was a laudable move that culminated in the establishment of the National Agency for Prohibition of Trafficking in Persons (NAPTIP). There are several provisions (Sections 11 to 29, 32 and 46) of the antihuman trafficking Act of NAPTIP prescribing different punishment ranging from one year to life imprisonment for serious offences such as exportation or importation of girls under the age of 18 years for prostitution, forced labour, servitude, or organ removal by means of threat or use of force or other forms of coercion, abduction, fraud or deception. The seriousness of this law is underscored by its section 61(1) which provides for: where an offence under the act is committed by any citizen or person granted permanent residence in Nigeria, s/he may be prosecuted in respect of such offence as if it was committed in any place within Nigeria. This law also vests the power to arrest, detain, search and seize the property of the trafficker on the police, Nigeria Security and Civil Defense Corp, Immigration, Custom and National Agency for Prohibition of Trafficking in Persons (NAPTIP) officials. Similarly, the federal and state high courts have concurrent jurisdiction to try any of the offences under the law. Above all, though the federal government is making significant efforts through her agencies to eliminate the problem of human trafficking, yet she has not achieved much because of some of the following challenges.

Challenges Confronting Administration of Criminal Justice in Prosecuting Suspected Human Traffickers in Nigeria
In spite of the relevant legislations that are in place to curb the menace of human trafficking, the increasing incidence of human trafficking in Nigeria is quite worrisome because of the challenges confronting the administration of criminal justice in prosecuting offenders of human trafficking in the country. The increasing incidence of human trafficking against women and children in Nigeria is very disturbing. Hunan trafficking against women and children is a crime punishable under the Nigeria Child Rights Act (2003), the criminal Code of the Southern Nigeria (Cap 42, 1990), the Penal Code of the Northern Nigeria (Cap 89, 1963); Labour Act (Cap 198, 1990); and the Trafficking in Persons Law Enforcement and Administration Act (2003 as amended in 2015).

The key informant interview (KII) conducted reveal quite a number of socio-legal bottlenecks that are challenges confronting administration of criminal justice in prosecuting offenders of human trafficking in Nigeria. The key informants concurred that human trafficking is nothing but an organized crime. That due to the peculiar nature of human trafficking, prosecuting suspected trafficker is very complex. The parents/guardians of the trafficked person, the victims, the NAPTIP officials, criminal justice stakeholders which include the Nigeria Police, the Correction Service and the Court, cannot be exempted from the blames. For instance, most parents/guardians of the victims are either not particularly aware of where to report the crime or they are simply unwilling to lodge complaints with appropriate authorities probably because of stigmatization or shame or lack of money to press for charges in court. Sometimes where the parents/guardians are aware of the agency like NAPTIP that could handle the prosecution, they

still shy away from reporting the crime because of fear of reprisal attacks from the gang of traffickers who are organized and usually operate as crime syndicates.

Another problem in the administration of criminal justice in prosecuting especially suspected organ traffickers is the non-availability of medical forensic report or evidence that could ultimately help prosecutors convict the accused persons. The evidence from medical forensic examination of the victim is key because it offers credible information corroborate or refute crime leveled against the accused. Prosecuting organ trafficking crimes and bringing the suspected offenders to justice is much quite complex. The complexities are such that most times, the heinous crime is facilitated by unscrupulous physicians who "diagnose" victims for the purpose of emergency treatment or for illicit purpose of being smuggled out, the magistrate who signs away unsuspectingly the victim and parents of the victims who do not ask questions or simply lack understanding of the ailment of which their ward is being "diagnosed". Worse still, the Nigeria National Health Act 2014, is fraught with egregious provisions ignorantly "endorsing" illegal organ harvesting and organ poaching in Nigeria. Especially, section 48 (1) (b) and Section 49 of the Act are ambiguously couched and could be greatly abused by unscrupulous physician under the pretext of carrying out medical examination or treatment in emergency situations. These unscrupulous physicians could trick victims and the parents of the victims who do not understand the nature of the ailment or complications which their wards are being diagnose of to remove the organ of the non-consenting victim.

The agency in charge of human trafficking (NAPTIP) has also demonstrated poor political will for evaluation, tracking, monitoring and enforcement of policies and laws regulating human trafficking, especially to apprehend and successfully prosecute suspected traffickers in Nigeria. While NAPTIP is empower by NAPTIP Act 2003 (and as amended in 2015), to arrest, detain, search, investigate and prosecute suspected human traffickers, the number of prosecuted traffickers remain very low. For example, out of 662 cases of suspected traffickers arrested nationwide in 2017, only 43 of them were successfully prosecuted and just 26 convicted (NAPTIP,2017). Another problem is the issue of corruption and compromise among officials of the agency because NAPTIP officials themselves are afraid of possible reprisal attacks from the gang of human traffickers who are organized and they operate as crime syndicates. A NAPTIP official observes that one important issue affecting the administration of criminal justice in prosecuting suspected human traffickers is the problem of NAPTIP overlapping mandates with the Police and the absence of established operational guidelines between the two agencies on which of them is constitutionally empowered to handle prosecution of suspected human traffickers. This is because NAPTIP Act 2003 (and as amended in 2015), grants NAPTIP the same power of the police to arrest, detain, search, investigate and prosecute all those suspected to have committed the crime of human trafficking.

Another challenge confronting the administration of criminal justice in prosecuting suspected traffickers is traceable to the Police, especially where a suspected human trafficker has been handed over to the police. The Nigeria Police is a federal institution and so, officers are normally transferred from one station to another irrespective of the sensitivity of the case they may currently be investigating. When the Investigating Police Officer (IPO) is on transfer, there is always a problem of follow-up on the investigation and case files are most often declared missing. According to one key informant, this problem borders on corruption of the Nigeria Police, to frustrate the prosecuting counsel so as to pervert the course of justice.

Another informant puts the challenges of the administration of criminal justice in prosecuting suspected human traffickers on Correction Service officials who most times fail to bring suspects to court on appointed dates. On the part of these officials, several reasons including lack of adequate communication between Correction Service authorities and prosecutors and inadequate logistics in transporting suspects to court are some of the issues stalling trials.

The court cannot also be spared of the challenges confronting administration of criminal justice in prosecuting suspected human traffickers because of the way it grants frivolous requests to adjourn cases. Hence, justice delayed is justice deny. This is one of the main reasons for the congestion of cases in court. Yet, the complex nature of the cases, often requires careful approach, since justice must not only be done but must be seen to have been done. Hence, because of the inherent complexities in the nature of cases of human trafficking, tackling the increasing incidence of

human trafficking and bringing suspects to justice, therefore is much more a collective responsibility of NAPTIP, the police and other criminal justice stakeholders, as well as officers of the Temple of Justice.

Conclusion and Recommendation

The Boko Haram insurgency in north-eastern Nigeria has been on since 2009. The frequency of attacks by the group and the magnitude of violence they perpetrate have caused complex humanitarian emergencies associated with internal displacement of persons, where women and children are most vulnerable to human trafficking, abduction and exploitation. Women and children who are victims of this insurgency and humanitarian crises in the region are more vulnerable as prey to the human traffickers who are quick to lure these helpless women and children with false promises of better living conditions and employment opportunities outside the IDPs camps. Once they are lured away, the human traffickers quickly subject them to commercial sexual and other forms of exploitation. These women and children are also vulnerable to human trafficking and abduction for forced labour, forced marriages, andas child soldiers, suicide bombers and sex slaves to members of the insurgent group.

In north-eastern Nigeria women and children are potentially facing exploitation under the guise of religious belief, and deceit, and are regularly abducted to forced marriages and involuntary domestic servitude. Factors seemingly responsible for the vulnerability of these women and children to human trafficking include the hardships faced with the problems of overcrowding, poverty, hunger and improper disposal of waste, as well as limited access to basic needs, such as food, security, water, shelter and poor healthcare in IDPs camp. All these have largely given rise to complex humanitarian emergencies including displacement and trafficking.

Though human trafficking seems to takes different forms in different regions around the world, it is potentially an organized crime. Yet, because human trafficking has always been seen as not different from slavery or primarily for sexual exploitation and forced labour, to suppress these practices and bring perpetrators to justice, a number of laws, treaties, conventions and protocols dealing with human trafficking at national and international levels have been put in place in Nigeria. In spite of the relevant legislations that are in place to curb the menace of human trafficking, the increasing incidence of human trafficking in Nigeria is quite worrisome consequent upon the myriad of challenges confronting the administration of criminal justice in prosecuting suspected offenders. The complex nature of cases of human trafficking and a number of socio-legal bottlenecks are key challenges confronting administration of criminal justice in prosecuting suspected offenders. The parents/guardians of the trafficked person, the victims, NAPTIP officials, and criminal justice stakeholders which include the Nigeria Police, the Correction Services and the Court, cannot be totally exempted from sharing in the blame associated with the challenges confronting the prosecution of suspected offenders of human trafficking.

Following this, to address the vulnerability of internally displaced persons to human trafficking requires urgent attention of the federal government of Nigeria and the international community in finding to find a lasting solution to the crisis, and to evolve strategies to confront the root causes of the problem towards promoting sustainable peace in the region. Especially, the Nigerian government and the international community should evolve pragmatic strategies and programmes to provide essential rehabilitation, reintegration and resettlement to vulnerable and victims Efforts should also be made to rebuild structures and facilities that have been destroyed especially homes, schools, hospitals, markets and worship centres.

References

Adesoji, A. (2012) The Boko Haram Uprising and Islamic REvitalism in Nigeria. *African Spectr. Pp. 95-108*

Africa Unity (AU) Charter on Human Rights (1980)

Amnesty International (2016) Nigeria: They Betrayed us Women who survived Boko Haram, Raped, Starved and Detained in Nigeria. *https://www.amnestyusa.org/wp- Online Retrieved April, 2023.*

Criminal Code of the Southern Nigeria (1990) Cap 42, 1990. Sourced from: *Federal Ministry of Justice, Lagos, Nigeria.*

Economic Community of West African States (ECOWAS) (2001). Declaration of Plan of Action Against Trafficking in Person.

Enaikele M. D. and Olutayo A. O. (2011) Human Trafficking in Nigeria: Implication for Human Immune Deficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS) Pandemic. (in) *International Journal of Sociology and Anthropology Vol. 3(11) Pp. 416-422.*

Enaikele M. D., Okekunle, A., Adebowale, A. and Adeoye, A. (2017) Contextualizing the Boko Haram Insurgency in Northern Nigeria and U.N. Millennium Development Goals, (in) Africology: *The Journal of Pan African Studies Vol. 10(2) Pp. 109-125.*

Goliath JP (2008). Human Trafficking: South Africa Perspective. A paper delivered at the *International Association of Women Judges 9th Biennial International Conference, Panama, March 25-28, 2008.*

International Labour Organization (ILO) (1999). Convention on Forced Labour and Minimum Wage

International Organization of Migration (IOM) (2002). Report of the Counter-Trafficking Unit: *Return and Integration Project. IOM, Brussels.*

National Agency for Prohibition of Trafficking in Persons (NAPTIP)(2009*). NAPTIP News. Vol. 2 No. 1 July- Sept. 2009.* National Agency for Prohibition of traffick in Persons, (NAPTIP), Nigeria.

National Agency for Prohibition of Trafficking in Persons (2017) National Report. April-September, 2017.National Agency for Prohibition of trafficking in Persons, (NAPTIP), Nigeria.

Reliefweb (2019) *Nigeria Regional Refugee Response Plan 2019/2020.* https://reliefweb.int/report/nigeria/nigeria-regional-refugee-response-plan-20192020-0. Online Retrieved April, 2023

Sani, S. (2011). "Boko Haram: History, Ideas and Revolt". The Constitution. (In) Journal *of Constitutional Development 11 (4), 17-41.*

The Guardian Newspaper (2023) Why Crimes Against Children Fester by Amnesty International (in) the *Guardian Newspaper, 14th April, 2023. P.7.*

The Guardian Newspaper (2023) Nine Years of Chibok Abduction and 96 Captive Girls (in) The *Guardian Newspaper, 19th April, 2023. P.13.*

The Nigeria National Health Act (2014) Source from: Federal Ministry of Health, Abuja, Nigeria.

The Labour Act (1990); Cap 198. 1990. Sourced from: National Industrial court of Nigeria, Lagos, Nigeria.

The Penal Code of the Northern Nigeria (1963) Cap 89 Sourced from: Federal High Court, Lagos, Nigeria.

The Constitution of Federal Republic of Nigeria (1999) section 34(1) Federal Government Press, Abuja, Nigeria.

Trafficking in Persons Law Enforcement and Administration Act (2003) National Agency for Prohibition of Trafficking in Persons (NAPTIP), Nigeria

Trafficking in Persons Law Enforcement and Administration Act as Amended (2015) National Agency for Prohibition of Trafficking in Persons (NAPTIP), Nigeria

United Nations Protocol on Declaration of Human Rights (1948).

United Nations Convention on Elimination of all Forms of Discrimination against Women (1979).

United Nations Convention on the Rights of the Child (1989).

United Nations Optional Protocol to the Convention on the Rights of the Child, especially on the Sales of child, Child Prostitution and Child Pornography (2002).

United Nations High Commission for Refugees (UNHCR) (2000) A Multi-billion Dollar Trade in Human (In) Refugee UNHCR, Geneva. pp. 18-19

United Nations Office on Drugs and Crime (UNODC, (2018) Global Report on Trafficking in Persons. *https://reliefweb.int/report/world/global-report-trafficking-persons-* Online Retrieved April 2013

United Nations Office on Drugs and Crime (UNODC, 2018) Trafficking in persons and smuggling of migrants in Nigeria *https://www.unodc.org/nigeria/en/human-trafficking-and-* Online Retrieved April 2013

DESIGN AND SIMULATION OF AN INTELLIGENT TRAFFIC SIGNAL FOR T JUNCTION INTERSECTION

ENGR. DR. ICHEKE, L. E. D.
National Engineering Design Development Institute (Neddi), Nnewi,
Under National Agency for Science and Engineering Infrastructure
(Naseni) Abuja, Nigeria
E-mail:- checkled@yahoo.com. Tel: +2348062907739

Abstract
The design and simulation of an intelligent traffic signal for a T junction intersection is presented. The increase in urbanization and traffic congestion creates an urgent need to operate our transportation system with maximum efficiency. Real-time traffic signed control system is an integral part of modern vehicle control system aimed at achieving optimal utilization of the road network. The system is designed to continuously manipulate the varying changes in traffic density at a T junction in order to drastically reduce to a significantly low level the problems of traffic congestion. This intelligent traffic signal designed utilizes the combination of digital traffic light control method with the ability of light dependent resistor (LDR) sensors to monitor the changes in traffic density in order to adapt to the random changing traffic density and offer a better traffic signal control. The advantages is that it reasons and takes decisions, the road/lane with more vehicles are given more time to pass while the ones with less number of vehicles are given the least time, while the one with no vehicle is not given any time at all. The LDR sensors are low cost and very active sensors which are utilized to achieve cost effectiveness in the intelligent traffic signal control. These sensors are installed on the road lane to detect the presence or absence of vehicle on the road and this information are utilized by the controller to control the flow of traffic. The codes uploaded into the microcontroller are used to control the light emitting diode (LED) matrix which controls the movement of the vehicles with uttermost efficiency and precision. The objective of the research is to improve the traffic control system by introducing a low cost sensing network which provide a feedback to the controller so that it can adapt to the changing traffic density patterns and provide the necessary signal to the traffic flow control indicators in real time. The finding is that the LDR detection techniques/sensors cannot be used in the night where there are no street lights as this could results in erratic functionality. However, there is flexibility in the control of the traffic density is in real time. Digital cameras can be utilized instead of LDR for durability and efficiency at higher cost.
Key Word: Intelligent, Digital, Traffic, Signal &T Junction

Introduction

A traffic signal is a road signal for directing vehicular traffic by means of colour lights typically Red for ''STOP'', Green for 'GO' and Yellow for proceed with caution. The increase in urbanization and traffic congestion creates an urgent need to operate our transportation system with maximum efficiency. Real-time traffic signed control system is an integral part of modern vehicle control system aimed at achieving optimal utilization of the road network. The traffic signal are installed at the road intersection in-order to easy the flow/movement of vehicles with minimal delay, hence avoiding vehicle traffic congestion at road intersections. The traffic signal control is a substitute to the crude method of utilization of traffic police officers to monitor and control traffic flow at road intersections.

Generally, traffic signal can be classified into three (3) broad groups, these include; the analog traffic signal, the digital traffic signal and the intelligent digital traffic signal. All the above traffic signal utilize the same traffic signal lighting system, the Green, the Red and the Yellow coloured light, but the method and the efficiency of controlling the traffic flow differs. The analog traffic signal is the oldest types of traffic signal in which electrical, contactors, relays and electric timers are used as the major components of the traffic signal. Each lane of the road intersection is timed accordingly in order to pass vehicles according to the set time period, irrespective whether vehicles are at that lane or not, it must be passed and other lanes wait until the time elapse. The timers are set according to the required time interval in order to stop or give the signal for a flow of traffic; these types use incandescent filament bulb Red, Green and Yellow it is no longer in use nowadays. The digital traffic signal is the one which combines the electronic circuits and electrical power system in order to control the traffic signal. This type uses light emitting diode (LED)

matrix of Red, Green and Yellow light in order to control the traffic flow. The electronics circuit that control the operation may be a logic circuit or programmed circuit, any of these types can be utilized to control the traffic flow as designed. The control is timed with high accuracy and precision due to the advantages of digital circuits over analog circuits. These types are mostly in use in most cities of Third World countries, it is an open loop controls system, and there is no degree of intelligence in it. If the traffic signal can be programmed to be manipulated in order to respond to continuously varying changes in traffic density at a junction, the problem of traffic congestion can be drastically reduced to a significantly low level.

The intelligent traffic signal designed utilize the combination of digital traffic light control method with the ability of light dependent resistor (LDR) sensors to monitor the changes in traffic density in order to adapt to the random changing traffic density and offer a better traffic signal control, it is a closed loop system control. The advantages is that it reasons and takes decisions, the road/lane with more vehicles are given more time to pass while the ones with less number of vehicles are given the least time, while the one with no vehicle is not given any time at all. The intelligent traffic signal are the most recently developed type, but have not gained popularity due to the cost of design and installation of the type of sensor, digital camera or image processors can be designated for the operation hence it becomes very expensive to install, manage and maintain. This work design and simulation of intelligent traffic signal controller utilized light dependent resistor (LDR) sensors. These sensors can be installed on the road lane to detect the presence or absence of a vehicle on the road and this information will be utilized by the controller to control the flow of traffic. With the sensors installed the controller will be aware of the level of the traffic density at the road/lane and the one that is less in number or has no vehicle. The information from the sensor is what is required to actualize the desired objective of the traffic flow. The digital and intelligent digital traffic signal has the microcontroller as the main controller. The data are sent out through the ports which are used to achieve the required controls and precise timing of the power transistors/relays that control the light emitting diode (LED) matrix which control the movement of the vehicles with uttermost efficiency and precision.

Statement of the Problem
Traffic congestion is an increasing problem in cities, urban and semi-urban areas because of the increase in the movement of goods and human beings using motor vehicles. This always results in traffic jams mostly at the road intersections sometimes the traffic becomes very heavy in all directions due to lack of real time intelligent control system at the road intersection. The hope to reduce traffic congestion in cities and urban areas has not been realised. Long queues of vehicles are found in every road intersection. There is the need to proffer solution to these problems.

The Aims and Objectives
The aims and the objective of the research is to design and simulate an intelligent traffic signal for T junction intersection. The specific objectives are to:
1. Ensure the utilization of high quality and efficient intelligent traffic signal controller at minimal cost.
2. Ensure the utilization of most modern traffic signal instead of analog and digital types which are inefficient and prone to malfunction and failure.
3. Develop the traffic signal that achieves multitasking operation/performance with high efficiency precision and accuracy, utilizing light dependent resistors (LDR) for T junction road intersection.

Justification
The intelligent digital traffic signal achieves multitasking and precision which may not be achieved with analog/digital traffic signal.
- The intelligent traffic signal major modification can easily be carried out to suit current desired operation without changing any of the circuit peripherals, only reprogramming of the microcontroller is needed while in analog traffic signal major changes in the circuit must be carried out in order to effect major/minor modification.

- The intelligent traffic signal uses the microcontroller and software to accomplish more efficient operation while analog type use timers, also some digital type use outdated sequential circuit to control the operation of the traffic signal.

The Scope
The scope of the design is for T Junction/intersection utilizing light dependent resistors (LDR).
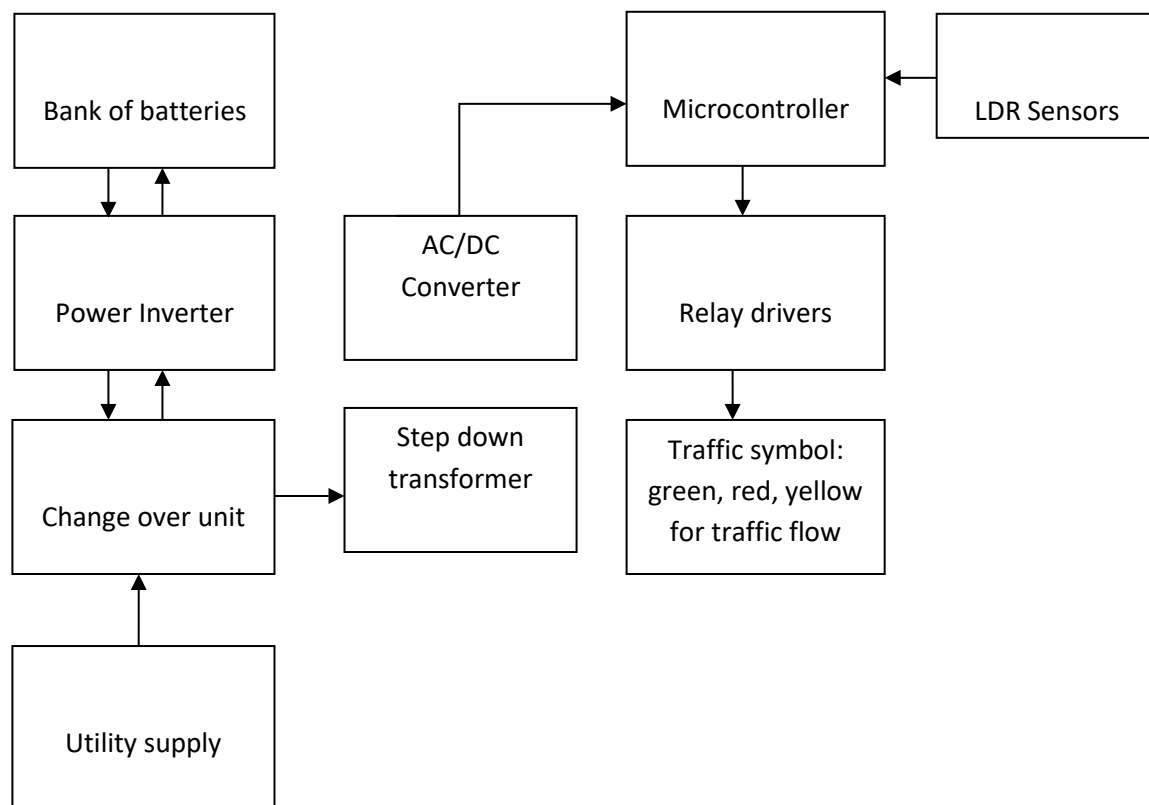
The Block Diagram of Intelligent Traffic Signal

Figure 1: *Intelligent traffic signal block diagram*

The block diagram of the intelligent traffic signal is shown in figure 1. The diagram is made up of the bank of batteries that supplies the inverter in order to maintain power supply to the system when there is no power from the utility power supply. The inverter converts the direct current (DC) power from the bank of batteries to an alternating current (AC) in order to power the circuit/system. The power from the inverter and the power from the utility power supply are interconnected at the automatic change over unit. When there is power from the utility power supply it is utilized to power the system and also charges the battery bank. However, in the event of power outage/failure, the inverter powers the circuit with the stored energy from the battery bank. The step down transformer step-down the high voltage alternating current to a low value 12V (AC), after rectification and filtration at AC/DC converter block 12V (DC) is obtained. The 12V (DC) is regulated to 5V (DC) and 6V (DC) respectively using 7805 and 7806 integrated circuit (IC) voltage regulator. In order to power the LED matrix, an emitter follower transistor is used. The reason for the utilization of emitter follower is because the diode matrix requires a high current in order to power it effectively. The sensors are interfaced to the microcontroller port three (3) i.e. bit 3.0 to bit 3.7 and port two (2) bit 2.0, the light dependent resistor (LDR) used are mounted at the monitored lanes. The microcontroller utilizes the information from the sensors (LDR) to obtain the information on the traffic density and this is used to control the traffic signal in order to control the flow of the traffic.

The System Circuit Diagram
The system circuit diagram is shown in figure 2. The components include the microcontroller AT89C52, the power supply circuit and voltage regulators, the operational amplifier LM358, the light dependent resistor (LDR), the limiting resistors and the light emitting diodes representing the diode matrix in green, red, and yellow.
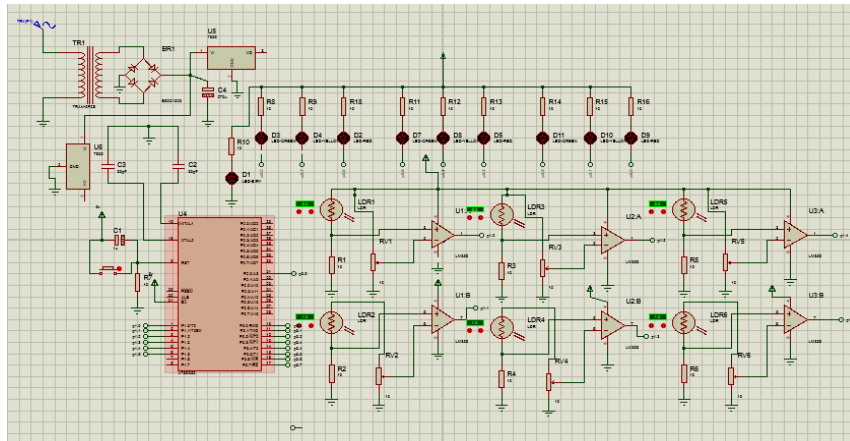
Figure 2: *The system circuit diagram*

The T Junction Traffic Controller

The diagram showing the T junction arena is shown in figure 3. The traffic signal and the sensors can be conveniently deployed at the T intersection as shown below.
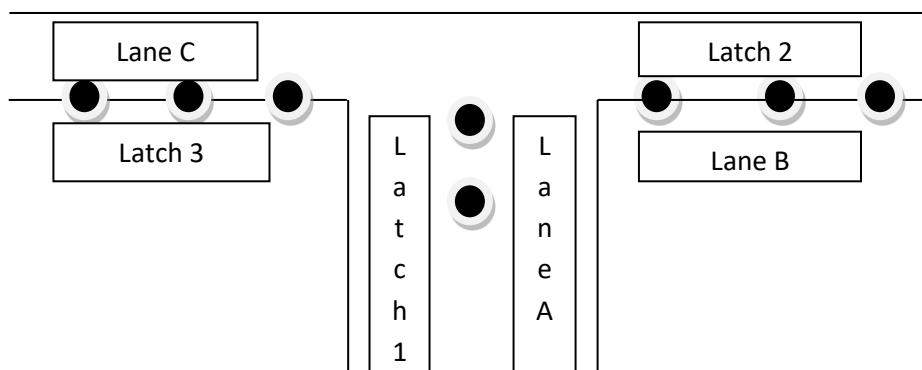
Figure 3: *The T junction traffic control diagram*

The sensors LDR are labelled 1-3 in lane A, 4-6 in lane B and 7-9 in lane C. The functions of these sensors are to detect the presence or absence of vehicle at the lane and the information is sent to the microcontroller for processing. The number of sensors lined at a particular lane determines the distance it covers. Each sensor will always raise a one count when it detects the presence of a vehicle and zero count in absence of a vehicle. The sensors are linked to independent digital counter whose function is to count the number of vehicles detected in order to determine the traffic density at that particular lane. The outputs of the counter are connected to the microcontroller through converters; this information is in real-time.

The Microcontroller Interface

For the T intersection traffic design the microcontroller connection are as shown
Lane A P2.0 = Green; P3.7 = Yellow; P3.6 = Red

Lane B P3.5 = Green; P3.4 – Yellow; P3.3 = Red

Lane C P3.2 = Green; P3.1 = Yellow; P3.0 = Red

This is how the diode matrix in the specified lanes are connected, example lane A P2.0 = Green means that P2.0 is used to activate the green LED matrix in lane A as represented in the circuit diagram figure 2. The sensors are cascaded and are connected to the counters, the output of the counter is sent to the decimal to binary converter. The information from the converter is sent to the controller through the latch (74373) to enable the selection of the lanes density input

to the microcontroller sequentially. The microcontrollers process the information from the lanes and determine which time interval is allocated to lanes depending on the traffic density at the lane.

Table 1: The Control Signal at T intersections

		A			B			C		
		G	**Y**	**R**	**G**	**Y**	**R**	**G**	**Y**	**R**
1	(a)	**O**	**1**	**1**	**1**	**1**	**0**	**1**	**1**	**0**
	(b)	**0**	**0**	**1**	**1**	**1**	**0**	**1**	**1**	**0**
2	(c)	**1**	**1**	**0**	**0**	**1**	**1**	**1**	**1**	**0**
	(d)	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**0**
3	(e)	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**1**	**1**
	(f)	**1**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**1**

The table 1 shows the control for T intersection. From the table 1, zero (0) represents ON and one (1) represents OFF. The circled values in the table indicate that the control is getting ready to be transferred to the next lane that is from lane A to lane B and to lane C and then rolls over to Lane A, depending on the outcome of the controller's decision. Assuming that there is equal presence of vehicle at each lane and that all the roads are busy then equal time interval will be allocated to the lanes. Assuming that there is no vehicle on any lane then equal timing of the lanes shall holds until there is a presence of vehicle at a particular lane. However, at the starting after the initialization of the microcontroller as in (a) table 1 the green of lane A will come ON while the yellow and red of lane A will be OFF, in lane B, green will be OFF, Yellow will be OFF and red will be ON. In lane C, green will be OFF, Yellow will be OFF, and red will be ON. When the time interval in (a) table 1 is over as shown, then go to lane B as in table 1. In (b) green in lane A will be ON, while the yellow will be blinking waiting to transfer control to lane B, while lane B is waiting to receive the control the green of lane B is OFF, yellow is OFF. Red is ON. In lane C green is OFF, yellow is OFF, and red is ON then it will roll over to the next lane (c) as in table 1. This action is with respect to the dictates of the sensors, however in these explanations we assume that all the lanes are busy and there are equal densities of vehicles in all the lanes. Therefore, the control is transferred sequentially depending on the number of the vehicle which determines the period of time the green signal will be allotted.

Results

The simulation results for the T junction road intersection are shown in figure 4a, 4b and 4c. The result represents the switching patterns shown in table 1 (a), (c) and (e), for lane A, B and C. The table shows that the system is activated with a low (0). The assumption is that all the lanes have equal traffic density, hence equal time interval is allotted to the lanes accordingly and sequentially. The yellow led matrix indicator was not shown to light because it only blinks when the roll over action is taking place as shown in table 1 (b), (d) and (f) with cycle for lane A, lane B, and lane C.

The figure 4a shows that at lane A, the green led matrix D1 is ON while the yellow D4 and red D3 led matrix are OFF. In lane B, the green D2 and yellow D6 led matrix are OFF while the red led matrix D5 is ON. In lane C, the green D7 and yellow D9 led matrix are OFF while the red led matrix D8 is ON. From figure 4a, only lane A is given the signal for traffic flow unless when there is no vehicle at the lane as may be reported by detection devices, hence the control is otherwise passed to another lane where there is presence of vehicle for traffic flow.

Figure 4a: *the simulation result for A lane traffic flow*

The figure 4b shows that at lane A, the green D1 and yellow D4 led matrix are OFF while red D3 led matrix is ON. In lane B, green D2 is ON while yellow D6 and red D5 led matrix are OFF. In lane C, the green D7 and yellow D9 led matrix are OFF while red D8 led matrix is ON. From figure 4b, only lane B is given the signal for traffic flow unless when there is no vehicle at the lane as may be reported by detection devices, hence the control is otherwise passed to another lane where there is presence of vehicle for traffic flow.

Figure 4b: *the simulation result for B lane traffic flow*

The figure 4c shows that at lane C, the green D1 and yellow D4 led matrix are OFF while red D3 led matrix is ON. In lane B, green D2 and yellow D6 led matrix are OFF while red led matrix D5 is ON. In lane C, the green D7 led matrix is ON while yellow D9 and red D8 led matrix are OFF. From figure 4c, only lane C is given the signal for traffic flow unless when there is no presence of vehicle at the lane as may be reported by detection devices, hence the control is otherwise passed to another lane where there is presence of vehicle for traffic flow.
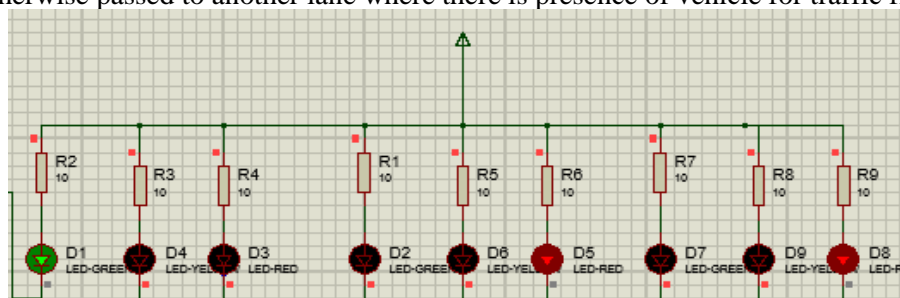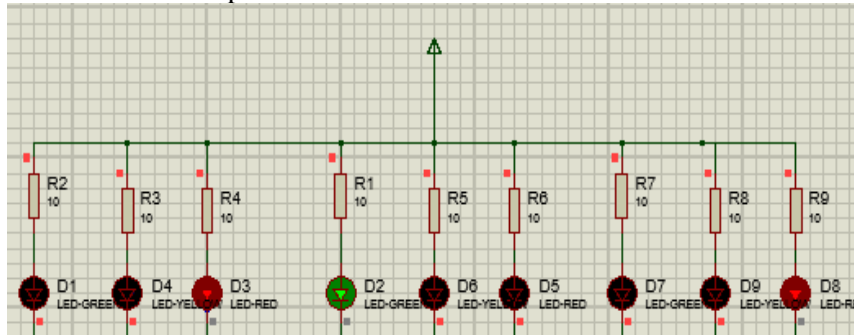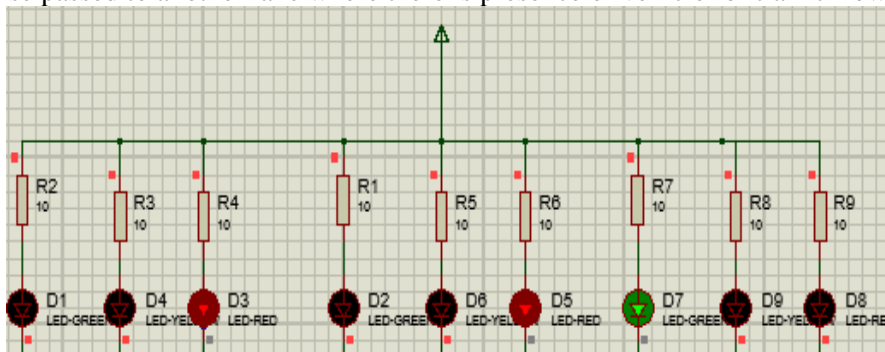

Figure 4c: *the simulation result for C lane traffic flow*

Discussions
From the circuit diagram figure 2, the detection system utilized are LDR sensors, it is capable of detecting the presence of the vehicles and the density which is sent to the controller to enable it take decision on which lane the control traffic flow is passed. It can be mounted at road side using a support structure in order to enhance its efficiency. The LDR are cascaded from one to another depending on the distance desired to be monitored. The signals from the LDR are connected to the counter and from there through the latch to the controller. This will enable the controller to determine the density of the lanes at any particular time for the necessary control actions.

In most third world counties, the traffic signal system utilized are not intelligent in all ramifications. These are ordinary digital traffic signals; the microcontroller utilized in it is just for the precision timing of the lanes and visual counting of the time intervals between the switching of the lanes. This always results in unabated traffic congestion in cities and urban areas. The reasons mostly adduced for none utilization of the intelligent traffic signal is the high cost of installation, management and unavailability of the technical experts. The advantages listed below shows that the LDR can be utilized in the third world regions with financial incapacitates and constraints.

However, the LDR detection technique cannot be used in the night where there are no street lights. If such a situation occurs the system will be unable to function and in some cases it can respond to false trigger utilizing the light from vehicles. The street lights are a must in order to effectively and efficiently utilize the LDR detection techniques.

The microcontroller is a programmable device where the programs utilized for the control of the traffic signal are uploaded. The controller allows the flexibility of reprogramming without any change of the associated hardware components; only the reprogramming is needed whenever there is the need to change the functionality of the system. The controller receives the density information from the detection devices, based on the information from the various lanes; it can now take valid acceptable decision for the traffic flow that reflects the state of road density at the moment. The operational amplifier is used as the switching device through which the actions arriving from the LDR are known through the sending of the desired voltage levels to the counter. The operational amplifier for this task should be the one with a low slew rate for appropriate saturation. The results of tests carried out proved the utilization of the LDR detection for traffic surveillance to be very effective and efficient and could be applied to reduce the high incidence of traffic congestion in cities and urban areas.

Conclusion

This method of utilizing LDR in order to detect the presence of vehicle and using the information to control the traffic signal based on the priority outcome proved to be an effective solution in reducing traffic congestion at road intersection. The densities of vehicles at the lanes are measured with the associated sensors that are connected to the controller. This traffic signal utilized the information from the sensors to determine which lane the control is transferred depending on the density of the vehicles at the lane in real-time. Vehicular traffic is highly variable in nature and the control of such traffic requires a high degree of sensitive monitoring to enable a suitable response to this variability. The design is capable of adjusting timings in real-time based on current traffic conditions and fluctuations. The installations of the LDR sensors are typically much more difficult to adjust than modern detection technologies which are very costly. The digital and analog traffic lights have more limitations because it uses the predetermined hardware which is functioning according to the program that does not have the flexibility of modification in real-time bases. Due to the fixed time interval, the waiting time is more and vehicles are delayed much longer at road intersection. The new design makes use of sensors network along with embedded technology, the timing of the traffic flow indicators at the intersection are intelligently determined based on the total traffic density and can be utilized to prevent traffic congestion and improved efficiency.

References

Amin F., Minge E., (2003). *Evaluation of non-intrusive technologies for traffic detection,* Proceedings of intelligent transportation society of America's thirteen annual meeting and exposition, Minnesota department of transportation.

Ashley R.K, Soon J.L, Yoo J.K., (2013). *Traffic signal system, a review of current technology,* in United State science and technology, 3 (1) pp 33- 41

Atkociunas E, Blake A, Juozapavicius, Kazimianec M., (2005). *Image processing in road traffic analysis,* non-linear analysis, modelling and control 10 (4) pp 315-332

Ben-Edigba J, Ibrahim I., (2010). *Empirical delay from activated and optimized static signal setting compared,* ARPN Journal of engineering and applied sciences, 5 (3) pp 42-48

Chase M.J, Hensen R.J., (1990). *Traffic control system past present and future*, Journal of transportation engineering, 116 (6) pp 703-713

Hao L, Yuna Y, Shuyun N., (2010). *Assessment of an advanced traffic state detector,* advanced materials research, 108-111 pp 811-816

Mclawhorn N., (2003). *Evaluating new sensor technologies for actuated signals*, Wisconsin department of transportation Madison

Middleton Charara H. Longmire R., (2009). *Alternative vehicle detection technologies for traffic signal system*, Texas institute college station

Shilpa S. C, Electron M. E, Jawaharcal N.E, Aurangabad I, Deshpande R.S., (2009). *Design of intelligent traffic light controller*, second international conference on emerging trends in engineering & technology, by IEEE pp 1086-1091

Tebow I., (2004). *Internal communication in traffic signal control*, (IMSA) journal pp 28-30

United State Department of Transportation., (2011). Traffic signal control system, research and innovative technology administration, on line Available at http:// ntl.bts.gov.lib

Vincent D., (2008). *Wireless traffic signal control*, (IMSA) Journal pp 57 – 58

Yousef K.M, Al-Karaki J.N, Shatnawi A.M., (2010). *Intelligent traffic light flow control system using wireless sensors networks,* Journal of information science and engineering, 26 pp 753 - 768

CORPORATE SOCIAL RESPONSIBILITY AND ORGANIZATIONAL SUSTAINABILITY OF OIL AND GAS FIRMS IN RIVERS STATE

Dr. Ominabo, Enoni Dickson
ominaboenoni@gmail.com
Department of Management
Faculty of Management Sciences
Ignatius Ajuru University of Education
Port Harcourt, Rivers State
08033424899

Abstract
This study examined corporate social responsibility and organisational sustainability of oil and gas firms in Rivers State. Among others the study seeks to addressed the problem corporate social responsibility in oil and gas firms in Rivers State. The aim of the study was to determine the relationship between corporate social responsibility and organizational sustainability of oil and gas firms in Rivers State. The explanatory cross-sectional survey research design was adopted for the study. The population of the study consisted of one hundred (100) oil and gas firms operating in Rivers State. The sample size of this study consisted of the entire population of the study. Thus, making it a census research. Questionnaire was used as source and instrument for data collection. The questionnaire was thorough scrutiny and adjustment by four academicians. Cronbach alpha was used by the researcher with a coefficient of 0.73 significant. Mean and Standard Deviation was used for the univariate analysis while the bivariate analysis was done using Spearman rank order correlation in SPSS Version 22. The study revealed among others that there is a positive significant relationship between environmental responsibility and sustainable growth of oil and gas firms in Rivers State. After the findings, the study concluded that organizations that fail in their corporate social responsibility face the risk of losing their competitive advantages over time. Finally, the study recommended among others that management of oil and gas firms in Rivers State and beyond should establish projects like social amenities to host communities and beyond since it will enhance corporate image in terms of public trust.

Keywords: Corporate Social Responsibility, Organisational Sustainability, Environmental Responsibility and Sustainable Growth

Introduction

One of the cardinal factors for business survival is attributed to its environment. This is because an organization does not exist in a vacuum rather in an environment, these environments/host communities are faced with some cardinal challenges which they expect the organizations such as oil and gas firms in Rivers State to address. These challenges ranges from provision of social amenities such as good road, water, electricity, schools, hospitals, employment generation and even skill acquisition programmes (Nmom, 2015).

Organizations such as oil and gas firms who are capable of addressing some of the challenges of the host communities are said to be socially responsible. However, engaging in corporate social responsibility by oil and gas firms in Rivers State tells better about them and boosts the love the society has for the organization. This could be predicted on the ground that they stand to solve a particular societal problem, impacting positively to the society and the environment, instead of contributing negatively to them. As asserted by Garriga & Mele (2014), that oil and gas firms, just like other corporate establishments, are expected to be good corporate citizens by avoiding illegal activities and also paying taxes promptly, including exhibiting a measure of social responsibilities such as employment provision to the host communities and offering skills acquisition.

Thus, as used in this study, corporate social responsibility represents social obligations of business encompassing economic, environmental, legal, ethical and discretionary expectations that society has, on organizations at a given point in time. Thus, corporate social responsibility encompasses organizational actions and policies that take into

account stakeholders' expectations and the triple bottom line of economic, social, and environmental performance (Aguinis & Glavas, 2012).

Environmental responsibility explains firm's duties to abstain from damaging natural environments through research funding that could enhance reduction of pollutions. An environmentally aware firm considers more than just profits. Perhaps, Bennett (2020) assert that environmental responsibility deals with the duty that a company has to operate in a way that protects the environment. It could equally mean the duty or obligation of a business or a business executive to promote environmental sustainability. This is because it deals with the responsible interaction between an organization and its environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality. However, oil and gas firms are said to be environmentally responsible if they engage properly in ensuring that pollution are reduced and research are funded to solve societal problems.

It only takes a sustainable organization to render corporate social responsibility. This is because adopting sustainability initiatives can provide firms with several forms of benefits, including a positive image, enhanced trust from stakeholders, efficiency in resource management, a competitive advantage, superior returns on investments, and profitability (Chen, 2010; Dangelico & Pujari, 2010). Nevertheless, organizational sustainability means the ability of oil and gas firms to employ and retain leadership, talent, global insights, finances, products, environments and change strategies necessary to rise to the unique challenges they might face. Sustainable organizational development needs an internal structure to constantly motivate, balance power, and opportunities to perform positive behaviors. Sustainable organizational practices are mindsets that affects all levels of the organization through effective change management that enable economic growth and customer satisfaction (Tabellini, 2018). However, organisational sustainability covers corporate image, talent retention and sustainable growth as its measures.

Cooperate image is the combined evaluation of a firm's recent actions and the capability of the firm to deliver improved business results to multiple stakeholders over time. Organization with strong image tends to achieve easy introduction of new products. This is because when you already have a strong brand and loyal customers, it is often easier and less expensive to introduce new products or test them out before you further invest in them (Fanaras, 2013). This could manifest through public trust and customer loyalty.

Talent retention refers to as organizational practices of keeping high skilled (talented) employees with the company or organization as long as possible. This leads to increased productivity and successful completion of strategic goals. A talented employee is someone who is able to surpass others and does not need to try his best to use it, they excel easily, thus, organizational ability to ensure that these talents possessed by employees are always put in use to solve organizational challenges determined how effective they are (Govaerts et al., 2015). This could manifest through attraction of quality human resource and employee retention.

Sustainable growth represents the realistically attainable height that a firm could maintain without running into problems. A business that grows too quickly may find it difficult to fund the growth. Creation of sustainable growth is a prime concern of small business owners and big corporate executives.

Organizations could only sustain and carry out corporate social responsibility for community development if they have strong financial factor. Financial factor in this study could be called fund availability. Thus, it refers to the ability for an organization to have or provide adequate funding to a project in order to enhance its operations. This implies that no organization succeed with inadequate financial resource availability. Thus, the availability of financial resources in the workplace is a determinant for the implementation of corporate social responsibility by top management of the firm. Funding is the fuel on which a business runs (Todd, 2019). This background necessitated this study.

A lot of studies have been conducted on corporate social responsibility and organizational sustainability in Nigeria and other countries of the world, but no detailed studies have been done on corporate social responsibility and organizational sustainability of oil and gas firms in Rivers State. This study is therefore targeted at filling the research gap in the body of knowledge.

Statement of the Problem
There seems to be an issue of poor performance of organization such as oil and gas firms in Rivers State. This could be predicted on their inability to sustain their business environment. Some of the oil and gas firms in Rivers State, seem not to have been able to meet up with the coordinating factors that could enable them sustain in the competitive business environment, this arose as a result of poor corporate image which could manifest as a result of lack of public trust and lack of customer loyalty/repeat patronage and inability to retain talented employees (Anwanwu, 2018; Fagerberg, 2015; Markusson, 2019). This suggests that some of the oil and gas firm in Rivers State are lacking bases of attaining competitive advantages over sister organization.

It has been observed also that poor organizational sustainability manifest in oil and gas firm due to organizational inability to attain sustainable growth (Butle, 2010). These causes increase in low market expansion and low customer base among others which will in result to organizational difficulty in sustaining its environment (Lawal et al. 2010). Several authors have written on corporate social responsibility and organizational sustainability in different angles but known has been written in Rivers State oil and gas sector. Hence this research seeks to close the literature lacuna.

Aim and Objectives of the Study
The aim of this study was to determine the relationship between corporate social responsibility and organizational sustainability of oil and gas firms in Rivers State. Specifically, the study seeks to achieve the following objectives:
1. To determine the relationship between environmental responsibility and corporate image of oil and gas firms in Rivers State.
2. To examine the relationship between environmental responsibility and talent retention of oil and gas firms in Rivers State.
3. To ascertain the relationship between environmental responsibility and sustainable growth of oil and gas firms in Rivers State.

Research Questions
Base on the objective, the following research questions are posed to guide the study.
1. To what extent does environmental responsibility relate with corporate image of oil and gas firms in Rivers State?
2. To what extent does environmental responsibility relate with talent retention of oil and gas firms in Rivers State?
3. To what extent does environmental responsibility relate with sustainable growth of oil and gas firms in Rivers State?

Research Hypotheses
Based on the research questions posed above, the following null hypotheses were stated and tested at 0.05 level of significance.
$Ho_{1:}$ There is no significant relationship between environmental responsibility and corporate image of oil and gas firms in Rivers State.
$Ho_{2:}$ There is no significant relationship between environmental responsibility and talent retention of oil and gas firms in Rivers State.
$Ho_{3:}$ There is no significant relationship between environmental responsibility and sustainable growth of oil and gas firms in Rivers State.

Review of Related Literature

Corporate Social Responsibility
Mullerat (2010) averred that corporate social responsibility (CSR) is a self-regulating business model that helps a company be socially accountable to itself, its stakeholders and the public. By practicing corporate social responsibility, also called corporate citizenship, companies can be conscious of the kind of impact they are having on all aspects of society, including economic, social, and environmental. Corporate social responsibility activities can

help forge a stronger bond between the organization and host community, employees and corporations, boost morale and help both employees and employers feel more connected with the world around them.

Corporate social responsibility is also a form of international private business self-regulation which aims to contribute to societal goals of a philanthropic, activist, or charitable nature by engaging in or supporting volunteering or ethically-oriented practices. (Wikipedia, 2021). It cut across management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. Corporate social responsibility is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives.

Dimensions of Corporate Social Responsibility
Environmental Responsibility
Environmental responsibility refers to a firm's duties to abstain from damaging natural environments through research funding that could enhance reduction of pollutions. An environmentally aware firm considers more than just profits. It considers its impact on society and the environment. Such a firm is sustainable because it contributes to the health of the structure within which it operates, thereby helping construct an environment in which the business can thrive. Bennett (2020) assert that environmental responsibility deals with the duty that a company has to operate in a way that protects the environment. It could equally mean the duty or obligation of a business or a business executive to promote environmental sustainability.

Organizational Sustainability
The focus of sustainable management is on analyzing firms' performance based on achieving the triple bottom line: social, environmental and financial outcomes (Gawel, 2012; Gupta & Kumar, 2013). Adopting sustainability initiatives can provide firms with several forms of benefits, including a positive image, enhanced trust from stakeholders, efficiency in resource management, a competitive advantage, superior returns on investments, and profitability (Chen, 2010; Dangelico & Pujari, 2010).

Organizational sustainability means the ability of oil and gas firms to employ and retain leadership, talent, global insights, finances, products, environments and change strategies necessary to rise to the unique challenges they might face. According to the Chartered Institute of Personnel and Development in London, CIPD (2012), the essence of organizational sustainability is the principle of strengthening the environmental, societal and economic systems within business operations.

Measures of Organizational Sustainability
Corporate Image
Corporate image or reputation, describes the manner in which a company, its activities and its products or services are perceived by outsiders. In a competitive business climate, many businesses actively work to create and communicate a positive image to their customers, shareholders, the financial community, and the general public. Reputation has been described as an extrinsic cue that is an attribute related to organizational image. Reputation evolves all the time, and it is mainly created by the flow of information from one user to another (Herbig & Milewicz, 2013). Reputation embodies the general estimation in which a company is held by employees, customers, suppliers, distributors, competitors, and the public (Fombrun & Shanley, 2018). Thus, firms compete for reputation knowing that those with a strong reputation across their goodwill in terms of product can assume highest sales prices, thereby being more powerful than another competitor (Loureiro & Kaufmann, 2016). This gives credence to cooperate image.

Talent Retention
Nowadays organizations realize that people, intellectual capital and talent are ever more critical to organizational success. Most organisations have become poachers of talent, instead of developers of talent. As soon as organization identifies a talent, it becomes imperative to stimulate talent development and management that increases competitive advantage. Continuous success of any organisation is dependent on the employees' contribution and commitment (Baum & Kokkronikal, 2015). The talent it possesses in the form of its employees' skills and competencies, leading

to organisational capability (Boudreau & Ramstad, 2015), has become the key to success in today's highly competitive business environment (Lock, 2016).

Sustainable Growth

Sustainable growth is the realistically attainable height that a firm could maintain without running into problems. A business that grows too quickly may find it difficult to fund the growth. Creation of sustainable growth is a prime concern of small business owners and big corporate executives alike. Obviously, however, achieving this goal is no easy task, given rapidly changing political, economic, competitive, and consumer trends (Davidsson et al., 2017). Each of these trends presents unique challenges to business leaders searching for the elusive grail of sustainable growth. Sustained growth for businesses is the maximum growth that can be achieved without having to become reliant on substantially increasing financial leverage or getting into unmanageable debt. If you have a new product or service coming out you obviously want it to do well (Davidsson et al., 2017). Pettigrew et al. (2017) posit that sustainable growth is a stage a company reaches when it can consider expansion and may look for additional options to generate more revenue. Organizational growth is often a function of industry growth trends, business lifecycle and the owners' desire for equity value creation.

Theoretical Framework

The theoretical foundation of this study is mainly anchored on stakeholder's theory.

Stakeholder Theory

Stakeholder theory is the theory adopted for this study. The stakeholder theory was propounded by Edward Freeman in 1948. The theory states that business firms owe responsibility to broad range of stakeholders, other than just shareholders. "Stakeholders" refers to all parties who effect or are affected by corporate actions. It includes employees, suppliers, customers, government, investors, community and environment (Asieh, Gatot & Yuni 2016).

Empirical Review

1. Victor (2021) examined corporate social responsibility and organizational performance of commercial banks in Rivers State. The objective of the study was to examined the relationship between corporate social responsibility and organizational performance. The study adopted the cross-sectional research design, using survey method. A sample size of one hundred (100) respondents drawn from the twenty commercial banks operating in Rivers State. After validation by the supervisor, one hundred (100) copies of structured questionnaire were administered while ninety (90) copies were retrieved. The reliability of the instrument was ascertained using Cronbach Alpha. Mean and standard deviation were used for the univariate analysis while Pearson product moment correlation coefficient was used for the bivariate analysis. The results showed that there is a positive and significant relationship between dimensions of corporate social responsibility in terms of social amenities and measures of organizational performance such as profitability and market share. The study concluded that commercial banks who fall short of providing/embarking on corporate social responsibility to the host community will find it really challenging to render functions efficiently and effectively which will affect their level of performance. Consequently, the study recommended among other things that Management of commercial banks in Rivers State should endeavour to create skill acquisition programmes that will make citizens of their host community to be self-employed.

Methodology

The explanatory cross-sectional survey research design was adopted for the study. The population of the study consisted of one hundred (100) oil and gas firms operating in Rivers State. The sample size of this study consisted of the entire population of one hundred (100) oil and gas firms operating in Rivers State. Thus, the study was a census research. In terms of respondents, three (3) top level managers (General Manager, Operations Manager, and Public Relations Manager) were selected from each of the 100 oil and gas firms to give a total of three hundred (300) respondents. The sources of data for the purpose of the study both primary and secondary sources of data collection were employed. The primary data consisted of the information obtained from the questionnaire. The secondary source of data consisted of related online and printed academic materials such as textbooks, conference papers, journal articles, newspapers, and magazines. The instrument for data collection is structured questionnaire. The questionnaire was thorough scrutiny and adjustment by four academicians. Cronbach alpha was used by the researcher with a

coefficient of 0.73 significant. Mean and Standard Deviation was used for the univariate analysis while the bivariate analysis was done using Spearman rank order correlation in SPSS Version 22.0.

Data Presentation and Analysis
Univariate Analysis

Table 1: Items and Scores on Environmental Responsibility

S/N	Environmental Responsibility	SA	A	D	SD	Total
		4	3	2	1	
1.	My organization puts up programmes from time to time to enlighten people on the dangers of environmental pollution.	115	79	46	15	255
2.	My organization has contributed immensely to the environmental research funding carried out in this State over the years.	110	84	50	11	255
3.	A lot of works on reduction of environmental pollution in Rivers State is a contributory effort of my organization.	152	103	0	0	255
4.	My organizational has received numerous awards as result of its contribution to the control of its environmental responsibility in Rivers State.	160	85	10	0	255
5.	I count myself lucky to be a manager in this organization, because its involvement in the environment has made me feel like a great contributor to the environmental wellness of this State.	149	99	7	0	255

Source: Fieldwork, 2024

Table 1 above shows the number of responses recorded in each of the response options. For instance, on the measurement item 1, respondents were required to indicate their level of agreement on how their organization puts up programmes from time to time to enlighten people on the dangers of environmental pollution. Majority (115) of the respondents strongly agreed, 79 agreed, 46 disagreed, and 15 strongly disagreed. The dominant view therefore is that it is strongly agreed by the respondents that their organization puts up programmes from time to time to enlighten people on the dangers of environmental pollution. The responses are summarized in the SPSS table shown below.

Table 2: Descriptive Statistics of Environmental Responsibility

	N	Minimum	Maximum	Mean	Std. Deviation
ER1	255	1.00	3.00	3.1529	1.433155
ER2	255	1.00	3.00	3.1490	1.431373
ER3	255	1.00	3.00	3.5961	1.634581
ER4	255	1.00	3.00	3.5882	1.708683
ER5	255	1.00	3.00	3.5569	1.693744
Valid N (likewise)	255	Grand Mean		3.40862	

Source: SPSS Output

Table 2 above reveals mean scores below 4 points across all the response items. This implies that the respondents agreed that oil and gas firms operating in Rivers State are environmentally responsible in terms of hosting of enlightenment programmes, contribution to environmental research funding, works on reduction of environmental pollution, and feeling of a great contributor. Item 2 with mean score of 3.1490 indicates that the respondents were of the view that the least indicator of environmental responsibility their organizations get is in their organizations' immense contribution to the environmental research funding carried out in this State over the years. Item 3 with mean score of 3.5961 indicates that the respondents were of the view that the most sign of environmental responsibility in

their organizations is in the lots of work on reduction of environmental pollution in Rivers State that were contributory effort of their organizations. Grand mean of 3.40862 shows that respondents agree that oil and gas firms operating in Rivers State are environmentally responsible in terms of hosting of enlightenment programmes, contribution to environmental research funding, works on reduction of environmental pollution, and feeling of a great contributor.

Table 3: Items and Scores on Corporate Image

S/N	Corporate Image	SA	A	D	SD	Total
		4	3	2	1	
1.	We have a reputation to protect and every member of this organization works with that consciousness.	142	90	23	0	255
2.	We have secured public trust because of our products and services standard.	153	102	0	14	255
3.	We have a lot of our customers whom we have their loyalty by reason of good treatment they have received from us over the years.	132	95	23	5	255
4.	The image we have created about this organization is a major factor to our organizational sustainability.	140	88	18	9	255
5.	Our corporate image is very important that we do not give anybody the opportunity to compromise it.	138	100	17	0	255

Source: Fieldwork, 2024

Table 3 above shows the number of responses recorded in each of the response options. For instance, measurement item 5 shows that respondents were required to indicate their level of agreement on how their corporate image is very important that they do not give anybody the opportunity to compromise it. Majority (138) of the respondents strongly agreed, 100 respondents agreed, 17 respondents disagreed, and zero (0) persons strongly disagreed. Thus, it is strongly agreed by the respondents that their corporate image is very important that they do not give anybody the opportunity to compromise it.

The responses are summarized in the SPSS table shown below:

Table 4: Descriptive Statistics of Corporate Image

	N	Minimum	Maximum	Mean	Std. Deviation
CI1	255	1.00	3.00	3.4667	1.575758
CI2	255	1.00	3.00	3.6	1.636364
CI3	255	1.00	3.00	3.3882	1.540107
CI4	255	1.00	3.00	3.4078	1.622782
CI5	255	1.00	3.00	3.4745	1.654528
Valid N (likewise)	255	Grand Mean		3.46744	

Source: SPSS Output

2. Table 4 above reveals mean scores below 4 points across all the response items. This implies that the respondents agreed that oil and gas firms in Rivers State embrace corporate image in terms of reputation protection, public trust security, securing of customer loyalty, having a good image of the organization, and not giving anybody to compromise their corporate image. Item 4 with mean score of 3.4078 indicates that the respondents were of the view that their least way of embrace of corporate image is in the fact that the image they have created about their organization is a major factor to their organizational sustainability. Item 2 with mean score of 3.6 indicates that the respondents were of the view that the most way of embrace of corporate image is in the fact that they have secured public trust because of their products and services standard. Grand mean of 3.46744 indicates that respondents agree that oil and gas firms in Rivers State embrace corporate image in terms of reputation protection, public trust security, securing of customer loyalty, having a good image of the organization, and not giving anybody to compromise their corporate image.

Table 5: Items and Scores on Talent Retention

S/N	Talent Retention	SA	A	D	SD	Total
		4	3	2	1	
1.	We have an attractive salary structure that is making us to retain talent in this organization.	139	97	15	5	255
2.	By reason of our good reputation, we do not struggle to attract great talents out there.	130	83	30	12	255
3.	Our recruitment processes are such that everyone who comes around always wishes to be picked.	127	94	23	11	255
4.	Our effort in talent retention has brought us numerous talented employees who are doing exploit here.	129	97	20	9	255
5.	Our standard of employee treatment is really helping us to have them very committed and not ready to leave just like that.	142	113	0	0	255

Source: Fieldwork, 2024

3. Table 5 above shows the number of responses recorded in each of the response options. For instance, measurement item 2 shows that respondents were required to indicate their level of agreement on how they do not struggle to attract great talents out there by reason of their good reputation. Majority (138) of the respondents strongly agreed, 83 respondents agreed, 30 respondents disagreed, and 12 persons strongly disagreed. The dominant view therefore is that it is strongly agreed by the respondents that they do not struggle to attract great talents out there by reason of their good reputation.

The responses are summarized in the SPSS table shown below:

Table 6:   Descriptive Statistics of Talent Retention

	N	Minimum	Maximum	Mean	Std. Deviation
TR1	255	1.00	3.00	3.4453	1.566051
TR2	255	1.00	3.00	3.2980	1.499109
TR3	255	1.00	3.00	3.3216	1.509804
TR4	255	1.00	3.00	3.3569	1.598506
TR5	255	1.00	3.00	3.5569	1.693744
Valid N (likewise)	255	Grand Mean		3.39574	

Source: SPSS Output

Table 6 above reveals mean scores below 4 points across all the response items. This implies that the respondents agreed that oil and gas firms in Rivers State embrace talent retention in terms of setting up attractive salary structure to help retain very useful human resource, having good reputation to help retain great talents, having welcoming recruitment processes, having numerous talented employees who are doing exploit, and high standard employee treatment. Item 2 with mean score of 3.2980 indicates that the respondents were of the view that the least show/indicator of talent retention in their firms is in the fact that they do not struggle to attract great talents out there by reason of their good reputation. Item 5 with mean score of 3.5569 indicates that the respondents were of the view that the most show/indicator of talent retention in their firms is in the fact that their standard of employee treatment is really helping them to have them very commitment and not ready to leave just like that. Grand mean of 3.39574 shows that respondents agree that oil and gas firms in Rivers State embrace talent retention in terms of setting up attractive salary structure to help retain very useful human resource, having good reputation to help retain great talents, having welcoming recruitment processes, having numerous talented employees who are doing exploit, and high standard employee treatment.

Table 7: Items and Scores on Sustainable Growth

S/N	Sustainable Growth	SA	A	D	SD	Total
		4	3	2	1	
1.	My organization is a major brand as far as our product line is concerned.	123	86	32	10	255
2.	My organization records high level of sales turnover.	143	86	22	4	255
3.	Most of the consumers prefer our products to other brands.	149	91	12	3	255
4.	I feel my organization holds the largest number of consumers in our product line.	133	97	18	7	255
5.	My organization has a lot of customers that it is servicing.	125	107	15	8	255

Source: Fieldwork, 2024

Table 7 above shows the number of responses recorded in each of the response options. For instance, measurement item 1 shows that respondents were required to indicate their level of agreement on how their organization is a major brand as far as their product line is concerned. Majority (123) of the respondents strongly agreed, 86 respondents agreed, 32 respondents disagreed, and 10 persons strongly disagreed. The dominant view therefore is that it is strongly agreed by the respondents that their organization is a major brand as far as their product line is concerned.

The responses are summarized in the SPSS table shown below:

Table 8: Descriptive Statistics of Sustainable Growth

4.	5. N	6. Minimum	7. Maximum	8. Mean	9. Std. Deviation
SG1	255	1.00	3.00	3.2784	1.490196
SG2	255	1.00	3.00	3.4431	1.565062
SG3	255	1.00	3.00	3.5137	1.597148
SG4	255	1.00	3.00	3.3961	1.61718
SG5	255	1.00	3.00	3.3686	1.604108
Valid N (likewise)	255	Grand Mean		3.39994	

Source: SPSS Output.

Table 8 above reveals mean scores below 4 points across all the response items. This implies that the respondents agreed that oil and gas firms in Rivers State embrace sustainable growth in terms of being a major brand, recording of high level of sales turnover, product preference, holding the largest number of consumers in product line. Item 1 with mean score of 3.2784 indicates that the respondents were of the view that the least show/indicator of sustainable growth is in the fact that their organizations are major brands as far as their product line is concerned. Item 3 with mean score of 3.5137 indicates that the respondents were of the view that the most show/indicator of sustainable growth is in the fact that most of the consumers prefer their products to other brands. Grand mean of 3.39994 shows that respondents agree that oil and gas firms in Rivers State embrace sustainable growth in terms of being a major brand, recording of high level of sales turnover, product preference, holding the largest number of consumers in product line.

Bivariate Analysis of the Variables
Environmental Responsibility and Organizational Sustainability Measures
Ho$_1$: There is no significant relationship between environmental responsibility and corporate image of oil and gas firms in Rivers State.
Ho$_2$: There is no significant relationship between environmental responsibility and talent retention of oil and gas Firms in Rivers State.
Ho$_3$: There is no significant relationship between environmental responsibility and sustainable growth of oil and gas

firms in Rivers State.

Table 9: Correlations between Environmental Responsibility and Organizational Sustainability Measures

		Environmental Responsibility	Corporate Image	Talent Retention	Sustainable Growth
Spearman's rho	**Environmental Responsibility** — Correlation Coefficient	1.000	.715**	.744**	.731**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	255	255	255	255
	Corporate Image — Correlation Coefficient	**.715****	1.000	.640**	.710**
	Sig. (2-tailed)	.000	.	.000	.000
	N	255	255	255	255
	Talent Retention — Correlation Coefficient	**.744****	.640**	1.000	.767**
	Sig. (2-tailed)	.000	.000	.000	.000
	N	255	255	255	255
	Sustainable Growth — Correlation Coefficient	**.731****	.710**	.767**	1.000
	Sig. (2-tailed)	.000	.000	.000	.000
	N	255	255	255	255

Source: SPSS Output

Column two of table 9 above shows r value of 0.715 at a significant level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to environmental responsibility and corporate image. Since the significant level is less than the alpha level of 0.05, the null hypothesis (Ho$_1$) which states that there is no significant relationship between environmental responsibility and corporate image of oil and gas firms in Rivers State was rejected and the alternate hypothesis (H$_{a1}$) was accepted. This implies that there is a strong positive relationship between environmental responsibility and corporate image of oil and gas firms in Rivers State.

Column three of table 9 above shows r value of 0.744 at a significant level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to environmental responsibility and talent retention. Since the significant level is less than the alpha level of 0.05, the null hypothesis (Ho$_2$) which states that is no significant relationship between environmental responsibility and talent retention of oil and gas firms in Rivers State was rejected and the alternate hypothesis (H$_{a2}$) was accepted. This implies that there is a strong positive relationship between environmental responsibility and talent retention of oil and gas firms in Rivers State.

Column four of table 9 above shows r value of 0.731 at a significant level of 0.00 which is less than the chosen alpha level of 0.05 for the hypothesis relating to environmental responsibility and sustainable growth. Since the significant level is less than the alpha level of 0.05, the null hypothesis (Ho$_3$) which states that there is no significant relationship

between environmental responsibility and sustainable growth of oil and gas firms in Rivers State was rejected and the alternate hypothesis (H_{a3}) was accepted. This implies that there is a positive correlation between environmental responsibility and sustainable growth of oil and gas firms in Rivers State. These results showed that the engagement of oil and gas firms in environmental responsibility will go a long way in boosting their sustainability.

Discussion of Findings
10. The tests of hypotheses one to two revealed that there is a negative significant relationship between environmental responsibility and organizational sustainability of oil and gas firms in Rivers State; test of hypothesis three shows a positive significant relationship between environmental responsibility and sustainable growth of oil and gas firms in Rivers State. Environment in which a firm is situated most times determine the survival of such business. This implies that business environment has a major role to play in the performance of every organization. This is because a firm that is sited in a peaceful and coordinated environment, has more focus in ensuring that their organizational goals and set objectives are attain which will equally enable them attain organizational sustainability in terms of corporate image, talent retention and sustainable growth.

Oil and gas firms such as Abbeycourt Energy Services Ltd, ACM Nigeria Limited, Bosket Nig. Limited, African Oil Field Services Gas Services limited, Afro Rivers Nigeria Limited, Afritex Energy Services, Davidson Oil and Gas Nig. Ltd, Deep Sea Oil and Gas Limited and many more operate in environments where human resides as well. Their operation most time causes degradation which results to environmental hazard such as air pollution, water pollution, etc. thus, they are charge with the responsibility of ensuring that these hazards caused by their firm in cause of carrying out their operations are properly addressed. This makes them to embark on environmental corporate social responsibility to ensure that pollutions are drastically controlled and reduced as well.

Conclusions
The study has shown that corporate social responsibility is a veritable tool in achieving organizational sustainability of oil and gas firms in Rivers State. Oil and gas firms that uphold social responsibilities such as environmental responsibility stand the chance of sustainably improving their corporate image, talent retention and sustainable growth of an organization. It was also concluded that organizations that fail in their corporate social responsibility face the risk of losing their competitive advantages over time. It therefore becomes pertinent for oil and gas firms across and beyond Rivers State to grab this opportunity so as to attain organizational sustainability in terms of corporate image, talent retention and sustainable growth. This goes further to imply that organizations that refuse to see this opportunity and make judicious use of it might be eluded of the benefits that accrue it.

Recommendations
Base on the findings of the study, the following recommendations were made:
1. Management of oil and gas firms in Rivers State and beyond should establish projects like social amenities to host communities and beyond since it will enhance corporate image in terms of public trust.
2. Management of oil and gas firms should sponsor environmental research to provide guide on how the ecosystem of the host community can be restored or maintained.
3. Management should endeavour to ensure that they adhere to ethical practices and comply to standards in their dealings with internal and external stakeholders.

References
Aguinis, H., and Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management* 38(4), 932-68.

Bennett, M. (2020). Impure altruism and donations to public goods: A theory of warm-glow giving. *Economic Journal,* 100 (4), 64–77.

Boudreau, H. & Ramstad, C. D. (2015). Talent management strategy of employee engagement in Indian ITES employees: key to retention. *Journal of Employee Relations*, 29(6), 640-663.

Butle, B. P. (2010). Ecological balance: The greater goal of the environmental manager. Rochester institute of technology.

Chan, K. K., Tam, C. M., Vivian, Tam, W. Y. & Zeng, S. X. (2016). Environmental performance measurement indicators in construction. *Building and Environment 41*

Chen, Y. (2010). The drivers of green brand equity: Green brand image, green satisfaction and green trust. *Journal of Business Ethics*, 93(2), 307–319.

Cheng, Y. & Ho, O. (2011). Retention, turnover and return - A longitudinal study of allied health professionals in Britain. *Human Resources Management Journal*, 20 (1), 391-406.

Dangelico, R. M., & Pujari, D. (2010). Mainstreaming green product innovation: Why and how companies integrate environmental sustainability. *Journal of Business Ethics*, 95(3), 471–486

Davidsson, A., Barnett, M. & Marshall, P. (2017). *E-business strategies for virtual organizations*. Taylor & Francis Ltd.

Flavio, A. C. (2013). Indicators of organizational sustainability: A proposition from organizational competences, *International Review of Management and Business Research* 2 (4).

Fombrun, C. J. & Shanley, M. (2018). What's in a name? Reputation building and corporate strategy. *Academy of Management Journal*, 33(2), 233–258.

Gavrea, C., Ilieş, L. & Stegerean, R. (2011). Determinants of organizational performance: The case of Romania. *Management & Marketing Challenges for the Knowledge Society,* 6 (2), 285-300.

Gawel, A. (2012). Entrepreneurship and sustainability: Do they have anything in common? *Poznan University of Economic Review*, 12(1), 5–16.

Gupta, S., & Kumar, V. (2013). Sustainability as corporate culture of a brand for superior performance. *Journal of World Business*, 48(3), 311–320.

Herbig, B. & Milewicz, D. (2013). *Succession planning demystified.* The Institute for *Employment Studies Report 372.*

Investopedia (2016). *Liquidity.* http://www.investopedia.com/terms/l/liquidity.asp?layout= *infini&v=5B&adtest=5B*

Markusson , P. (2019). Green management matters regardless. *Academy of Management Perspectives* 23 (3), 17-26.

Nmom, A. (2015). Learning environment and student motivation and performance. *Unpublished Master's Thesi*s. Ohio State University

Tabellini, G. (2008). Presidential address institutions and culture. *Journal of the European Economic Association,* 6(2–3), 255–294.

Todd, S. (2019). The world's best corporate websites 2019: What makes them effective. *https://www.forbes.com/sites/samanthatodd/2019/06/18/the-worlds-best-corporate-websites-2019-what-makes-them-effective/*

Ugochukwu, N.C., Ertel J, l & Schmidt, M. (2018). Environmental Sustainability and Sustainable Development Issues in the Niger Delta Region of Nigeria.

Victor, O. (2021). Corporate social responsibility and organizational performance of commercial banks in Rivers State. *Unpublished Undergraduate Project,* Department of Management, University of Port Harcourt.

Wikipedia (2021). *What is corporate social responsibility* http://shodhganga. inflibnet. ac.in/bitstream/ 10603/705/16/17_ chapter8. pdf

QUANTIFYING PUBLIC SENTIMENT ON REMOTE WORK: AN ANALYSIS OF ATTITUDINAL TRENDS

Jane Aselenyeofori Dappa[1], Kingsley Ala Wilcox[2]
[1]Department of Mathematics and Statistics,
Federal Polytechnic of Oil and Gas Bonny, Rivers State, Nigeria
[2]Department of Mathematics and International Primary Curriculum (IPC),
RA International School Bonny-Island, Rivers State, Nigeria

Email address:
janedappa@gmail.com 08064463114 (J. A. Dappa),
Kingeverest510@gmail.com 08062563957 (K. A. Wilcox)

Abstract
This study investigates public sentiment towards remote work through a comprehensive analysis of attitudinal trends. With a sample size of 1000 participants, our research delves into the perceptions, preferences, and concerns surrounding remote work arrangements. Leveraging both quantitative and qualitative methodologies, we aim to provide a nuanced understanding of how individuals across diverse demographics view remote work. The analysis begins by quantifying overall sentiment towards remote work, exploring factors influencing attitudes, and identifying demographic variations. Through structured surveys, participants' perceptions of the advantages and disadvantages of remote work are examined. Additionally, we assess their willingness to continue remote work post-pandemic and satisfaction with current remote work arrangements. Furthermore, we employ inferential statistics to identify significant predictors of remote work attitudes, including demographic variables such as age, gender, occupation, and geographic location. This allows for a deeper exploration of how individual characteristics shape perceptions of remote work. Overall, this study contributes to the growing body of research on remote work by providing empirical insights into public sentiment. Understanding these attitudinal trends is crucial for organizations and policymakers seeking to design effective remote work policies that align with the preferences and needs of the workforce.
Keywords: Remote Work, Public Sentiment, Attitudinal Trends, Quantifying, Analysis & Demographics

Introduction

Remote work, also known as telecommuting or telework, refers to a work arrangement where employees have the flexibility to perform their job duties from a location outside of the traditional office setting, often from their homes or other remote locations. This trend has gained significant traction in recent years, driven by advancements in technology, changing workforce demographics, and evolving organizational structures. Understanding the dynamics of remote work is crucial for businesses, policymakers, and individuals alike, as it has profound implications for productivity, work-life balance, and organizational effectiveness.

One seminal work in this area is "The Future of Work" by Rifkin (1996), which explores how technological advancements, particularly in communication and information technologies, are reshaping the nature of work. Rifkin argues that the rise of the "telecommuting culture" will lead to a more decentralized and flexible workforce, with individuals having greater control over their work arrangements.

Another key aspect of remote work is its impact on productivity and job satisfaction. Golden and Veiga (2005) conducted a study examining the relationship between telecommuting and job performance, finding that professional isolation and access to communication-enhancing technology significantly influence teleworker job performance and turnover intentions. This underscores the importance of considering both the benefits and challenges associated with remote work arrangements.

Furthermore, remote work has implications for organizational culture and communication. A study by Kniffin et al. (2017) explores the effects of remote work on team dynamics, finding that while remote work can enhance individual autonomy and flexibility, it may also lead to feelings of social isolation and reduced collaboration within teams. This

highlights the need for organizations to foster a culture of communication and teamwork, regardless of employees' physical locations.

The COVID-19 pandemic has accelerated the adoption of remote work on a global scale, as organizations were forced to adapt to remote work arrangements to ensure business continuity and prioritize employee health and safety. Research by Dingel and Neiman (2020) provides insights into the prevalence of remote work during the pandemic, highlighting variations across industries and occupations. This unprecedented shift towards remote work has prompted organizations to reevaluate their remote work policies and infrastructure, with implications for long-term workforce management strategies.

In conclusion, remote work is a multifaceted phenomenon with implications for individuals, organizations, and society as a whole. By understanding the dynamics of remote work, including its benefits, challenges, and underlying drivers, stakeholders can develop strategies to maximize its potential while mitigating potential drawbacks. As remote work continues to evolve in response to technological advancements and shifting societal norms, ongoing research and analysis are essential to inform evidence-based practices and policies in the future of work.

Understanding public sentiment towards remote work is crucial for several reasons. Firstly, it provides insights into the overall acceptance and readiness of the workforce to embrace remote work as a viable work arrangement. By understanding public sentiment, organizations can tailor their remote work policies and practices to align with the preferences and needs of their employees, thus improving employee satisfaction and retention.

Secondly, public sentiment towards remote work can impact organizational decision-making and broader policy discussions. Positive sentiment towards remote work may lead to increased investment in remote work infrastructure and technology, as well as the implementation of supportive policies by governments and organizations. Conversely, negative sentiment may pose challenges for organizations seeking to transition to remote work or expand existing remote work programs.

Additionally, public sentiment towards remote work can influence perceptions of productivity, collaboration, work-life balance, and job satisfaction. By understanding these attitudes, organizations can address concerns and implement strategies to maximize the benefits of remote work while mitigating potential drawbacks.

Statement of the Problem
The problem addressed in this study is the need to understand and quantify public sentiment towards remote work. With the increasing prevalence of remote work arrangements, fueled by technological advancements and shifting societal norms, there is a growing interest in exploring attitudes, perceptions, and preferences regarding remote work among the general population. However, limited empirical research exists that systematically analyzes these attitudes and their underlying factors across diverse demographic groups. Therefore, the study aims to fill this gap by conducting a comprehensive analysis of attitudinal trends towards remote work, with a focus on quantifying public sentiment and identifying influential factors. By addressing this problem, the study seeks to provide valuable insights for organizations and policymakers to inform the development of remote work policies and practices that align with the needs and preferences of the workforce.

Significance of the Study
The significance of this study lies in its contribution to understanding public sentiment towards remote work, a topic increasingly relevant in today's evolving work landscape. By quantifying attitudes and identifying influential factors across diverse demographics, the study offers valuable insights for organizations and policymakers. These insights can inform the design of remote work policies that promote employee satisfaction, productivity, and well-being. Additionally, the study sheds light on the potential implications of remote work trends for the future of work, offering guidance for navigating the challenges and opportunities presented by remote work arrangements. Ultimately, the findings of this study have the potential to shape the development of remote work strategies that meet the needs of both employees and employers in the years to come.

Purpose of the Study

The purpose of the survey is to systematically assess and analyze public attitudes towards remote work. Specifically, the survey aims to gather data on various aspects related to remote work, including perceptions of advantages and disadvantages, willingness to continue remote work post-pandemic, satisfaction with remote work arrangements, and factors influencing attitudes towards remote work.

By conducting this survey, researchers aim to provide valuable insights into the factors shaping public sentiment towards remote work, identify potential barriers or challenges to remote work adoption, and inform evidence-based strategies for organizations and policymakers to support remote work initiatives.

Research Objectives

The following objectives were used in the study:
1. To understand public perception of remote work.
2. To identify factors influencing attitudes towards remote work.
3. To analyze demographic variations in attitudes.

Research Questions

The research questions were developed and used as a guide for the study:
1. What are the prevailing perceptions of the public regarding remote work?
2. What factors significantly influence attitudes towards remote work among the public?
3. How do demographic factors contribute to variations in attitudes towards remote work within the population?

Literature Review

The study of public sentiment towards remote work has gained significant attention in recent years, especially with the surge in remote work arrangements due to the COVID-19 pandemic. Researchers have explored various aspects related to remote work, including its benefits, challenges, impact on productivity, and implications for work-life balance. This review synthesizes key findings from relevant literature to contextualize the analysis of attitudinal trends towards remote work.

Remote Work Adoption Models

Various conceptual frameworks have been proposed to understand the adoption of remote work among organizations and individuals. One such model is the Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003). This framework integrates various theories to explain the adoption of new technologies, including remote work tools and practices.

Work-Life Balance Frameworks

The concept of work-life balance is often cited as a primary driver for remote work adoption. Models such as the Work-Home Resources Model (ten Brummelhuis & Bakker, 2012) and the Boundary Theory (Clark, 2000) provide insights into how remote work can facilitate better balance between work and personal life.

Psychological Contract Theory

Remote work arrangements may impact the psychological contract between employers and employees. The Psychological Contract Theory (Rousseau, 1989) offers a framework for understanding the implicit expectations and obligations between employers and employees in remote work settings.

Technology Acceptance Model (TAM)

The TAM, proposed by Davis in 1989, posits that perceived usefulness and perceived ease of use are primary determinants of individuals' attitudes towards adopting new technology. In the context of remote work, studies applying TAM have highlighted the importance of technology's perceived usefulness and ease of use in shaping attitudes towards remote work tools and platforms (Davis, 1989).

Job Characteristics Model

Hackman and Oldham's Job Characteristics Model emphasizes the role of task significance, autonomy, and feedback in influencing job satisfaction and motivation. Remote work arrangements often provide increased autonomy and flexibility, which can positively impact job satisfaction and attitudes towards work (Hackman & Oldham, 1976).

Social Exchange Theory

Social Exchange Theory suggests that individuals engage in a cost-benefit analysis of their relationships and interactions. In the context of remote work, employees may weigh the benefits of flexibility and autonomy against potential costs such as social isolation and reduced support from colleagues and supervisors (Blau, 1964).

Remote Work Productivity Studies

Empirical studies have examined the impact of remote work on productivity. Research by Bloom et al. (2015) conducted a randomized control trial with a Chinese travel agency and found that remote work led to a 13% increase in performance.

Demographic Analysis of Remote Work

Empirical studies have also explored demographic variations in remote work adoption and attitudes. For example, research by Mokhtarian and Salomon (1997) analyzed demographic factors influencing telecommuting adoption, including age, gender, and household composition.

Methodology and Materials
Research Design

The research design involves a quantitative and qualitative analysis of public sentiment towards remote work, focusing on attitudinal trends and perceptions.

Sampling Technique

Random sampling will be employed to ensure the representativeness of the sample population. Participants will be randomly selected from a diverse pool of individuals to capture a broad spectrum of opinions and experiences related to remote work.

Sample Size

The target sample size for the survey is n=1000 respondents. This sample size is chosen to provide sufficient statistical power and confidence in the analysis of attitudinal trends towards remote work while maintaining feasibility in data collection and analysis.

Data Collection Method

An online survey platform will be utilized to administer the questionnaire to the selected participants. The online survey will enable efficient data collection, reach a larger and more diverse audience, and facilitate the anonymity and confidentiality of respondents' responses.

Results

Table 1: Demographic Profile

• **Demographic Profile**	• **Description**
• **Age**	• Categories: 18-24, 25-34, 35-44, 45-54, 55+
• **Gender**	• Male, Female, Other
• **Occupation**	• Categories: White-collar, Blue-collar, Freelancer, Student, Homemaker, Unemployed
• **Educational Level**	• Categories: High School or below, Some College, Bachelor's Degree, Master's Degree, Doctoral Degree
• **Geographic Location**	• Urban, Suburban, Rural

Research Question 1: What are the prevailing perceptions of the public regarding remote work?

Table 2: Overall Sentiment towards Remote Work

Sentiment	Number of Respondents
Positive	650
Neutral	250
Negative	150

The quantitative analysis indicates that a majority of participants (65%) have a positive sentiment towards remote work, while 25% hold a neutral stance, and 10% express a negative sentiment. This suggests that a significant portion of the public views remote work favorably, potentially due to perceived benefits such as flexibility and reduced commute time.

Table 3: Perception of Advantages and Disadvantages:

Perception	Number of Respondents
Advantage	750
Disadvantage	250

The analysis reveals that a significant majority (75%) of participants perceive remote work as advantageous, while 25% consider it to have disadvantages. This underscores the widespread recognition of the benefits associated with remote work, such as increased flexibility and reduced commuting stress, despite potential drawbacks such as communication challenges and feelings of isolation.

Table 4: Willingness to Continue Remote Work Post-Pandemic

Willingness	Number of Respondents
Yes	600
No	200
Unsure	200

The analysis indicates that a majority (60%) of participants express willingness to continue remote work post-pandemic, while 20% are opposed to it, and another 20% are unsure. This reflects a mixed sentiment regarding the future of remote work, with a significant portion of participants open to its continuation, possibly due to positive experiences during the pandemic, while others remain undecided or skeptical about its long-term viability.

Table 5: Satisfaction with Remote Work Arrangements

Willingness	Number of Respondents
Satisfied	700
Neutral	200
Unsatisfied	100

The analysis reveals that a majority (70%) of participants are satisfied with their remote work arrangements, while 20% hold a neutral stance, and 10% express dissatisfaction. This suggests that a significant proportion of the public finds remote work arrangements to be satisfactory, potentially due to perceived benefits such as increased flexibility and autonomy. However, there is a portion of participants who remain neutral or dissatisfied, indicating areas for improvement in remote work policies and practices to better meet the needs and preferences of all individuals.

Research Question 2: What factors significantly influence attitudes towards remote work among the public?

Table 6: Quantitative Analysis on Factors Influencing Attitudes towards Remote Work

Factor	Mean Score (1-5)	Standard Deviation
Work-life balance	**4.2**	**0.8**
Productivity	**3.8**	**0.9**
Communication and collaboration	**4.1**	**0.7**
Technology infrastructure	**4.0**	**0.6**
Job role suitability	**3.6**	**0.8**
Personal preferences	**4.3**	**0.7**

- **Work-life balance**

The mean score of 4.2 suggests that participants consider work-life balance as a significant factor influencing their attitudes towards remote work. A higher mean score indicates that a majority of participants perceive remote work positively in terms of its potential to improve work-life balance, allowing for greater flexibility and autonomy in managing personal and professional commitments.

- **Productivity**

With a mean score of 3.8, productivity is also considered an important factor influencing attitudes towards remote work. While the score is slightly lower compared to work-life balance, it still indicates that most participants view remote work as conducive to maintaining or even enhancing productivity. However, the relatively higher standard deviation of 0.9 suggests some variability in perceptions, with some participants expressing concerns about maintaining productivity outside of traditional office settings.

- **Communication and collaboration**

The mean score of 4.1 indicates that participants recognize the importance of effective communication and collaboration in remote work environments. This suggests that remote work arrangements are perceived positively in terms of facilitating communication and collaboration through various digital tools and platforms. The lower standard deviation of 0.7 indicates relatively consistent attitudes among participants regarding this factor.

- **Technology infrastructure**

With a mean score of 4.0, participants acknowledge the significance of robust technology infrastructure in supporting remote work. This suggests that access to reliable internet connectivity, communication tools, and software platforms is crucial for enabling remote work and influencing attitudes towards its feasibility and effectiveness. The relatively lower standard deviation of 0.6 indicates a high level of agreement among participants regarding the importance of technology infrastructure.

- **Job role suitability**

The mean score of 3.6 suggests that participants have varying perceptions of the suitability of remote work for their specific job roles. While some participants may perceive remote work as compatible with their job responsibilities, others may have concerns about the feasibility of performing certain tasks remotely. The standard deviation of 0.8 indicates some degree of variability in attitudes among participants regarding this factor.

- **Personal preferences**

With the highest mean score of 4.3, personal preferences emerge as a significant factor influencing attitudes towards remote work. This suggests that individual preferences and inclinations play a crucial role in shaping attitudes towards remote work, with some participants expressing a strong preference for remote work arrangements based on their personal circumstances and preferences. The standard deviation of 0.7 indicates some variability in personal preferences among participants.

Research Question 3: How do demographic factors contribute to variations in attitudes towards remote work within the population?

3.5 Analysis of Variations: Demographic Variations in Attitudes towards Remote Work

Table 7: Age Groups

Age Group	Work-life Balance (Mean)	Productivity (Mean)	Communication & Collaboration (Mean)	Technology Infrastructure (Mean)	Job Role Suitability (Mean)	Personal Preferences (Mean)
18-24	4.0	3.7	4.1	4.0	3.5	4.2
25-34	4.2	3.9	4.3	4.1	3.8	4.4
35-44	4.3	4.0	4.2	4.1	3.7	4.3
45-54	4.2	3.8	4.1	4.0	3.6	4.1
55+	4.0	3.6	4.0	3.9	3.4	4.0

The table presents mean scores for various factors influencing attitudes towards remote work across different age groups. Generally, older participants (45+) tend to rate factors like work-life balance, productivity, and job role suitability slightly lower compared to younger participants (18-44). This may indicate a slightly less favorable view of remote work among older age groups, potentially due to factors such as familiarity with traditional work models and preferences for face-to-face interactions.

Table 8: Gender Differences

Gender	Work-life Balance (Mean)	Productivity (Mean)	Communication & Collaboration (Mean)	Technology Infrastructure (Mean)	Job Role Suitability (Mean)	Personal Preferences (Mean)
Male	4.2	3.9	4.2	4.1	3.8	4.3
Female	4.3	4.0	4.3	4.2	3.9	4.4
other	4.1	3.8	4.0	3.9	3.7	4.1

The table presents mean scores for various factors influencing attitudes towards remote work across different gender groups. Overall, there are minor differences in mean scores between male and female participants, with females generally rating factors slightly higher than males. However, these differences are not substantial and suggest that gender may not be a significant determinant of attitudes towards remote work.

Table 9: Urban vs. Rural

Location	Work-life Balance (Mean)	Productivity (Mean)	Communication & Collaboration (Mean)	Technology Infrastructure (Mean)	Job Role Suitability (Mean)	Personal Preferences (Mean)
Urban	4.2	4.0	4.2	4.1	3.8	4.3
Suburban	4.1	3.9	4.1	4.0	3.7	4.2
Rural	4.0	3.7	4.0	3.9	3.5	4.1

The table presents mean scores for various factors influencing attitudes towards remote work across different location types. Urban participants tend to rate factors slightly higher compared to suburban and rural participants. This may suggest that individuals in urban areas perceive remote work more favorably, possibly due to greater access to resources and amenities conducive to remote work, such as high-speed internet and co-working spaces.

Table 10: Education Level

Education Level	Work-life Balance (Mean)	Productivity (Mean)	Communication & Collaboration (Mean)	Technology Infrastructure (Mean)	Job Role Suitability (Mean)	Personal Preferences (Mean)
High School or Below	3.8	3.3	3.9	3.7	3.2	3.9
Some College	4.0	3.7	4.0	3.8	3.4	4.0
Bachelor's Degree	4.2	3.9	4.2	4.0	3.7	4.2
Master's Degree	4.3	4.1	4.3	4.1	3.9	4.4
Doctoral Degree	4.4	4.2	4.4	4.2	4.0	4.5

The table presents mean scores for various factors influencing attitudes towards remote work across different education levels. Generally, participants with higher education levels tend to rate factors higher compared to those with lower education levels. This suggests that individuals with higher education may have a more positive outlook towards remote work, potentially due to greater familiarity with digital tools and flexibility in job roles that higher education may afford.

Discussion of Findings
- **Attitudinal Trends**

The analysis of attitudes towards remote work reveals several key findings. Firstly, a majority of participants expressed a positive sentiment towards remote work, citing benefits such as increased flexibility, reduced commute time, and improved work-life balance. This aligns with previous research by Golden and Veiga (2005) and Allen et al. (2015), which found that remote work can enhance job satisfaction and well-being by providing greater autonomy and control over work schedules.

Moreover, participants generally perceived remote work as advantageous, highlighting its potential to improve productivity and facilitate effective communication and collaboration. However, concerns about maintaining productivity and job role suitability were also evident among some participants, underscoring the need for organizations to address these challenges through supportive policies and training initiatives.

Despite these concerns, the majority of participants expressed satisfaction with their remote work arrangements, indicating a positive overall experience. This suggests that remote work has become increasingly accepted and normalized, particularly in the context of the COVID-19 pandemic, where remote work became a necessity for many organizations.

- **Factors Influencing Attitudes towards Remote Work**

The analysis identified several key factors influencing attitudes towards remote work. Work-life balance emerged as a significant driver of positive attitudes, with participants valuing the flexibility and autonomy afforded by remote work arrangements. This finding is consistent with previous research by Clark (2000) and ten Brummelhuis and Bakker (2012), which emphasized the importance of work-life balance in enhancing job satisfaction and well-being. Additionally, participants recognized the importance of technology infrastructure in supporting remote work, highlighting the need for reliable internet connectivity and communication tools. Effective communication and collaboration were also key factors influencing attitudes, with participants valuing the ability to connect with colleagues and collaborate on projects seamlessly.

Job role suitability emerged as a factor of concern for some participants, particularly those with roles requiring extensive face-to-face interactions or specialized equipment. Addressing these concerns may require organizations to provide tailored support and resources to ensure that all employees can effectively perform their job duties remotely. Lastly, personal preferences played a significant role in shaping attitudes towards remote work, with participants expressing varying degrees of comfort and preference for remote work arrangements. This underscores the importance of recognizing individual differences and providing flexibility in remote work policies to accommodate diverse needs and preferences.

- **Demographic Variations in Attitudes**

The analysis revealed notable variations in attitudes towards remote work across different demographic groups. Younger participants generally exhibited more positive attitudes towards remote work compared to older age groups. This may be attributed to greater familiarity with digital technologies and a stronger preference for work-life balance among younger generations.

Gender differences in attitudes towards remote work were minimal, suggesting that remote work is perceived similarly across genders. However, urban participants tended to rate factors influencing remote work more favorably compared to suburban and rural participants, possibly due to greater access to resources and amenities conducive to remote work in urban areas.

Furthermore, participants with higher education levels exhibited more positive attitudes towards remote work, highlighting the role of education in shaping perceptions of remote work effectiveness and desirability.

Comparison with Existing Literature:
- The findings align with existing literature on remote work attitudes, emphasizing the importance of factors such as work-life balance, productivity, and communication in shaping perceptions of remote work effectiveness (Venkatesh et al., 2003).
- Demographic variations in attitudes corroborate previous research suggesting that age, gender, location, and education level play roles in shaping individuals' perceptions and preferences regarding remote work (Rousseau, 1989).

Implications for Organizations and Policymakers
- Organizations can leverage the identified factors influencing attitudes towards remote work to design remote work policies and practices that meet the diverse needs of their workforce, thereby enhancing employee satisfaction and retention.
- Policymakers can use insights from demographic variations in attitudes to develop targeted interventions and initiatives aimed at promoting remote work adoption and facilitating equitable access to remote work opportunities across different demographic groups.

Future Trends and Research Directions
- Future research could explore longitudinal trends in remote work attitudes post-pandemic to assess the long-term impact of remote work on individuals' perceptions and behaviors.
- Further investigation into the intersectionality of demographic factors and their combined influence on attitudes towards remote work could provide deeper insights into the complexities of remote work adoption.
- Research focusing on the effectiveness of specific interventions and policy measures aimed at promoting remote work adoption among underrepresented demographic groups could inform evidence-based strategies for enhancing inclusivity in remote work environments.

Summary of Key Findings
The analysis of attitudinal trends towards remote work reveals a predominantly positive sentiment among the public, with factors such as work-life balance, productivity, and communication playing significant roles in shaping attitudes. Demographic variations highlight differences in attitudes across age groups, gender, location, and education levels. Importance of Understanding Public Sentiment on Remote Work.

Understanding public sentiment on remote work is crucial for organizations and policymakers to tailor strategies and policies that align with the preferences and needs of diverse populations. Positive attitudes towards remote work can lead to increased adoption, improved employee satisfaction, and enhanced organizational performance.

Conclusion

The research on quantifying public sentiment towards remote work, through an analysis of attitudinal trends, underscores the significance of understanding societal perceptions and preferences in the evolving landscape of work arrangements. The findings of this study provide valuable insights for organizations, policymakers, and individuals navigating the complexities of remote work adoption and implementation.

Overall, the analysis reveals a mixed landscape of attitudes towards remote work, reflecting both its perceived benefits and challenges. While many individuals appreciate the flexibility and autonomy afforded by remote work, others express concerns about potential drawbacks such as social isolation, communication barriers, and blurred work-life boundaries. These findings underscore the importance of taking a nuanced approach to remote work policies and practices, considering the diverse needs and preferences of the workforce.

Furthermore, the study identifies several factors influencing attitudes towards remote work, including demographic variables such as age, gender, occupation, and geographic location. Understanding these factors is crucial for tailoring remote work strategies to effectively meet the needs of different demographic groups and promote inclusivity and equity in remote work arrangements.

The COVID-19 pandemic has served as a catalyst for remote work adoption, accelerating trends that were already underway prior to the crisis. As organizations and individuals adapt to the new realities of remote work, there is a growing recognition of the need for robust infrastructure, effective communication tools, and supportive organizational cultures to facilitate successful remote work experiences.

In conclusion, the research highlights the importance of ongoing exploration and analysis of public sentiment towards remote work to inform evidence-based practices and policies. By leveraging insights from this study, stakeholders can develop strategies to harness the benefits of remote work while addressing concerns and challenges, ultimately shaping the future of work in a way that is inclusive, flexible, and sustainable.

Recommendations for Organizations and Policymakers

- Organizations should prioritize initiatives aimed at promoting work-life balance, enhancing productivity, and facilitating effective communication and collaboration in remote work environments. Providing resources and support for remote work infrastructure and addressing job role suitability concerns can also foster positive attitudes towards remote work.
- Policymakers should consider implementing policies that support remote work adoption, such as incentivizing investment in remote work infrastructure, promoting digital literacy, and ensuring equitable access to remote work opportunities across different demographic groups.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

Allen, T. D., Golden, T. D., & Shockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest, 16(2), 40–68.*

Blau, P. M. (1964). Exchange and power in social life. Wiley.

Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2015). Does working from home work?   Evidence from a Chinese experiment. *The Quarterly Journal of Economics, 130(1), 165–   218.*

Brummelhuis, L. L., & Bakker, A. B. (2012). A resource perspective on the work–home interface: The work–home resources model. *American Psychologist, 67(7), 545–556.*

Bughin, J., Manyika, J., & Woetzel, J. (2016). Independent work: Choice, necessity, and the gig economy. *McKinsey Global Institute.*

Clark, S. C. (2000). Work/family border theory: A new theory of work/family balance. *Human Relations, 53(6), 747–770.*

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13(3), 319–340.*

Golden, T. D., & Veiga, J. F. (2005). The impact of professional isolation on teleworker job performance and turnover intentions: Does time spent teleworking, interacting face-to-face, or having access to communication-enhancing technology matter? *Journal of Applied Psychology, 90(2), 273–282. https://doi.org/10.1037/0021-9010.90.2.273*

Hackman, J. R., & Oldham, G. R. (1976). Motivation through the design of work: Test of a theory. *Organizational Behavior and Human Performance, 16(2), 250–279.*

Kniffin, K. M., Narayanan, J., Anseel, F., Antonakis, J., Ashford, S. P., Bakker, A. B., ... & van Vugt, M. (2021). COVID-19 and remote work: *An early look at US data. IZA Discussion Papers, No. 13237.*

Masuda, T., Yamada, Y., & Takahashi, Y. (2020). Attitudes toward telework in Japan: Findings from a national survey. *Journal of Information Processing, 28, 495–504.*

Mokhtarian, P. L., & Salomon, I. (1997). Modeling the choice of telecommuting: Setting the context. Transportation Research Part A: *Policy and Practice, 31(1), 35–54.*

Rifkin, J. (1996). The future of work: A journey to the new capitalism. TarcherPerigee.

Rousseau, D. M. (1989). Psychological and implied contracts in organizations. Employee *Responsibilities and Rights Journal, 2(2), 121–139.*

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27(3), 425–478.*

A REVIEW OF CONTINUOUS USER AUTHENTICATION METHOD ON MOBILE GADGETS

Onwueme, George Azubuike[1], Olaiya, Babayemi Samuel[2], Obatola, Abayomi Toyin[3] and Aremo, Babaope Olaoluwa[4]

Professor Augustine Esogbue Library,
Admiralty University of Nigeria (ADUN), Ibusa Delta State and
Department of Computer Science,
Federal Polytechnic of Oil and Gas, Bonny, Rivers State
gonwueme-lib@adun.edu.ng , olaiyasuitable@gmail.com,
obatolaabayomi@gmail.com and aremogold11@gmail.com

Abstract
Mobile devices have become integral to our daily lives, serving as gateways to personal, sensitive, and confidential information. As these devices handle an increasing amount of critical data, ensuring their security has become paramount. Continuous user authentication, a dynamic and evolving approach to device security, has emerged as a crucial factor in safeguarding mobile devices and the information they contain. This paper while exploring recent research findings, intends exploring the various aspects of continuous user authentication in the context of mobile devices, shedding light on its principles, benefits and challenges. Traditional authentication methods, such as PINs, passwords, and biometrics, provide an initial layer of security. However, they often fall short in the face of evolving threats and sophisticated attack vectors. Continuous user authentication introduces a dynamic element to the security landscape. It constantly monitors user behavior, device interactions, and context to assess the authenticity of the user. By analyzing patterns of device usage, location, and other contextual data, continuous authentication provides a more robust and adaptive defense against unauthorized access. The significance of continuous user authentication on mobile devices cannot be overstated. In an era marked by evolving cyber threats and increasing reliance on mobile technology, this approach offers a proactive and adaptive means of protecting user data and devices. By continuously monitoring user behavior and context, organizations can bolster security, enhance user experiences, and meet regulatory requirements, ultimately ensuring the integrity of mobile device ecosystems.

Keywords: Authentication Methods, Continuous Authentication, Information Security, Mobile Gadgets

Introduction
In today's digital age, mobile gadgets have become an indispensable part of our lives. From smartphones and tablets to smartwatches and laptops, these portable devices have revolutionized the way we communicate, work, and access information. While mobile gadgets offer unparalleled convenience and connectivity, they also bring along a host of security concerns that cannot be ignored. The pervasive use of mobile gadgets has made us more vulnerable than ever to various security threats. As we store an increasing amount of sensitive personal and professional data on these devices, they have become attractive targets for cybercriminals. Malware, phishing attacks, data breaches, and unauthorized access are just a few of the security risks that mobile gadget users face on a daily basis. (Weichbroth & Łysik, 2020; Dolgunsöz, & Yıldırım, 2021; Powell, e al 2021).

One major way of safeguarding the above identified threats to the use of mobile gadgets is the use of authentication methods. Ogbanufe & Kim, 2018 described Authentication as the verification or validation of a person's identity which determines whether individuals are who they say they are. Examples of traditional authentication methods are password, PIN (Personal Identification Number), and or a token-based authentication. Authentication, which is the process of verifying an individual's identity, has evolved significantly over the years. In the early days of computing and information security, static authentication methods were the norm. These methods, while effective to a certain extent, were static in nature, offering a limited level of security. However, as technology advanced and threats became more sophisticated, the need for more robust authentication methods emerged. (Shafique et al., 2017, Wang et al., 2021)

Static authentication methods, such as username-password combinations or simple PINs, were the first line of defense in the digital world. While these methods were initially sufficient for securing basic online services, they quickly proved vulnerable to various threats like phishing, brute-force attacks, and data breaches. As a result, the need for more robust and adaptive authentication measures became evident. This led to the development of multifactor authentication (MFA) and biometric authentication. MFA combines two or more authentication factors (something you know, something you have, and something you are), providing a higher level of security than static methods. Biometric authentication, such as fingerprint recognition and facial recognition, leverages unique physical or behavioral characteristics to verify identity, adding an extra layer of security. (Epping & Morowczynski, 2021, Tariq et al., 2023).

However, even these methods had limitations. Static MFA, for example, still relied on predefined factors and could be vulnerable if these factors were compromised. This prompted the shift towards continuous authentication, which monitors user behavior and continuously assesses the legitimacy of access requests.

Continuous authentication represents the latest phase in the authentication evolution. It leverages advanced technologies like machine learning and behavioral analysis to continuously evaluate a user's actions, devices, and context, ensuring that access remains secure throughout a session. This approach adapts to changing circumstances, detects anomalies in real-time, and responds proactively to potential threats.

The evolution of authentication methods, from static to continuous, is a testament to the relentless pursuit of digital security in an increasingly interconnected and data-driven world. As we navigate this ever-changing digital realm, understanding the significance of mobile gadget security is paramount.

Understanding Continuous User Authentication

According to Zaidi et al., 2021, Continuous authentication method refers to the authentication mode where a user is verified throughout the entire session after passing the initial-login. It is a security process that involves the ongoing and dynamic verification of a user's identity throughout their interaction with a system, application, or device. Unlike traditional authentication methods, which typically authenticate a user only at the initial login or when accessing sensitive resources, continuous authentication continuously monitors and reassesses the user's identity during their entire session. This ongoing verification helps ensure that the user remains authorized and authenticated, even if the session lasts for an extended period of time.

Continuous authentication systems often utilize a variety of techniques, including behavioral biometrics (analyzing patterns of user behavior, such as typing or mouse movements), biometric authentication (e.g., fingerprint or facial recognition), machine learning algorithms, and real-time threat detection to determine whether the user is still who they claim to be. If the system detects any suspicious or unauthorized activity, it can prompt the user for additional authentication or take security measures to protect sensitive data and resources (Patel, et al 2016, Zhang et al., 2021). Continuous authentication aims to reduce unauthorized access by enhancing security and providing a seamless user experience by minimizing the need for repeated manual authentication actions, such as passwords or biometric data.

Principles of continuous authentication

The principles of continuous authentication are the fundamental concepts that guide the implementation and operation of a system or method designed to continuously verify a user's identity. These principles are essential for ensuring the effectiveness, security, and privacy of continuous authentication systems. These are the key principles:

i. **Ongoing Verification:** Continuous authentication involves the continual verification of a user's identity throughout their entire session, not just at the initial login. This ongoing verification helps to prevent unauthorized access, even after the user has initially authenticated.

ii. **Multi-Factor Authentication (MFA):** This is also known as Two-Factor Authentication (2FA) or Two-Step Verification, is a security mechanism that requires users to provide two or more distinct factors to verify their identity when accessing a system, application, or online service. In order to reduce ambiguity, multifactor authentication boosts the resistance to compromise (Young, 2016). MFA includes; something the user knows

(password or PIN), something the user has (Smartphone or Token, Smart Card, Security Key), something the user is (biometric traits like fingerprint, Iris or Retina Scan, Voice Recognition, Palm Print or facial recognition) and somewhere you are (Location-Based: geographic location using GPS or IP geo-location data. (Gross, 2017).

iii. **Machine Learning and AI:** Employ machine learning and artificial intelligence algorithms to continuously analyze and adapt to evolving user behavior and threat landscapes. These technologies help improve the accuracy of continuous authentication.

iv. **Real-time Monitoring:** Continuously monitor user interactions and system events in real-time to detect anomalies or suspicious behavior promptly. Immediate responses can be taken when unusual activities are identified.

v. **Compliance with Regulations:** Ensure that the continuous authentication system complies with relevant data protection and privacy regulations, such as GDPR, HIPAA, or industry-specific standards.

vi. **User Experience:** Strike a balance between security and user experience. Continuous authentication should minimize user disruption while maintaining a high level of security.

vii. **Continuous Improvement:** Regularly assess and update the continuous authentication system to adapt to new threats, technologies, and user behavior patterns. Continuous improvement ensures the system remains effective over time. (Ge et al., 2017)

Benefits of Continuous User Authentication
Enhanced Security: Continuous User Authentication provide a balance between protecting user data and enhancing security, all while respecting individual privacy rights and preferences. (Continuous Authentication: Definition & Benefits, 2023)
- **Real-time Threat Detection:** Continuous authentication constantly monitors user activity and behavior. This helps detect suspicious activities or unauthorized access immediately, reducing the window of opportunity for attacker

Improved User Experience:
- **Reduced Friction:** Users don't have to repeatedly enter passwords or undergo lengthy authentication processes. Continuous authentication provides a seamless and less intrusive experience.

Protection against Insider Threats:
- **Insider Threat Mitigation:** Continuous authentication can help identify insider threats early by monitoring changes in employee behavior and flagging suspicious activities.

Reduced Data Exposure:
Continuous authentication can help reduce the exposure of sensitive user data. Since users don't have to repeatedly enter login credentials, there are fewer opportunities for credentials to be intercepted or captured.

Less Reliance on Static Credentials:
Continuous authentication reduces the reliance on static credentials like passwords, which are more susceptible to data breaches. This means that even if a password is compromised, continuous authentication can detect suspicious behavior and prevent unauthorized access.

Challenges and Concerns
Continuous authentication offers enhanced security but also presents challenges. These challenges include user privacy concerns, ethical considerations, environmental variability, resource consumption, legal compliance, interoperability, cultural and behavioral variability, and accuracy. Privacy concerns arise when users feel their data is overly monitored or stored insecurely. Ethical considerations arise from the need to balance security with privacy. Environmental factors can affect the accuracy of behavioral biometrics, and resource consumption is a technical

challenge. Legal compliance is crucial, and interoperability is essential. Accuracy and false positives/negatives are complex due to these factors.

Zaidi et al (2021) also stated that within a continuous authentication scheme, a touch-based continuous mobile device authentication is expected to lock out illegitimate access as fast as it can. If the scheme takes too long time to detect illegitimate access, an illegitimate user will have plenty of time to access the information stored on the device.

Privacy Concerns: Continuous Data Collection and User Tracking
Privacy concerns related to continuous data collection and user tracking have become increasingly prominent in recent years as technology has advanced. Data Collection Practices: These involves Ubiquitous Data Collection where many companies and organizations continuously collect data from users through various means, such as websites, mobile apps, IoT devices, and more or the Passive Data Collection where Some data collection occurs without explicit user consent or awareness, like location tracking, cookies, and device fingerprinting.

User Tracking: Users are often tracked across different platforms and devices, creating a comprehensive profile of their online behavior and habits (Cross-Platform Tracking) and Behavioral Tracking, which involves monitoring user behavior to predict preferences, interests, and even future actions, which can then be used for targeted advertising.

Privacy Concerns: Users may feel that they've lost control over their personal information and how it's used furthermore, Continuous tracking can feel invasive, as it allows organizations to build detailed profiles of individuals and the users personalized content and ads can sometimes lead to discrimination or the reinforcement of biases.

Security Risks: Continuous data collection can result in vast amounts of data stored by companies, making them attractive targets for cyber-attacks. Data breaches can expose sensitive user information. With legislation like the General Data Protection Regulation (GDPR) in Europe and the California Consumer Privacy Act (CCPA) in the United States. These regulations require companies to be more transparent about data collection and give users more control over their data;

Data Minimization: The principle of data minimization suggests that organizations should only collect data that is necessary for their stated purposes. Continuous data collection often leads to the collection of more data than is strictly required (Cremer, 2022).

Conclusion
In conclusion, continuous user authentication on mobile gadgets represents a crucial advancement in the realm of digital security and user experience. As technology continues to evolve, the need for robust and adaptive authentication methods has become increasingly important. Continuous user authentication addresses these evolving challenges by providing a dynamic and seamless approach to safeguarding sensitive information on mobile devices. This approach offers numerous benefits, including enhanced security, reduced reliance on static credentials like passwords, and improved user convenience. By continually monitoring user behavior and biometric data, such as fingerprint recognition or facial recognition, mobile gadgets can ensure that only authorized individuals have access to their data and applications.

However, as with any technological innovation, continuous user authentication also poses challenges and considerations. Privacy concerns must be carefully managed to strike a balance between security and individual freedoms. Additionally, the accuracy and reliability of biometric data and behavioral analysis methods must continue to improve to minimize false positives and negatives.

In summary, continuous user authentication on mobile gadgets is a promising solution to the ever-present security threats in the digital world. As technology advances and our understanding of user behavior deepens, we can expect this approach to play an increasingly vital role in safeguarding our personal and sensitive data. Its successful implementation relies on ongoing research, innovation, and collaboration among technology experts, security professionals, and policymakers to ensure that the benefits of continuous user authentication are realized while

respecting privacy and user experience. By staying well informed and adopting best practices for securing our devices, we can continue to reap the benefits of mobile technology while mitigating the risks associated with its usage and can better appreciate the importance of safeguarding our digital identities and maintaining a secure online presence.

Recommendations

Security Requirements are crucial for implementing continuous authentication in an organization. These requirements determine the specific security needs of the system, understanding user behavior patterns, and determining the appropriate authentication factors. Data privacy and consent are also important, ensuring compliance with relevant regulations. Adaptive algorithms can accommodate natural changes in user behavior without compromising security. Environmental factors, such as lighting and noise levels, can affect behavioral biometric data. Compatibility with various devices and platforms is essential. Testing and evaluation are crucial, with plans for scalability and user support. Fallback mechanisms ensure a positive user experience.

Continuous data collection and user tracking raise significant privacy concerns, which have led to legal and regulatory responses. Users should be informed about the data they share and how it's used, and organizations should prioritize transparency and ethical considerations when collecting and using data. Additionally, the development and adoption of privacy-enhancing technologies are essential for addressing these concerns in the digital age.

References

Cremer, F., Sheehan, B., Fortmann, M., Kia, A. N., Mullins, M., Murphy, F., & Materne, S. (2022). Cyber risk and cybersecurity: A systematic review of data availability. *The Geneva Papers on Risk and Insurance - Issues and Practice*, *47*(3). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8853293/

Epping, M., & Morowczynski, M. (2021). Authentication and Authorization. *IDPro Body of Knowledge*, *1*(6). https://doi.org/10.55621/idpro.78

Ge, P., Zhou, G., Nguyen, D. T., Qi, X., Yang, Q., & Wang, S. (2017). Continuous Authentication with Touch Behavioral Biometrics and Voice on Wearable Glasses. *IEEE Transactions on Human-Machine Systems*, *47*(3), 404–416. https://doi.org/10.1109/thms.2016.262356

Gross, W. F. (2017). Insider Threat. *Computer and Information Security Handbook*, 529–536. https://doi.org/10.1016/b978-0-12-803843-7.00035-1

Ogbanufe, O., & Kim, D. J. (2018). Comparing fingerprint-based biometrics authentication versus traditional authentication methods for e-payment. *Decision Support Systems*, *106*, 1–14. https://doi.org/10.1016/j.dss.2017.11.003

Patel, V. M., Chellappa, R., Chandra, D., & Barbello, B. (2016). Continuous User Authentication on Mobile Devices: Recent progress and remaining challenges. *IEEE Signal Processing Magazine*, *33*(4), 49–61. https://doi.org/10.1109/MSP.2016.2555335

Powell, L., Swartz, J., & Hendon, M. (2021). Awareness of mobile device security and data privacy tools. *Issues in Information Systems*, *22*(1), 1–9. https://doi.org/10.48009/1_iis_2021_1-9

Rocha, R., Carneiro, D., Costa, R., & Analide, C. (2020). Continuous Authentication in Mobile Devices Using Behavioral Biometrics. In P. Novais, J. Lloret, P. Chamoso, D. Carneiro, E. Navarro, & S. Omatu (Eds.), *Ambient Intelligence – Software and Applications –,10th International Symposium on Ambient Intelligence* (pp. 191–198). Springer International Publishing.

Salunke, Sanket Vilas. (2022). *Behavioral Biometrics-based Continuous User Authentication* Electronic Thesis and Dissertation Repository. 9073. https://ir.lib.uwo.ca/etd/9073

Shacklett, M. E. (2021, September). *What is Authentication?* Search Security. https://www.techtarget.com/search

security/definition/authentication

Shafique, U., Khan, H., Waqar, S., Sher, A., Zeb, A., Shafi, U., Ullah, R., & Ullah, R. (2017). Modern Authentication Techniques in Smart Phones: Security and Usability Perspective. *International Journal of Advanced Computer Science and Applications*, *8*(1). https://doi.org/10.14569/ijacsa.2017.080142

Siddiqui, N., Dave, R., & Seliya, N. (2021). *Continuous User Authentication Using Mouse Dynamics, Machine Learning, and Minecraft*. IEEE Xplore. https://doi.org/10.1109/ICECET52533.2021.9698532

Wang, C., Wang, Y., Chen, Y., Liu, H., & Liu, J. (2020). User authentication on mobile devices: Approaches, threats and trends. *Computer Networks*, *170*, 107118. https://doi.org/10.1016/j.comnet.2020.107118

Wang, X., Yan, Z., Zhang, R., & Zhang, P. (2021). Attacks and defenses in user authentication systems: A survey. *Journal of Network and Computer Applications*, *188*(1), 103080. https://doi.org/10.1016/j.jnca.2021.103080

Weichbroth, P., & Łysik, Ł. (2020). Mobile Security: Threats and Best Practices. *Mobile Information Systems*, *2020*, 1–15. https://doi.org/10.1155/2020/8828078

Young, C. S. (2016). Physical Security Controls. *Information Security Science*, 317–338. https://doi.org/10.1016/b978-0-12-809643-7.00014-0

Zaidi, A. Z., Chong, C. Y., Jin, Z., Parthiban, R., & Sadiq, A. S. (2021). Touch-based continuous mobile device authentication: State-of-the-art, challenges and opportunities. *Journal of Network and Computer Applications*, *191*, 103162. https://doi.org/10.1016/j.jnca.2021.103162

Zhang, X., Zhang, P., & Hu, H. (2021). Multimodal Continuous User Authentication on Mobile Devices via Interaction Patterns. *Wireless Communications and Mobile Computing*, *2021*, 1–15. https://doi.org/10.1155/2021/567797

PUBLIC-PRIVATE PARTNERSHIP APPROACH TO MUNICIPAL SOLID WASTE MANAGEMENT IN NIGER STATE, NIGERIA

[1]**Ibrahim Mamman**   [2]**Idris Abdulrahman Baba**   [3]**Muhammad Haruna Mashin**

[1]Department of Urban and Regional Planning Federal Polytechnic Bida, Niger State, Nigeria
[2]Department of Architectural Technology Federal Polytechnic Bida, Niger State, Nigeria
[3]Department of Geography Federal University of Technology, Minna
Corresponding Author's Email: imamman581@gmail.com
(Tel: 08066670382)

Abstract
This study aimed at evaluating the effectiveness of the Public Private Partnership (PPP) approach to municipal solid waste management in Minna. The research used a mixed-methods approach, including both quantitative and qualitative data collection and analysis. A survey was conducted with a sample size of 384 across the 11 wards of Chanchaga LGA to assess the level of satisfaction with the Public Private Partnership (PPP) in managing waste collection and disposal services. In-depth interview was conducted with key stakeholders, including representatives from private partners, public official, and community leaders. The findings show that there are six private operators that were engaged for waste collection in urban Minna. In terms of manpower, each private operators had a total of (7) staffs, On the regularity of waste collections, the mean score (MS) of 2.8, indicating a neutral perception by the public respondents that private waste collectors come to pick up waste at regular intervals, and a (MS) of 2.2, indicating a slightly negative perception that the current approach to waste collection and evacuation is satisfactory, whereas on the willingness to pay for services, the respondents had neutral perception with a MS of 2.6, that they would be willing to pay for waste collections. In terms of effectiveness and efficiency, respondents had a neutral perception with MS of 2.8, that the current strategy for waste collection and evacuation is satisfactory. Poor enforcement of sanitation standards on residents is considered the most severe constraint to about 57.1% of the respondents. Based on these findings, it was recommended that adequate funding, institutional strengthening, public participation, improved service operations and accessibility, promotion of recycling, and legal compliance are essential components of an effective waste management system.
Keywords: Public-Private Partnership, Municipal Solid Waste, Solid Waste & Management Strategies.

Introduction
According to Infrastructure Concession Regulatory Commission draft on Public-private partnership manual 2017, a Public-private partnership is defined as a contract whereby the private sector is engaged by the public sector to manage some public services and to design, build, finance and operate some infrastructure to enhance efficiency and also improve the quality of public services. The Public-Private Partnership initiative aims to increase private investment in the Public-Private Partnership and key infrastructure projects in the Public-Private Partnership infrastructural markets (Tang & Shen, 2013).The rate of waste rate of municipal waste production is rising worldwide according to a study conducted by (Kaza *et al*., 2018). In the year 2016 alone, 2.01 billion tons of waste was generated in the world's cities and about 0.74 kg per person per day. The study established that annual waste generation is expected to increase by 70 percent from 2016 to 3.40 billion tons by the year 2050 with rapid population growth and urbanization. Effective waste management is costly with 20%–50% of municipal budgets. (Kaza *et al*., 2018). Solid Waste Management has been intrinsically linked to human progress throughout history because of its impact on both public and environmental health. It was also reported that residents of developing countries, especially the urban poor, are more severely affected by unsustainable waste management as compared to developed countries. A poorly managed waste is a breeding ground for vectors of diseases; these poor practices have serious effects on health, safety and the environment (Kaza *et al*., 2018).

In urban Minna, waste collection in polythene bags in front of residential buildings and indiscriminate dumping on open ground and illegal disposal within drainage are some of the key waste disposal practices adopted by Minna residents, this is done due to a lack of modern waste management equipment, insufficient funding, and resident's attitude which results in faster waste generation than the city's ability to manage (Joseph, 2016). The objectives of the

study are to identifying the private operators involved in partnerships for waste management; examining the effectiveness of Public Private Partnership (PPP) in solid waste management in the study area; analysing the constraints of public-private partnership approach to waste management in the study area; and identifying alternative ways of improving the services of solid waste management in the study area. This study focused on the evaluation of effectiveness of the Public Private Partnership (PPP) approach in managing municipal solid waste in Minna Metropolis. The area comprises of 11 district which include Kateren Gwari district, Sabon Gari district, Tudun Wada North, Tudun Wada South, Sabon Gari district, Barikin Sale, Sauka Kahuta district, Limawa 'A and B', Makera, Nasarawa 'A and B ineffective Municipal solid waste management plays a significant role in improving the quality of the environment, human health, and socioeconomic activities of local communities (United Nations Environment Program [UNEP], 2021).

Previous researches have been carried out on Public-Private Partnership in waste management in other areas of the country such as Lagos, Bauchi, Kaduna and Suleja, (Tsai, 2021; Sukhwinder *et al*., 2021 and Abubakar *et al*., 2019), but not much have been carried out to the knowledge of the researcher in Minna municipal. This gap needs to be urgently filled because it is obvious the municipal capital of Niger state which appears to have been overwhelmed in their waste management capacities. A Pointer to this is accumulated heaps of indiscriminately disposed waste that typifies the municipal. The assumption is that if private operators are participating in waste management under an enabling environment provided by local authorities; the waste management scenario will be greatly improved.

Empirical evidence reveals that Solid waste management has overwhelmed municipal government's capacity; hence there is urgent need for assistance from the private sector. Haruna & Bashir (2013), studied the nature and operational performance of PPP in waste management in Bauchi metropolis According to the Haruna and Bashir, the use of public-private partnership in provision of basic urban services like water and sanitation in many developing countries is becoming inevitable for attainment of sustainable development and meeting the millennium development goals in Bauchi metropolis. The study analysed the roles and relationships between the public and private actors, the constraints hampering success and finally suggest mechanism of bettering the partnership. A qualitative approach involving interviews, focus group discussions, observations and photography was used to gather necessary primary data.

(Ogbe, 2014) analysed the impact of private sector as against the conventional (public sector) in waste disposal in urban towns of Delta state as perceived by users as a means of advocating and promoting co-operative approach or a hand off of the weaker sector among the two. The study adopted the field survey design using 214 samples who were Household heads (180) and Environmental officer (34), four research questions and one hypothesis that guided the study. Descriptive statistics and paired t-test were used to analyse the data at 0.05 intervals. The study found that the private sector had advantaged score in all four variables of equipment, personnel, cost effectiveness and general overall effectiveness over the public sector. It was recommended among others that government/private participation should be encouraged and the private sector participation in refuse disposal would be a better means of keeping a sanitary environment.

Uwadiegwu and Chukwu (2013), further studied the urban solid waste management strategies in three layouts in Enugu city. Namely, Independence Layout (low density), Idaw River (medium density) and Uwani (high density) were used for the study. About 310 households selected randomly from the layouts participated as respondents.

Principal Components Analysis version of Factor Analysis was used to analyses the responses of respondents. Principal Components Analysis was used to reduce the 27 considered management options into 7 composite strategies which should be adopted for effective urban solid waste management. They are citizen mobilization and environmental education, strengthening of public agencies, responsible government, logistics and infrastructural improvement, legislation, appropriate technologies, monitoring and surveillance. It is recommended that all segments of the society must team up with public agency to find a panacea to urban solid waste management. (Akaateba & Yakubu, 2013) used a cross-sectional household survey to investigate householders" satisfaction with solid waste collection services provided by Zoomlion Ghana Ltd in the Wa Municipality. A total of 193 householders were selected through simple random sampling from registered household clients of Zoomlion Ghana Ltd in the Wa Municipality. The results of the study revealed that householders were, moderately satisfied' with most waste management services delivered by the Company indicating an acceptable level of service delivery. The one-way ANOVA results showed significant differences in householder's satisfaction by income level and house type for service delivery dimensions on frequency of waste collection; handling of waste during transport and disposal; and household education on waste management. The study therefore concluded that although the services delivered by the company can be considered as acceptable, much improvement could be made by simply addressing issues on household education, prompt response to user complains and ensuring effective monitoring and sanctioning by the Municipal Assembly as this will enable Zoomlion Ghana Ltd deliver quality services to its clients.

From all of these studies, efforts were much focused on strategies for ensuring efficient waste management process. However, it is worth to note that from all the reviewed studies above, none have focused on assessing the effectiveness of public-private partnership strategy in management of waste in Niger State in particular, hence there is need for this study to explore the performance of public-private partnerships involve in waste management in the study area, with a view to recommending the appropriate measures necessary to ensure that the set goals for the partnership are achieved.

Description of the study Area

Minna covers an area of 6,784 square kilometres, the town is in Nigeria's middle belt situated between latitude 09040'0"N and 09033'0"N on the one hand, and between longitude 06030'32"E and 06035'30"E on the other, Figure 1.1. The forms of land use in Minna include agricultural, commercial, and institutional land uses, as well as public and residential land uses (Kawu, 2016). Residential land uses in Minna are found in all municipal areas, The Kure market, Gwari market, building materials market, Tunga market, and various commercial banks and financial institutions are just a few of the commercial land uses. Industrial land uses in Minna includes water treatment plants and leather factories. The town is a home to several state and federal institutions, including the Niger State. Secretariat, the General Hospital, the State and Federal Judiciary, and many more. Waste collection in polythene bags and drums is mostly found in front of residential buildings, open burning, indiscriminate dumping on open ground, and illegal disposal within drainage are some of the key waste disposal practices adopted by Minna residents (Abubakar, 2017).
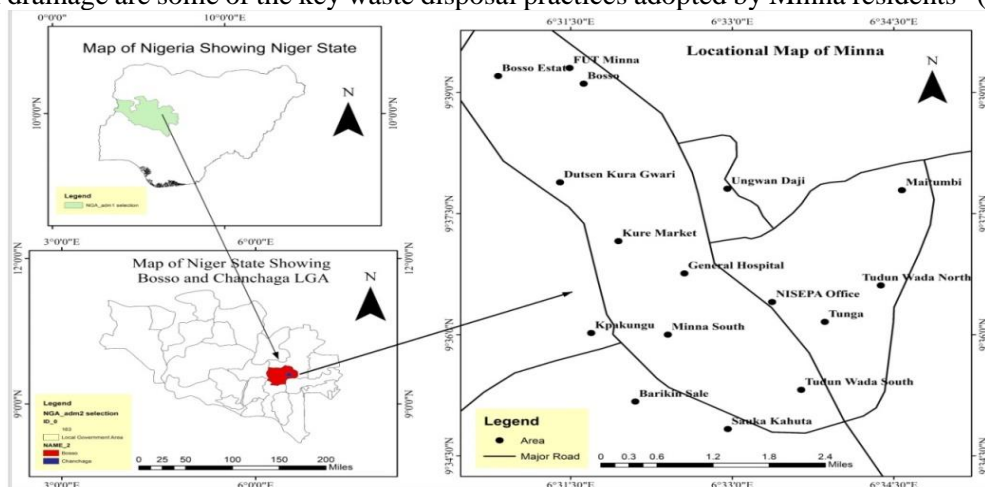

Figure 1.1 Map of the Study Area (Minna, Niger State)
Source: Geography Remote Sensing Lab, FUT Minna (2024)

Materials and Methods

The research design adopted a mixed-methods approach, combining both quantitative and Qualitative data collection and analysis methods. A survey questionnaire was administered to Gauge residents' satisfaction with the waste collection and disposal services managed through the PPP. In-depth interviews were conducted with key stakeholders, including representatives from Private partners, public officials, and community leaders, to gain insights into the partnership's Effectiveness and identified any constraints. Open-ended questions provided additional qualitative data for thematic content analysis. Descriptive analysis techniques, such as frequency distribution and percentages, were employed to characterize private operators and analyze the quantitative data. Likert scale analysis was utilized to assess respondents' perceptions regarding the effectiveness of the PPP approach.

Sample Size and Sampling Techniques

In order to determine the appropriate sample size for their study, the researchers decided to utilize the well-known Krejcie and Morgan's table of sample size (Krejcie & Morgan, 1970). The table provides guidelines for determining the sample size based on the population size. Considering the estimated population of Minna municipal in 2024, the researchers followed the recommendations of the table and determined that a sample size of 384 would be appropriate. This sample size was then divided among the 11 wards in Minna municipal, resulting in a sample size of approximately 32 individuals per ward. The projected population was derived from Equation (1) below;

To determine the sample size for this research, the Krejcie and Morgan's (1970) table of sample size will be adopted. The projected population will be derived from the formula;

$Pn = Po \, e^{r \times n}$

Where; Pn= Future population (2022)

Po = Base year population (2006)

r = Growth rate (3.5%)

e = Euler number (2.71828)

n = Interval between future population and base year population (2024- 2006) 18 years

That is: 2022 population estimation = $293{,}000(2.71828)^{0.035 \times 18}$

2024 population = 550139

Sample size= 385 (Krejcie & Morgan's, 1970)

Formula for determining sample size

$s = X \, NP(1-P) - d' \, (N-1) + X^2 P(1-P)$

s = required sample size

X = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841)

N = the population size.

P = the population proportion (assumed to be 50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as a proportion (.05).

Table I: **Sample Size per Ward**

S	Wards	Sample size per ward
1	Tudun Wada North	**35**
2	Tudun Wada South	**35**
3	Sabon Gari	**35**
4	Limawa A	**35**
5	Limawa B	**35**
6	Nasarawa A	**35**

7	Nasarawa B	**35**
8	Nasarawa C	**35**
9	Minna South	**35**
10	Minna Central	**32**
11	Makera	**35**
	TOTAL	**385**

Source: Author's Analysis, 2024

Data Analysis & Results

Identifying Private Oprators Involve in Partnership for West Management
The survey of private operators revealed that majority of operators were small and medium-sized Enterprises (SMEs) with limited resources. This is an indication that the firms are small scale in terms of size even though given the area of coverage (Minna), it is difficult to conclude that positive outcome should be expected. This is because the strength and quality of staff with available equipment and facilities are often an indication of firm's waste collection capacity even though that Niger State environmental protection Agency supplement the workforce of the private operators by covering and evacuating solid waste from some districts that are not covered by the private operators, Figure 2 shows areas of coverage by private firms   and Niger State environmental protection Agency those areas are Kpakungu, Broadcasting road-Morris, Dutsen Kura (Hausa), Limawa and even in some parts of districts already in coverage by the private operators. Figure 2 shows area of coverage by private firm.

Table II: PRIVATE OPERATORS AND OPERATIONAL AREA

| COMPANIES INVOLVE	OPERATIONAL AREA
Maigaskiya Concept	Kateren Gwari District
Naicco Concept	Zarumai District
Amjal Resources	Tunga B District (Tudun Wada South)
Difficult Solution Enterprise	Sabon Gari District
Abdulrahman Muregi Farms	Barikin Sale/Sauka Kahuta District
Ryder Transport and Travels	Tunga A District (Tudun Wada North)

Source: Field survey 20204
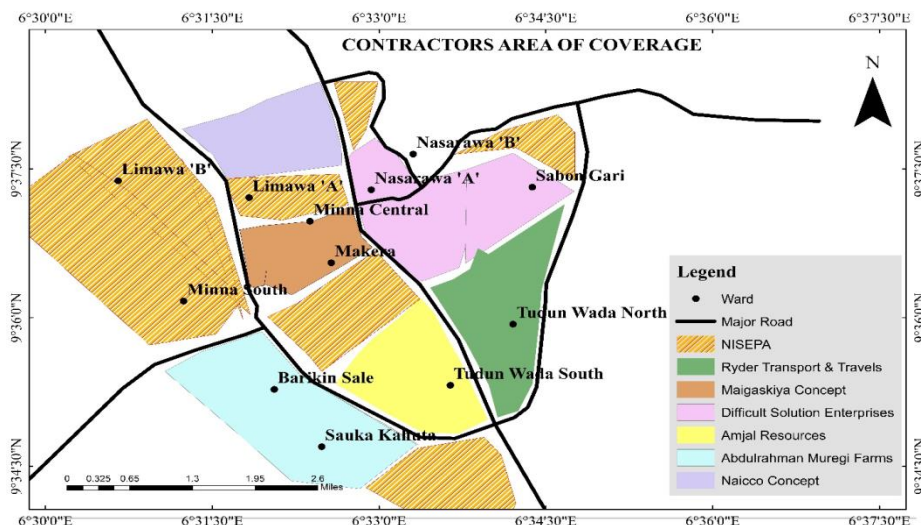
Figure 2: Map of Area of Coverage by Private Firms and NISEPA
Source: Author's Analysis (2024)

Effectiveness of Public-Private Partnership in Waste Management

The Likert scale Mean Score (MS) was interpreted According to three ranges, with a score between 1.0 and 2.4 indicating a negative attitude, a score between 2.5 and 3.4 indicating a neutral attitude, and a score between 3.5 and 5.0 indicating a positive attitude by the general respondents. The first indicator, "private companies are involved in waste collection in my area   has a mean score (MS) of 2.6, indicating a slightly negative perception of private operator's involvement in solid waste collection. About 54.7% of respondents "Disagreed", while only 6.1% "Strongly agreed". From the interview conducted, it is indicated that quite a large proportion of the respondents attested that they are not aware of private operator's existence but are cognizant on the waste collectors, this may be due to the fact that private contractors are more answerable and are paid directly from the Niger State environmental protection Agency which has create a barrier between private operators and the residents.

Constraints to Public Private Partnership

Poor building accessibility was also cited as a major impediment to private companies providing effective waste management services. From field observations, areas around Sauka Kahuta, Barikin Sale, Kpakungu, Kwasau and its environs are mostly inaccessible due to the slum nature of the settlement as well as bad road conditions, especially during the rainy seasons. Because all participating firms within the study area are allotted territories of operational jurisdiction within which they are expected to cover, as shown in Table II, there is no unfair competition from other agencies. This assignment of duty units is supposed to make it easier for government taskforces to supervise and monitor performance. Plate I show waste disposed of at the single composting site located at Kuyi village, which must handle waste from the entire municipality.

Plate I: Waste Dispose of at Composting Site Located at Kuyi Village
Source: Authors Field Survey, 2024

Plate II: Waste Collection Vehicle Without a Cover
Source: Authors Field Survey, 2024

Summary of Findings

Public-private partnerships in waste management have emerged as a promising option for improving municipal waste services in a more efficient and cost-effective manner. Success is largely determined by the capability of private partners, the population to be serviced, the amount of waste generated, and government policies governing citizen waste management behaviour, as well as the activity of other waste management stakeholders. According to the socioeconomic characteristics of private firm executives, the majority (79.5%) have only completed secondary education and their earnings are comparable, with the majority earning between ₦11,000 and ₦30,000 per month. In terms of manpower, the total capacity of the entire firms is 49, out of which 35 are labourer, drivers 7 and managers are 7 and in the area of equipment capacity, it was found that the entire private firms have a total of 59 different types of equipment, out of which 7 were waste collection vehicles, while other types of equipment like wheel barrows, shovels, rakes, waste drums totalled The type of wastes collected by the companies involved in waste management shows that both residential and commercial dominated and the least type of waste being industrial wastes with 14.3%, which is an indication of the type of land use activities dominant in the area.

More so, all the firms use waste collection vehicle which dominate the type of equipment used for waste collection, with majority of waste collection of once a week dominating the frequency of waste collections. The frequency of waste collection seemed to be in line with the officially stipulated frequency for waste collection of once a week for house-to-house collection and no defined collection frequency for the unauthorized dumpsites or central collection point (waste is collected as and when containers are full). It is also clear from the study that none of the private firms partnered in waste management in the study area are involved in either waste sorting, recycling and or re-use. On the causes for engaging private firms in waste management by the government, it was found that majority of the private officials (52.0%) indicated that they provide more efficient service delivery than the public counterparts, while about 27.0% of the private operators indicated that the partnership was formed to minimize cost of operation on public sector.

Those who feel it was caused by a surge in waste generation and the public sector's failure to provide quality services accounted for 7.0% and 14.0%, respectively. Residents were asked to confirm the existence of private waste managers within their respective areas to determine the level of waste service coverage in the area, and the majority stated that they were unaware of private waste managers but were aware of waste collectors, compared to those who agreed and strongly agreed with 21.5% and 6.1%, respectively. On the promptness of waste manager's responses to customer complaints, 36.3% disagreed, whereas 5.5% strongly agreed. On the regularity of waste collections, the majority of respondents (38.4%) disagreed that private waste collectors come to pick up waste at regular intervals, and the majority of respondents (50%) disagreed that the current approach to waste collection and evacuation is satisfactory, whereas on the willingness to pay for services, the majority of respondents (58.1%) disagreed to be willing to pay for waste collections, while the least% disagreed to be willing to pay for waste collections. About 52.9% of respondents, or the majority, disputed that private operators have appropriate waste collection and disposal equipment, while only

about 2.9%, or the least strongly agreed, agreed that private operators have adequate waste collection and disposal equipment.

Notably, the majority of respondents (45.3%) agreed that the services provided by private operators are commendable, followed by those who did not agree or disagree. Research results on the constraints faced by firms in providing their services show that poor enforcement of sanitation rules on residents helped contribute the most, with 57.1%, followed by poor accessibility of buildings with 28.6%. Residents' non-cooperation is rated the lowest, at 14.3%. On the other hand, the distribution of respondents on the challenges experienced in the study area as a result of private enterprises' involvement in waste management. Discriminatory service supply by companies was the most common complaint, with 43.6%, followed by irregular rubbish collection with 23.5%, and only 11.4% of residents said they had never had an issue with private firm operators.

Conclusion

The study found out that the majority of waste management companies are small businesses; and waste management providers have difficulty accessing some parts of the study area limiting the level of service coverage among households in the study area. company's waste collection capability is typically determined by the strength and quality of its workforce in conjunction with available facilities. To ensure sustainability and efficiency in service delivery from the private sector, adequate cooperation is required from the government, businessmen, politicians, religious organizations, civil servants, men, women, literate, illiterate, the rich, the poor, and a host of other tangible and intangible groups, particularly with regard to waste management in the study area.

Recommendations

I. Waste collector capacity must be strengthened through proper capacity building measures. To do so, businesses must hire more workers, purchase more equipment, and provide a higher compensation package for employees.

II. There is a need for the government to make a concerted effort to develop new road networks as well as repair existing ones, particularly in the areas around Sauka Kahuta, Barikin Sale, and the surrounding areas, where residents are underserved by private firms due to the inaccessibility of residential areas by waste management service providers due to the nature of settlement patterns and road networks, which are generally in poor condition.

III. All stakeholders in a public-private partnership must carry out their assigned responsibilities in order for the partnership to achieve its goals. Therefore, there is the need to collaborate with the residents, especially the women, as well as the communities in service monitoring as this will go a long way in trying to eliminate irregularities in waste collection as well as ensure service payment compliance by service benefactors.

References

Abubakar, S. D. (2017). An assessment of gully erosion in selected areas of Minna, Niger State, Nigeria. *Journal of Environmental Science and Technology*, 22(8), 45-59.

Akaateba, M. A., & Yakubu, I. (2013). Householders satisfaction towards solid waste collection services of Zoomlion Ghana. *European Scientific Journal*, 9(3), 13–25.

Haruna, A. U., & Bashir, U. M. (2013). Analysis of the operational characteristics of public private partnership in solid waste management in Bauchi metropolis. *Journal of Environmental Sciences and Resources Management*, 5(1), 17–31.

Joseph, O. F. (2016). Analysis of domastic solid waste management strategies in Tunga, Chanchaga Local Government Area, Niger State, Nigeria. *Advances in Social Sciences Research Journal*, 3(6), 61-71

Kaza, S., Yao, L. C., Bhadda-Tata, P., & Van- Woerden, F. (2018). A Global Snapshot of Solid Waste Management

to 2050. *Washington, DC: World Bank.*

Krejcie, R. V, & Morgan, D. W. (1970). Determining sample size for research activities. Educational and psychological measuremen*t. 30*(3), 607–610.

Ogbe, J. O. (2014). Analysis of public and private agent in refuse disposal services in urban towns in Delta State. *European Journal of Business and Social Sciences, 2*(11), 1-10.

Sukhwinder, P. S., Ishfaq Showket M, & C, P. P. S. (2021). Implimentation analysis of solid waste management in Ludhiana City of Punjab. *Journa of Environmental Research and Challenges*, 2(1), 1-12.

Tang, L., & Shen, Q. (2013). Factors affecting effectiveness and efficiency of analyzing stakeholder's needs at the briefing stage of public private partnership projects. *International Journal of Project Management*, *31*(4), 513–521.

Tsai, W. T. (2021). Analysisi of medical waste management and impact analysis of covid-19 on its generation in Taiwan. *Journal of Waste Management and Research*, *39*(1), 27–33.

UNEP. (2021). Solid Waste Management. UN Environmental Programme. Https://Www.Unep.Org/Explore-Topics/Resource-Efficiency/What-We-Do/Cities/Solid-Wastemanagement.

Uwadiegwu, B. ., & Chukwu, K. . (2013). Strategies for eEffective Urban solid waste management in Nigeria. *European Scientific Journal*, 9(8), 281-296.

THE SYSTEMATIC APPLICATION OF LIBRARY AUTOMATION MODEL IN RIVERS STATE POLYTECHNICS

Reagan Yakubu Peter
Library and Information Science
Federal Polytechnic of Oil and Gas, Bonny, Rivers State
&
Babatunde Shade Odunola
Dr. J.S. Opakunle Library
Osun State Polytechnic, Ire.

Abstract
The automated library model is designed to advance educational system. The study examined the systematic application of library automation model in Rivers State Polytechnic. The study adopted the survey research design. The population of the study consists of 100 librarian employees in selected polytechnics in Rivers State. The study will develop a questionnaire instrument titled "the systematic application of library automation model" (TSALAM). The data obtained from the study will be analysed using simple mean. Pilot study will be conducted with 10 librarians in various polytechnics in Delta State. The data obtained from the study will be analysed using simple mean. The instrument is a five-point rating scale consisting of Strongly agreed (SA), Agreed (A), Strongly Disagree (SD), Disagreed (D) and Undecided (Un). The response options are weighed as 5, 4, 3, 2 and 1 respectively. The instrument was validated by two experts from the department of Library science in Niger Delta state, the research questions were analysed using simple mean. The findings of the study proves that automated library brings transformation in a library system in polytechnics. Also, the influence of library automation gives access to knowledge in the life of Students. Finally, it was recommended that government should invest and build modern automated library system to improve academic standards in tertiary institutions in Rivers State. Also, educational institutions should organize seminars and workshops to train academic staff and students on the use of library automated systems.

Keywords: Systematic Application, Library Automation and Model

Introduction

There is great change in library management through library automation and the changing scenario of library management. The impact of ICT has changed the library operation and its functionality in modern times. Clients need not to visit shelf to shelf to find out a document. They just get their documents sitting in front of a desktop automation has reduced the man power.

The term automation was first introduced by D. S. Harder in 1936 but the word library automation has been used in literature for the last five decades. According to the International Encyclopaedia of Information Technology and Library Science, it is the technology concerned with the design and development of process and system that minimize the necessity of human intervention in their operation. Library automation has been defined as 'integrated systems' that computerize an array of traditional library functions using a common database. While this is still generally true, rapid technological change is forcing a re-examination of what it means to "automate the library." In general, however, library automation has come to mean the application of computers and related data processing equipment to libraries. In the context of computerisation, a library information system may be defined as a set of library transactions, processing systems designed to provide information to library members and to support the operational, managerial and decision-making information needs of library staff. It includes computer as one of its components. Thus, a computerized library and information system is a set of functional system encompassing: Library work practice and procedures (Cholin, and Prakash, 1997).

Library automation refers to the use of computers and other technologies to minimize human intervention in the functioning of a library. It can be defined as "the performance of an operation, a series of operations or a process by self-activating, self-controlling, or automatic means. Automation implies the use of automatic data processing

equipment such as a computer or other labour-saving devices". Library work consists of a number of inter-related activities, the data generated being useful in different sections. Manual work involves repetition of work in different activities. The aim of automation thus is to integrate these activities and minimize repetition of work. Integrated library software's have appeared as packages to serve these needs.

Information technologies – computer hardware, software, having database management system and Work' forces (library staff) Library automation refers to the phenomenon of mechanization of traditional library activities such as acquisition, serials control, cataloguing, circulation, etc. Library Automation is usually distinguished from related fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis. However, now-a-days, a clear distinction is not maintained and library automation may sometimes include related fields as well. Although computers have a major role in library automation, telecommunication and reprography technologies have equally important roles because of the support they offer to library automation.

During 1960s the cost of hardware came sown and appreciable attempts were made towards developing library application packages. This led to increased use of computers in library and printing industries. In April 1960 the American chemical society published its chemical titles through computers.

In this decade, one of the most significant developments in this direction was seen in MARC I. In the year 1963 W K Gilbert prepared a report on computerization of Library of congress. On the basis of this report the MARC I project was initiated in 1966, and the work of bringing out the library of congress catalogue in machine-readable catalogue (MARC) form was started and completed. There was a heartening welcome of the tape containing the catalogue. MEDLARS and INTREX projects are similar examples of producing machine-readable catalogues. Nowa-days computers have become almost essential components of library work in developing countries.

The Indian statistical institute, Calcutta was the first in India to install a computer system in 1955, and to develop an indigenous computer in 1964. In India computers were used in library work for the first time possibly by INSDOC by bringing out the roster of Indian scientific and technical translators with the help of computers. INSDOC brought out the first union scientific and technical translators with the title regional union catalogue of scientific serials, Bombay Poona in 1973.

Library automation began with the introduction of punched cards for issue and return of books. Indexing was also automated by using semi-mechanical methods of post coordinate indexing which involved term-entry and item entry systems. These were limited to small specialized collections. Automation of libraries was further taken up with small programs written for automating activities. The computer division of the parent organization helped in these initial efforts of automation. It expanded with the availability of commercial library software.

Statement of Problem
In Nigeria the library system has been in the method of analog operations. As a result, this pattern has discouraged and affected a lot of library use, mostly for students. This calls for the need to improve and modernize our library systems to the level of world class standards for automated libraries.

Purpose of the Study
The objective of this study is aimed at investigating the current use of automated management system in Rivers State polytechnics, and how students find it as an adequacy to their academic performance.

Literature Review
The effects of ICT on libraries and information centres are characterised by:
- Mechanisation – doing what we are already doing more efficiently;
- Innovation – experimenting with new capabilities, that the ICT makes possible; and
- Transformation – fundamentally altering the nature of the library operations and services through the Disadvantages of Library Automation

Disadvantages of Library Automation are as follows:

Employee Cut-Backs: With the new automation systems in public libraries, there is less funding left in the budget for employees. Also, fewer employees are needed. The automation system does the work of human employees by scanning books and more. You can check books out by yourself by simply swiping your library card and then scan your book across the book pad. Users can be taught to handle terminals and systems, but it is harder and harder to find people, especially out on the floor of public libraries, of whom you can ask your perhaps not-fully-formed question or make a general inquiry.

Library Closings & Hour Shortages: Many libraries are closing their doors because of economic pressures. Library doors are either closing permanently or they are closing earlier or opening later. Partly due to the new automation system, funding can no longer be afforded to keep them all up and running. Library closings mean less library access for all patrons. Library closings mean job closings, less children's story hours, book club closings and cancelled after-school reading clubs to help keep kids off of the streets. It seems that each week brings news of libraries forced to close branches, reduce hours.

Libraries without automation are simply less expensive to run. Government grants cannot cover all of the branches with rising technology costs and smaller libraries cannot always afford to pay for the automation costs on their own. The use of information technology was not evident before the 1990's the new education policy, 1986 recommended the improvement of library and information centres of universities/institutions of higher learning. It categorically emphasized that information technology should be used in the libraries for providing effective library and information services to the academic communities.
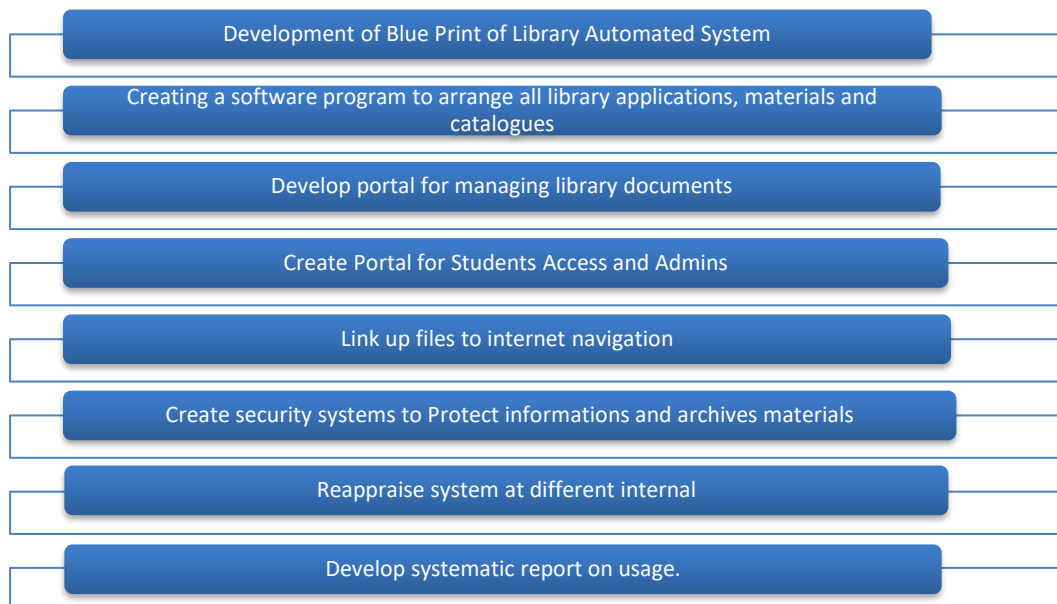
Government of India directed the UGC to constitute a committee to give recommendations for modernization of university libraries and information centers. UGC recommended in 1992 accommodation of a special paper in "Application of computer in Library Activities" in Library and information science courses in India. The introduction of computers for library operations has brought revolutionary changes and new dimension in the whole library and information management in India. The government of India has taken prime steps for computerization automation and networking of library and information centres. A number of national regional and city library and information networks.

Have emerged and found their way. In order join and effectively participate in these library networks, library and information centres will have to be modernized and automated (Vashishith 1994). After recommendation of a high-powered committee, UGC established INFLIBNET centre which is an inter-university with its headquarter at Ahmadabad for computerization automation and networking of university libraries, HTs, RECs, libraries of institutions of national importance for resource sharing among the libraries (Sinha and Satpathy, 1998) till data 142 universities been funded by INFLIBNET, to create IT conscious environment in the libraries. Almost all university libraries have taken steps to change over to automation. Some of them have fully automated their activities and some other have started automating their library activities.

Methodology
The study adopts the survey research design. The population of the study consists of 100 librarian employees in selected polytechnics in Rivers State. The study will develop a questionnaire instrument titled "The Systematic Application of Library Automation Model" (TSALAM). The data obtained from the study will be analysed using simple mean and charts. The instrument is a five-point rating scale consisting of Strongly agreed (SA), Agreed (A), Strongly Disagree (SD), Disagreed (D) and Undecided (Un). The response options are weighed as 5, 4, 3, 2 and 1 respectively. The instrument was validated by two experts from the department of library science in Niger Delta state.

Library Automated Model Pattern

Development of Blue Print of Library Automated System

Creating a software program to arrange all library applications, materials and catalogues

Develop portal for managing library documents

Create Portal for Students Access and Admins

Link up files to internet navigation

Create security systems to Protect informations and archives materials

Reappraise system at different internal

Develop systematic report on usage.

Data analysis
Research question 1
Does automated library bring transformation in a library system in polytechnic?

Table 1. Automated library transformation in a library system in polytechnics

S/N	Items	Mean	Decision
1	Library automation provides students the access to E-resources?	3.43	SA
2	Library automation gives students the access to web pac?	3.46	SA
3	Ict facilitation improves the effect of library automation?	3.43	SA
	Grand mean	3.37	

Analysis gathered from table 1, research question 1 shows that items 1, 2 and 3 were all Strongly agreed to the various questions. Due to this illustration, it proves the actual fact that Automated library brings transformation in a library system in polytechnics

Research question 2
What ways does library automation Influence the knowledge access in the life of Students?

Table 2. Library automation Influence with knowledge access in the life of Students

S/N	Items	Mean	Decision
1	Students engage in ICT utilization through library automation?	3.43	SA
2	Library automation equip students with E-materials at all levels and standards of learning?	3.46	SA
3	Students learn more effectively through digital plat form with the use of automated library?	3.42	SA
	Grand mean	**3.36**	

Findings obtained from table 2 research question 2 revealed that items 4, 5 and 6 were strongly agreed to the various questions. This indicates that Library automation has Influence with knowledge access in the life of Students.

Discussion of Findings
Findings from the research question draws us into the analysis of what the actual response of the correspondents is, in regards to the system of library automation. Opinions were accessed according to the following from table 1 and 2. From table 1 research question proves that Automated library brings transformation in a library system in polytechnics. This is in line with the opinion of Shilpa (2013) which reveals that the application of library automated system can enhance the efficiency and application of library information.

From table two, findings revealed that the influence of library automation in access to knowledge in the life of Students. This is in line with the opinion of Basawaraj, (2017) that emphasized that automated library usage is required to share computer activities, provide, management and leadership for the academic activities and to maintain the computer system.

Conclusion
In recent Times library automation has become the daily talk of library professionals and has become a necessity for all libraries. The study proves that automated library brings transformation in a library system in polytechnics. Also, the influence of library automation gives access to knowledge in the life of Students.

Recommendations
Based on the findings obtained from the study, the following recommendations where made:
1. Government should invest and build modern automated library system to improve academic standards in tertiary institutions in Rivers State.
2. Educational institutions should organize seminars and workshops to train academic staff and students on the use of library automated systems.

References
Basawaraj, M. (2017). Automation of Engineering College Libraries in Kalaburagi and Bidar District of Karnataka State. *PESQUISA Online Journal. Vol. 02, Issue 02. Pp 77-86.*

Bhanja, M, & Barik, N. (2009). Library Automation Problems and Prospect Paper Presented at *10th National Convention of MANLIBNET organized by KIIT university 2009*

Cholin, V.S. & Prakash, K. (1997). Status of Computerization and Networking of University Libraries in India. *Paper Presented at 4th National Convention for automation of Libraries in Education and Research of INFLIBNET on I.T. application library Patiala.*

Gupta R.C., & Dass, S. (1991) Computerization of Serials control – A practical approach Using a personal computer. IASLIC Bulletin, 36, 17-22.

Jharotia, A. K. and Shukla, (2010) Development of consortia and library networking in India. National conference held at J K Business school, Gurgoan 19 march 2010 (ISBN-9788190938709) pp. 164-176.

Khote, Namita B, and Brije, Sunil R. (2009) Prospective of Library Automation of Networking of Dental College Library in Bangalore: status problem and prospective, *International Journal of information Dissemination of technology 5[2]: 77-85.*

Ramesh, L.S.R.C.V., (1998). Technical problems in university library on automation –an overview. Herald of library science, (37), 165-172.

Shilpa S. U. (2013). Use of electronic information sources and services in S. Nijalingappa Medical College: A Study. Library Progress. *BPAS Publication*, New Delhi. Vol. 33, Issue No. 01. Pp 1-11.

THE IMPACT OF BIO-OIL UPGRADE FOR PROMOTION OF GREEN ENERGY AND ENVIRONMENTAL SUSTAINABILITY

Ebitei Sintei Nelson
Department of Chemical Engineering
Federal Polytechnic, Ekowe,
Bayelsa State

Abstract
The study looked at impact of bio-oil upgrade for promotion of green energy and environmental sustainability. The study applied the experimental research design. EPFB biomass samples was used for this study Biochemical properties used include moisture content, density, viscosity, acidity, heating value stability, percentage ash, volatile matter, fixed carbon, -+heating values, compositional analysis, and elemental composition. These characteristics are critical for their products' effective handling, use, and storage. The biomass and other products were characterized using physical and mechanical criteria such as biomass particle shape and size, particle size distribution, density, porosity, and densification. The biomass's elemental composition (ultimate analysis), HHV, water content, density, acidity (proximate analysis), and bio-oil are among the physical and chemical parameters that need to be evaluated. The structural and chemical composition of EPFB biomass and bio-oil was elucidated using FTIR, XRD, and GC/MS analytical equipment. Data obtained from the study was analyzed using charts and tables. Findings obtained from the study showed that there is a significant change on bio-oil quality with respect to temperature change. Also, additional findings revealed that there are varied particle sizes are obtained with respect to heating rate. Further findings reveals that there is no significant correlation between variable temperatures and yield obtained from bio-oil production. Finally, it was recommended government should fund and encourage the production of bio-oil as source of fuel for automobiles as it has less harmful to the environment.
Keywords: Bio-Oil, Upgrade, Green, Energy, Environmental and Sustainability

Introduction

The excessive release of carbon and other burnt gases had posed a serious threat to our natural environment. Even the very air we breathe is constantly filled with poisonous gases that will cause cancer and other respiratory diseases. Scientist as observed the constant climate change faced by our global community mainly due to environmental pollution. Lots of research had been carried out to present a more clean and green energy to curb excessive pollution to the global environment.

Green energy is geared towards power utilization with little or no pollution to the environment. Green energy program had promoted many renewable technologies for power generation and industrial activities. So long as the technology can generate power without the release of harmful gases to the environment, the technology is described as environmentally friendly.

Bio-fuel is an emerging area under renewable energy programs. The technology is designed to generate fuel with minute or no carbon emission. Bio-fuel are termed as environmentally friendly gas that can work with automobiles and engines. Bio -oil are mainly extracted from plants through pyrolysis. In some cases, in other to utilize the natural gasolines, bio-oil are blended with fuels to produce higher yields with better combustion ability and low carbon emission. This yield can vary as they are blended and produced at different temperatures.

Biomass to bio-oil conversion is a technique that uses renewable feedstocks to replace finite fossil fuel supplies. Bio-oil utilization norms and standards have previously been established (Oasmaa et al., 2015). Bio-oil, in comparison to fossil fuels, has several disadvantages that change with time. High viscosity, acidity, and molecular weight are undesirable properties, including phase instability and separation when it ages. Bio-oils are typically single-phase viscous liquids with approximately 300 chemical constituents (Diebold & Czernik, 1997; Diebold, 2000; Oasmaa et al., 2003). However, all fast pyrolysis bio-oils phase separate due to aging events that cause a rise in the molecular

weight and water-insoluble fraction and carbonyl compound reactions that cause a drop in carbonyl content. In bio-oil obtained from extractive-rich feedstock, the production of a waxy hydrophobic top phase is prevalent.

Because of phase instability, bio-oil cannot be utilized as a direct replacement for fossil fuel. As a result, bio-oil must be stabilized and enhanced before being used as a direct engine fuel. The separation of bio-oil into phases is a critical issue since it negatively impacts fuel quality and transportation. Numerous upgrading methods have been used, including extraction, distillation, and column chromatography, with varying degrees of effectiveness to stabilize bio-oil.

Furthermore, bio-oil has a low energy density due to its vast amount of water. (Demirbas, 2007; Oasmaa & Czernik, 1999). Physical and chemical upgrading strategies could stop the aging reactions in biomass. Solvent addition (Dong et al., 2012), emulsification with diesel fuel (Westerhof et al., 2007; Garcia-Perez et al., 2008), deoxygenation using zeolite catalysts, and catalytic hydrotreating are among the upgrading methods. The top phase of bio-oil often comprises extractive chemicals obtained mainly from the lignin part of the biomass when the phases are separated. The aqueous phase also contains char and numerous other bio-oil components that are primarily present in minor amounts of the oil depending on the temperature and time of condensation.

The rate at which the bio-oil phase separates can be increased through constantly mixing. The degree of oil stability is measured by increased viscosity during storage. Furthermore, increased viscosity during storage has resulted in increased water content (Batts & Fathoni, 1991), increasing molecular weight (Vispute, 2011), and phase separation (Diebold, 2000).

Bio-oil is a colored liquid with a strong smell, and its physicochemical properties differ from those of petroleum origin. Among the vital physicochemical qualities of bio-oil are particle content, density, viscosity, water content, flash point, heating value, and several other characteristics. Bio-oil generated from EPFB, and other different biomasses is polar, thermally unstable, contains water and organic molecules, is moderately acidic, and has a poor heating value (Abdullah et al., 2007). The oil contains up to 35 to 45% wt oxygen (Abdullah et al., 2011). When heated, they stimulate the development of solid coke, rendering raw oil unsuitable for engines and storing as liquid fuel (Czemik et al., 1994). Bio-oil is polar and unstable, with several negative fuel qualities, and it can phase separate during storage enhanced at higher temperatures and with minimal moisture content (Czemik et al., 1994; Diebold, 2000). Because of the oil's high oxygen and water content, as well as the carboxylic acids and hydroxyl groups, has a low energy density and heating value, making it incompatible with fossil fuels. (Oasmaa & Czernik, 1999; Demirbas, 2007).

Bio-oil physicochemical properties vis-a-vis set ASTM standards for bio-oil (Hansen et al., 2020). Because of the low pH, low H/C, and high O/C ratio, bio-oil has various quality difficulties, including corrosion, viscosity, and general instability. This ratio represents the liquid product's combustion quality. (Harries et al., 2017). The high oxygenated compound content and excess water contents of bio-oil result in lower heating values (HHV) which is comparatively lower than those of fossil-based transportation fuels. This will typically increase the cost of post-conversion treatments.

Literature Review

Combustion Property of Bio-Oil
Fuel oxidation at a high temperature is combined, followed by heat generation and chemical species conversion. Bio-oil is a clean, sustainable energy source. As a result, it may be utilized instead of fossil fuels. However, bio-oils usage in transportation is limited and restricted due to several issues encountered when it is used in standard equipment designed to burn crude oil-derived fuels. (Bridgewater, 2018). Bio-oil has low heating capabilities and a high-water content, all of which affect ignition properties adversely (Demirbas, 2007).

As model compounds, phenolic monomers, predominantly consisting of phenols, syringols, and guaiacols, are the easiest result of lignin breakdown in bio-oil production. Phenol and alkylated phenols are the fundamental phenolic

monomers from lignin (cresol and 2-ethylphenol). The fracture of the C–OH bond is crucial in the hydrodeoxygenation process, which converts phenol to transportation fuel. Shu et al. (2020), claim that there are several typical methods for producing cycloalkanes and arenes, including aromatic ring hydrogenation followed by alcohol deoxygenation to give cycloalkanes; and C-OH bond breakdown which causes direct deoxygenation into arenes.

Guaiacol is an abundant ingredient present in the organic phase of bio-oil and has a broad industrial application. These processes convert guaiacol to phenol, including deoxygenation, demethoxylation, and demethylation. Guaiacol can also be transformed into catechol and phenol during the demethylation and demethoxylation processes. On the other hand, Catechol undergoes hydrogenation before being converted to phenol and its derivatives, such as methyl catechol. Deoxygenation of these intermediates produces methylcyclohexane, cyclohexane, benzene, and other hydrocarbons.

Bio-oil Upgrading
Bio-oil is a viable future fuel since it is ecologically beneficial and can be manufactured in a very short cycle. However, its low heating value, high viscosity, and poor stability have to be upgraded to a transportation fuel. The upgrading bio-oil to it compliant with fossil fuel infrastructure still incurs high costs in obtaining transportation fuel from biomass. According to Gameliel, (2018), although the cost function of bio-oil processing has been on a downward trend since 2010, the cost of producing fuel products with high calorific value still accounts for a large part of the bio-oil production process. There are 3 primary bio-oil upgrading methods: catalytic cracking (with or without hydrogen), esterification, and hydrotreating.

As a result, bio-oil is inferior to fossil fuels because it is highly corrosive and has harmful properties such as incompatibility with conventional fuels, chemical and thermal instability, high oxygen and moisture contents, low pH, solid contents, low heating value, poor volatility, low flash point, and high viscosity. (Yang et al., 2014; Shah et al., 2017). Due to low heating values, bio-oil has complex ignition issues when used in diesel engines. The sole reason for upgrading bio-oil is to improve the quality, reduce the deficiencies, recover biochemical and eliminate oxygen to produce comparable transport biofuel as an alternative for fossil fuel (Bridgewater, 2018). The need to upgrade bio-oil is inevitable if they must fulfill the objective of substituting fossil fuels or transportation fuels. The compatibility of bio-oil with fossil fuels is assured by upgrading it using physical, chemical, or catalytic methods to generate high-quality hydrocarbon fuels and chemicals. (Bridgwater, 2006; Yang et al., 2014; Bridgewater, 2018).

Several upgrading processes have been developed for converting bio-oil to liquid transportation fuel. These techniques are typically classified as physical or chemical approaches and may be accomplished via three primary routes:
(1) hydrodeoxygenation,
(2) catalytic cracking with zeolite, and
(3) emulsification with diesel (Panwar & Paul, 2021).

C-C bond cracking in gas phase reactions at an appropriate temperature to form CO or CO_2 via decarbonylation or decarboxylation reactions is the fundamental method in catalytic cracking processes. An in-situ or ex-situ catalytic upgrading of pyrolysis gases is conceivable in the pyrolysis reactor. The primary products are catalytically upgraded to secondary products through a series of reactions. Bio-oil can phase separate, polymerize and condense over time, typically aided by high temperatures and the presence of oxygen. The separation of the bio-oil phase and the high oxygen concentration, which leads to incompatibility and immiscibility with conventional fuels, are other disadvantages that prevent its use as a transport fuel. An increase in bio-oil energy density decreased acidity and viscosity.

Purpose of the Study
The study looked at the impact of bio-oil upgrade for promotion of green energy and environmental sustainability. Specifically, the study sought to:
1. Find out the correlation between variable temperatures and yield obtained from bio-oil production.
2. Find out the correlation between particle size and heating rate of yields obtained from bio-oil production.

Research Questions

The following research question were adopted for the study:
1. What is the correlation between variable temperatures and yield obtained from bio-oil production?
2. What is the correlation between particle size and heating rate of yields obtained from bio-oil production?

Hypothesis

The null hypothesis was tested at 0.05 level of significance.
There is no significant correlation between variable temperatures and yield obtained from bio-oil production.

Methods

The study applied the experimental research design. EPFB biomass samples was used for this study Biochemical properties used include moisture content, density, viscosity, acidity, heating value stability, percentage ash, volatile matter, fixed carbon, -+heating values, compositional analysis, and elemental composition. These characteristics are critical for their products' effective handling, use, and storage. The biomass and other products were characterized using physical and mechanical criteria such as biomass particle shape and size, particle size distribution, density, porosity, and densification. The biomass's elemental composition (ultimate analysis), HHV, water content, density, acidity (proximate analysis), and bio-oil are among the physical and chemical parameters that need to be evaluated. The structural and chemical composition of EPFB biomass and bio-oil was elucidated using FTIR, XRD, and GC/MS analytical equipment. Data obtained from the study was analyzed using charts and tables.

Data Analysis

Table 1: Yield obtained from temperature difference and quality of bio-oil produced

S/N	Temperature	Bio-Oil
1	501.962	27.008
2	513.333	26.866
3	545.103	27.030
4	530.594	26.923
5	567.828	26.685
6	534.568	27.142
7	526.213	27.124
8	520.275	26.847
9	503.583	26.824
10	501.407	26.969

Table 2: Yield obtained from particle size difference and Heating rate of bio-oil

S/N	Particle size	Heating Rate
1	741.608	40.629
2	653.333	41.333
3	727.737	39.366
4	816.208	42.963
5	747.331	39.613
6	735.309	39.901
7	786.202	40.735
8	738.139	36.993
9	793.496	43.664
10	770.926	41.553

Research Question One

What is the correlation between variable temperatures and yield obtained from bio-oil production?

Figure 1: Correlation between variable temperatures and yield obtained from bio-oil production

Findings obtained from research question 1 revealed that from item 1-10, there is a corresponding temperature and bio-oil yield variation of 501.962; 27.008, 513.333;26.866, 545.103;27.030, 530.594; 26.923, 567.828; 26.685, 534.568;27.142, 526.213;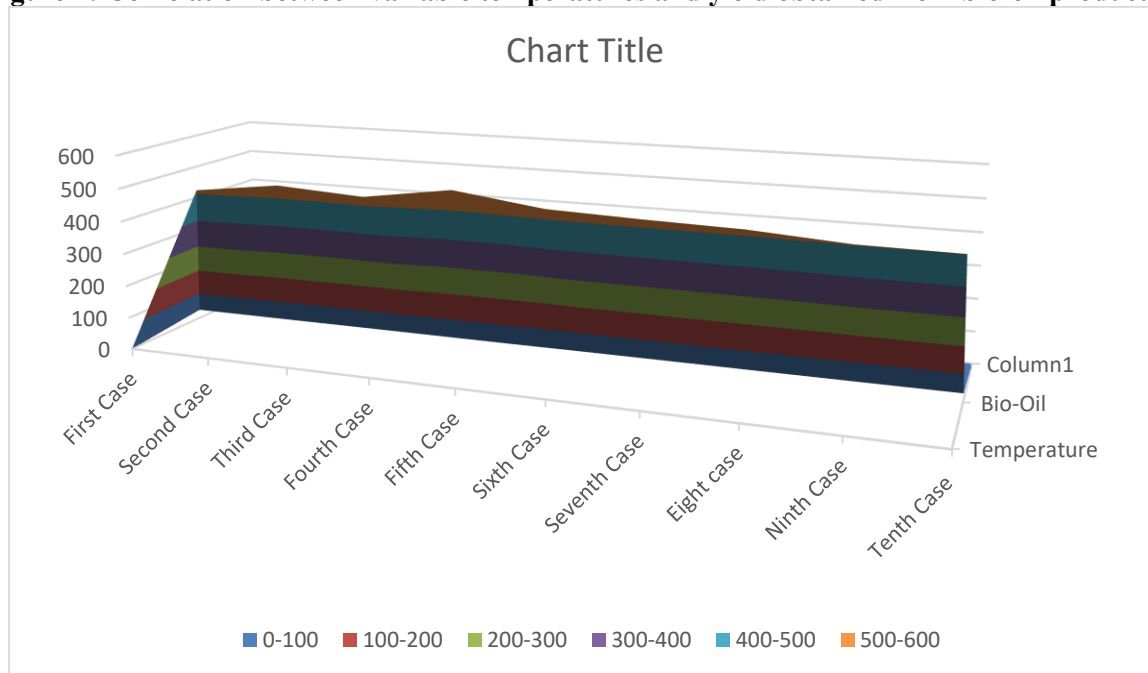 27.124, 520.275;26.847, 503.583; 26.824 and 501.407; 26.969 respectively. This is indicative that there is a significant change on bio-oil quality with respect to temperature change.

Research Question Two
What is the correlation between particle size and heating rate of yields obtained from bio-oil production?

Figure 2: Correlation between particle size and heating rate of yields obtained from bio-oil production.
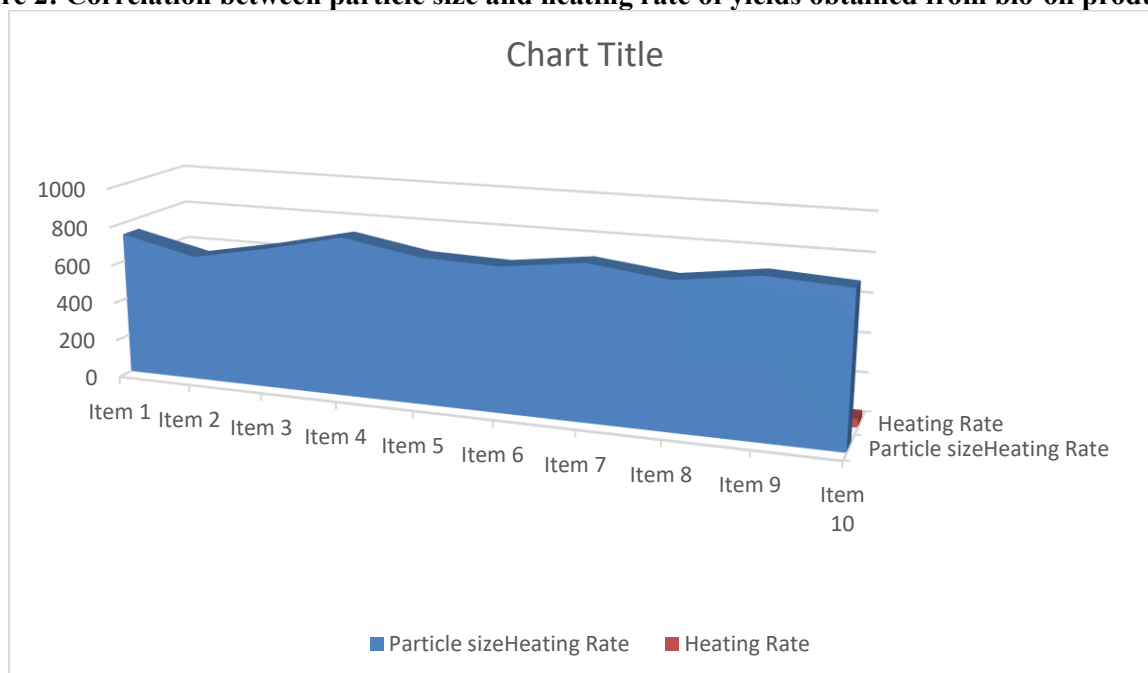
Findings obtained from research question 1 revealed that from item 1-10, there is a corresponding particle size and heating rate of yields obtained from bio-oil production at 741.608; 40.629, 653.333; 41.333, 727.737; 39.366, 816.208; 42.963, 747.331; 39.613, 735.309; 39.901, 786.202; 40.735, 738.139; 36.993, 793.496; 43.664 and 770.926; 41.553 respectively. This implies that varied particle sizes are obtained with respect to heating rate.

Hypothesis
There is no significant correlation between variable temperatures and yield obtained from bio-oil production.

Table 3: Correlation between variable temperatures and yield obtained from bio-oil production.

S/N	Temperature (X)	Bio-Oil (Y)	(X^2)	(Y^2)	(XY)
1	501.962	27.008	251,965.9	729.43	13,556.99
2	513.333	26.866	263,510.8	721.782	13,791.20
3	545.103	27.030	297,137.3	730.621	14,734.13
4	530.594	26.923	281,529.99	724.848	14,285.18
5	567.828	26.685	322,428.63	712.089	15,152.49
6	534.568	27.142	285,762.95	736.688	14,509.25
7	526.213	27.124	276,900.12	735.711	14,273.00
8	520.275	26.847	270,686.1	720.761	13,967.82
9	503.583	26.824	253,595.84	720.600	13,508.11
10	501.407	26.969	251,408.98	727.33	13,522.45
	$\sum X=5,244.866$	$\sum Y=269.418$	$\sum X^2=2,754,926.61$	$\sum Y^2=7,259.86$	$\sum XY=141,300.62$

Findings obtained from table 3, revealed that at 19 degree of freedom r-calculated value of -0.0241 is less than r-critical value of 0.433 at 0.05 level of significance. This implies that the null hypothesis was accepted. This signifies that there is no significant correlation between variable temperatures and yield obtained from bio-oil production.

Discussion of Findings
Findings obtained from the study showed that there is a significant change on bio-oil quality with respect to temperature change. This is in line with the view of Diebold, (2000) who opined that temperature changes can alter chemical properties of bio-oil production.

Also, additional findings revealed that there are varied particle sizes are obtained with respect to heating rate. Bridgewater, (2018) biomass extraction of bio-oil can produce varied particle size with respect to heating rate.
Further findings reveal that there is no significant correlation between variable temperatures and yield obtained from bio-oil production. According to Demirbas, (2007) siad that there is significant relationship on temperature changes and and bio-oil production.

Conclusion
In all, the study showed that there is a significant change on bio-oil quality with respect to temperature change. Also, there are varied particle sizes are obtained with respect to heating rate. Additionally, there is no significant correlation between variable temperatures and yield obtained from bio-oil production.

Recommendation
Finally, it was recommended government should fund and encourage the production of bio-oil as source of fuel for automobiles as it has less harmful to the environment.

References

Abdullah, N., Gerhauser, H., & Bridgwater, A. (2007). Bio-Oil From Fast Pyrolysis Of Oil Palm Empty Fruit Bunches . *Journal of Physical Science, , 18*(1), 57-74.

Abdullah, N., Sulaiman, F., & Gerhauser, H. (2011). Characterisation of Oil Palm Empty Fruit Bunches for Fuel Application . *Journal of Physical Science, 22*(1), 1-24.

Batts, B., & Fathoni, A. (1991). A literature review on fuel stability with particular emphasis on diesel oil. *Energy & Fuels , 5*, 2-21.

Bridgewater, T. (2018). Challenges and Opportunities in Fast Pyrolysis of Biomass: Part II :Upgrading options and promising applications in energy, biofuels and chemicals. *Johnson Matthey Technol. Rev., 62*(2), 150-160.

Bridgwater, T. (2006). Biomass for energy. *J Sci Food Agric, 86*, 1755–1768.

Czemik, S., Johnson, D., & Black, S. (1994). Stability of wood pyrolysis oil. . *Biomass and Bioenergy, 7*(1-6), 187-192.

Demirbas, A. (2001). Biomass resource facilities and biomass convesrion for fuels and chemicals. *Energy Convers. Manage., 42*, 1357-1378.

Demirbas, A. (2004). Combustion characteristics of different biomass fuels. *Prog Energy Combust Sci, 30*, 219 - 230.

Demirbas, A. (2007). The influence of temperature on the yield of compounds existing in bio-oils obtained from biomass samples via pyrolysis. *Fuel Processing Technology, 88*, 591-597.

Derouane, E. (2013). The Acidity of Zeolites: Concepts, Measurements and Relation to Catalysis: A Review on Experimental and Theoretical Methods for the Study of Zeolite Acidity. *Catal. Rev., , 55*(4), 454-515.

Dewi Selvia Fardyanti, D., Megawati, H., Prayogo, M., & Habibah, U. (2018). Extraction of Phenol from Bio-oil Produced by Pyrolysis of Coconut Shell . *Journal of Physical Science, 29*(Supp. 2), 195–202.

Dhyani, V., & Bhaskar, T. (2017). A comprehensive review on the pyrolysis of lignocellulosic biomass. *Journal of Renewable Energy* , 1-22.

Diebold, J. (2002). A Review of the Chemical and Physical Mechanisms of the Storage Stability of Fast Pyrolysis Bio-oils. In A. V. Bridgwater (Ed.), *Fast Pyrolysis of Biomass: A Handbook* (Vol. 2). Newbury, U.K: CPL Press.

Diebold, J. P. (2000). *A Review of the Chemical and Physical Mechanisms of the Storage Stability of Fast Pyrolysis Bio-Oils.* NREL/SR-570-27613.

Diebold, J. P., & Czernik, S. (1997). Additives to lower and stabilize the viscosity of pyrolysis oil during storage. *Energy & Fuels , 1997* (11), 1081-1091.

Diebold, J., & Czernik, S. (1997). Development of an acid titration for fast pyrolysis oil. *Energy Fuels, 11*(5), 1081-1091.

Diebold, J., Czernik, S., Scahill, J., Philips, S., & Feik, C. (1994). Hot-Gas Filtration to Remove Char from Pyrolysis Vapours Produced in the Vortex Reactor at NREL. *Biomass Pyrolysis Oil Properties and Combustion Meeting* (pp. 90-108). Estes Park, USA,: NREL/CP-430-7215,.

Gamliel, D. (2018). *Renewable Fuels Produced from Biomass Pyrolysis Vapors: Catalysis and Reaction Engineering.* Storrs: University of Connecticut .

Garcia-Perez, M., Wang, S. X., Shen, J., Rhodes, M. J., Tian, F., Lee, W., . . . Li, C. (2008). Fast pyrolysis of Mallee woody biomass: Effect of temperature on the yield and quality of pyrolysis products. *Industrial and Engineering Chemistry Research, 47* , 1846–1854.

Hansen, S., Mirkouei, A., & Diaz, L. (2020). A Comprehensive State-of-Technology Review for Upgrading Bio-oil to Renewable or Blended Hydrocarbon fuels. *Renewable and Sustainable Energy Reviewa, 118*, 109548.

Harries, M., McDonald, A., & Bruno, T. (2017). Measuring the distillation curves of non-homogeneous fluids:Method and case study of two pyrolysis oils. . *Fuel , 204*, 23-27.

Oasmaa, A., & Czernik, S. (1999). Fuel oil quality of biomass pyrolysis oils- state of theart for the end users. *Energy & Fuels, 1999*(13), 914-921.

Oasmaa, A., Bert van de Beld, B., Saari, P., Elliott, D., & Solantausta, Y. (2015). Norms, Standards, and Legislation for Fast Pyrolysis Bio-oils from Lignocellulosic Biomass. *Energy Fuels, 29*, 2471-2484.

Oasmaa, A., Kuoppala, E., Gust, S., & Solantausta, Y. (2003). Fast pyrolysis of forestry residue 1: Effects of extractives on phase separation of pyrolysis liquids. *Energy Fuels, 17*(1), 1-12.

Oasmaa, A., van de Beld, B., Saari, P., & Elliott, D. (2015). Norms, Standards & Legislation for Fast Pyrolysis Bio-Oils. . *Energy & Fuels , 29*(4), 2471−2484 .

Shah, Z., Renato, C., Marco, A., & Rosangela, D. (2017). Separation of Phenol from Bio-oil Produced from Pyrolysis of Agricultural Wastes. *Mod Chem Appl, 5*(1), 199.

Panwar, N., & Paul, A. (2021). An overview of recent development in bio-oil upgrading and separation techniques . *Environ. Eng. Res. , 26*(5), 200382.

Shu, R., Li, R., Lin, B., Wang, C., Cheng, Z., & Chen, Y. (2020). A review on the catalytic hydrodeoxygenation of lignin-derived phenolic compounds and the conversion of raw lignin to hydrocarbon liquid fuels. . *Biomass Bioenergy , 132*, 105432

Vispute, T. (2011). *Pyrolysis Oils: Characterization, Stability Analysis, and Catalytic Upgrading to Fuels and Chemicals.* Amherst: University of Massachusetts.

Westerhof, R. J., Kuipers, N. J., Kersten, S. R., & van Swaaij, W. P. (2007). Controlling the Water Content of Biomass Fast Pyrolysis Oil. . *Industrial and Engineering Chemistry Research,, 46*, 9238-9247.

Yang, H., Chen, G., Ma, M., Yan, B., & Qi, Y. (2014). Overview of upgrading of pyrolysis oil of biomass. *Energy Procedia , 61* , 1306 – 1309 .