



INTERNATIONAL VIRTUAL CONFERENCE ON SUSTAINABLE DEVELOPMENT PRACTICE IN SCIENCE, TECHNOLOGY EDUCATION AND SOCIAL SCIENCES

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SCIENCE, TECHNOLOGY, EDUCATION AND SOCIAL SCIENCES

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CONFERENCE OF BUSINESS INFORMATICS DEPARTMENT,
SCHOOL OF ENTERPRISE, AKWA IBOM STATE
POLYTECHNIC, IKOT EKPENE, IKOT OSURUA**

THEME:

**SUSTAINABLE DEVELOPMENT PRACTICE IN SCIENCE,
TECHNOLOGY EDUCATION AND SOCIAL SCIENCES**

5TH AND 6TH DECEMBER 2023

INTERNATIONAL VIRTUAL CONFERENCE ON SUSTAINABLE DEVELOPMENT PRACTICE IN SCIENCE, TECHNOLOGY EDUCATION AND SOCIAL SCIENCES - 5th and 6th December 2023

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INTRODUCTION TO IVCSDPSTESS

In an era marked by unprecedented global challenges, the intersection of science, technology, education, and social sciences plays a pivotal role in shaping the path towards sustainable development. This conference serves as a platform for thought leaders, researchers, educators, and practitioners from around the world to share insights, exchange ideas, and explore innovative approaches to address the multifaceted issues facing our planet.

The theme of this conference reflects our commitment to advancing sustainable development practices that transcend disciplinary boundaries. We recognize that the pursuit of sustainability requires a holistic and collaborative effort, bringing together expertise from diverse fields. Through this virtual gathering, we aim to bridge gaps, foster interdisciplinary connections, and harness collective intelligence to drive positive change.

Our agenda encompasses a rich tapestry of topics, ranging from cutting-edge scientific advancements and technological innovations to the transformative power of education and the profound impact of social sciences on sustainable development. Together, we will delve into the complexities of the challenges we face, seeking actionable solutions that can lead us towards a more resilient, equitable, and sustainable future.

CONFERENCE OBJECTIVES

- ❖ **Knowledge Exchange:** Facilitate the exchange of cutting-edge research, innovative practices, and transformative ideas in the realms of science, technology education, and social sciences.
- ❖ **Interdisciplinary Collaboration:** Encourage collaboration among diverse disciplines to promote holistic approaches to sustainable development.
- ❖ **Global Perspectives:** Showcase a diverse array of global perspectives, experiences, and best practices to create a rich tapestry of insights.
- ❖ **Policy Implications:** Explore the policy implications of sustainable development initiatives, emphasizing evidence-based approaches and practical solutions.
- ❖ **Youth Engagement:** Provide a platform for the engagement of young scholars and professionals, recognizing the role of the youth in shaping sustainable development practices.

CONFERENCE THEMES

- ❖ The conference will cover a wide array of themes related to sustainable development practice, including but not limited to:
- ❖ **Advances in Science and Technology:** Recent developments and breakthroughs in natural sciences, engineering, information technology, and data analytics.
- ❖ **Educational Innovations:** Best practices in teaching, e-learning, curriculum development, and the integration of technology in education.
- ❖ **Social Sciences and Global Issues:** Discussions on social psychology, anthropology, economics, political science, environmental studies, and sustainable development.
- ❖ **Health and Well-being:** Research on public health, healthcare technologies, mental health, and the impact of pandemics on society.
- ❖ **Business and Economics:** Exploring emerging trends in entrepreneurship, finance, marketing, and corporate social responsibility.

WELCOME ADDRESS BY THE CHAIRMAN PLANNING COMMITTEE AT THE OPENING CEREMONY OF international virtual conference on SUSTAINABLE DEVELOPMENT PRACTICE IN SCIENCE, TECHNOLOGY EDUCATION AND SOCIAL SCIENCES

Ladies and gentlemen,

Distinguished guests,

Esteemed participants,

It is my honor and privilege to welcome you all to the opening ceremony of the International Virtual Conference on Sustainable Development Practice in Science, Technology Education, and Social Sciences. On behalf of the Planning Committee, I extend a warm greeting to each and every one of you joining us from around the world for this momentous occasion.

As we gather here today, both physically and virtually, we are brought together by a shared commitment to advancing sustainable development through the realms of science, technology education, and social sciences. This conference serves as a crucial platform for fostering dialogue, sharing innovative ideas, and collaboratively shaping a sustainable future for our global community.

In an era marked by unprecedented challenges and opportunities, the need for interdisciplinary collaboration has never been more evident. The nexus between science, technology, education, and social sciences is pivotal in addressing the complex issues that define our times. It is through such collaboration that we can chart a course towards a more equitable, inclusive, and sustainable world.

Over the course of the next few days, this conference will provide a unique space for experts, scholars, researchers, and practitioners to engage in insightful discussions, exchange knowledge, and explore avenues for transformative change. The diverse array of topics on the agenda, ranging from

environmental sustainability and technological innovation to social justice and education, reflects the interconnected nature of the challenges we face.

As we delve into the conference sessions, let us approach our deliberations with an open mind, a spirit of collaboration, and a shared determination to make a positive impact. I encourage you to seize this opportunity to forge new connections, gain fresh perspectives, and contribute to the collective wisdom that will emerge from our discussions.

I would like to express my deepest gratitude to the organizing team, sponsors, and partners who have worked tirelessly to bring this conference to fruition. Their dedication and hard work have been instrumental in creating a platform that transcends geographical boundaries, fostering a truly global conversation.

In conclusion, let us embark on this journey of intellectual exploration and collaboration with enthusiasm and optimism. May this conference serve as a catalyst for meaningful change and inspire us all to contribute to the sustainable development goals that unite us.

Thank you, and I wish you all a rewarding and productive conference.

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THE SUSTAINABILITY OF A MODEL SOLAR PHOTOVOLTAIC INSTALLATION FOR POWER GENERATION

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ABSTRACT

The focus of this paper is to establish the sustainability of the design and output parameters of a solar photovoltaic (PV) system installation developed as a living laboratory at the University of Portsmouth United Kingdom. Using a combination of secondary and primary data, it involves the projection of design and operating parameters over a period of twenty-five (25) years which is the useful life of the solar panels. It identifies the maximum power point (MPP), economic breakeven point and discusses the environmental implications. It recommends that for sustainability, a combination of storage and tie-in to grid is required to manage excess power during off-peak time.

Introduction

Solar photovoltaic (PV) systems are renewable energy systems which transforms the energy from the Sun into electricity using photovoltaic. These PVs also known as solar panels provide reliable green energy solution (Natalie Kunz, 2023).

Objective

- Analyze performance of a solar energy installation at the University of Portsmouth.
- Evaluate the expected annual solar panel electricity output.
- Evaluate annual output across the useful life of the panel as well as the cumulative output.
- Analyse the return on investment and wider financial implications of living lab.
- Analyze MPP and consideration of temperature coefficients
- Discuss environmental effects associated with the solar energy installation.

Methodology

Data collected during operation of the solar installation and primary data collected from visit to the site of the Eco lab were used for the evaluation and analysis. The Port-Eco House is a research facility consisting of an instrumented 3-bedroom household for research in energy efficiency and building performance.

The installation at the Port Eco-house consists of solar photovoltaic (PV) panels with a peak capacity of 5 kW. The panels are connected to a 5 kW inverter, which delivers the generated power to the AC electrical network of the house. A Tesla Powerwall 2 smart battery storage system was also installed and connected to the AC electrical network of the house. A number of common household appliances and computer equipment are connected to the AC network of the house and form the house's electricity demand. On the monitoring side, a range of variables can be measured from individual PV panels, the inverter and the battery. In addition,

there is a weather station nearby that provides useful environmental data that can be correlated with the energy production of the solar array (University of Portsmouth, 2022).



Figure 1: This image shows the installed 5kW photovoltaic solar array on the adjacent lawn by the Port-Eco House, which is shown to the right of the panels.

Results and Discussions

From the manufacturer's manual, the efficiency of the module is 19.91% (0.1991). However, the efficiency based on the warranty profile is 97.50% of the rated module efficiency in the first year. This translates to 19.41%. From the manual and visit to the Eco lab site where the PV system is installed, the dimension of each panel is 1.689m x 0.996m. A total number of fifteen (15 Nos) panel gives a cell area of 1.6822m².

The expected solar radiation output is given by

$$P = \eta GA \dots \dots \dots \text{eqn 1}$$

η = efficiency

G = mean solar radiation

A = cell area

Where cell area = number of panel x Area of panels

Table 1 shows values of the expected solar radiation power output computed with eqn 1.

Table 1 The output and environmental condition of the Eco-lab

Time	Actual Output	Expected Output	Relative	Wind Speed
0000	0	0	82.8	1.74
0100	0	0	81.9	2.328
0200	0	0	82.2	2.121
0300	0	0	81.7	0.796
0400	0	0.0196	84.0	1.4
0500	0	0.3478	84.3	2.246
0600	0.1	0.9992	83.6	2.129

0700	0.2	1.7830	80.9	2.717
0800	0.3	2.5716	75.82	1.675
0900	0.4	3.2475	71.39	1.929
1000	1.1	3.7618	68.15	1.296
1100	2.7	4.1733	65.29	1.496
1200	3.9	4.3300	60.18	2.758
1300	4.5	4.2615	50.42	2.712
1400	4.5	3.9823	41.43	3.146
1500	1.4	3.4924	37.21	3.692
1600	0.2	2.0817	37.21	3.517
1700	0.1	1.2833	39.12	3.067
1800	0.1	0	41.88	1.992
1900	0	0	44.22	2.021
2000	0	0	51.92	2.221
2100	0	0	62.07	2.417
2200	0	0	67.58	1.888
2300	0	0	69.55	2.458

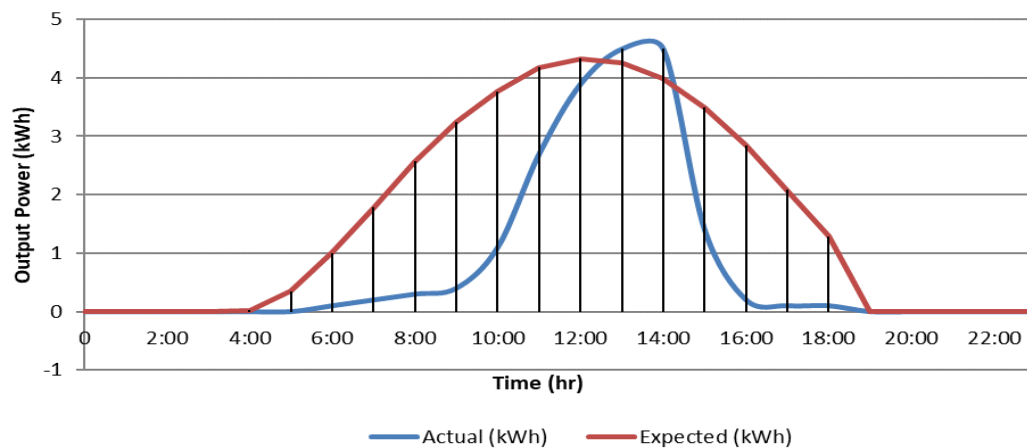


Figure 2: Comparison of actual to expected output

Weather Data and Solar Panel Output.

Figure 2 shows the pattern of the actual and expected output over 24 hours period on 31st May 2020. In the early hours of the day, the actual and expected outputs were zero. This is expected because between 12 midnight to 0400hrs the sun is yet to rise. The bell graph shows a steady increase in output as the day progresses. The peak outputs were recorded at 1300hrs and 1400hrs. The actual and expected outputs were 4.5kWh and 4.3kWh respectively. At this time, more rays from the sun are hitting the panels resulting in production of more energy. After this period, as the day wanes into sunset, both graphs exhibit the same reduced power output with zero output at sunset. The implication is that maximum electricity is generated when the solar rays are more intense.

Possible Reasons for the difference in the shape of the curves in figure 2.

- The installation is sandwiched between Dennis Sciama building and the fenced Eco lab building. These structures cast shadows on the panels at different times of the day and this could affect the intensity of the rays that hit the panels so all the panels may not produce the same power based on irradiance.

- High relative humidity in the early hours of 31st May could lead to collection of water droplets on the panels and refract sunlight away from the panels.
- The wind speed increasing from 1.704 m/s at 0000hrs to 3.146 m/s at 1400hrs is relatively higher at the peak output hours. Wind speed has the reverse effect that relative humidity has on solar efficiency. Wind helps dry the water vapour and cools the panels down (Solar.com 2023).
- The efficiency of the panels at 19.40% is based on the assumption that the efficiency is the same throughout the whole day which is contrary to the operating condition on 31st May which was 25°C and 1kW for cell temperature and irradiance respectively. Clearly, the mean irradiance on 31st May was lower than 1kW all hours within the day in addition to varying temperatures recorded between 0000hrs to 2300hrs.
- Temperature has an inverse effect on solar cell efficiencies. As temperature increases, the efficiency of the cell decreases. The temperature range is 11.4°C – 21.76°C

Battery Management

The energy consumption of the Eco house on 31st May was 8.2kWh while 4.7kW was stored in the Powerwall storage battery. This shows that 12.9kWh of electricity was consumed on 31st May while the unit produced 19.5kWh leaving an excess of 6.6kWh of electricity. The challenge arising from this, is that with storage capacity of the Powerwall storage is 13.7kWh. An efficient battery management strategy will be to upscale the capacity of the battery so that more loads can be introduced to the Eco lab. Another approach will be to transmit the excess load to the grid at off-peak.

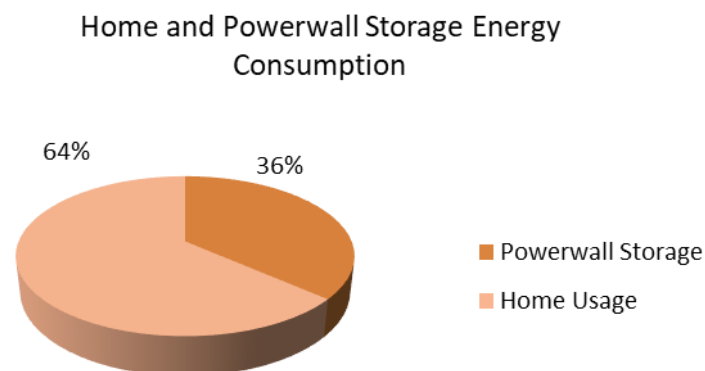


Figure 3: Power usage and storage in the Eco lab

Monthly Irradiation and Electricity Production

Using the National renewable Energy Laboratory (NREL) solar calculator, the average monthly output of the solar installation was generated as shown in Table 2. For this, a tilt angle of 15° and azimuth angle of 195° were used as baseline.

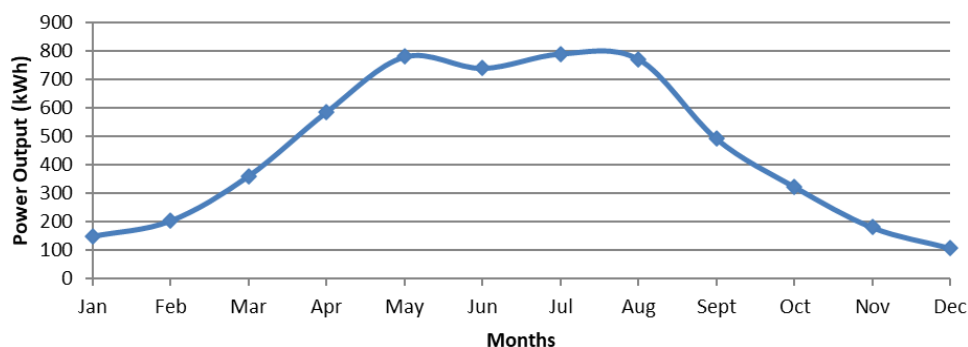


Figure 4 Graph showing the profile of power output from January to December

From figure 4, the summer period i.e. between May and August recorded the peak output. Expectedly, the lowest output was in autumn. December and January recorded the lowest amount of output.

Annual Output and Useful life of the Installation.

Based on the manufacturer's manual, the useful life of the panels is twenty five years (25 yrs). Figure 3 shows the efficiency profile of the panels over its useful life. In the first year, the efficiency 97.50% of the nominal efficiency of 19.91%. The efficiency over its useful life is captured in table 2

Table 2: Efficiency and Energy Output of the Solar Installation at Eco Lab

Year	Efficiency	Annual Output (kWh)	Cumulative output (kWh)
1	0.1941	5428.495	5428.495
2	0.1897	5397.093	10825.59
3	0.1883	5365.691	16191.28
4	0.1878	5334.289	21525.57
5	0.1874	5302.888	26828.46
6	0.1868	5271.486	32099.94
7	0.1862	5240.084	37340.03
8	0.1858	5208.682	42548.71
9	0.1848	5177.281	47725.99
10	0.1838	5145.879	52871.87
11	0.1822	5114.477	57986.34
12	0.1802	5083.075	63069.42
13	0.1798	5051.674	68121.09
14	0.1776	5020.272	73141.36
15	0.1766	4988.87	78130.23
16	0.1762	4957.468	83087.7
17	0.1758	4926.066	88013.77
18	0.1746	4894.665	92908.43
19	0.1736	4863.263	97771.7
20	0.1718	4831.861	102603.6
21	0.1710	4800.459	107404
22	0.1696	4769.058	112173.1
23	0.1674	4737.656	116910.7
24	0.1666	4706.254	121617
25	0.1657	4674.852	126291.8

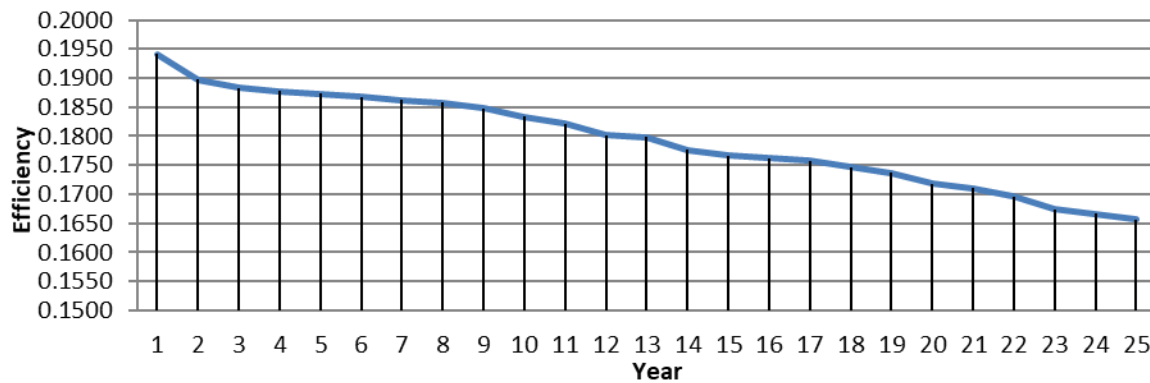


Figure 5: Efficiency profile of the solar unit at Eco lab

From table 3, there is drop in annual output for every succeeding year. Over the span of 25yrs, the output dropped from 5428.5kWh in the first year to 4674.3kWh in the 25th year. This represents a decrease of 13.88%. The total electricity production after 25 years is 126291kWh

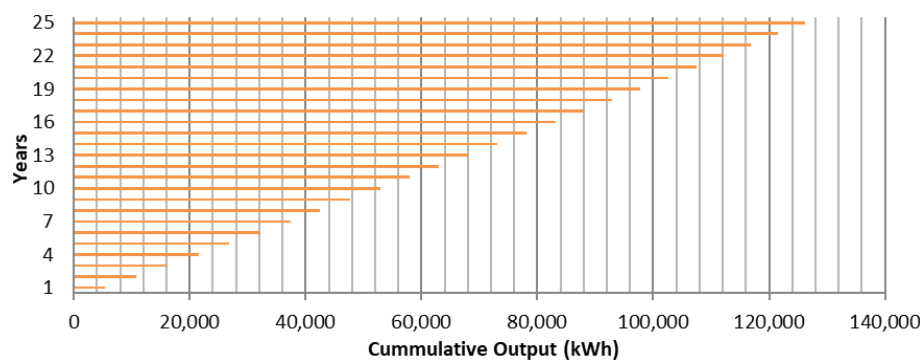


Figure 6: Cumulative Power Output over the useful life of the installation

Rate on Investment

The return on the investment of solar power is hugely dependent on the cost of electricity. According to Energy Trust 2023, the national average price for kWh in GBP is £0.34/kWh.

Since the price of electricity will not remain constant during the useful life cycle of the installation. Based on the fluctuations in price of electricity, different forecast and predictions were considered to establish the economic benefit of the installation. Figure 4 shows different scenarios of cost of investment and future prices of electricity.

Cornwall Insight predicts £0.19/kWh in three years time. Another prediction by Trading Economics is £0.64/kWh in four years time. The economic outlay based on these predictions is captured in figure 7 with different payback period.

Assumptions

- Time-value of the GBP was not considered in determination of the payback period of the project.
- Other technical information such as up scaling of the installation were not considered in the determination of the payback period

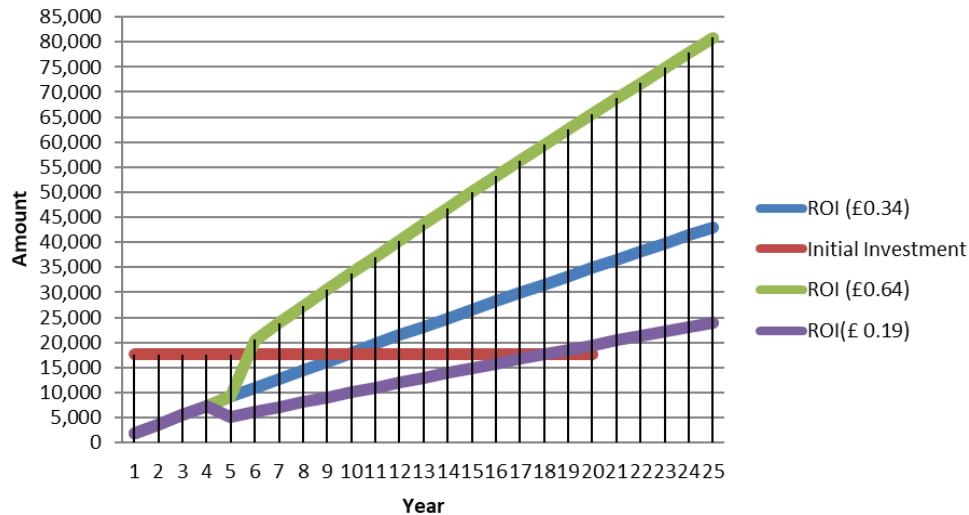


Figure 7: Forecast of Energy price and payback period

Figure 7 shows that interplay of the initial investment and forecasted energy prices. At £0.34/kWh of electricity, the payback period is 10 years. With the future increase of energy price to £0.64/kWh the payback period is 6 years. A reduction of price to £0.19/kWh, the payback period becomes 18 years.

Effect of MMP and Temperature Coefficients on Solar Output.

Maximum Power Point (MPP) represents the bias potential at which solar cell outputs the maximum net power. It is the point at which the product of the current and voltage equal the greatest value. Irradiation data in kWh/m²/dy is converted to W/m² to obtain the MPP.

Table 3 Global Irradiance and MPP Parameters

Month	Irradiance	Current	Voltage (V)	Power (W)
January	487.1429	5.0	34.0	170
February	502.6506	5.1	34.4	175.44
March	620	6.2	34.8	215.76
April	665	6.8	35.0	238
May	741.1163	7.4	35.2	260.48
June	716.5877	7.2	35.1	252.72
July	727.5225	7.3	35.2	256.96
August	698.9904	7.1	35.0	248.5
September	674.4966	7.0	35.0	245
October	584.3363	5.9	34.6	204.14
November	479.2208	4.8	34.0	163.2
December	407.5926	4.1	33.8	138.58

The panels produce the largest power of 260.5 W and 257W in May and July respectively. Assuming a Normal Operating Cell Temperature (NOCT) of 50°C, the cell temperatures were calculated based on average temperatures of Portsmouth (World Weather Online 2023).

Table 4 MPP & Effect of Temperature Coefficient.

Month	Power (W)	Temperature (°C)	Cell Temperature (°C)	Power after temperature Coefficient (W)
January	170	8	26.2	169.286
February	175.44	8	26.8	174.3347
March	215.76	10	33.2	209.5677
April	238	12	36.9	228.0873
May	260.48	15	42.7	244.3433
June	252.72	17	43.8	236.091
July	260.48	20	47.2	240.2407
August	248.5	20	46.2	230.0613
September	245	18	43.3	229.3078
October	204.14	15	36.9	195.6376
November	163.2	11	28.9	160.9723
December	138.58	9	24.2	138.968

Design Considerations and Improvements

Mounting the panels on the ground in a built up area exposes them to shades from buildings that are close. If they are mounted on roof top, the intensity of solar rays hitting the panels will be higher resulting in more irradiation.

Reconfiguring the azimuth to face south as shown in table 6 may increase the output at the first year from 5428.5kWh to 5437.4kWh. Also, there is a slight improvement in the cumulative ooutput over the useful life from 126191.8kWh to 126499kWh. Another strategy will be to adjust the tilt angle all year round (Solar Electricity Handbook 2023). By this, the first year annual output will change from 5428.5kWh to 6429.9kWh while the cumulative will increase by 18.4% from 126291.8kWh to 149589.5kWh.

Table 5: Average Monthly Irradiation and Facing of the Solar Panels

Month	Azimuth = 195, tilt = 15° (kwh/m ² /day)	South, 15° tilt (kwh/m ² /day)	South, angle adjusted all year (kwh/m ² /day)
January	0.99	1	1.54
February	1.49	1.5	2.46
March	2.38	2.39	3.28
April	3.99	4	4.61
May	5.14	5.13	5.34
June	5.04	5.04	5.73
July	5.21	5.21	5.41
August	4.69	4.69	5.1
September	3.35	3.35	3.84
October	2.13	2.15	2.74
November	1.23	1.23	1.85
December	0.71	0.72	1.22

Environmental Effects Associated with Eco lab Installation

Solar energy systems offer significant environmental benefits in comparison to the conventional energy sources. They have wide range of impacts on the environment. According

to the United Kingdom Greenhouse Gas Reporting, 0.1934kg of CO² is released per kWh of grid electricity (GOV.UK 2023). The power output of the solar installation over its useful life is 126291.8kWh. The implication is a savings of 24422.3kg of CO₂ which would have been released into the environment if fossil fuel is used to generate the power.

However, thin-film panels are manufactured using dangerous heavy metals such as Cadmium Telluride. There is a lack of transparent data to compute the emission levels during their production. The installation provides an environmental benefit of reducing the carbon footprint. In addition, noise pollution is not associated with the installation.

The Renusol ground mounting console is thermoplastic and it may be an area of environmental concern. However, the determination of the carbon footprint is not within the scope of this report.

The removal of the vegetation at the installation site of the panels would greatly affect the soil flora and fauna. Also, the use of polythene-like material to cover the ground surrounding the panel site will lead to withering of the plants underneath and Recycling Dilemma

Currently, the recycling of solar panels faces a big issue. Specifically, there aren't enough locations to recycle old solar panels and there aren't enough non-operational solar panels to make recycling them economically attractive. According to (2021), about 95% of the glass used in manufacture of solar panels can be reused while 85% of silicon and 95% of semiconductors used for thin film based solar panels are recyclable.

Conclusion and Recommendations

Conclusion

Solar remains cheaper than all other source of energy and specifically those generated using oil, gas and coal. The Eco-house solar system is technically and economically viable. Clearly, the sustainability of solar PVs for source of energy is hugely dependent on the price of energy which is not dependent on only solar but other sources of energy. For the Eco-lab at the University of Portsmouth, The payback period of the installation is eleven years (11yrs) given the useful life output of 126291.8kWh of electricity and current electricity price of £0.34/kWh.

Recommendations

1. The system should be connected to the grid so that excess power can be wheeled into the grid when there is no battery storage capacity.
2. The perimeter fences around the solar panels seem inadequate and should be reworked to ensure access control around the panels mounted on the ground.

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CONDITIONS OF AC MOTOR IN ELECTRICAL LABORATORY

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ABSTRACT

To ascertain the conditions of three phase ac motors requires many approach such as virtual inspection of the motor, shaft checking to ensure smooth rotation and bearing situation then proceeding to insulation resistance and winding resistance tests. Meggar instrument was used for the insulation test while digital Multimeter was used for the Winding test. The first test carried out was insulation resistance test using megger. The motor (1) has an insulation resistance of 8 Megaohms across the ground to phase recorded reading and 10 Megaohms across the phase to phase. The recorded megger reading value is higher than the calculated insulation resistance value of 1.38 Megaohms signifying the 3 phase ac motor has a high insulation resistance to accomplish safety rules of operation. The motor (2) has an insulation resistance of 1 Megaohms across the ground to phase and the phase to phase which is equal to the calculated 1.22 Megaohms signifying the 3 phase ac motor has a low insulation resistance and bad. Hence, the motor under went maintenance to increase the insulation resistance by heating the windings via ovum. The insulation value increased to 1.7 Gigaohms. For the winding test, the motors phase reading result is zero signifying no contact of the winding to the frame. For the open circuit test of continuity shows the (U1-U2, V1-V2 and W1-W2) recorded a 0.5ohms and 0.6 ohms across the two ac motors. For the short circuit test between the phases recorded zero hence, there is no short circuit across the phases. Therefore, the conditions of the three phase ac motors were ascertain and recommended for use.

Background of the work

An AC motor is a motor that convert alternating current into mechanical power. It's a viable power sources for a range of applications due to their flexibility, efficiency and quiet operations. The projects are to ascertain the health condition of the AC motor in electrical/electronic laboratory because the failure of AC motors insulation may cause a short circuit, electric shock as well as causes fire hazard when energized.

According to Tavner & Penman (1987), Motors testing assesses the integrity of a motor through the use of computer-supported equipment or tools that monitor trends within the motor. The main objective of motor testing is to reveal hidden problems and prevent unnecessary failure. Specific to electric motors, motor testing evaluates static parameters like insulation, wire damage and electrical current leakage, as well as more dynamic parameters such as distortion, temperature fluctuations and balance. Mechanical motor testing includes things like looking into the cracks of a motor's rotor and lamination sheet makeup. While each

motor test applies to most alternating current (AC) or direct current (DC) motors, each testing method depends on the construction and application of the motor in question.

Motor testing with a preventive maintenance program can test motors while they're operating in their normal environment under normal loads to confirm they're running at acceptable or optimum limits. Motor testing often alludes to issues before visual inspection makes them apparent. Making motor testing a part of a maintenance program is important because once a motor endures damage, it is often irreversible (referred to as core damage); this leads to the motor not running with the same efficiency as it once did, if at all.

Motor Testing Multiple Benefits

According to Weminck (1979), motor testing lends itself to multiple benefits, including:

- (i) **Increased uptime.** Identifying defective motors before they reach a point of failure ensures your system(s) remain up and running.
- (ii) **Cost savings.** Motor testing gives you a clear picture of the real-time condition of the motors within your assets, limiting potential collateral damage due to failures and reducing maintenance costs.
- (iii) **Energy conservation.** Motor current analysis (MCA) testing can help identify conditions within a motor that lead to increased power consumption.
- (iv) **Improved safety.** Motor testing can also detect faulty electrical connections in a circuit that may not be picked up with regular infrared testing, reducing the risk of a fire.

While the ins and outs of motor testing can be intimidating and a bit complex, knowing the basics along with using modern motor testing tools and equipment can greatly simplify the task of testing motors.

Motor Testing Tools

According to Stone et al. (1984), Motor testing tools are as follows:

- (i) **Digital multimeter (DMM)** - A DMM measures multiple electrical quantities, such as voltage (volts), resistance (ohms) or current (amps). DMMs are used for testing for power loss from blown fuses, excessive current levels from overloaded circuits and improper resistance from damaged insulation or equipment.



Figure 1: Digital Multimeter

- (ii) **Clamp-on ammeter:** A clamp-on ammeter measures the current in a circuit by assessing the strength of the magnetic field around a conductor. The majority of clamp-

on ammeters measure AC, but some assess both AC and DC. The hinged "jaws" on the meter allow technicians to clamp the jaws around a wire, cable or other conductor in an electrical system. This enables the technician to measure the current without disconnecting or de-energizing the system.



Figure 2: **Clamp-on ammeter**

- (iii) **Megohmmeter:** Often referred to as a megger. It is used to measure the electrical resistance of insulators. It determines the condition of the insulation on wires and motor windings. They do this by introducing a high-voltage, low-current DC charge and by assessing the resistance to identify whether there is current leakage or damage to the insulation.



Figure 3: **Megohmmeter**

- (iv) **Non-contact thermometer** - A non-contact thermometer or spot thermometer is a motor testing tool that measures temperature at a single point from a safe distance. They're used for measuring thermal radiation on hard-to-reach assets or assets operating under extreme conditions. Spot thermometers work by using field of view (FOV) and distance-to-spot ratio (D:S). The D:S is the ratio of the distance to the object you're measuring and the diameter of the temperature measurement area.



Figure 4: **Non-contact thermometer**

- (v) **Power quality analyzer:** Functions of power analyzers may include; measuring all three phases and neutral, capturing dips, swells and inrush currents; and analyzing software integration and compatibility.



Figure 5: **Power quality analyzer**

Types of Motor Tests

There are numerous motor testing techniques, especially when it comes to electrical motor testing. According to Natarajan (1989), most of these fall under one of two categories: online or offline testing, or static or dynamic testing.

- (i) **Online dynamic testing:** is done while the motor is running. It gives technicians data on the power quality and operating condition of the motor. This includes power condition, voltage level, voltage imbalance and harmonic distortions, current levels and imbalances, load levels, torque and rotor bar signatures, etc.
- (ii) **Offline static testing:** this is used on a regular basis to determine how the components within a motor (windings, rotor bar, etc.) are functioning as well as to perform a current and voltage analysis. Static testing often finds problems like broken or loose rotor bars, issues with end rings, an unequal air gap between the rotor and stator (eccentricity), and misalignment. Static testing assesses things like resistance/insulation resistance, high-potential (HiPot) tests, polarization, surge tests and more.

According to Thomson (1986), some of the most common of this offline static test include:

- (iii) **Electric motor impulse testing:** Impulse testing helps you understand how an electrical system can withstand sudden overvoltage caused by weather (lightning strikes), regular duty situations like when low- or high-voltage equipment changes operations, or high-voltage variations in AC-DC inverter output.
- (iv) **Electric motor rotation testing:** Testing for rotational direction is crucial before you connect a motor to its load so you don't damage the load or cause confusion for the operator. Proper rotational testing is done with a phase rotation meter.
- (v) **Wound rotor electric motor testing:** Testing with a wound rotor allows you to isolate the three basic components (stator, rotor and resistor bank) to identify the root cause quicker. Any issues on the stator are reflected on the rotor circuit.
- (vi) **Insulation resistance testing:** A megohmmeter can provide high DC voltage (usually 500V to 15kV) at a predetermined current capacity to test insulation strength. Its best practice to use a megger test with other forms of testing, as it isn't capable of detecting all potential faults inside a motor's winding.
- (vii) **Winding resistance testing:** Winding resistance testing brings to light dead shorts, loose connections and open circuits. Measuring the resistance of windings ensures all circuits are properly wired and all connections are secured. All coiled windings should have a predetermined resistance specified by the manufacturer for the motor to operate correctly. This resistance let's just the right amount of current to flow through the coil. This test is typically done using a digital multimeter.

- (viii) **Polarization index (PI) testing:** The PI gives you an idea of how much dirt or moisture buildup there is the insulation integrity and how well the motor operates. For this test, the applied voltage should be kept constant for 10 minutes, with an insulation resistance reading taken at one minute and a second insulation resistance reading taken at 10 minutes. The ratio between the one-minute and 10-minute measurements gives you the polarization index.
- (ix) **DC step voltage test:** Step voltage testing is another way to evaluate the insulation integrity of a motor or system. It's typically done after a successful PI test by starting with the same voltage used in the PI test. As the name implies, as the step voltage test progresses, the voltage applied to the insulation system increases every 60 seconds, which is predetermined by the technician. As the voltage is increased, the current is plotted on a graph. Upon completion of the test, if a non-linear graph presents itself, this usually alerts you to insulation issues.
- (x) **HiPot test:** high potential test checks for good isolation or that no current flows from one point to another point. Think of this as the opposite of a continuity test (where current flows easily from one point to another). The HiPot test verifies that insulation is adequate for the regularly occurring over-voltage transient. This test is ideal for identifying things like nicked or crushed insulation, stray wires, braided shielding, conductive or corrosive contaminants, and spacing problems, among others.
- (xi) **Automated tests:** Most modern motor testing equipment uses automatic testing and fault diagnosis equipment to eliminate the chance for operator error when interpreting results. Automated testing can detect micro-arcs and stop the test automatically if needed. Automated testing equipment comes with software that holds all test output data, so historical readings can be built up over time and reports of that data can be generated. You can find automated testers that combine all static electrical tests in one portable device.
- (xii) **The Voltage Drop Test: Analyzing Resistance in High-Amperage Circuits**

Voltage drop test is among the quickest, easiest, and potentially most valuable, allowing for easy evaluation of the quality and efficiency of your circuit's operation. A voltage drop test can be readily performed with a basic load and a digital voltmeter (DVM). Once the load is applied, the DVM can measure the live connection for a voltage drop in the circuit under load. Because electric current will arc in the path of least resistance, excess current will naturally flow to the DVM and create a reading. And, if the circuit was previously broken, the DVM can create a temporary flow to attempt to isolate the area of dropped power.
- (xiii) **The Core Loss Test: Ensuring Quality and Reliability**

A core loss tester can indicate the difference between a motor's input and output power, and these statistics can then be charted against acceptable levels and industry standards. While some loss is normal, a significant loss can reveal repairable problems before they

become serious. It can also be a strong indicator of motors in need of replacement, helping to ensure that even a rewind motor is maintaining its ideal performance and efficiency.

Testing a Three-Phase AC Motor

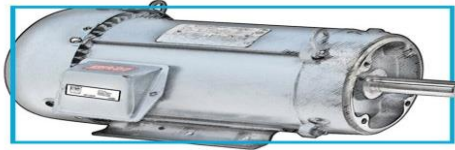


Figure 6: Three-Phase AC Motor

Ensuring the health of a three-phase motor puts into practice many of the testing methods as follows (Innes, 1996):

- (i) **Earth continuity and resistance test:** Using a multimeter, measure the resistance between the body of the motor and the ground. Expected reading of 0.5 ohms or less. Some standards may specify 0.1 ohms.
- (ii) **Power supply test:** The expected voltage for a 230/400V system is 230V phase to neutral and 400V between each of the three-phase lines. Power supply test is done using a multimeter by checking to confirm the correct voltage is applied to the motor. Verify that the connection type is in good condition. For three-phase motors, the connection type is either star(Y) or delta.
- (iii) **AC motor winding continuity test:** Multimeter is the instrument used for checking of the motor winding continuity test from each phase. If any phase fails the continuity test, you could have a burned-out motor. U, V or W may be used for terminals.
- (iv) **AC motor winding resistance test:** Multimeter or ohmmeter instrument is applied for phase-to-phase terminal winding resistance testing. This would be U1 to V1, V2 to W2 and W2 to U2. The reading for each winding ought to be (or close to the same).
- (v) **Insulation resistance testing:** In three-phase motors, insulation resistance typically is measured between each motor winding and phase and between each motor phase and the motor frame (earth). Using a megger or insulation tester set the voltage of the tools to 500V and checks from phase to phase and from phase to the motor frame (earth). Generally, a bad reading is anything less than 2 megohms, while an excellent reading would be 100 megohms or greater.
- (vi) **Running amps' test:** Finally, with the motor running, you can check the full load amps with a tool such as a clamp-on meter.
- (vii) **Polarization index test (PI):** Sometimes called a 10 min to 1 min insulation resistance test, the PI checks the insulation resistance. It also monitors the health of the motor and determines if there is excessive moisture present.

Materials and Methods

Materials Used for the Work

- i. Megger
- ii. Multimeter
- iii. Electrical Tools
- iv. Three phase AC motors
- v. Clap ammeter

Method Utilized

- i. Earth continuity testing using Multimeter
- ii. Winding resistance testing using Multimeter
- iii. Winding continuity testing using Multimeter
- iv. Insulation resistance testing using megger (set 500 volt scale of 1000v DC)

Testing of Three Phase AC Motors Utilized Procedures

- (i) Manually rotated the shaft to check the bearing condition such as free and smooth rotation.
- (ii) Earth to Phase continuity testing; (E to U, E to V and E to W).
- (iii) Winding Phase to Phase continuity testing; (U1 to U2, V1 to V2 and W1 to W2).
- (iv) Winding Phase to Phase resistance testing; (U to V, U to W and V to W).
- (v) Insulation Earth resistance testing; (E to U, E to V and E to W)
- (vi) Insulation resistance phase-to-phase testing; (U to V, V to W, W to U)
- (vii) With the motor running, amps of the motor was checked Clamp on meter.
- (viii) Direction of rotation was also checked.

Insulation Resistance Calculation

Calculation to verify the minimum reading for Insulation Resistance tests (Howard, 2020):

$$\frac{\text{Motor Voltage Rating}}{1000} + 1 \quad (3.1)$$

Since voltage across a resistor is applied and then measured the consequential current flow, hence, equation (3.2) is used to calculate the resistance of the insulation.

$$\text{Resistance}(R) = \frac{\text{Voltage}(U)}{\text{Current}(I)} \quad (3.2)$$

Allowable lower limit for insulation resistance.

The one mega-ohm rule establishes the allowable lower limit of insulation resistance. The one mega-ohm rule state that there will be approximately one mega-ohm resistance for every 1000 volts of operating voltage.

If the equipment is rated for 6600 volts, the minimum insulation resistance value should be:

$$\text{Minimum Insulation Resistance}(R) = \frac{6600}{1000} + 1 = 7.6 \text{ Megaohm}$$

Hence, this rule was applied during the testing processes to ascertain the level of insulation resistance in the three phase ac motor.

Results and Discussion

Minimum Insulation resistance calculation

To ascertain the minimum insulation values of the ac motors required for safe operation under the ac motor safety operation rule is calculated using equation (3.1) as giving below.

$$\frac{\text{Motor Voltage Rating}}{1000} + 1$$

(1) First ac motor with the following ratings:

V= 220/380v, I= 10A, Speed=2800rpm, 2HP

$$\frac{380}{1000} + 1 = 1.38 \text{ Megaohms}$$

(2) Second ac motor with the following ratings:

V= 220v, I= 10A, Speed=2800rpm, 2HP

$$\frac{220}{1000} + 1 = 1.22 \text{ Megaohms}$$

Insulation Resistance Testing Result

The instrument used in carrying out this test is megger and the measured values are in table 4.1:

Table 4.1: Insulation Resistance Testing Resulting

S/N	AC Motor Rating	Earth Resto Phase Test				Phase to Phase Test				
		G - G	G - U	G - V	G - W	U1 - V1	U1 - W1	V1 - W1	U2 - V2	V2 - W2
	MEGAOHMS	$\left[\frac{k\Omega}{k\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$	$\left[\frac{M\Omega}{M\Omega}\right]$
1.	V= 220/380v I= 10A Speed=2800rpm 2HP	10	8.69	8.69	8.69	10.79	10.89	10.91	10.78	10.90
2	V= 220v I= 10A Speed=2800rpm 2HP	10	1.8	1.2	1.8	1.98	1.97	1.96	1.97	1.96

Table 4.1 shows that the motor (1) has an insulation resistance of 8 Megaohms across the ground to phase reading and 10 Megaohms across the phase to phase. The recorded megger reading value is higher than the calculated insulation resistance value of 1.38 Megaohms signifying the 3 phase ac motor has a high insulation resistance to accomplish safety rules of operation.

Table 4.1 also shows that the motor (2) has an insulation resistance of 1 Megaohms across the ground to phase reading and 1 Megaohms across the phase to phase. The recorded megger reading value is almost the same with the calculated insulation resistance value of 1.22 Megaohms signifying the 3 phase ac motor has a low insulation resistance and bad to accomplish safety rules of operation. Hence, the motor under went maintenance by cleaning the stator with ultimeg 2000 to penetrate the slots and increase the insulation resistance. After the varnish process, the ac motor was barked in the ovum for 2 hours to dry water and moisture content in the windings of the stator. The temperature was set up to 45 degree resistance 1 and 2 put ON and the stator positioned horizontally so it can achieve total dryness. When the motor was brought out and retested, the insulation value increased to 1.7 Gigaohms.

Table 4.2: Insulation Resistance Testing After Ovum Heating

S/N	AC Motor Rating	Earth to Phase Test									
		G - G	G - U	G - V	G - W	U1 - V1	U1 - W1	V1 - W1	U2 - V2	U2 - W1	V2 - W2
		$(k\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$	$(G\Omega)$
1.	V=220 volt Speed =2840rpm I= 10 A 1.5kw (2.0HP)	10	1.21	1.25	1.24	1.71	1.72	1.72	1.71	1.72	1.74

Table 4.2 shows that the motor has a high insulation resistance of 1.2 Gigaohms across the ground to phase recorded reading which is far higher than the calculated value of 1.22 Megaohms signifying the three phase ac motor has high insulation resistance to accomplish safety rules of operation and improved insulation resistance after the maintenance process..

Three Phase AC Motor Winding Testing

Digital Multimeter was used to ascertain this three phase ac motor winding test and the resultant values depicted in table 4.3.

Table 4.3: Winding Testing Resulting

S/N	AC Motor Rating	Earth to Phase Test				Phase to Phase Test				
		G - U	G - V	G - W	U1 - U2	V1 - V2	W1 - W2	U - V	U - W	V - W
1.	V= 220v / 380v I= 10A Speed=2800rpm 2HP	0	0	0	0.5	0.5	0.5	0	0	0
2	V= 220v I= 10A Speed=2800rpm 2HP	0	0	0	0.6	0.6	0.6	0	0	0

Table 4.3 shows that the motor is not grounded as earth to phase reading result is zero signifying no contact of the winding to the frame of the motor. This means the motor is okay via earth to phase test.

For the open circuit test of continuity shows that there is no open circuit in any of the winding (U1-U2, V1-V2 and W1-W2) as the winding continuous from the start terminal to the end terminal by giving a 0.5ohms and 0.6 ohms across the two three phase ac motors which means this particular winding is good.

For the short circuit test between the phases recorded zero result across the phases signifying there is no short circuit across the phases.

Discussion of Result

The first test carried out was insulation resistance test using megger. The motor (1) has an insulation resistance of 8 Megaohms across the ground to phase recorded reading and 10 Megaohms across the phase to phase. The recorded megger reading value is higher than the calculated insulation resistance value of 1.38 Megaohms signifying the 3 phase ac motor has a high insulation resistance to accomplish safety rules of operation.

The motor (2) has an insulation resistance of 1 Megaohms across the ground to phase reading and 1 Megaohms across the phase to phase. The recorded megger reading value is almost the same with the calculated insulation resistance value of 1.22 Megaohms signifying the 3 phase ac motor has a low insulation resistance and bad to accomplish safety rules of operation. Hence, the motor under went maintenance by cleaning the stator with ultimeg 2000 to penetrate the slots and increase the insulation resistance. After the varnish process, the ac motor was barked in the oven for 2 hours to dry water and moisture content in the windings of the stator. The temperature was set up to 45 degree, resistance 1 and 2 put ON and the stator positioned horizontally so it can achieve total dryness. When the motor was brought out and retested, the insulation value increased to 1.7 Gigaohms.

For the winding test, the motors recorded a good reading of not being grounded as earth to phase reading result is zero signifying no contact of the winding to the frame of the motor.

For the open circuit test of continuity shows that there is no open circuit in any of the winding (U1-U2, V1-V2 and W1-W2) as the winding continues by giving a 0.5ohms and 0.6 ohms across the two ac motors. For the short circuit test between the phases recorded zero across the phases signifying there is no short circuit. Therefore, the conditions of the three phase ac motors were ascertain and recommended for use.

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INFLUENCE OF COST OF BUILDING MATERIALS ON RENTAL VALUES OF RESIDENTIAL PROPERTIES IN UYO, AKWA IBOM STATE, NIGERIA

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ABSTRACT

The study delved into the correlation between building materials costs and rental values of residential properties in Uyo. It aimed to scrutinize the price trends of construction materials and rental values from 2008 to 2022, investigating whether building materials expenses serve as a determinant of rental values. Employing a correlational research design, secondary data from estate firms provided rental value insights, while data on building materials costs (including cement, sharp sand, and chippings), interest rates, and inflation rates were gathered from annual reports of the National Bureau of Statistics and the Central Bank of Nigeria Statistical Bulletin. Graphical representations and linear equations depicted the trends in these variables, while multiple regression analysis was conducted to assess the impact of building materials costs, year, interest rates, and inflation rates on rental values. The analysis revealed a consistent upward trajectory for both building materials costs and rental values. Surprisingly, the cost of cement, sharp sand, and chippings which had P-values of 0.777, 0.521 and 0.589 respectively, showed no significant influence on rental values, with P-values above the 0.05 threshold for significance. Similarly, the interest rate did not exhibit a notable impact, as evidenced by its P-value of 0.387. However, year and inflation rate, with P-values of 0.000 and 0.018 respectively, emerged as significant factors affecting rental values. Consequently, the study concluded that building materials costs do not wield a significant influence on the rental values of residential properties. To align rent more closely with building materials costs, the recommendation proposes that investors avoid lengthy lease agreements to enable rental values to better mirror the fluctuations in building materials costs. We also recommend that both government and stakeholders promote the utilization of local building materials, aiming to lower overall construction costs.

KEYWORDS: Building materials, Costs, Influence, Rental values, Residential properties.

Introduction

Literature reviews consistently highlight the alarming escalation of building material costs in Nigeria. A 50kg bag of cement, for instance, surged from N1, 800 in 2013 to N5,500 in 2023, marking a staggering 306% increase. This trend extends to other essential materials like sharp and gravel, pivotal regardless of construction type. Oke and Akanni (2012) foresaw these escalating prices hindering the nation's efforts to provide adequate shelter and infrastructure for its people, potentially rendering the idea of quality housing an elusive dream. The relentless surge in building material costs implies exorbitant property development expenses. Considering that rental income constitutes real estate returns, the correlation between rising rental values and investors recovering their substantial investments becomes a pressing concern. Nwanekezie (1996) emphasized the role of building material costs in determining rental rates, while Okoronkwo (2008) suggested that high capital outlays in real estate development could perpetuate incessant rental value hikes. Akinyode (1989) emphasized

developers' drive for profits, grounded in the disparity between investment costs and anticipated returns. Dabara, Omotehinshe, Uwaezuoke, Soladoye, and Chikuzie (2018) documented a consistent correlation between escalating building material costs and rising rental values. However, Dabara et al. (2021) presented findings suggesting that while building material prices and house rents correlate, this relationship might lack significant influence. This discrepancy raises concerns about whether the substantial costs of real estate development, including building materials, genuinely impact rental rates, as suggested by Dabara et al. (2021).

Despite existing studies in various Nigerian regions, including the North-Central, South-West, and South-East, exploring the influence of building material costs, an investigation into Uyo, situated in the South-South of Nigeria, becomes imperative. Uyo, a burgeoning city characterized by tranquility, favorable terrain, vast undeveloped land, and a growing population, presents promising prospects for real estate investment. Consequently, this study aims to scrutinize the impact of building material costs on rental values in Uyo, offering guidance to real estate investors contemplating ventures in this region.

Objectives of the Study

The aim of this study is to examine the correlation between building materials costs and rental values of residential properties in Uyo. To achieve this aim, we set these objectives:

- i. to scrutinize the price trends of construction materials and rental values of residential properties in Uyo from 2008 to 2022
- ii. to examine the influence of cost of building materials as a determinant of rental values of residential properties in Uyo.

Review of Related Literature

Nwanekezie (1996) emphasized the pivotal role of building material costs in determining rental values. This notion implies that, all else being equal, the cost of these materials can directly impact the rental pricing of a property, suggesting a potential fixation of rent as a proportion of building material costs.

In a study by Dabara et al. (2018), a consistent correlation emerged between escalating building material costs and increased rental values of residential properties. While this aligns with the upward trajectory of both costs and rents, the study lacked evidence demonstrating a significant influence of building material costs on rent hikes.

Contrarily, Dabara et al. (2021) found that although both building material costs and rental values were on the rise, the escalating prices of materials did not wield statistically significant influence on residential property rents.

Bello, Mohammed, Muhammad, and Adekunle (2020) argued that bank lending rates and inflation significantly hindered property ownership. This suggests that high cost of finance and rising cost of building materials affect real estate ownership.

Okoronkwo (2011) echoed concerns about high costs incurred by developers, their eagerness to swiftly recover investments, and the desire for profits, all contributing to heightened rental expectations.

Abdulrahim's findings (2016) in Malaysia highlighted the increasing cost of building materials as a significant factor impacting real estate development expenses, emphasizing its status as a major cost component in this sector.

Murungi (2014) underscored the dominant influences of persistent land demand and building material costs on housing prices in Nairobi. Oyeniyi (2016) attributed the relentless rise in building material prices to interest rates, inflation, and importation costs.

Similarly, Ofurum and Ihuah's research (2021) in Nigeria identified inflation, import duties, taxes, petroleum product prices, raw material shortages, and transportation costs as primary contributors to the soaring expenses of building materials within the country.

Research Methodology

This study aimed to explore how the cost of building materials affected rental values in Uyo. Using a correlational research design, we investigated how building materials costs relate to rental values while considering additional factors like interest and inflation rates that might impact rental values. We gathered time series data on rental values from estate firms in Uyo and obtained building materials prices from the National Bureau of Statistics (NBS), while the Central Bank of Nigeria (CBN) annual report provided data on interest and inflation rates. Our study spanned 15 years (2008-2022), and we employed descriptive analysis, including graphs to visualize trends, and conducted multiple regression analysis to assess how independent variables influence rental values, our dependent variable.

Data Presentation and Analysis

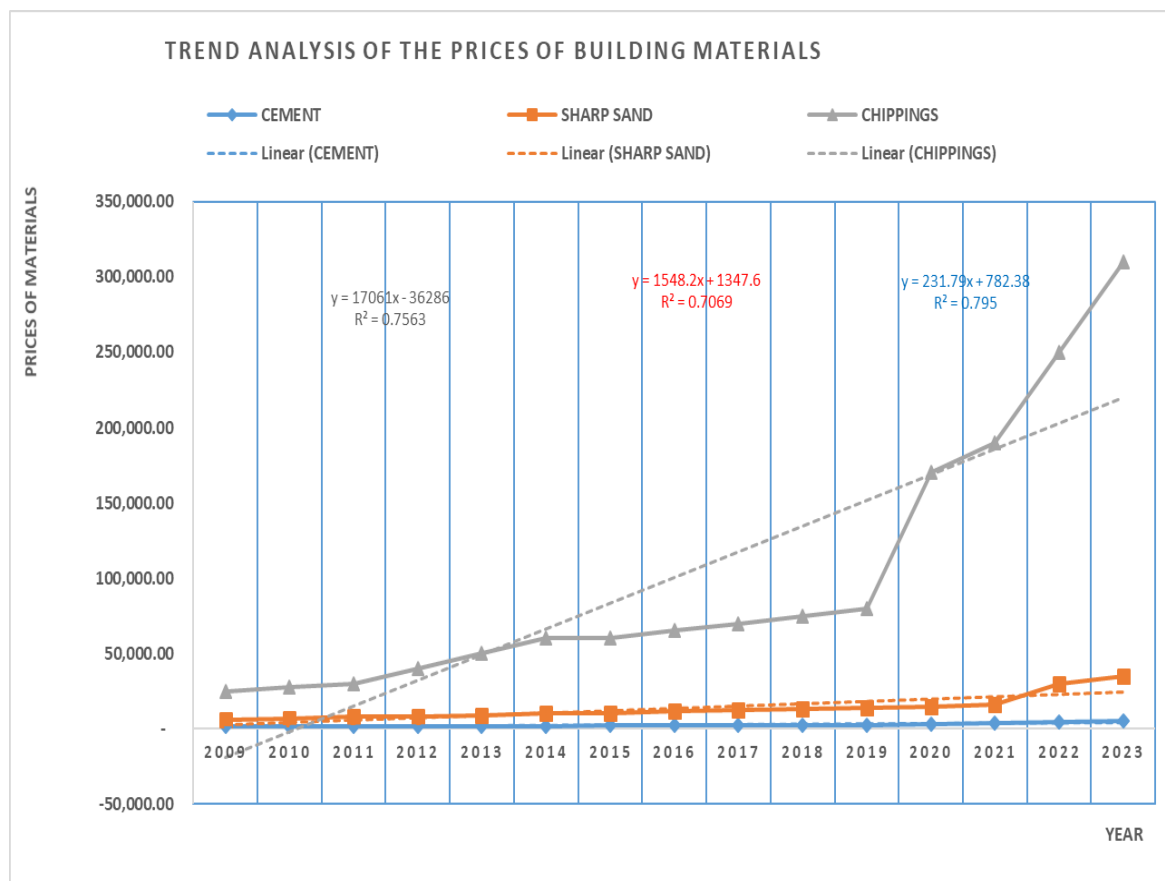


Fig 1: Trend Analysis of Cost of Building Materials, Interest Rate and Inflation Rate

Figure 1 displays the trend analysis for the prices of key building materials, encompassing cement, sharp sand, and chippings. On the y-axis are the prices of these materials while the x-axis displays the years. The R^2 value of 0.76 indicates that the year accounts for 76% of the variation in chippings' prices. The linear equation, $y = 17,061x - 36,286$, illustrates an annual increase of N17,061 in chippings' prices from a baseline of N36,286. This model holds potential for forecasting future chippings prices. For sharp sand, the linear function $Y = -1,548.2x + 1,347.6$ and an R^2 of 0.71 signify an annual increment of N1,548 with a starting point at N1,348, while changes in the year explain 71% of the price fluctuations in sharp sand. Regarding cement, the linear equation $Y = -231.79x + 782.38$ and an R^2 of 0.795 suggest that the year accounts for 80% of the price changes, with an annual increase of N232 from a baseline of N782 in cement prices.

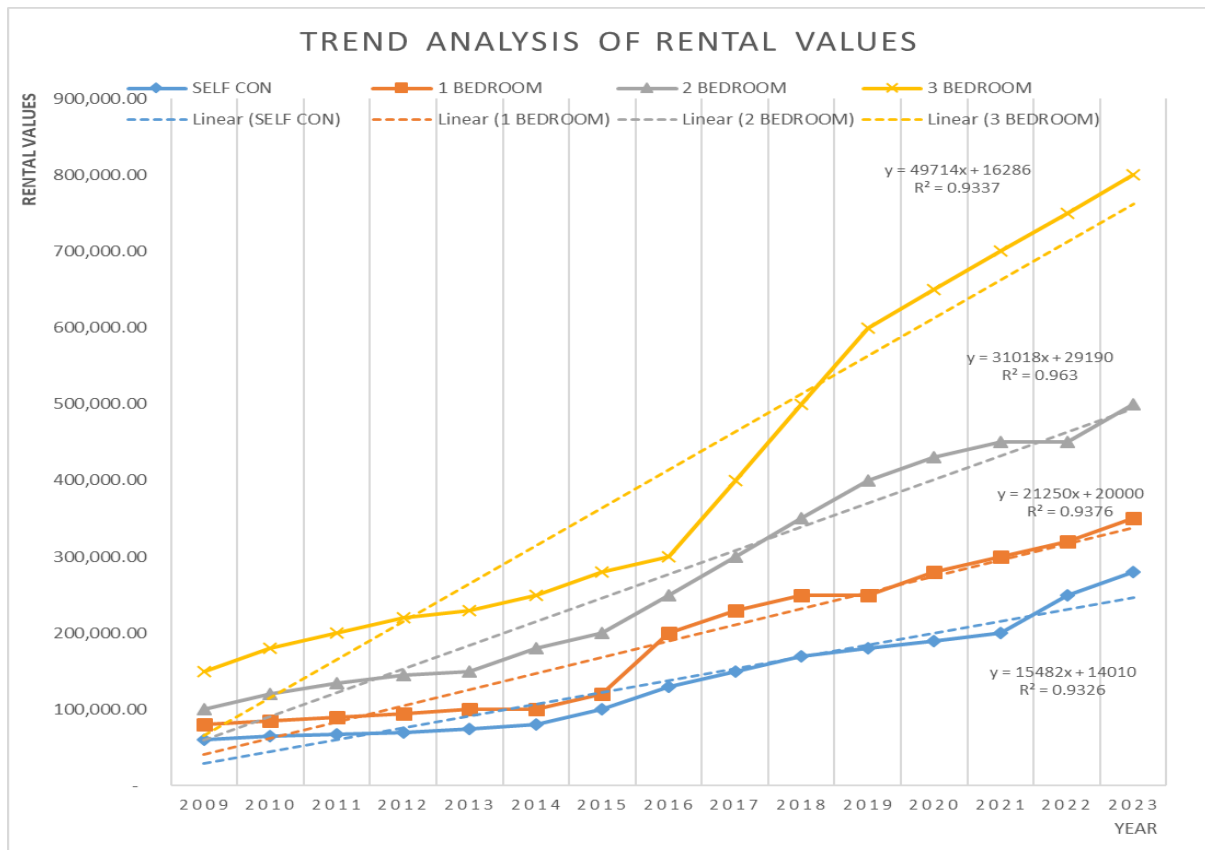


Fig 2: Trend Analysis of Rental Values of Residential Properties.

Figure 2 illustrates the trend analysis of rental values across various residential property types: self-contained units, 1-bedroom bungalows, 2-bedroom bungalows, and 3-bedroom bungalows. The trend in rental values for 3-bedroom bungalows followed a linear equation of $y = 49,714 + 16,286x$, with an R^2 of 0.93. This indicates an annual increase of N49,714, starting from a base of N16,286. Approximately 93% of this rise in rental values could be attributed to the passing years. For 2-bedroom bungalows, the linear function was $y = 31,018 + 29,190x$, yielding an R^2 of 0.96. This suggests an annual increment of N31,018, beginning at N29,190, where about 96% of this growth in rental values was due to year-on-year changes. Regarding 1-bedroom bungalows, the linear equation was $y = 21,250 + 20,000x$, demonstrating an R^2 of 0.94. This implies that 94% of the annual increase of N21,250, starting from N20,000, was attributed to the passage of time. The self-contained units followed a linear model represented by $y = 15,482 + 14,010x$, with an R^2 of 0.9. This showcases an annual rise of N15,482,

commencing from N14,010, where approximately 90% of this surge in rental values was influenced by yearly changes.

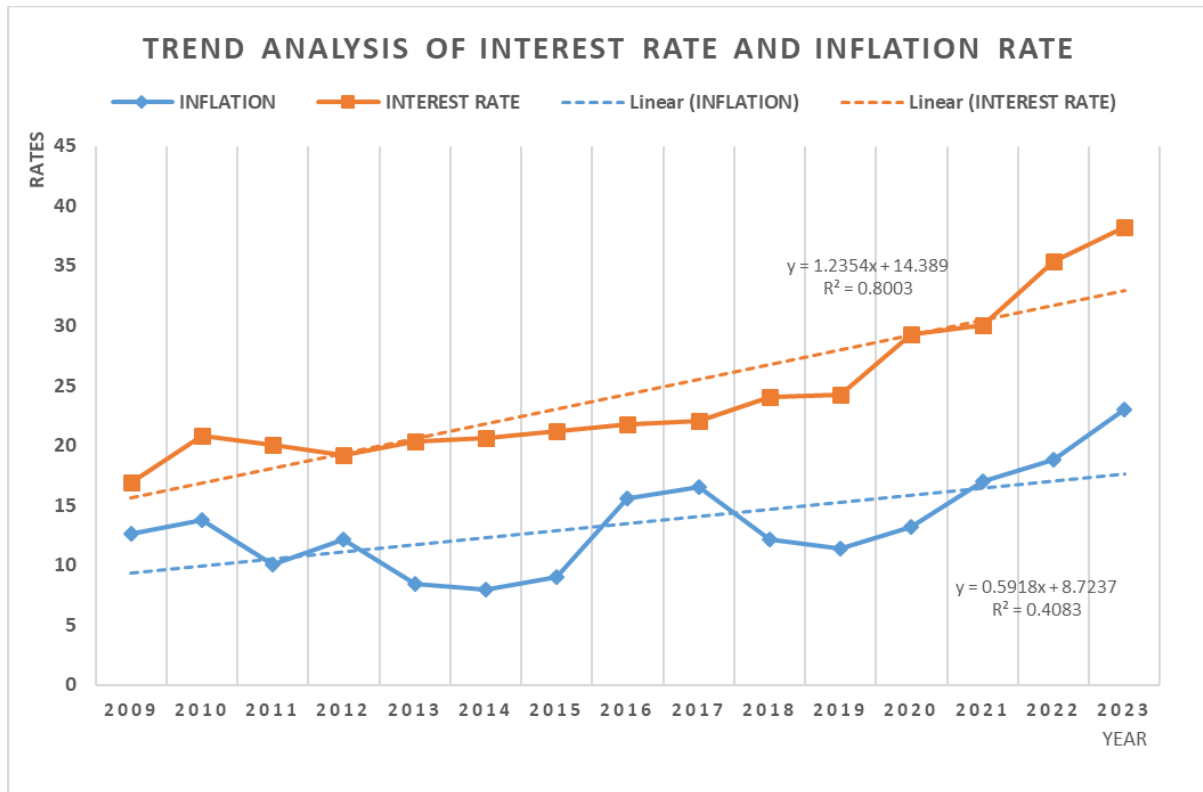


Fig 3: Trend Analysis of Interest Rate and Inflation Rate

Figure 3 displays the trends of two macroeconomic variables: inflation rate and interest rate. The interest rate was represented by a linear function of $y = 1.2354 + 14.389$, with an R^2 of 0.8. This indicated an annual increase of 1.24%, starting from a base of 14.39%. About 80% of this uptick in interest rates could be attributed to year-on-year changes. Regarding the inflation rate, the model equation was $y = 0.5918 + 8.7237$, yielding an R^2 of 0.41. This revealed an annual increase of 0.59%, commencing from 8.72%. The passage of time accounted for 41% of the fluctuations in the inflation rate.

Table 1: Model Summary of the Dependent and Independent Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.988 ^a	.977	.960	19647.3495

a. Predictors: (Constant), Interest rate, Inflation, Year, Sharp sand, Cement, Chippings

Table 1 provides a summary of the predictive model assessing the impact of building material costs, year, interest rate, and inflation rate on rental values. The model exhibited an R^2 value of 0.977, indicating its strong statistical fitness by explaining 98% of the variability in rental values, the dependent variable.

Table 2: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	131761853266.534	6	21960308877.756	56.889	.000 ^b
Residual	3088146733.466	8	386018341.683		
Total	134850000000.000	14			

a. Dependent Variable: Rental Values

b. Predictors: (Constant), Interest rate, Inflation, Year, Sharp sand, Cement, Chippings.

Table 2 presents the result of the analysis of variance (ANOVA). The result in table 2 shows a P-value of 0.000 which shows that the model is statistically significant.

Table 3: Influence of Cost of Building Materials, Year, Interest Rate and Inflation on Rental values of Residential Properties

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-40794828.745	6442439.804		-6.332	.000
YEAR	20254.969	3232.535	.923	6.266	.000
CEMENT	-10.984	37.558	-.130	-.292	.777
SHARP SAND	-1.688	2.516	-.142	-.671	.521
CHIPPINGS	-.281	.500	-.251	-.562	.589
INFLATION	7163.368	2402.477	.312	2.982	.018
INTEREST RATE	5564.933	6080.871	.345	.915	.387

a. Dependent Variable: Rental Values

Table 3 outlines the impact of independent variables—cost of building materials, year, interest rate, and inflation rate—on the dependent variable, rental values. The analysis revealed a p-value of 0.000 for the variable "year," indicating its statistically significant influence on residential property rental values at a significance level of 0.05.

The cost of cement exhibited a p-value of 0.777, indicating an insignificant influence on rental values as it surpasses the significance threshold of 0.05. Similarly, both the cost of sharp sand (p-value: 0.521) and clippings (p-value: 0.589) demonstrated statistical insignificance in affecting rental values.

Conversely, the inflation rate showed a p-value of 0.018, suggesting a significant impact on rental values, falling below the 0.05 significance level. However, the interest rate exhibited a p-value of 0.387, surpassing the 0.05 threshold, indicating its lack of significant influence on rental values.

This outcome highlights that only year and inflation rate significantly impact rental values. The significance of year can be understood in the context of landlords collecting two years' rent from tenants. When building material prices rise within this tenure, immediate rent adjustments may not be feasible, influencing rental values. Additionally, higher inflation rates reduce purchasing power, potentially driving more individuals to opt for rented accommodations, thereby increasing rental demand and subsequently, rental values. These findings align with the conclusions drawn by Dabara *et al* (2021). These findings suggest a parallel between the cost of building materials and rental values akin to Hooke's Law, indicating a proportional relationship within the material's elastic limit. However, beyond this threshold lies a breaking point where the elasticity fails to proportionately respond, mirroring a scenario where tenants, constrained by limited funds, reach a stage where they cannot match escalating rents due to increased building material costs. Consequently, there comes a juncture where the cost of building materials ceases to be the primary determinant of rental values.

Conclusion

This research delved into how the cost of building materials impacts residential rental values in Uyo. Our findings revealed a rising trend in both building materials prices and rental values. However, upon analysis, we found that variables like changes in year and inflation rates had a notable impact on rental values, whereas the cost of building materials and interest rates did not significantly influence rental values. Thus, we conclude that the cost of building materials did not exert a significant influence on rental values.

Recommendations

Landlords are advised to opt for shorter leases on their properties, enabling them to regularly reassess rent in response to fluctuations in building material prices. We also recommend that both government and stakeholders promote the utilization of local building materials, aiming to lower overall construction costs. Real estate investors are encouraged to diversify their investment portfolios to mitigate the impact of rental values not keeping pace with the costs of building materials. We recommend further research to investigate the relationship between cost of building materials and the rental values of other classes of real estate investments to guide investors in their portfolio construction.

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DISTRIBUTION OF EDUCATIONAL REAL ESTATE INVESTMENT IN AKWA IBOM STATE. NIGERIA

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ABSTRACT

This research assesses the distribution of educational real estate investment in Akwa Ibom State of Nigeria, with a view to examining the difference in the number of educational real estate investment in the study area. In order to achieve the stated aim, the following objectives were set: to evaluate the distribution of educational real estate investments in the study area and to determine the difference in the distribution of educational real estate investments in the study area. This research adopted the cross-sectional survey type of design. Purposive sampling was employed to choose Ikot Ekpene, Uyo and Eket local government areas. Stratified sampling technique was employed to divide the study area into 11 wards each. A total enumeration survey of all the approved private primary educational real estate investments was carried out in the study area. Data was obtained and analyzed with the help of SPSS software. One-way multivariate analysis of variance was employed to test the significant difference in the number of educational real estate investments in the study area. The result showed the highest mean of 23.91 in the urban wards of Uyo and a least mean of 6.09 in the rural wards of Ikot Ekpene. The multivariate analysis of variance was also carried out. It was found out that there was an overall significant difference between the means of investments in the rural areas $F(2, 30) = 19.66, p < 0.01, \text{partial} = 0.57$. The mean of privately educational real estate investment in the suburban area was also found to be different according to group $F(2, 30) = 8.09, p < 0.01, \text{partial} = 0.35$. However, the investment in private educational real estate failed to attain statistical significance $F(2, 30) = 3.55, p < 0.01, \text{partial} = 0.19$. The study concluded that educational real estate investment is low in the rural sections of the study area. The researchers recommended that investors in educational real estate investment should gain advantage of the emerging educational real estate market in the rural areas of Akwa Ibom State.

KEYWORDS: Distribution, educational, real estate, investment, Akwa Ibom State.

Introduction

Investment means giving up a capital sum of money presently in exchange for income flow or capital gains benefits to be received in the future. Real estate investment involves the creation

of new income-yielding assets from land and its resources based on capital analysis of expected cost, risk and benefit within a given time. Real estate investment is very vital in the physical and economic development of towns and cities all over the world (Ekpo, 2021). Investment in the real estate is classified into commercial, industrial, residential, agricultural and specialized properties with or without trading potentials (Ogunba, 2012). Specialized properties with trading potentials include educational real estates like hotels, cinemas, golf courses, private hospitals, among others, while those without trading potentials include educational institutions, among others. Therefore, man, nations and cities would be severely limited in development without investment in the educational real estate.

Urbanization in Nigeria has a long history in the growth and development of the nation (Ekpo, 2021). Extensive development has been a distinguishing feature of the 21st century accompanied by the concentration of schools in towns and cities across the nation especially in Akwa Ibom State. The state is characterized by high degree of specialization and larger population associated with the concentration of private schools, which are registered on the one hand and those operating without license. The present position concerning real estate investment in Akwa Ibom State is that investment in the educational real estate have remained the key issues that real estate investors are yet to fully exploit.

In Akwa Ibom State of Nigeria, real estate investors consider investment in non-specialized properties such as commercial, industrial, residential and agricultural real estate with little consideration made in regards to investment in specialized properties such as the educational real estate. Moreover, real estate investors place much importance on the locational characteristics before embarking on real estate investment. This usually leads to investments being carried out in the towns and cities rather than the peripheral sections of the state. This has led to a decrease in the number as well as unequal spatial distribution of real estate for educational purpose in the state. This implies that more schools are established in the urban areas, while less number of schools are established in the rural and suburban areas of the state. Therefore, the aim of this research is to assess the spatial distribution of investments in private educational real estate in Akwa Ibom State of Nigeria, with a view to examining the difference in educational real estate investment in the rural, suburban and urban zones of the study area. In order to achieve the stated aim, the following objectives were set:

- (i) to evaluate the distribution of educational real estate investments in the study area and
- (ii) to determine the difference in the distribution of educational real estate investments in the three senatorial districts of the study area.

Review of Related Literature

Concept of Real Estate

Udoudoh (2016) posited that Real estate is property consisting of land and the buildings on it, along with its natural resources such as crops, minerals or water; immovable property of this nature; an interest vested in this (also) an item of real property, (more generally) buildings or housing in general. Also: the business of real estate; the profession of buying, selling, or renting land, buildings, or housing. The term real estate is much broader than the term land and it includes not only the physical components of the land as provided by nature, but also anything that is permanently affixed to the land either by natural or artificial attachment. Real Estate therefore is defined as the earth's surface extending downwards to the center of the earth and upward to the sky, including those things permanently attached by nature or by people.

According to Nissi (2016), Real estate is often used interchangeable with real property. Real property has been differently defined by different people. The Arnold Encyclopaedia of Real Estate defines Real Property as “the rights, interests and benefits inherent in the ownership of real estate, lands, tenements and hereditaments of any kind which are immovable, permanent and fixed and are not annexed to the person; frequently thought as the bundle of rights (Olayonwa, 2000). Investors and other people see property as what they own and can exercise right of ownership on. It could be personal property or real property. When people think of real property, they often think of homes or houses in their community or buying and selling of houses. Real property is land and any property attached directly to it. It is any subset of land that has been improved through legal human actions. In land law, where the term is most commonly used, real property also entails the right of use, control and disposition of the land and its attached objects.

Real property, sometimes referred to as real estate, realty or immovable property, is composed of any designated portion of land and anything permanently placed on or under it. The elements on or under the land can include natural resources and/or human-made structures. In the legal sense, owning real property involves the bundle of rights transferred from seller to buyer upon the sale of a property. These rights typically dictate the use, transfer and/or sale of real properties. These real estate rights include the right of possession, control, exclusion, enjoyment and disposition. Different types of estates, which are recognized by law, further define the real estate rights associated with property ownership. The kind of estate depends on the terms of the lease, deed, will, land grant and/or bill of sale through which the estate was received.

Reasons for Investment in Educational Properties

Nwachukwu, (2005); Nwanekezie 1996; Dabara 2014 outlined the following as being the reasons for investment in educational real estate. These include:

- i. **Returns/Capital appreciation:** over the years, the primary consideration for acquisition of real estate is for returns. This accounts for the typical tendency towards owning special purpose properties like the educational real estate by most Nigerians. These property acquisitions are made with investment considerations; example for returns and capital appreciation.
- ii. **Prestige:** property ownership is a status symbol in Nigeria; therefore, many people went in on the boom days to acquire all sorts of concrete structures. The creation of estate capital, proliferation of government and private establishments and liberation of credit contributed to the unprecedented escalation of supply of accommodation in schools in urban town. Furthermore, the level of construction and commercial activities, the expansion of rural and urban infrastructures brought an influx of foreigners from all over the world, all wanting convenient and private places where their children can study. This created a highly profitable property market which is not depressed as a result of the down-turn in the economy.
- iii. **Social status/profit:** classes of real estate developers do so for the objective of profit generation and combination of profit and social services.
- iv. **Income:** despite the traditional urge to hold property for holding sake as against investment, that is, placing of money at risk with a view for further income flows and/or capital appreciation, embarking on educational real estate investment is done purely because of its income generation capacity (Olusegun, 2000).

Research Methods

This research adopted the Survey Design method. The scope of this research was limited to approved primary educational institutions in Ikot Ekpene, Uyo and Eket local government areas of Akwa Ibom State. Stratified random sampling technique was employed. Ikot Ekpene, Uyo and Eket comprises 11 wards each. Therefore, data was gathered from 11 wards each, from the 3 local government areas. Thus, the sample size is 11. The dependent variables were data obtained from the rural, suburban and urban areas, while the independent variables were Ikot Ekpene, Uyo and Eket. coded 0 = Ikot Ekpene, 1 = Uyo, 2 = Eket. Multivariate analysis of variance was employed in the analysis of the data. Multivariate tests are those that involve more than one dependent variable. While it is possible to conduct several univariate tests (one for each dependent variable), this causes Type I error inflation. Multivariate tests look at all dependent variables at once, in much the same way that ANOVA looks at all levels of an independent variable at once. MANOVA assumes that you have multiple dependent variables that are related to each other. Each dependent variable should be normally distributed and measured on an interval or ratio scale.

Data Presentation and Analysis

In this section, data were collected, analysed and presented using both descriptive and inferential statistics to meet with the objectives of the research.

Analysis of the Demographic Characteristics of Respondents in the Study Area.

In this section, attempt was made to analyse the respondents' demographic characteristics and was presented in Table 1.

Table 1: Respondents' profile

Profile	Item	Frequency	Percentage
Age	18 – 34 years	66	16.50
	25 – 44 years	173	43.30
	45 – 64 years	73	18.30
	Above 65 years	88	22.00
	Total	400	100
Educational Qualification	Doctor of Philosophy (PhD)	283	70.80
	Masters of Science (MSc)	83	20.80
	Bachelor of Science (BSc)	17	4.20
	Higher National Diploma (HND)	17	4.20
	Total	400	100
Job Classification	Clerical	30	7.50
	Professional	202	50.50
	Technical	168	42.00
	Total	400	100
Gender	Male	283	70.80
	Female	117	29.30
	Total	400	100
Income	High income	142	35.50
	Medium income	198	49.50
	Low income	60	15.00
	Total	400	100
Marital Status	Married	292	73.00

Single	74	18.50
Widowed	24	6.00
Separated	10	2.50
Total	400	100

Source: Field Survey, 2023.

Table 1 presented the demographic data of the respondents who responded by supplying the data on choice of real estate investment decisions in the University of Uyo, in terms of their age, professional status, educational qualification, gender, income level and marital status. This was carried out to examine the reliability and validity of the data gathered for this study and to answer objective number one. It was found out that 16.50% of the respondents were between the ages of 18 and 34 years, 43.30% of the respondents were between the ages of 35 – 44 years 18.30% of the respondents ranged between 45 years and 64 years while 22.00% ranged between 65 years and above. With regards to academic qualification, 70.8% of the respondents had PhD degrees, 20.80% of the respondents had MSc degrees, while respondents with Bachelor of Science and Higher National Diploma degrees constituted 4.30% each. With respect to the job classification of the respondents, respondents from the technical department formed the major part of the respondents with 50.50%, while the respondents from the clerical and professional cadres formed 7.50% and 42.00% of the respondents. Table 1 also showed that 35.50% of the respondents have high income, while about 49.50% and 15.00% of the respondents have been in medium income and low income levels respectively. It was also observed that 73.00% of the respondents had been married while 18.50%, 6.00% and 2.5% of the respondents constituted the singles, the widowed and separated respondents.

Analysis of the trend in rental value of residential real estate investment in the study area.

In order to treat the first objective of this research, an attempt was made to analyze the number of privately owned nursery/primary educational institutions in the rural, suburban and urban centres of the study area and presented in Table 2.

Table 2: Distribution of private educational real estate in Ikot Ekpene, Uyo and Eket.

IKOT EKPENE			UYO			EKET		
Rural	Suburban	Urban	Rural	Suburban	Urban	Rural	Suburban	Urban
9	12	14	12	10	16	9	11	21
5	8	14	6	15	32	5	19	23
8	14	12	11	13	25	9	14	27
9	6	18	9	22	29	8	12	20
4	12	17	13	15	13	6	17	19
6	11	14	11	22	28	8	18	17
9	13	18	16	24	34	5	15	18
6	11	22	12	17	15	8	7	17
3	6	19	16	19	22	6	9	19
2	10	24	14	15	19	9	13	14
6	12	23	13	13	34	6	10	12

Source: Researchers' field survey, 2023.

Table 2 showed the distribution of private educational real estate investment in the rural, suburban and urban wards of Ikot Ekpene, Uyo and Eket local government areas. It revealed that the least number of private educational real estate investment was found in the rural ward of Ikot Ekpene local government area of Akwa Ibom State, while the highest private

educational real estate investment took place in the urban area of Uyo. However, a computer approach to inferential statistics was undertaken and results presented in Tables 3, 4, 5 and 6.

Table 3: Between-Subjects Factors

		Value Label	N
Location	1	Ikot Ekpene	11
	2	Uyo	11
	3	Eket	11

Source: Researchers' analysis, 2023.

Table 3 showed the between-subjects factors, which merely identifies the group based on independent variable and gives the sample size of 14.

Table 4: Mean Distribution of Educational Real Estate Investment in Akwa Ibom State.

	Location	Mean	Std. Deviation	N
Rural_area	Ikot Ekpene	6.09	2.468	11
	Uyo	12.09	2.914	11
	Eket	7.18	1.601	11
	Total	8.45	3.519	33
Sub_urban	Ikot Ekpene	10.45	2.697	11
	Uyo	16.82	4.423	11
	Eket	13.18	3.842	11
	Total	13.48	4.473	33
Urban_area	Ikot Ekpene	17.73	4.027	11
	Uyo	23.91	8.252	11
	Eket	18.82	4.094	11
	Total	20.15	6.251	33

Source: Researchers' analysis, 2023.

Table 4 showed the mean distribution of the private educational real estate investment in the study area. It showed the mean of 6.09, 12.09, 7.18 in the rural wards of Ikot Ekpene, Uyo and Eket districts respectively; 10.45, 16.82, 13.18 in the suburban areas of Ikot Ekpene, Uyo and Eket districts respectively and 17.73, 23.91, 18.82 in the urban wards of Ikot Ekpene, Uyo and Eket districts respectively. The multivariate analysis of variance was also carried out and presented in Table 5.

Table 5: Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.974	356.431 ^b	3.000	28.000	.000	.974
	Wilks' Lambda	.026	356.431 ^b	3.000	28.000	.000	.974
	Hotelling's Trace	38.189	356.431 ^b	3.000	28.000	.000	.974
	Roy's Largest Root	38.189	356.431 ^b	3.000	28.000	.000	.974
Location	Pillai's Trace	.705	5.263	6.000	58.000	.001	.352
	Wilks' Lambda	.321	7.139 ^b	6.000	56.000	.000	.433
	Hotelling's Trace	2.034	9.153	6.000	54.000	.000	.504
	Roy's Largest Root	1.993	19.269 ^c	3.000	29.000	.000	.666

a. Design: Intercept + Location

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Source: Researchers' analysis, 2023.

Table 5 showed the multivariate analysis of variance of the data collected. In this study, results adopted were based on the Pillai's test. It was found that the MANOVA is significant at the 0.001 level. This, therefore implies there was a significant multivariate effect of the three local government areas on the three dependent variables [Pillai's $F(6, 58) = 5.26$, $p < 0.01$, partial $\eta^2 = 0.35$]. Thus, the group means on the composite dependent variables differ significantly at the 0.001 level.

Each of the dependent variable was subjected to further ANOVA in order to show whether this trend is the same for each separate dependent variables and presented on Table 6.

Table 6: Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Rural_area	224.727 ^a	2	112.364	19.661	.000	.567
	Sub_urban	224.242 ^b	2	112.121	8.086	.002	.350
	Urban_area	239.515 ^c	2	119.758	3.555	.041	.192
Intercept	Rural_area	2358.818	1	2358.818	412.731	.000	.932
	Sub_urban	6000.758	1	6000.758	432.747	.000	.935
	Urban_area	13400.758	1	13400.758	397.756	.000	.930
Location	Rural_area	224.727	2	112.364	19.661	.000	.567
	Sub_urban	224.242	2	112.121	8.086	.002	.350
	Urban_area	239.515	2	119.758	3.555	.041	.192
Error	Rural_area	171.455	30	5.715			
	Sub_urban	416.000	30	13.867			
	Urban_area	1010.727	30	33.691			
Total	Rural_area	2755.000	33				
	Sub_urban	6641.000	33				
	Urban_area	14651.000	33				
Corrected Total	Rural_area	396.182	32				
	Sub_urban	640.242	32				
	Urban_area	1250.242	32				

a. R Squared = .567 (Adjusted R Squared = .538)

b. R Squared = .350 (Adjusted R Squared = .307)

c. R Squared = .192 (Adjusted R Squared = .138)

Source: Researchers' analysis, 2023.

Table 6 showed tests of between-subjects effects. For the measure of the difference between private educational investments between the local government areas under study, the analysis of variance showed that there is an overall significant difference between the means of educational real estate investments in the rural areas $F(2, 30) = 19.66$, $p < 0.01$, partial $\eta^2 = 0.57$. The mean of privately educational real estate investment in the suburban area is different according to group $F(2, 30) = 8.09$, $p < 0.01$, partial $\eta^2 = 0.35$. However, the investment in private educational real estate in the urban area failed to attain statistical significance $F(2, 30) = 3.55$, $p < 0.01$, partial $\eta^2 = 0.19$.

Discussion of findings

The study revealed that the lowest mean of private educational real estate investment was found in the rural ward of Ikot Ekpene local government area of Akwa Ibom State, while the highest mean of private educational real estate investment was found in the urban area of Uyo. The study also revealed a significant statistical difference between the means of educational real

estate investment in the rural and suburban areas with partial eta squares of 0.57 and 0.35 respectively, while it returned no significant difference between the means of educational real estate investment in the urban zones of the study area.

Conclusion

This study has examined the distribution of educational real estate investment in Akwa Ibom State. Multivariate analysis of variance was employed in the analysis of data obtained. Results were based on the Pillai's trace value, degrees of freedom and partial eta squared. The study showed that there was an overall significant difference between the means of investments in the rural areas and the suburban, but no significant difference between educational real estate investment in the urban areas of Akwa Ibom state. This result is consistent with results of other studies in different parts of Nigeria. The study concluded that there is a significant difference existed between educational real estate investment in the rural and suburban areas of Akwa Ibom State but no significant difference between any investments in the urban areas of the state. This implies that investment in educational real estate is low in the rural and suburban sectors of the state.

Recommendation

It is worthy of note that investors should intensify investment in the rural and suburban areas of the state.

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INJURY PATTERNS AMONG ROAD TRAFFIC CRASH VICTIMS PRESENTING TO THE ACCIDENT AND EMERGENCY UNITS OF TERTIARY HOSPITALS IN LAGOS

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ABSTRACT

BACKGROUND: Road traffic injuries (RTIs) are reportedly the leading cause of trauma in Nigeria, fatality rate rose from 5.3 in 1970 to 5.8 in 2005. An estimated 1.2 million people are killed globally in road crashes each year and as many as 50 million are injured and almost half of those who die in road traffic crashes are "vulnerable road users".

OBJECTIVE: This study aims at investigating Injury Patterns among Road Traffic Crash victims (RTCs) presenting to the Accident and Emergency (A&E) units of tertiary hospitals in Lagos.

METHODS: A cross sectional descriptive study was conducted among two hundred and thirty eight RTC victims who presented to the A&E units of 4 tertiary hospitals in Lagos. A 26-element questionnaire was used to collect the socio-demographic data, injury pattern and types as well as the perceived causal and protective factors.

RESULTS: Findings showed that 58.8% of the respondents were males and 217(91%) of the respondents falls within the productive age group 16-45 years old. Mostly affected body parts were the lower limbs (58, 24%), followed by multiple injuries (40, 17%) and upper limbs (35, 14%). The Majority of the respondents had fractures and bruises. Lateral collisions (96, 40%), Collisions from behind (65, 27%) and Head-on-Collision (56, 24%) were mostly common. At the 0.05 significance level, significant association was recorded between injury pattern and gender, age, collision type, as well as between body part affected and the type of collision. However, no significant association was observed in the RTC victims' sitting position in vehicles in the aftermath of a RTC.

CONCLUSION: This study suggests that upper and lower limbs are at higher risk of injury while fractures and bruises are the major injury types. RTIs still remain a major public health problem that hampers personal and national development.

Introduction

The landmark report, Global Burden of Disease, published in 1996 by the World Health Organization (WHO), World Bank and Harvard University, painted a clear picture of how significant injury is to public health. The report presented data on premature mortality and disability from unintentional injuries (traffic related injuries, poisonings, falls, fires, drowning, and others) and intentional injuries (self-inflicted, violence, and war). In higher-income

countries, road traffic accidents were already among the top ten leading causes of disease burden in 1998. The report revealed that, deaths from non-communicable diseases are expected to climb from 28.1 million a year in 1990 to 49.7 million (which is about a 77% increase) by 2020. The report revealed that, with respect to the burden of disease characterized by mortality statistics, injuries are ranked as the 9th leading cause of death worldwide, and in less developed countries, road traffic crashes were the most significant cause of injuries, ranking eleventh among the most important causes of lost years of healthy life.¹

Traffic crashes has been reported as a major cause of severe injuries in most countries. The first World Health Report, published in 1995 by WHO, revealed that the external causes such as accidents and violence accounted for about 4 million deaths, which is about 8% of the total deaths, and this occurred mostly among adults while developing countries were found to have about four times the number of deaths from these causes as the developed world.²

The 1999 WHO publication on Injury as a leading cause of the global burden of disease, reported that the leading injury related cause of death among people aged 15-44 years is traffic injuries. Deaths due to direct result of injuries sustained in motor vehicle crashes accounted for about 1.2million out of the 5.8 million people who died of injuries in 1998. Worldwide, the WHO reports, that about 38.8million injuries were received by people involved in motor vehicle accidents in 1998.³ World Health Organization's World Report on Violence and Health of year 2002 revealed that nearly 3,500 people die on the world's roads daily, tens of thousands of people are injured or disabled every year, and children, pedestrians, cyclists and the elderly are among the most vulnerable of road users. In order to raise awareness sand the profile of the preventability of road traffic injuries so as to promote good practices related to helmet and seat-belt wearing, not drinking and driving, not speeding and being visible in traffic, WHO works with several partners (governmental and non-governmental) around the world.. The WHO world report on road traffic injury prevention of year 2004 reported that road traffic injuries are predicted to become the third largest contributor to the global burden of disease by 2020. It is estimated that every year, road traffic crashes cost US\$518 billion globally.^{4,5}

The 2009 and 2012 Global Status Report on Road Safety reported that approximately 1.3 million people die each year on the world's roads, and between 20 and 50 million sustain non-fatal injuries and that if the current trend continues, road crashes are predicted to become the fifth leading cause of death by 2030. The Global status report on road safety is the first broad assessment of the road safety situation in 178 countries, using data drawn from a standardized survey. The results show that road traffic injuries remains an important public health problem, particularly for low-income and middle-income countries. Pedestrians, cyclists and motorcyclists make up almost half of those killed on the roads, highlighting the need for these road users to be given more attention in road safety programmes. The survey results suggested that in many countries road safety laws needs to be made more comprehensive while enforcement should be strengthened. The report advocated for more action to make the world's roads safer.^{6,7}

A research on the neglected epidemic of road traffic injuries in developing countries revealed that road traffic injuries in developing countries mostly affect pedestrians, passengers and

cyclists as opposed to drivers who are involved in most of the deaths and disabilities occurring in the developed world.⁸ The reasons for the high burden of road traffic injuries in developing countries had also been reported to include growth in the numbers of motor vehicles; higher number of people killed or injured per crash in low-income countries, poor enforcement of traffic safety regulations; inadequacy of health infrastructure, and poor access to health care.⁹ Nigeria, a developing economy belonged to this category of the developing countries affected by the high burden of road traffic injuries largely because of the fact that the economy is growing and the consequent effect of huge investment and myriad of investors scattered all over the country had greatly increased the number of businesses, of people, of motor vehicles.

Statement of Problem

The road traffic death rate by WHO region and income level showed that low- and middle-income countries have higher road traffic fatality rates (21.5 and 19.5 per 100 000 population, respectively) than high-income countries (10.3 per 100 000 population). While road traffic death rates in many high-income countries have stabilized or declined in recent decades, data suggest that in most other regions of the world the global epidemic of traffic injuries is still increasing.⁴

The Abuja and Lagos State Command of the Nigerian Federal Road Safety Corps reported a total of 926,666 and 26,725 road crashes respectively between 1960 and 2005. The agency also reported a total of 260,857 deaths and 802,703 injuries for the period.^{10,11}

The need to set aside the traditional perceptions about road safety - that road traffic crashes and injuries are random, inevitable and unpredictable events that may occur for a new paradigm cannot therefore be over emphasized. Road traffic crashes are largely predictable and preventable, and can be effectively curtailed by concerted multi-sectorial efforts since accidents are often the result of a complex interaction of multiple causes which include Human factors (such as age, sex, education, medical condition, unfamiliar terrain and lack of personal protection amongst others), Environmental factors (includes defective narrow roads, poor lighting, bad weather, rugged terrain, inadequate enforcement of laws and mixed traffic) and Agent factors (e.g. vehicle excessive speed, poor vehicle maintenance, overloading as well as poor driving standards).⁹ A study on Spatial analysis and socio-economic burden of road crashes in south-western Nigeria also reported that death and injuries resulting from road crashes in the country have been on the increase over the years and that fatality rate rose from 5.3 in 1970 to 5.8 in 2005 and that each victim on average spent a minimum of US\$17 per day on medical expenses and had at least one person attached to him or her throughout the period of admission.¹² This has grave implications on the welfare of the families and the socio-economic development of the country especially when injuries sustained are grievous and affect daily productive life. It is these pertinent problems that prompted this research study into Injury Patterns of Road Traffic Crash Victims in Lagos a busy commercial hub and former capital of Nigeria.

Objectives of the Study

The objectives of this study are;

1. To determine the pattern of injury among victims of Road Traffic Crash in the A&E units of tertiary hospitals in Lagos.
2. To determine how injury pattern affects the position of RTC Victims in the A&E units of tertiary hospitals in Lagos.
3. To assess the manner in which injury pattern depends on type of collision among RTC Victims in the A&E units of tertiary hospitals in Lagos.

Research Questions

1. What is the pattern of injury among victims of Road Traffic Crash in the A&E units of tertiary hospitals in Lagos?
2. What is the injury pattern affects the position of RTC Victims in the A&E units of tertiary hospitals in Lagos?
3. What is the manner in which injury pattern depends on type of collision among RTC Victims in the A&E units of tertiary hospitals in Lagos?

Overview of Road Traffic Crashes

A road traffic crash is an event which involves a motor vehicle in transport, occurs on a roadway or while the vehicle is still in motion after running off the roadway, and which produces injury and/or property damage. A fatal crash is a police-reported crash involving a motor vehicle in transport on a roadway in which at least one person dies within 30 days of the crash. An injury crash is a police-reported crash involving a motor vehicle in transport on a roadway in which no one died, but at least one person was reported to have: an incapacitating injury, a visible but not incapacitating injury, a possible but not visible injury, or an injury of unknown severity. An injury is a bodily lesion at the organic level, resulting from acute exposure to energy (mechanical, thermal, electrical, chemical, or radiant) in amounts that exceed the threshold of physiologic tolerance.^{9,13}

Road Traffic crashes (RTCs) are the common causes of hospitalization and mortality in all parts of the world. As an epidemiological problem, the control of the host (accident victim), the agent (the vehicle), and environmental factors involved in their causation should be considered.¹⁴ The health personnel who look after accident victims need to know the injury types and their mechanisms encountered in RTC. The accident victims can be the occupants of a motorcar, a motorcyclist, pillion passenger, a cyclist or a pedestrian. Motorcar occupant can be the driver who may sustain injury to the wrist, forearm and pelvis or fracture of the ribs from the steering wheel. The driver and other front seat passenger may have lacerations on the face on hitting the windscreen, characteristics bruises and lacerations to the knees and skin from the dashboard or cervical spine injury through whiplash injury if there are no headrests on seats. Any of the occupants can be thrown out of the vehicle if the door swings open. Motor cyclist, pillion passengers, cyclists and pedestrians hit by a moving vehicle may sustain

primary and secondary impact injuries from the impact with the body of the vehicle, and or secondary injuries when they hit the ground or other objects.¹⁴

Alcohol is an important factor in the cause of RTC, but additionally some medical conditions such as advanced diabetes, hypertension, some prescribed drugs like tranquillizers and sedatives, stress and disease that blunt locomotion and sensation in the elderly can influence the causation of accidents. Prevention will involve the control of the host factors – illnesses, alcohol, accident repeaters, and enforcement of driving regulations: agent factors – through better vehicle design using human engineering and environmental factors through better road design and management.¹⁴

Similarly, in a study carried out in Southern India in year 2004 by a group of researchers, a road traffic crash was defined as an accident which took place on the road between two or more objects, one of which must be any kind of a moving vehicle.¹⁵ Road Traffic Crashes (RTCs) are increasing with rapid pace and presently these are one of the leading causes of death in **developing countries** and several studies have also shown an increase in many developed countries. This is attributed in part to urbanization, industrialization, as well as the increase in the number of motor vehicles on the roads. In Nigeria many lives are lost daily through motor vehicle accidents.^{16,17} The causes of RTA were also attributed to recklessness and negligence of driver, mechanical defects in vehicles, careless crossing of the road by pedestrians, bad road, use of drugs and other health conditions including mental condition, hypertension and visual impairment.^{18,19,20,21,22}

The Global Burden of Disease Study of year 2002 carried out by a group of researchers highlighted the overall toll from injury in the developing world. The study shows the major causes of death for the 2 main age groups affected by injury. Injury-related causes account for 3 of the top 6 killers of older children and 4 of the top 6 killers of young adults. Road traffic accidents alone are second only to AIDS as a killer of young adults. Other major causes include non-intentional or accidental causes (such as drowning, fires and burns, poisoning, falls, and home injuries) and intentional causes (such as violence and suicide). In addition to mortality, disability is often due to injury, especially with the success of the global efforts to control polio. Injury is also a leading contributor to health-related economic losses.^{23,24}

Epidemiology of Road Traffic Crashes

Road traffic injuries are presently the leading cause of death by injury, accounting for approximately 23% of all injury deaths worldwide in 2002. This translates to a loss of over 3000 lives daily around the world. In 2002, the global mortality rate due to road traffic crashes was 19 per 100,000 population; road traffic injuries ranked 11th on the list of leading causes of death worldwide, and accounted for 2.1% of all deaths globally.^{25,26}

On regional basis, the statistics on RTA mortality are just as grim. Global mortality rate was 18.8 per 100,000. WHO African region reported 32.2 per 100,000. WHO Eastern Mediterranean had 32.2 per 100,000. WHO South East Asia reported 16.6 per 100,000. The

Americas had 15.8 per 100,000. Western Pacific Region reported 15.6 per 100,000 and the European Region had 13.4 per 100,000.

The Nigerian situation did not differ as the data from the Federal Road Safety Corps (FRSC) Abuja revealed that: a total of 926,666 road traffic crashes were reported in Nigeria between 1960 and 2001. 255,874 persons died and 787,619 persons were seriously injured. 1976 had the highest number of road traffic crashes reported in the nation's history - 40,881 crashes, 6761 deaths and 20,132 injury cases. 1982 was reported with the highest number of deaths reported - 11, 382. Some of the factors responsible for the progressive rise in road traffic crashes in the 1970s and 1980s include economic growth, economic empowerment resulting in increased motorization, and increased use of motorization in commuting.¹⁰

The trend continued in Lagos State, the commercial nerve center of the nation. The Lagos chapter of the FRSC revealed that: the total number of accidents between 2000 and 2005 was 26,725 involving 39,482 vehicles, of which 4,220 were fatal. This resulted in 4,983 deaths and 15, 084 injured persons over the period. The Male: Female ratio of road traffic deaths and injuries were approximately 2.5:1. The statistics were not broken down by age group to provide data on the morbidity or mortality in children within the state, as it was also with the national data.¹¹

The study on Road War in Africa of year 2001, reported that Africa is faced with two major types of wars: civil and regional wars, and road wars, leading to a great number of mortalities and tremendous economic loss. The road war rage between moving vehicles on one side and an innocent and productive population on the other. It reported that three quarters of the global deaths from road accidents occurred in the developing countries and that 12-15% of hospital beds are occupied by accident patients. It also reported that in the developing countries, RTAs are the first or second cause of death in the age group 15-45 years.²⁷

Injury Types and Pattern in Road Traffic Crashes

A research on the public health burden of injury in developing countries reported that injury is the commonest cause of death for children and young adults in developed and middle-income countries while in low-income countries, deaths in this age group are most often due to infectious disease, and that there is a rising rate of deaths from injury.²⁸

In a study on Motor-vehicle injury patterns in emergency-department patients in a South-European urban setting by a group of researchers, it was reported that of the nearly 17,000 injured traffic victims during 1998, 62% were men. Young people between age 15 and 39 (71.6%) were mostly affected. 42% were users of two-wheeled motor vehicles, followed by car occupants (32%) and pedestrians (24%). Neck sprain (33%) was the most common injury among car occupants, multiple contusion and contusion of lower limbs among two-wheeled motor vehicles (23.5% and 14% respectively) and pedestrians (17.3% and 14.4% respectively) and upper limb fractures (20%) among cyclists were also common. Motorcycle and moped users, mainly young males, have the highest probability of suffering injuries, with lower limbs

being the most affected anatomical region. Elderly pedestrians sustaining injuries to the lower limbs and the head contribute substantially to the overall injury situation.²⁹

An analysis of Injury patterns carried out in Scotland by a group of Researchers on injury difference between Drivers and Front Seat Passengers (FSPs) revealed that the body regions mostly affected include; Head, face, chest (tension pneumothorax, isolated rib fractures and sternum fractures), Abdomen (colon rupture and mesenteric laceration), Cervical spine (c-spine fracture), Thoracic spine (t-spine fracture cord laceration), Lumbar spine (l-spine fracture) and Pelvis. The chest (29% & 41.4%), head (14.5 & 15.2%), pelvis (14.3% & 14.8%) and the face (9.6% & 9.0%) had the highest injuries for the drivers and front passengers respectively. It was also reported that mortality was higher in the FSP group and that seven of the eight body regions selected showed higher rates of injury in front seat passengers. It concluded that FSPs are at increased risk of injury relative to drivers in actual road traffic accidents as recorded in the Scotland Trauma Audit Group (STAG) database. It opined further that this result contradicts the crash test data, which suggest that drivers are less well protected than FSPs in laboratory conditions.³⁰

A retrospective case record analysis was conducted on injured patients seen at the Accident and Emergency unit over a 12 month period from January to December 2003 in a Nigerian hospital. The results revealed that a total of 1078 records of injured patients that attended the A&E were analyzed. The mean age was 31 years (ranging from 3 months to 85 years). Laceration (n = 408) and fractures (n = 266) representing 62.5% of injuries were seen. Injuries to the lower limb occurred in 239 patients, multiple anatomical sites 224, head 224, upper limb 203, the neck 20, and the abdomen 11 patients. Trauma was found to be due to road traffic accident in 977 patients, fall in 39, assault in 14 while burns and firearm injuries were reported in 5 and 7 patients respectively.³¹ The mean injury severity score (ISS) was 4. Severe injuries, ISS > 15 occurred in 54 patients with mean ISS of 21, and resulted from RTA in 92.6% of cases. Mortality from severe injuries occurred in 31.5% of cases while overall mortality was 2%. Most deaths were associated with multiple injuries (60.9%) and head injury (30.4%). Incomplete documentation of accident and injury data was found to have occurred frequently, from 2% of some data to 100% of others. The report concluded that lacerations and fractures were the most common injuries, and that mortality was due usually to head and multiple injuries. Research into appropriate strategies for prevention of injuries, especially RTA and the establishment of institutional and regional trauma registries for complete documentation of relevant data was recommended.³¹

Besides, a research carried out to analyze road traffic accidents in Imo State; South-eastern, Nigeria revealed that RTAs were characterized to have an upward trend and significant seasonal influences. Significant differences were also observed among the various causes of accidents and accident cases which may be Minor, Fatal or Serious with respect to types of vehicles involved over the years. Reckless driving, inexperience and mechanical fault and road defects accounted for 30.3%, 21.5% and 21.1% respectively out of the 5921 accident cases. Two motorcycles, motorcycle-vehicle and vehicle-vehicle crashes were found to be the leading types of crashes (38.9%, 37.5% and 14.9% respectively of the total 855 deaths) recorded within

the period of study. Private cars, minibuses and taxis accounted for 94.7% of the total accidents.³²

A population-based survey of the burden of road traffic injuries in Nigeria of year 2005 revealed that the male respondents constituted 50.9% of the total injuries and that 60.5% of the respondents lived in urban areas. The study reported a high proportion of the never married (64.11%) respondents compared to the married (33.1%). Estimated injury rate was 112.9 per 1000 population while annual RTI rate was 41.2 per 1000 population. The rate of RTI for men of all ages was significantly higher than that of women. It reported the lower extremities as the most commonly injured body part (47.2%), followed by the upper extremities. The most common road user category reported for RTIs was motorcyclists (54.3%) with pedestrians contributing 11.8%. It revealed that private vehicles were the most commonly involved single type of vehicle (37.4%), however, a combination of public buses and taxis comprised nearly half of those involved. It further revealed that the respondents who had secondary education contributed the greatest proportion of RTIs (28% for each group).³³

The study on Road Way in Africa of year 2001 revealed that RTAs are responsible for the majority of head and spinal injuries in Africa, causing 80% of all head injuries in Nigeria alone.²⁷ Pedestrians' injuries are particularly common in Zambia especially in the first two decades of life. In South Africa, RTAs are responsible for 38% of all spinal injuries. 2200 cases of head trauma and 200 spinal traumas due to RTA were recorded in a period of 2 years in Burkina Faso. In Ghana, the annual incidence of injuries is over 900 per 100,000 persons and urban areas injuries were caused by minibus and taxi crashes while bicycle crashes and commercial vehicle accidents are common in the rural areas. For Ethiopia, pedestrians account for 50% of RTA deaths compared to 13% in the United States.²⁷

An 8-year review of the Pattern and trend of trauma in the A&E of a tertiary health institution of year 2010 revealed that 69.7% of the 13755 patients presenting to the A&E unit over an 8 year period presented on account of trauma. Of these 72.7% were males and 26.7% were females. Road Traffic Injuries (RTIs) was the commonest causes of trauma with 61.0% of the total injury cases. Drivers, pedestrians and passengers accounted for 21.1%, 23.4% and 55.5% of the victims of RTIs. It was concluded that RTI is the leading cause of trauma.³⁴

A study carried out in Western Maharashtra, Indian to examine the pattern of road traffic Injuries in year 2008 showed that the highest number of victims (103, 29.4%) was between age group 20-29 years. The people of the third decade are more commonly involved in road traffic injuries. 64.9% (227) of the victims were between 15 and 44 years. It reported that several human and environmental risks factors such as age, alcoholism, driving without license, type of vehicles were found associated in the occurrence of road traffic injuries. It was concluded that if these factors are controlled appropriately, mortality and morbidity can be prevented.³⁵ Similar observation was reported by WHO in the 2002 Injury Chartbook which shows that the people of the most active and productive age groups are involved in road traffic injuries, which add a serious economic loss to the community.³⁶

A prospective descriptive study conducted on 837 RTA victims at the Orthopaedic unit of a tertiary hospital in Pakistan in 2011, revealed that majority of subjects were between 14 to 58 years (68.2%) and males (71.3%). Maximum number of cases were motor bike riders (76.4%) followed by public transport passengers 107 (12.8%), pedestrians 53 (6.3%) and private vehicles drivers 27 (3.2%). 68% had only limb injuries while 32% had associated head, pelvis/spine & thoraco-abdominal injuries.³⁷

An urban centre hospital based prospective study of limb injuries in a developing country using A&E department of Obafemi Awolowo University Teaching Hospital Complex, Ile-Ife, Osun State in Nigeria as a case study reported that 115(79.3%) of the 145 victims of motorcycle accidents that reported to the hospital had injuries involving their limbs.³⁸ Male: Female ratio was 2.8:1. Mean age was 31.9+/-16.7(S.D) years and 20-29years was the most commonly involved age group. 42.2% were due to collision with automobiles, 22% pedestrian while 8.7% were collisions between motorcycles. The use of protective/safety devices were practically non-existence. 76 (66.1%) patients had lower limbs injuries, 25 (21.7%) had upper limbs injuries while the remaining 14 (12.2%) injured both upper and lower limbs. The tibia was the most commonly fractured bone (32 patients, 27.8%) followed by the femur (25 patients, 21.7%). 86 patients (74.8%) with fractures were managed by close reduction and splinting. 18 (15.7%) patients had internal fixation. It was concluded that motorcycle is an important cause of limb injuries in developing worlds. Motorcyclists need to be encouraged to use protective devices.³⁸

Hospital-based trauma registries study in Uganda carried out in the A&E department of an urban tertiary health facility reported that gender distribution was 27.7% female and 71.3% males. The younger than 5 years old category was 7.4%, whereas 3.9% were older than 55 years old. The Kampala Trauma Score (KTS) is highly predictive of need for admission or death. It was concluded that a trauma registry and injury severity measurement are both possible and useful in sub-Sahara Africa.⁴⁰ Pattern and distribution of trauma deaths in a Nigerian teaching hospital reported that three quarter (75.0%, 63) of deaths occurred in patients involved in RTAs and the patients were brought by the Police, Good Samaritans or relatives in nearly equal proportions.⁴¹

A retrospective study of cases of Road Traffic Accidents in Ikpoba-Hill (a sub-urban community in Benin City, Nigeria) carried out between 2003 and 2007, revealed that of the total of 825 patients who had road traffic accidents, about 55.8% were males while 44.1% were females. Lacerations and abrasions were the commonest injuries (64.3%) followed by fractures (12.5%). Humerus was the most commonly fractured bone (33.3%), while 24.9% had compound fracture. The incidence was lowest in year 2003 (17.6%) and higher in year 2007 (23.5%). Mortality rate was 7.0% and the commonest cause of death was head injury (48.3%). Cases of discharge against medical advice constituted 14.7%.⁴²

A study on Risk factors for road traffic accidents among drivers of public institutions in Ibadan, Nigeria in 2003 revealed that the prevalence rate of reported RTA was 16.2%. Majority of the accidents (47.8%) were mild with no serious bodily injuries or damage to the vehicle. Twenty

five percent and 31.2% of the accidents were moderately serious or very serious with major injuries/mortality or damage to the vehicle.²²

A combination of a community survey and a hospital based prospective study carried out in 2008 in Sri Lanka, reported that the incidence of RTI was 12.7 per 1000 population per year, the case fatality rate was 10.7%, under-reporting of RTI was 56.4% while prevalence of disability was 4.8 per 1000 population in the Community based study. The hospital based study in two teaching hospitals recorded 683 RTI patients with RTI incidence of 70.3 per 1000 surgical casualties per year with case fatality rate of 9.2%.⁴³

Materials and Methods

Background to the Study Area: The study setting includes the Accident and Emergency units of tertiary health facilities in Lagos viz: Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos State University Teaching Hospital (LASUTH), Ikeja, National Orthopaedic Hospital Igbobi Lagos (NOHIL), and Federal Medical Center (FMC), Ebute Metta.

Lagos University Teaching Hospital (LUTH), Idi-Araba: The Lagos University Teaching Hospital (LUTH) and the Medical school complex grew out of a cabinet decision of April 1961 when the Council of Ministers set up a cabinet committee to consider the recommendations of Sir Ashby's Commission on post secondary education in Nigeria. Two out of the many recommendations of the committee approved by the Council of Ministers were; the effective and rapid re-organization of hospital in Lagos, Ibadan, Kaduna and Enugu for the teaching of clinical medicine, and the establishment of a full fledged Medical School in Lagos as soon as possible to make use of the existing medical institution. The objective was to train at least 400 doctors annually in Medical Schools in Nigeria from 1975 onwards. This brought about the eventual commissioning of Lagos University Teaching Hospital and the first patient was admitted sometimes in September, 1962. Luth being the only teaching hospital and the apex referral centre in Lagos before the advent of LASUTH had been experiencing high patronage hence the various efforts and programmes of its management to expand service base infrastructures at various times. The Federal government through the Viamed Project had recently re-equipped Luth alongside other five (5) teaching hospitals. It is worthy of note that Luth has two annexes; the Harvey Road Annex at Yaba and the Pakoto Annex at Ifo, at the outskirts of Lagos.⁶²

Study Method: A descriptive cross sectional research design was adopted for this study amongst RTA victims representing at the Accident and Emergency units of the selected tertiary health facilities in Lagos.

Study Population: The target population includes all injured RTC victims seen at the Accident and Emergency Units of LUTH, LASUTH, NOHIL and FMC during the study period.

Sample Size Determination: The minimum sample size for descriptive study was obtained from the Kish and Leslie⁶⁵ formula:

$$n = \frac{z^2 pq}{d^2}$$

where n = minimum sample size

z = 1.96 (2 Standard Deviation at 95% Confidence Interval (CI))

Sampling Methodology: No sampling was employed. All RTC victims present at the Accident and Emergency Units of the case study areas who met the inclusion criteria formed the research sample. A total of 238 (two hundred and thirty eight) RTC victims were assessed at the four centers. The distribution are as follow; LUTH - 18, LASUTH – 51, NOHIL – 93 and FMC – 76.

Inclusion Criteria: All injured RTA victims present at the A&E units of the research settings were included in the research study.

Exclusion Criteria: All unconscious and victims in critical situations were excluded from the study.

Data Collection: A 26-item Interviewer-administered questionnaire was the research instrument used for data collection. The questionnaire was divided into three (3) sections which are Respondents demographics, Injury Pattern and Perceived Causal & Protective Factors. A team of two (2) trained Research Assistants attached to each of the research setting administered the questionnaires to the respondents supervised by the researcher. The Health Records personnel at the A&E units of the research settings who were co-opted into the research team were charged with the responsibility of alerting the researcher and the other research assistants each time an RTC victim was admitted at the A&E. The victims were approached after each alert to seek their consent for participation in the study. Data collection lasted for four weeks in each of the research setting. The data collection was done after each Accident Victim had been given the required medical attention.

Ethical Consideration: A letter of introduction from the department of Community Health and Primary Care was presented to the Ethical and Research Committees of the research settings. Ethical clearances were obtained from all the settings where data were collected after interviews with the researcher and critical examination of research proposal had been done by members of the committees. This ethical and research committees are; Lagos University Teaching Hospital Health Research and Ethics Committee, Lagos State University Teaching Hospital Health Research and Ethics Committee, National Orthopaedic Hospital Igbobi Lagos Ethical Committee and Federal Medical Centre Health Research and Ethics Committee.

Method of Data Analysis: The collected data were entered into the Statistical Package for Social Sciences (SPSS) and edited for analysis. Tables of frequencies were generated for the demographic characteristics, injury types and perceived causal and protective factors. The Pearson Chi-square test was done to explore interaction between collision type and part of the body injured, collision type and type of injury sustained, age and type of injury sustained, gender and type of injury sustained, sitting position in vehicle and type of injury sustained,

sitting position on a motor cycle and type of injury sustained, and seating position in a bus and type of injury sustained.

Data Presentation and Analysis of Respondents' Variables

Table 1: Demographic Characteristics of the Respondents

Variable	Frequency	Percentage
Age (Years)		
0-15	6	3
16-20	28	11
21-25	56	24
26-30	45	18
31-35	40	17
36-40	29	12
41-45	19	8
46-50	9	4
51+	6	3
Total	238	100%
Gender		
Male	140	58.8
Female	98	41.2
Total	238	100%
Marital Status		
Single	113	47.5
Married	108	45.4
Divorced	7	2.9
Widowed	6	2.5
Separated	4	1.7
Total	238	100%
Academic Qualification		
No Formal Education	0	0
Primary	40	16
Secondary	102	43
Tertiary	96	40
Total	238	100%

Table 1 shows the Demographic Variables of the Respondents. Across the hospitals, the affected age groups are mostly between 16 and 45 years. The distribution showed that 217(91%) of the total respondents fell within the productive age group 16-45 years old. The mean age was 32+/- 1.9SD. The result shows that the incidence in males was higher than that of females in the four hospitals. 140(58.8%) of the victims were males while 98(41.2%) were females. The table also shows that most of the respondents are either single or married with 113(47%) and 108(45%) respondents respectively. The distribution revealed that all the

respondents had at least basic primary education. Majority 102 (43%) & 96(40%) of them had either secondary or tertiary education.

Table 2: Respondents' distribution according to body part injured & type of injury sustained

Variable	Frequency	Percentage
Body Part Injured		
Lower limb	58	24.0
Multiple injuries	40	17.0
Upper limb	35	14.0
Head	29	12.0
Thoracic spine	19	8.0
Maxillofacial	8	3.4
Abdomen	6	2.5
Pelvis	5	2.1
Total	238	100%
Type of Injury Sustained		
Fracture	47	51
Bruises	30	32
Lacerations	9	10
Sprains	4	4
Contusions	3	3
Total	238	100%

Table2 revealed the Respondents' distribution according to the body part affected and the type of injury sustained. The affected body part were the lower limbs (58, 24%), followed by multiple injuries (40, 17%), upper limbs (35, 14%), head (29, 12%), thoracic spine (19, 8%), chest (18, 8%), cervical spine (16, 7%), maxillofacial (8, 3%), abdomen (6, 3%), pelvis (5, 2%) and lumbar spine (4, 2%) respectively. The distribution for the type of injuries sustained in RTA also showed that most of the respondents had fractures, bruises and lacerations. 88 (37%) sustained fractures, 79 (33%) had bruises, 35 (15%) had sprains, 33 (14%) had lacerations while 3 (1%) had contusions.

Table 3: Respondents' Distribution according to types & number of vehicles involved in RTA

Variable	Frequency	Percentage
Vehicle type		
Motorcycle	70	37.2
Motor Vehicle	65	34.6
Combi bus	40	21.3
Molue/Brt/luxurious buses	13	6.9
Total	188	100%
Number of Vehicles		
1	19	8
2	206	86
3	9	4

4	4	2
Others	0	0
Total	238	100%

Table 3 is the distribution of the respondents according to the type of vehicles they were in at the time RTA and number of vehicles involved in RTA. The result indicated that majority (70, 37.2%) of the respondents were on motorcycles, followed by those in private vehicles (65, 34.6%), and other vehicles types (40 & 21.3%, 13 & 6.9%). Majority of the crashes (206, 86%) occurred between two vehicles.

Table 4: Respondents' distribution according to sitting position in vehicles

Variable	Frequency	Percentage
Motorcycle		
Front Seat Rider	10	14.3
Middle Seat Passenger	24	34.3
Back Seat Passenger	36	51.4
Total	70	100%
Motor car		
Front Seat Driver	10	15.4
Front Seat Passenger	26	40.0
Back Seat Passenger	29	44.6
Total	65	100%
Molue/Brt/Luxurious buses		
Front Seat Driver	2	15.4
Front Seat Driver	2	15.4
Middle Seat Passenger	6	46.2
Back Seat Passenger	3	23.0
Total	13	100%
Combi bus		
Front Seat Driver	6	15.0
Front Seat Passenger	6	15.0
Middle Seat Passenger	19	47.5
Back Seat Passenger	9	22.5
Total	40	100%

Table 4 showed the distribution of the respondents according to their sitting position in Vehicles at the time RTA. The result indicated that back seat passengers are at higher risk of RTIs when compared to middle seat passengers (24, 34.3%) and the motorcycle rider (10, 14.3%). The distribution indicated for car occupants, majority (29, 44.6%) of Back Seat Passengers (BSPs) are more prone to RTIs, followed by Front Seat Passengers (26, 40%) and Front Seat Drivers (10, 15.4%). The distribution of the respondents according to their sitting position in buses at the time of RTA showed that Middle Seat Passengers (MSPs) are more prone to RTI than passengers (46.2% & 47.5% respectively).

Table 5: Respondents' distribution according to geographical location and time of RTA

Variable	Frequency	Percentage
Location		
Within Lagos	190	80
Outside Lagos	48	20
Total	138	100%
Time of RTA		
7am-7pm (Day)	163	68
7pm-7am (Night)	75	32
Total	238	100%

Table 5 showed the distribution of respondents according to geographical location and time of RTA. Most of the accident (190, 80%) occurred within Lagos while 48 (20%) occurred outside Lagos especially on the border highways. Majority (163, 68%) of the RTAs occurred during the day (between 7am & 7pm) as compared to the incidence at the dark hours (75, 32%) between 7pm & 7am.

Discussion

The study sample consists of 238 accidents victims who presented to the accident and emergency units of the tertiary health facilities visited. The victims' ages ranged from 0 - 15 to 55years and above. The overall mean age was 32 years. Majority (217, 91%) of the respondent were within the productive age group of 16-45 years old. This is similar to the age distribution found in several other studies.^{35,36} The highest number of victims aged 15 and 44 years age group were reported in a similar study carried out in Western Maharashtra, Indian.³⁵ Similar observation was reported by WHO in The Injury Chartbook which shows that the people of the most active and productive age groups are involved in road traffic injuries, which add a serious economic loss to the community.³⁶ Age was found to significantly affect injury pattern at 5% level of significance in the present study. The middle ages are mostly affected, adolescents and young adults were found to be at high risk of traffic injuries. This had implications for the design and implementation of more targeted intervention.

There was a high prevalence of male victims of between 53.9% and 62.7% across the four hospitals. Result of tested hypothesis showed that gender significantly affect injury pattern. The overall male to female ratio was 1.4:1 among the victims. However, higher ratios were reported in other studies. Male to female ratio of 3:1 was reported at the WHO regional forum in 2004.³⁹ The Lagos FRSC reported a male to female ratio of 2.5:1¹¹ Other researches also reported high male victims incidence.^{34,37,38,39} The gender difference is probably related to both exposure and risk taking behaviour.

Conclusion

To achieve the aim and objectives of this study, a descriptive cross sectional study was conducted among two hundred and thirty eight (238) RTC victims who presented to the A&E units of 4 tertiary hospitals in Lagos. The research instrument was a 26-element questionnaire

used to collect the socio-demographic data, injury pattern and types as well as the perceived causal and protective factors. Findings showed that 58.8% of the respondents were males and 217(91%) respondents fell within the productive age group of 16-45 years old. Mostly affected body parts were the lower limbs (58, 24%), followed by multiple injuries (40, 17%) and upper limbs (35, 14%). Majority of the respondents had fractures (37%), bruises (33%), sprains (15%) and lacerations (14%).

It was therefore concluded based on the research findings, that socio-demographic factors, age and gender in particular influenced road traffic accidents, protective and safety devices were not put to optimum use by the victims, sitting positions were also found to affect injury pattern, collision type influenced injury pattern and that the lower and upper limbs were the mostly affected body parts in RTAs. RTIs remain a major public health problem that hampers personal and national development, there is therefore the need for continuous concerted efforts for effective and sustainable prevention.

Recommendations

Based on the findings of this study, the following are recommended at all levels of government;

1. Increased awareness and health education on road safety at the community level through the various agents of socialization and at the various levels of government.
2. All traffic rules should be strictly enforced by the authorized federal and state government agencies such as the FRSC, LASTMA, VIO, especially licensing for drivers and riders should be enforced and under age driving discouraged; deviants should be sanctioned accordingly.
3. The Ministry of Education at the Federal and State levels should ensure the introduction of Road Safety Consciousness into Nigerian educational curricula.
4. The United Nations and World Health Organization in conjunction with the International Organization of Motor Vehicle Manufacturers (OICA) and Association of International Automobile Manufacturers (AIAM) should ensure the provision of additional safety gadgets for lower and upper limbs in vehicles.

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ASSESSING DEVELOPMENT OF ENTREPRENEURSHIP IN NIGERIA: PROBLEMS AND PROSPECTS (A CASE STUDY OF SELECTED ENTERPRISES IN RIVERS STATE)

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ABSTRACT

This paper examined Development of Entrepreneurship in Nigeria: Problems and prospects, using selected enterprises in Rivers State. To accomplish the research objectives, the study adopted the survey research design while the convenience sampling technique was used to select fifty (50) respondents as sample size for the study. Hypothesis was formulated to guide the study and data were analyzed using the chi-square (χ^2) statistical tool. The findings revealed that some of the roles of entrepreneurship development are: Stimulating economic growth, enhancing self-reliance thereby reducing unemployment and rural/urban migration, while insufficient funds for financing innovations, poor leadership and poor state of technological development are some of the challenges of entrepreneurship development in Nigeria. Possible solutions to entrepreneurship development challenges in Nigeria were identified as: providing constant training and low interest loan to entrepreneurs, carrying out massive infrastructural development to enhance awareness and participation in economic activities etc while the prospects of entrepreneurship development in Nigeria were: its development will contribute greatly to economic growth, enhance the exploitation of untapped industrial opportunities, encourage the appreciation of made-in-Nigeria goods and reduce the high rate of unemployment drastically. The paper recommends that entrepreneurs should be properly educated to acquire proper managerial skills, be self reliance, and the government should provide and maintain adequate infrastructural facilities in both rural and urban areas to encourage entrepreneurs to operate successfully and provide constant power supply and good road network. It is believed that if this recommendation is implemented, entrepreneurship development will contribute positively to be economic development of Nigeria.

KEYWORDS: Innovation, Entrepreneurship, Development, Economic growth

Introduction

The existence of strong and sustainable small and medium scale industries is considered the best option to improve the socio-economic status of any nation. Entrepreneurship has been recognized as the engine of economic growth and development in truth, entrepreneurship development and its resultant creation of new ventures, innovations, and new start-ups in business are the sources of vitality and growth globally.

Hence, business which is regarded as the beacon stone and major catalyst for socio-economic development revolves activities of coordinating the factors of production to produce needed goods and services. All this emphasizes the invaluable role entrepreneurship development play in enhancing the state of growth and economic advancement in any nation (Chima, 2015).

To this extent, there are examples of government initiatives aimed at promoting and sustaining entrepreneurship development in small and medium scale enterprises in order to:

- (a) Generate substantial employment opportunities
- (b) Stimulate effective mobilization of local resources, capital and skill, and
- (c) Encourage even development throughout Nigeria with the spread of SMES at the grassroots – all to make the nation economically self-reliant.

Unemployment is one of the striking phenomena that hinder the development of any nation. For example, in industrialized societies like Japan, the USA and others where the rate of unemployment is greatly reduced, the level of development can never be compared with those of Cameroon. The rate of unemployment has increased geometrically as population increases yearly. For more than a decade now Nigeria has suffered the problem of unemployment in the labour market as more institutions turn out graduates in thousands into available job vacancies to absorb the economy. The outcome of all these tends to increase social vices in the society such as high cost of living, low standard of living, lower economic growth and development Ephraim (2020).

Currently, in Nigeria, there are numerous cases of militancy in the Southern and northern parts of Nigeria, armed robbery, kidnapping, killing by unknown gun men in the South East here and there and above all political unrest that have claimed many lives and destroy properties worth billions of naira. The fact is that everyone looks up to government for employment rather than looking for ways of being self-employed and even creating employment for others. This trend has been the major reason why the federal government has taken policy initiatives and directives to organizations such as Ministry of Labour and productivity of employment and other agencies with the responsibility of stimulating, supporting and sustaining entrepreneurship development with the sole aim of solving the problem of unemployment (Ephraim, 2020).

Besides, the Federal Government has taken the initiative to restructure the economy through re-engineering which means the building of entrepreneurial development courses in our tertiary institutions curriculum with the ultimate aim of enhancing the employability of students, empowering and improving their entrepreneurial resources. The research aims at showing entrepreneurship development as one of the instruments that if embraced will help in bringing about a breakthrough in our socio-economy development towards industrialization Chima (2018).

Statement of the Problem

In underdeveloped and developing nations like Nigeria, the populace depends solely on government and large scale industries for employment. The populace has failed to understand that even the multinational companies were one small scale enterprises.

In view of the impact of small and medium scale enterprises in improving the socio-economic condition of the nation, successive governments in Nigeria have given great attention to the concept of entrepreneurship development for its citizens but effort has remained a mirage or rather an illusion and unachievable dream.

Unexpectedly, entrepreneurship development in Nigeria is still beclouded with major challenges and setbacks which if overcome will enhance economic development in Nigeria. This paper is poised to investigate the problems and prospects of entrepreneurship development in Nigeria in order to enhance its potentialities and make Nigeria economically self-reliant.

Objectives of the study

The study intends to achieve the following objectives.

- i. To determine the positive roles played by entrepreneurship development in Nigerian economy.
- ii. To identify the problems of entrepreneurship development in Nigeria.
- iii. To proffer solutions to problems of entrepreneurship development in Nigeria.
- iv. To identify the prospects of entrepreneurship development to the economic enhancement of Nigeria.

Statement of Hypotheses

The following hypotheses were formulated.

H₀: Creation of employment, utilization of resources and maintenance of competition are not the roles entrepreneurship development can play in the Nigeria economy.

H_A: Creation of employment, utilization of local resources and maintenances of completion are some of the major roles that entrepreneurship development plays in Nigerian economy.

H₀: Inadequate financial resources, incompetent management of available resources and poor state of the country's infrastructural facilities are not the problems militating against the entrepreneurship development in Nigeria.

H_A: Inadequate financial resources, incompetent management of available resources, and poor state of the country's infrastructural facilities are some of the problems militating against entrepreneurship development in Nigeria.

H₀: Establishment of training centres and introduction of entrepreneurship and other related courses in Nigerian higher institutions of learning are not the solution associated with entrepreneurship development in Nigeria.

H_A: Establishment of training centres and introduction of entrepreneurship development and other related courses to the Nigerian institutions of higher learning are the possible solutions associated with entrepreneurship development in Nigeria.

H₀: Enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are not the prospects that entrepreneurship can enhance economic development in Nigeria.

H_A: Enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are the prospects that entrepreneurship can enhance economic development in Nigeria.

Literature Review

The Conceptual Framework

This is an entrepreneurial age. Entrepreneurs are driving a revolution that is transforming and reviewing economics worldwide. Entrepreneurship is essence of free enterprise because the birth of new business gives a market economic its vitality (Ake, 2017). New and emerging business create a very large proportional of innovative products that transforms the way we work and live; products such as personal computers, software, the internet biotechnology, drugs and overnight package deliver (Bygrave 1997).

Entrepreneurship is enjoying a great deal of attention in many countries today, including Nigeria. It can be described as the process of bringing together creative and innovative ideas and coupling these with management and organization skills in order to combine people, money and resources to meet an identified need and thereby create wealth. (Appleby, 1994).

Meaning of Entrepreneur and Entrepreneurship

Ephraim (2019) sees entrepreneurship as a phenomenon of grave societal importance and it has been referred most of the time in the globalization era.

In the theoretical history of entrepreneurship, scholars from multiple discipline such as economics, sociology, anthropology etc; have grappled with the diverse set of interpretations and definitions of entrepreneurship. Some researchers have identified entrepreneurs with the function of uncertainty and risk-bearing and others with the provision of productive resources, the introduction of innovation and provision of technical know-how.

Ephraim and Onu (2019) stated that the word entrepreneur was taken birthed and originally meant to designate an organizer of musical or other entertainment. Oxford English Dictionary (2017) also defined an entrepreneur in a similar way as a director or a manager of a public musical institution, one who set up entertainment, especially musical performance.

Fasua (2006) and Richard Cantillon in the early 18th Century defined entrepreneur as an agent who buys factors of production at certain prices in order to combine them into a product with a view to selling it at uncertain prices in the future. He further stated that Jean Baptist Say sees an entrepreneur as one who combine the land of one, the labour of another and the capital of yet another and thus, produces a product.

Okenwa (2020) sees an entrepreneur as an individual who is willing and able to take business risks with aims and objectives to maximize profit.

Agu (2015) opines that an entrepreneur is a person who takes the risk of starting and managing a business.

He is the person who is involved in entrepreneurship. According to Ephraim (2020) entrepreneurs are seen as men and women who are courageous, alert, vision any and are engaged in the network of exchanges that stimulate and promote economy.

Fasua (2006) describes entrepreneurship as the willingness and ability of an individual to seek out investment opportunities in an environment and be able to establish and run an enterprise successfully, based on the identifiable opportunities. The entrepreneur is thus, one who perceives business opportunities and takes advantage of available scarce resources to exploit the opportunities profitably.

He bears the non-insurable risk in his enterprise, and directs the human and material resources in his business objective. It is also the process of creating something new with value by devoting the necessary time and efforts, assuming the accompanying financial and social risks and receiving the resulting reward. He is a risk taker. Okenwa (2019) states that entrepreneurship can be defined as the willingness and ability of an individual to seek out investment opportunities establish and run an enterprise successfully.

Okenwa and Agu (2015) assert that entrepreneurship is the service that the entrepreneur renders. It is in accepting the risk of starting and running a business.

Promotion of Entrepreneurship by Government

Government supports have been in the form of policies, direct assistance and the establishment and continued funding of specialized agencies such as universities, polytechnics, Research institutions etc. all aimed at aiding entrepreneurs and SMES Operating in the country (Chima 2015) researchers have shown that the following bodies were established to promote entrepreneurship in Nigeria:

- i Establishment of industrial Development centre (IDC) in 1970) aimed at promoting entrepreneurship in Nigeria.
- ii Establishment of the Nigeria Bank for commerce and industry for the purpose of providing investment finance to entrepreneurs.
- iii Introduction of entrepreneurship and other related courses to the Nigerian universities and polytechnics curricular in order to promote entrepreneurship knowledge in the country.
- iv Establishment of industry Training fund (ITF) in 1971. Its main aim was to promote the acquisition of skills in indigenous trained manpower sufficient to meet the needs of the economy.
- v The establishment of Nigeria Export promotion Council (NEPC). The Nigerian Export promotion council (NEPC) was established by Decree No. 4 of 1980 and their major function are to:
 - Promote the development diversification of Nigeria export trade.
 - Assist in promoting the development of export oriented industries in Nigeria.
 - Spearhead the creation of necessary export policies and programmes of the federal government.
 - Co-ordinate and monitor export promotion activities in Nigeria.

Small scale Industries Credit Scheme (SSICS) In order to boost the skills of the Nigerian entrepreneurs, Acheqbulus (2004) assets that the federal government established in (1987), National Directorate of Employment to engender the following programmes:

- (a) Vocational skills Development (ie fashion designing) furniture, carpentry, GSM, repairs/maintenance, auto mechanic, foundry metal work iron bending.
- (b) Rural employment promotion
- (c) Special public works programmes
- (d) Small scale enterprises programmes.

Others include the Nation Service Corps NYSC entrepreneurial programme, National poverty alleviation, programmes, Industrial Training fund to mention but a few. These programmes were aimed at the acquisition of marketable and applied skills as well as basic scientific knowledge.

Contributions of Entrepreneurship to Nigeria Economic Development

Small and medium scale enterprises have the potential to contribute so much to the society and they are acclaimed the world over, as engines of socio-economic development by fostering the use of local raw materials and other resources. Okechukwu (2019) also asserts that small and medium scale enterprises help in salaries industrial development and socio economic infrastructure of the rural and urban areas.

Furthermore, being relatively labor intensive, small businesses create substantial employment opportunities at low capital cost and being resilient and flexible can better adopt to unexpected changes in the economic and financial environment.

The contribution of SMES and entrepreneurship in any economy are numerous and integrated. According to Onuaha (2008), some of these contributions includes: stimulation of indigenous entrepreneurship transformation of traditional/local industry, creation of countless employment opportunities, openings and linking up the various sectors and sub-sectors of the economy, business interdependence, maintenance of competitors, stemming rural-urban migration, Increasing infrastructures and standard of living, paying more taxes which enable governments to provide basic amenities, mobilizing savings and investment, dispersal of industries, our business enterprise competing globally and earning foreign exchange for themselves and the economy contributing to regional activities and co-operation.

The importance of entrepreneurship in the society involves more than just increasing per capital output and income.

To further complement the role played by this sector, Odione (2019) Opines that entrepreneurship plays the following vital roles.

- **Agent of innovation:**

One of the theories of economic growth depicts innovation as the key not only in developing new products or services for the market but also in stimulating investment interest in new ventures. Thus, provide new inventions.

- **Creation of Employment:**

It is obvious that small business creates employment for the teeming population of Nigeria where the private and the public sector of the economy could not do otherwise, thereby providing a panacea to unemployment.

- **Stimulation of Indigenous Entrepreneurship:**

The small scale industries are the most effective means of stimulating indigenous entrepreneurship by opportunity to start up and managed business themselves thereby improving their managerial skill.

Small scale business entrepreneurship helps to mobilize that would otherwise remain idle in the hands of people and employ them productively. He added that by so doing capital formation which is a vital engine of economic growth is encouraged.

- **Utilization of Resources:**

Small scale business entrepreneurship helps to mobilize that would otherwise remain idle in the hands of people and employ them productively. He added that by so doing capital formation which is a vital engine of economic growth is encouraged.

- **Maintenance of Competition:**

In this age of rapid change competition can be the vehicle to change through innovation and improvement. Competition and capitalism insure freedom of enterprise of and provide an

outlay for individual creative impulses and ability as well as livelihood for a large segment of the population.

Risk and Challenges of Entrepreneurship Development

Entrepreneurship is very-promising and has the ability to change the world of uncertainty to the world of reality. However, there are some bottle-necks that must be noted in the course of doing business. According to Akin (2008), these include; financial problems, infrastructure, corruption, poor management market and completion, improper assessment of self, too much family interference, unwillingness to seek or accept advice etc.

Onuaha (2008) view environment, of entrepreneurship and SMES in Nigeria are problematic and harsh. In a research, Onuaha (2008) discovered the following as other major problems of SMES.

- a) High product cost
- b) Poor infrastructures
- c) Rapid and uncoordinated expansion
- d) Competition from imported goods.
- e) Limited scope of operation e.t.c.

Obitayo (2011) also list the following as the problems of SMES:

- i. Restricted access to finance (including working capital)
- ii. Difficulties in input procurements.
- iii. Weak infrastructure facilities.
- iv. Poor demand of finished goods.
- v. Inadequate collateral securities.
- vi. Delay in disbursement of approval funds.
- vii. Restricted access to land.
- viii. Distress in banking sector etc.

Prospects of Entrepreneurship Development in Nigeria

It is clear that entrepreneurs through their activities contribute immensely to the growth of national economy e.g: by producing goods and services which are included in the calculation of Gross Domestic Product (GDP). This is a progressive trend which any government will want to encourage. So, Okwuise (2008) states that there is the hope that government will continue to give support to contributing to the development of the country.

By the nature of entrepreneurship, innovation is a feature which helps it growth and development. The various innovations are capable of bringing good life to the people. The various policies and programmes of successive governments since independence have been recognizing the invaluable roles which entrepreneurs can play in an economic growth of a nation. These deliberate policies of government aimed at changing the value. System of Nigerians promise to make Nigerians prefer home made goods to foreign one. To this extend there is hope that the activities of Nigeria entrepreneurs will be better appreciated (Okwuise, 2008).

Importance of Entrepreneurship in Nigeria:

Economists and managers the contributions of small and medium scale industries to the development of the society in general and individuals in particular. Lawal (1992), Baumbach (1982), Stoner et al., (1995), Steinhoff (1982) put forward the following arguments to justify the expansion of small scale industries as a desirable strategy for industrial and technological development:

1. Small scale industries will assist in developing indigenous entrepreneurial and managerial skills.
2. Small scale enterprises as a labor intensive industry is likely to be consistent with employment and income distribution objectives.
3. Small and medium scale industries enhance the exploitation of untapped industrial opportunities.
4. Small scale firms create for widely dispersion of industries in the society and therefore enhance region economic balance.
5. It also promotes effective domestic production.
6. It will facilitate the promotion of special and varied products which are not attractive to large firms.
7. It will reduce rural/urban migration.
8. It will enjoy flexibility and adoption of procedures and quickly respond to the dynamic environment even at less cost than big businesses.
9. Existence of small scale industries preserve competition and prevent monopoly of regional economic imbalance. They also contend that to the individuals, the advantages of entrepreneurship in small scale business that result into self-employment includes:
 - a. Personal satisfaction: The individual entrepreneur will do what he wants with his life.
 - b. Entrepreneurship in small scale business guarantees individual freedom and self-confidence.
 - c. It also guarantees exclusive control of income.
 - d. Small scale business offer job security for the owner.
 - e. Social status of entrepreneurs may be improved by means of entrepreneurship in small scale business.

Methodology

Research Design

This study was designed to use survey research method in which the opinions of staff of the selected small and medium enterprises were sought on the aspect of entrepreneurship development in Nigeria. This type of research design was considered most appropriate because of its cross sectional approach that ensures seeking the views and opinions of staff on certain areas bothering on development of entrepreneurship in Nigeria.

Population of the study

The population of 100 was made up of the owners and staff of the selected small and medium scale enterprises in Rivers State.

Sample Size

The convenient sampling technique was used in obtaining a sample size of fifty (50) respondents as sample size of the study.

Table 1: Sample Selection

S/N	SMALL AND MEDIUM ENTERPRISES	NUMBERS OF RESPONDENT	PERCENTAGE (%)
1	God First global Enterprises	27	54
2	Ibigo Pure Water	12	24
3	Tilda Fast Food & Restaurant	11	22
	TOTAL	50	100

Source: Field Survey (2023)

Method of Data Analysis

The technique employed for the data analysis consist of descriptive statistics on the questionnaire and chi-square (χ^2). Chi-square (χ^2) was employed to test the hypotheses drawn from chapter one. The chi-square (χ^2) statistical tool is generally used when testing or evaluating the frequency obtained from the data as they would vary from those which would be expected.

Test for Hypotheses 1

H₀: Creation of employment, utilization of resources and maintenance of competition are not the roles entrepreneurship development can play in the Nigeria economy.

H_A: Creation of employment, utilization of resources and maintenance of competition are the roles entrepreneurship development can play in the Nigeria economy.

Table 2: Observed Frequency for Hypothesis One

VARIABLE	RESPONDENTS			TOTAL
	God First global enterprises	Ibigo Water Company	Tilda Fast Food & Restaurant	
Agreed	10	1	0	11
Disagreed	12	7	20	39
GRAND TOTAL	22	8	20	50

Source: Field Survey, 2023

Calculation of Expected frequency for Hypothesis one

Expected frequency is give as:
$$\frac{RT \times CT}{GT}$$

Table 3: Expected Frequency for Hypothesis One

Variables	God First global Enterprises	Ibigo Water company	Tilda Fast Food & Restaurant	Total
Agreed	4.84	1.76	4.40	11
Disagreed	17.16	6.24	15.60	39
Grand Total	22	8	20	50

Chi-square calculation = $\chi^2 = \sum \frac{(F_o - F_e)^2}{F_e}$

Table 4: Comparison of Observed with Expected Frequencies for Hypothesis One.

Fo	Fe	Fo - Fe	(Fo - Fe) ²	$\frac{\sum(Fo-Fe)^2}{Fe}$
10	4.84	5.16	26.63	5.50
1	1.76	-0.76	0.58	0.33
0	4.40	-4.40	19.36	4.40
12	17.16	-5.16	26.63	1.55
7	6.24	0.76	0.58	0.09
20	15.60	4.40	19.36	1.24
Calculated chi-square (X²) =13.11				

Calculated chi-square (x²) = 13.11

$$\begin{aligned}
 \text{Dreed of freedom (df)} &= (r - 1) (c - 1) \\
 &= (2 - 1) (3 - 1) \\
 &= (1 \times 2) = 2f
 \end{aligned}$$

The critical value of χ^2 from 2df at 5% level of significance =5.991

Decision Rule

If χ^2 calculated is greater than the critical value of χ^2 for 2df at 5% level of significance reject null hypothesis, otherwise upheld the null hypothesis.

Conclusion

Since χ^2 calculated = 13.11, the null hypothesis (H_0) is rejected, while alternate hypothesis is accepted. Therefore, it can be concluded that entrepreneurship does play a significance role in the development of Nigeria economy.

Test for Hypotheses 2

H₀: Inadequate financial resources, incompetent management of available resources and poor state of the country's infrastructural facilities are not the problems militating against the entrepreneurship development in Nigeria.

H_A: Inadequate financial resources, incompetent management of available resources and poor state of country's infrastructural facilities are some of the problems militating against entrepreneurship development in Nigeria.

Table 5: Observed Frequency for Hypothesis Two

Variable	Respondents			Total
	God First global Enterprises	Ibigo Water Company	Tilda Fast Food & Restaurant	
Agreed	5	8	5	18
Disagreed	17	0	15	32
Grand Total	22	8	20	50

Source: Field Survey, 2023

Calculated of Expected frequency for Hypothesis Two

Expected frequency is given as: $\frac{RT \times CT}{GT}$

Table 6: Expected Frequency for Hypothesis Two

Variables	Respondents			Total
	God First global Enterprises	Ibigo Water company	Tilda Fast Food & Restaurant	
Agreed	7.92	2.88	7.20	18
Disagreed	14.08	5.12	12.80	32
Grand Total	22	8	20	50

$$\text{Chi-square calculation} = x_2 = \sum \frac{(F_o - F_e)^2}{F_e}$$

Table 7: Comparison of Observed with Expected

Frequencies for Hypothesis Two

F _o	F _e	F _o -F _e	(F _o -F _e) ²	$\sum \frac{(F_o - F_e)^2}{F_e}$
5	7.92	-2.92	8.53	1.08
8	2.88	5.12	26.21	9.10
5	7.20	-2.20	4.84	0.67
17	14.08	2.92	8.53	0.61
0	5.12	-5.12	26.21	5.12
15	12.80	2.20	4.84	0.38
Calculated chi-square (x²) = 16.96				

Calculated chi-square (x²) = 16.96

Degreed of freedom (df = (r-1) (c-2))
 = (2-1) (3-1)
 = 1x2 = 2df

The critical value of X² from 2df at 5% level of significance = 5.991**Decision Rule**

If x² calculated is greater than the critical value of x² for 2df at 5% level of significance reject null hypothesis, otherwise upheld the null hypothesis.

Conclusion

Since x² calculated = 16.96 the null hypothesis (H₀) is rejected, while alternate hypothesis is rejected. Therefore, it can be concluded that: there are numerous challenges military against entrepreneurship development in Nigeria.

Ho: Test for Hypotheses Three

Establishment of training centre's and introduction of entrepreneurship and other related courses in Nigerian higher institutions of learning are not the possible solution associated with entrepreneurship development in Nigeria.

Table 8: Observed Frequency for Hypothesis Three

Variable	Respondents			Total
	God First global Enterprises	Ibigo Water Company	Tilda Fast Food & Restaurant	
Agreed	1	6	0	7
Disagreed	19	9	15	43
GRAND TOTAL	20	15	15	50

Source: Field Survey, 2023

Calculated of Expected Frequency for Hypothesis three.

Table 9: Expected Frequency for Hypothesis Three

Variable	Respondents			Total
	God First global Enterprises	Ibigo Water Company	Tilda Fast Food & Restaurant	
Agreed	2.8	2.1	2.1	7
Disagreed	17.2	12.9	12.9	43
Grand Total	20	15	15	50

$$\text{Chi-square calculation} = \chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

Table 10: Comparison of Observed with Expected Frequencies for Hypothesis

Fo	Fe	Fo-Fe	(Fe-Fe) ²	$\frac{\sum(F_o - F_e)^2}{F_e}$
1	2.8	-1.8	3.24	1.16
6	2.1	3.9	15.21	7.24
0	2.1	-2.1	4.41	2.1
19	17.2	1.8	3.24	0.19
9	12.9	-3.9	15.21	0.18
15	12.9	2.1	4.41	0.34
Calculated chi-square (χ^2) = 12.21				

Calculated chi-square (χ^2) = 12.21

$$\begin{aligned} \text{Degree of freedom (df)} &= (r-1)(c-1) \\ &= (2-1)(3-1) \\ &= 1 \times 2 = 2 \end{aligned}$$

The critical value of χ^2 from 2df at 5% level of significance = 5.991.

Decision Rule

If χ^2 calculated is greater than the critical value of χ^2 for 2df at 5% level of significance reject null hypothesis, otherwise upheld the null hypothesis.

Conclusion

Since χ^2 calculated = 12.21, the null hypothesis (H_0) is rejected, while alternate hypothesis is accepted. Therefore, it can be concluded that, establishment of training centre's and introduction of entrepreneurship development and other related courses to the Nigerian

Institutions of Higher Learning are the possible solutions associated with entrepreneurship development in Nigeria.

Test for Hypotheses 4

H₀: Enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are not the prospects that entrepreneurship can enhance economic development in Nigeria.

H_A: Enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are the prospects that entrepreneurship can enhance economic development in Nigeria.

Table 11: Observed Frequency for Hypothesis Four

Variable	Respondents			Total
	God First global Enterprises	Ibigo Water company	Tilda Fast Food & Restaurant	
Agreed	1	5	0	6
Disagreed	19	10	15	44
Grand Total	20	15	15	50

Source: field Survey, 2023

Table 12: Expected Frequency for Hypothesis Four

Variable	Respondents			Total
	God First global Enterprises	Ibigo Water Company	Tilda Fast food & Restaurant	
Agreed	2.4	1.8	108	6
Disagree	17.6	13.2	13.2	44
Total	20	15	15	50

$$\text{Chi-square calculation} = \chi^2 = \sum \frac{(\text{Fo} - \text{Fe})^2}{\text{Fe}}$$

Comparison of Observed with Expected Frequencies for Hypothesis Four

Fo	Fe	Fo-Fe	(Fo-Fe) ²	$\sum \frac{(\text{Fo} - \text{Fe})^2}{\text{Fe}}$
1	2.4	-1.4	1.96	0.82
5	1.8	3.2	10.24	5.69
0	1.8	-1.8	3.24	1.8
19	17.6	1.4	1.96	0.11
10	13.2	-3.2	10.24	0.78
15	13.2	1.8	3.24	0.25
Calculated chi-square (χ^2) = 9.45				

Calculated chi-square (χ^2) = 9.45

$$\begin{aligned} \text{Degree of freedom (df)} &= (r-1)(c-1) \\ &= (2-1)(3-1) \\ &= 1 \times 2 = 2 \end{aligned}$$

The critical value of χ^2 from 2df at 5% level of significance = 5.991

Decision Rule

If χ^2 calculated is greater than the critical value of χ^2 for 2df at 5% level of significance reject null hypothesis, otherwise upheld the null hypothesis.

Conclusion

Since χ^2 calculated = 9.45, the null hypothesis (H_0) is rejected, while alternate hypothesis is accepted. Therefore, it can be concluded that: enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are the prospects that entrepreneurship can enhance economic development in Nigeria.

Discussion of Findings

The paper work focused on Entrepreneurship Development in Nigeria: problems and prospects, a case study of selected enterprises in Rivers State.

In testing hypothesis one, it was observed that; entrepreneurship development plays a vital role in the Nigerian economy by stimulating economic growth, enhancing self-reliance thereby reducing unemployment, encouraging production of indigenous goods and improving people's standard of living.

Thus the Null hypothesis which states that, the entrepreneurship in Nigeria does not play any significant role in the economic development of the country was rejected based on the fact that the calculated chi-square χ^2 13.11 at 0.05 level of significance was greater than the value of chi-square χ^2 for 2df of 5.99.

This finding agrees with the opinion of Onuoha, (2008) affirmed that small business create substantial employment opportunities at low capital cost and being resilient and flexible can better adapt to unexpected changes.

In testing hypothesis two, it was observed that, there are numerous problems militating against the development of entrepreneurship development in Nigeria, among them are insufficient funds for financing innovations, incompetent management, poor state of the country's infrastructure and technological development.

Thus, the null hypothesis which states inadequate financial resources and poor state of the country's infrastructure facilities are not the problems militating against the entrepreneurship development in Nigeria was rejected based on the fact that the calculated chi-square (χ^2) 16.96 at 0.05 level of significance was greater than the value of chi-square (χ^2) for 2df of 5.991.

This finding agrees with the opinion of Obitayo (2001), assert that, the environments of entrepreneurship development in Nigeria other impediments can generally be grouped into general and financial problems and poor infrastructures. Anyanwu (1999) also confirmed that, insufficient management; inadequate financial resources etc are the problems militating against the development of entrepreneurship in Nigeria.

In testing hypothesis three, it was observed that establishment of training centre and introduction of entrepreneurship development and other related courses to the Nigeria institutions of higher learning are the possible solutions associated with entrepreneurship development in Nigeria. Thus, the null hypothesis which states that establishment of training centre and introduction of entrepreneurship development and other related courses in Nigeria higher institutions of learning are not the possible solution associated with entrepreneurship

development in Nigeria was rejected based on the fact that calculated chi-square (χ^2) = 12.21 was great than the critical value of chi-square (χ^2) for 2df at 5% level of significance = 5.991.

This finding is in line with opinion of Chima. (2005), that government supports have been in the form of policies, direct assistance and the establishment and continued funding of specialized agencies such as universities, polytechnics, Research institutions etc all aimed at aiding entrepreneurs and SMES operating in the country.

In testing hypothesis four, it was observed that, enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are the prospects that entrepreneurship can enhance economic development in Nigeria.

Thus, the null hypothesis which states that, the enhancing regional economic balance and exploitation of untapped opportunities and promoting effective domestic production are not the prospected that entrepreneurship can enhance economic development in Nigeria was rejected based on the fact that the calculated chi-square (χ^2) 9.45 at 0.05 level of significance was greater than the value of chi-square (χ^2) for 2df of 5.991.

This finding agrees with the opinion of Steinhoff (1982) which states that, small scale firms create for widely dispersion of industries in the society and therefore enhance regional economic balance, the exploitation of untapped industrial opportunities and also promotes effective domestic production as was reduces rural and urban migration.

Conclusion

Entrepreneurship development has been discovered as the major bedrock of a nation's economic growth. So it should be given priority at both federal and state government levels, as this can lead to the breaking of the vicious circle of under-development in the country.

Entrepreneurship development is more effective in job creation, increasing standard of living and economic development, since they tends to be more labour – intensive and operating in both rural and urban regardless of the numerous problems confronting them.

In as much as this concept is widely accepted there are major impediments to entrepreneurship development in Nigeria which must be tackled with if entrepreneurship must take its full capacity in Nigeria. More efforts in the areas of availability of necessary and adequate infrastructure, effective training and development of entrepreneurs, etc could be major steps to overcoming such impediment to entrepreneurship development in Nigeria.

Recommendations

The following recommendations were made based on the findings of the study.

1. The Nigerian governments should provide and maintain adequate infrastructural facilities in both the rural and urban areas to encourage entrepreneurship.
2. Adequate and constant power supply and good road network should be provided and maintained.
3. Entrepreneurs should be trained to have the knowledge of modern management technologies and acquires proper managerial skills.

4. Nigerian entrepreneurs should embrace the use of higher level technology in the production of their goods to enhance competitiveness.
5. There should be stability in government policies and schemes, because any frequent changes in government incentives, policies and packages will tend to discourage entrepreneurs because of fear of failure in the process of their venture.
6. Entrepreneurs should be actively encouraged and necessary facilities provided by government to expand their export base and be internationally competitive by improving the quality of their products and services using the skills and professionalism of local human resources.
7. Government should create a forum where entrepreneurs should be enlightened about the danger involved in family members intruding into their business operations.
8. Relevant government agencies should offer advice and technical assistance to help solve operational problems to avoid eminent failure of entrepreneurs.
9. And lastly, professionalism in entrepreneurship practitioner have a major role to play here. That is, relevant professional bodies should assist entrepreneurs in marketing and counseling regarding product design, packaging, sales strategy and event feasibility reports for intending industrialists.

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EMBRACING TECHNICAL EDUCATION IN GROWING SMALL AND MEDIUM ENTERPRISES(SMEs) AND THE PROSPECTS FOR NIGERIAN ECONOMY

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ABSTRACT

This paper took a critical look at the benefit of embracing Technical Education in growing Small and Medium Enterprises(SMEs) in Nigeria and the major focus of this work was to delve more on the practice of technical education on the growth and prospects of SMEs on the Nigerian Economy. While attempting to give a perfect definition of Small and Medium Enterprises using employment strength and asset base criteria, the work revealed that embracing technical education in growing SMEs, contribute significantly to the growth and development of the economy in the provision of goods and services, technical skills, creation of employment and the contribution of a quality and high standard of living. Some of the merits from this practice have increased financial capacity of citizens, and immediate action plan in dealing with eventualities, technical and managerial skills. The study shows that technical education is regarded a catalyst in most developing economies and that it is very crucial to the growth and development of the Country, Nigeria. As such, it was recommended that government policies should support the embrace of technical education in growing SMEs by opening and giving more training opportunity of young entrepreneurs, establishment of technical acquisition Centers for Small and Medium Entrepreneurial Development and promoting entrepreneurial spirits. There should also be deliberate funding of empowerment programmes across the Country, for the purpose of growing the Economy and her Citizens. This will facilitate the training and retraining of entrepreneurs with technical knowhow in setting small and medium enterprises and also help Nigerian youths to develop interest in entrepreneurship. This article shares practical steps and tools that Small and Medium Enterprises (SMEs) can adopt to improve operational efficiency and drive sustainable growth.

Introduction

Technical education, according to the Nigerian national policy, is concerned with qualitative technological human resources development directed towards a national pool of skilled and

self-reliant craftsmen, technicians and technologists in technical and vocational education fields. It refers also to training in theoretical and practical basic scientific skills and knowledge related to careers in STEM (Science, Technology, Engineering and Mathematics) fields. Technical Education is an aspect of education that deals with all the approaches involving practical teachings and experiences, gaining knowledge to do and undo some form of things technically.

Small-size enterprises are companies with fewer than 50 employees, and medium-size enterprises are ones with fewer than 250 employees. In addition to small and midsize companies, there are micro-companies, which employ up to 10 employees. SME stands for small and medium-sized enterprises. These are enterprises that have less than a specific level of investment and turnover.

Micro, Small and Medium Enterprises (MSMEs) account for about 96% of all businesses in Nigeria; contribute 49% of the national Gross Domestic Product (GDP); and employ 84% of the country's workforce (PwC MSME Survey 2020). The sustenance of Nigeria's economy relies heavily on these enterprises.

Small and Medium Enterprise development pursuit is subject to technical and innovative skills acquisition through technology and vocational education. Subject to this, Nigeria established Technical Education (NBTE) in 1977 to coordinate, monitor and accredit institutions that provide technology, vocational Education and training (TVET) to ensure quality skills training. In addition, Nigeria has established many technological institutions of higher learning to complement other conventional institutions that also run some technical courses.

Embracing or adopting technical skills in developing entrepreneurship plays a significant role in enhancing the growth of an economy and this requires increased in both public and private investment. According to Mainoma & Aruwa (2012), entrepreneurship leads to creating incremental wealth and individuals who assume the major risks in terms of equity, time and career commitment create this wealth. This value addition or wealth creation is possible through the development of necessary innovative and technical skills. Most entrepreneurs are engaged in small and medium scale enterprise (SMEs) and the development of SMEs in Nigeria dates back to the early 1960's with the establishment of Industrial Development Centers, aimed at providing a solid foundation for industrial development.

Digitalization and technology are keys in the optimal operation of businesses in the 21st century. The evolution of concepts such as customer satisfaction, advertising and payment are results of the heavy involvement of digitalization in today's businesses. MSMEs that have embraced digitalization and technology fare better. A study done in Turkey shows that 41.2% of 131 SMEs underwent technological innovations and this led to an operational efficiency of 96.9%.

Hisrich and Peter, (2002) sees entrepreneurship is the process of creating something new of value by devoting the necessary time and effort, assuming the accompanying financial psychic and personal satisfaction and independence. Egai (2008) cited in Nwafor & Okpaga (2015)

affirms that entrepreneurial development is disposition to accept innovative idea, methods and making people more interested in present and future than the past. Entrepreneurship Development refers to the process of enhancing entrepreneurial skills and knowledge through structured training and institution- building programmes (Osemeke, 2012)

Ikupolati, Adeyeye, Oni, Olatunle & Obafunmi (2017), sees technical skills to include mastery of the methods, techniques and equipment involved in specific functions such as engineering, manufacturing or finance. They further accentuate that it include specialized knowledge, analytical ability and the competent use of tools and techniques to solve problems in that specific discipline.

In categorizing organizations as small, medium or large, it means that businesses can be classified by means of their sizes. It is difficult to determine when a business transits from small to medium or large. To facilitate our discussion, this article shall look at some definitions and thereafter, attempt a definition for each of the three groups based on capital or assets base, the skill of the managerial team and the total market share, other criteria notwithstanding.

The International Labour Organisation (ILO, 1999) defines micro enterprises as those having 1-10 employees and small scale enterprises as those having 11-50 employees, and did not bother to talk about the market spread and capital base. At the 13th Council meeting of the National Council on Industry held in July, 2001, Small and Medium Enterprises (SMEs) were defined by the Council as follows:

- **Small Scale Industry:** Industry with asset base of more than ₦1.5 million but in excess of ₦50 million excluding cost of land, but including working capital and/or a staff strength from 11 to 100.
- **Medium Scale Industry:** Industry with asset base of more than ₦50 million, but not in excess of ₦200 million excluding cost of land but including working capital and/or a staff strength from 101 to 300.
- **Large Scale Industry:** Industry with asset base of over ₦200 million excluding cost of land but including working capital and/or a staff strength of more than 300.

According to Yinka Fisher, coordinator of Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in Lagos in an interview with Daily Independent (2012), Small and Medium Enterprises (SMEs) were defined as follows:

- **Small Enterprise:** Those that employ between 10 and 49 employees and having a capital base from ₦5 million to ₦50 million so once a business is within that confine, it is running a small enterprise.
- **Medium Enterprise:** Any enterprise that employs from 50 to 199 employees and having a capital base from ₦50 million to ₦500 million. If a business is within that confine it is running a medium enterprise and if it has anything above that, it is a large enterprise or a multinational as the case may be.

Generally, small businesses are usually associated with little capital outlay, minimal fixed assets, highly localized in the area of operation, and often with unsophisticated management structure. Baumbach (1992:4) says characteristically, small business is one that is actively managed by its owners, highly personalized, largely local in the area of operations, of relatively small size within the industry and largely dependent on internal sources of capital to finance its growth. It is very easy to start up one since it does not involve drawing up complex plans nor does it involve much capital. In the same vein, the exit and failure rates are very high. Small businesses contribute to availability of goods and services in the market thereby leading to reduction in price level. Small and medium businesses exist to fill gaps left over by large scale businesses, thus these business organizations exist to do what big businesses refuse to do. Also, there are some businesses whose maximum operation and size demand smallness of scale. These include food and related products, furniture and fixtures, tailoring, relaxation spots, traditional crafts, and native medicine.

The SMEs are noted for their ability to adapt to changes because the decision process is not complex and the owner-manager does not need anyone's permission to adapt to change. They are also noted for greater use of local raw materials, simplified record keeping and a good relationship with consumers and employees.

Technical Education and SMES on the Nigerian Economy

Technical Education and Small and Medium Enterprises (SMEs) play vital role in the economic development of Nigeria and are known to be the main engine of economic growth and a key factor in promoting private sector development and partnership. Technical education creates the skills and technical knowhow for the progressive nature of SMEs which are generally responsible for the availability of goods and services, credits, motivating entrepreneurial spirit and repairs of second handed products. They create employment and a high standard of living, provide competition and fill needs of society and other firms.

The expanded roles of technical education in growing SMEs include:

- a) Aiding in the development of local technology.
- b) Providing effective way of stimulating indigenous entrepreneurship.
- c) Mobilization and utilization of domestic savings.
- d) Ensuring a structural balance in terms of large and small scale industrial sector, as well as urban areas.
- e) Ensuring the supply of high quality parts and components, and intermediate products, thereby strengthening the international competitiveness of manufactured goods.
- f) Producing specialized items in small quantity to meet current and diverse demands.
- g) Mitigating rural-urban migration

Technical Education and SMEs contribute significantly to employment of the teeming

unemployed youths and also strengthening the manufacturing sector of the economy. In a survey carried out by Debbie (2004), it was shown that SMEs constitute about 97 percent of all businesses in Nigeria and generate about 50 percent of employment. The embrace of Technical Education in SMEs growth also produce 30 percent of manufacturing output (National Policy on Micro, Small and Medium Enterprises, NPMSMES, 2006). The 2010 National MSMEs Collaborative Survey puts the number of Micro, Small and Medium Enterprises (MSMEs) in Nigeria at 17,284,671 with a total employment of 32,414,884 and contributing 46.54 percent to the GDP in nominal terms the Transformation Agenda of government, all efforts must be put in place to grow these numbers (SMEDAN OLOP Report, 2014). Emphasizing further on creation of employment the Nigerian government confirms that since 2011 to date, 98 percent of the 1.8 million jobs created each year are from small and medium enterprises (NBS, 2014).

The benefits of technical education in growing SMEs in any economy, is easily noticeable. Technical Education and SMEs contribute to the Nigerian economy in terms of production of a variety of goods and services, creation of jobs at relatively low capital cost, especially in the growing services sector, providing a vehicle for the reduction of income disparities, developing a pool of skilled and semi-skilled workers as a basis for future industrial expansion. Technical Education and SMEs have been known to improve forward and backward linkages between economically, socially and geographically diverse sectors of the economy, provide opportunities for developing and adopting appropriate technological approaches, offer an excellent breeding ground for entrepreneurial and managerial talent, promotion of industrial diffusion and regional balance, etc. Further, the issue of technology transfer and development, Acha (2009:180) asserts that many SMEs import, copy and indigenize the production techniques of developed and developing countries. They are vibrant in the export sector where they play an active role of providing the country alternative foreign earning sources. By so doing, Technical Education and SMEs are helping to diversify the economy by exporting agricultural produce semi-processed products.

Deliberate Efforts Nigerian Governments Should Encourage

- a) **Consistent Government Policies:** The Federal Government and State Governments should have clear objective in promoting the development of small businesses or enterprises for the creation of employment opportunities, mobilization of local resources, and mitigation of rural-urban migration and more even dispersal of industrial enterprises within the Nigerian State. In all, the basic aim must be to ensure that budding indigenous investors are assisted to get established and eventually develop into future industrial giants. This is based on the fact that most Nigerian investors are small businessmen with low level of capital and entrepreneurial know-how. These are to be achieved through offering financial facilities and technical assistance with the establishment of more technical education centers to ensure their growth and usefulness to the state.
- b) **Government Macroeconomic Policies:** Let there be largely consistent political stability. In monetary terms, there should be an increase in loanable funds to small and medium scale businesses, loans to rural borrowers, more loans to agriculture and pegging of lending rate

to below 21 percent, and during implementation also, there should be guarded and laudable policy direction and decisions. The same could be said of fiscal policies such as reduction in personal income tax, tax reliefs to manufacturing companies, the establishment of Export Processing Zones (EPZ), as well as other industrial, agricultural and commercial promotion policies.

Prospects of Technical Education and SMES In Nigeria

Technical Education and Entrepreneurship are very crucial to the economic growth and development of Nigeria. It is regarded as the catalyst of most developing economies. The three entities of government, foreign donors and Nigerian entrepreneurs have done a lot to encourage SMEs in Nigeria.

1. Opportunities from the Nigerian Government:
 - i. The establishment of Small and Medium Entrepreneurs Development Agency of Nigeria (SMEDAN) to see to the nurture and growth of SMEs.
 - ii. Enactment of laws and policies to provide a conducive environment for SMEs
 - iii. Training and deployment of qualified staff for entrepreneurs by Administrative Staff College of Nigeria (ASCON) and Industrial Training Fund (ITF)
 - iv. The establishment of microfinance banks to particularly grant loans to SMEs with little or no collaterals
 - v. Various loan scheme provided by government such as:
 - Funds for Small Scale Industries (FUSI)
 - National Directorate of Employment (NDE) credit scheme
 - Agricultural Credit Scheme
 - Export Credit Guarantee and Insurance Scheme
 - Export Development Fund
 - Export Adjustment Scheme Fund
 - Family Economic Advancement Programme (FEAP)
 - National Economic Reconstruction Fund (NERFUND)
2. There are also international Organizations that provide funds for small and medium enterprises and entrepreneurs. The opportunity is for countries having industrial and economic cooperation among them. Some of these bodies include International Labour Organization (ILO), United Nations Development Programme (UNDP), African Development Bank (ADB), UNESCO, Common Wealth, International Fund for

Agricultural Development (IFAD), Export Development Corporation of Canada (EDC), International Finance Corporation (World Bank), etc. Some developed countries do contribute meaningfully to entrepreneurial growth in developing countries by either giving grants or granting soft loans to developing countries at very low interest rates, sometimes below the country lending rates.

3. The third factor that enhances the prospects of SMEs is the Nigerian entrepreneur himself who despite the hurdles on his way is more determined to succeed. He has the desire, energy, self-confidence, ability to evaluate opportunities and he is committed to the cause not minding the risk involved. In order to avoid failure, the Nigerian entrepreneur needs some degree of freedom to pursue his ideas without interference. Nigerian entrepreneurship possesses inert qualities that are comparable to entrepreneurs in other countries. Entrepreneurs are apt in taking decisions to establish new business ventures. They possess the willingness and ability to seek new investment opportunities, establish and run an enterprise not minding the inherent risks. Adeleye (2007:34-5), Ude (1999) and Udo (2005) summarise the contributions of the Nigerian entrepreneurs/SMEs to include: Development of new markets, discovery of new sources of materials, mobilization of capital resources, introduction of new technology, new industries and new products, creation of employment and enhancing self-reliance/sufficiency.

Conclusion and Recommendation

A technical skill is the practical development of individual potentials in different socio-economic activities targeted at enhancing value addition. While Entrepreneurship development is the ability to bring forth new products with the aid of technical skills or innovative ideas. In this regard, every entrepreneurs venturing into Small and Medium Enterprises should have some innovative and technical skills to enhance the efficient management of their enterprise. Theories have strongly emphasized the importance of the internal resources of the enterprise as the major determinant of success factor (Barney, 1991 Grant, 1991), which means, to remain competitive, priority must be given to the development of human resources viz-a-viz employees engaged in productive activities.

Embracing Technical Education for technical skills in growing Small and Medium Enterprises (SMEs) for the purpose of developing the Nigerian Economy cannot be over emphasized.

Small and Medium Enterprises (SMEs) by themselves are a big laboratory for innovation but due to lack of a systematic approach to managing innovations and technical skills within most of the SMEs, benefits are only short-term. Therefore every Technical Education Centre or Institute in the country should be encouraged to interact with as many SMEs in its neighbourhood to guide and train them on research, technology inputs and up gradation, product improvements, marketing strategies and innovation management.

In order to enable SMEs overcome its problems and enhance their access to new technologies for increasing their competitiveness in the Nigerian market and elsewhere, it is imperative to

give them a conducive environment which includes:

- Proper management and timely release of funds meant for SMEs by relevant bodies,
- Formulation and implementation of appropriate policies in favour of SMEs,
- Building up technological capacity, knowledge flows and technology databases and
- Research and development and interfirm linkages.

Tax/duties structures for SMEs should be kept such that they encourage innovation. SMEs in Nigeria should adopt marketing strategies/practices and research to encourage competitiveness and growth.

Government policies should be in favour or support the establishment of more technical hubs, for the growth of SMEs.

Nigerian entrepreneurs need more government assistance in the following ways:

- i. Government should curtail or stop the importation of certain products that can be produced locally so as to encourage the establishment of more SMEs to flood the markets with Nigerian goods. This will lead to reduction in prices, a higher standard of living and creation of employment for the citizenry.
- ii. Established SMEs should develop more skilled entrepreneurs and managers to man their businesses. Most of the so-called entrepreneurs lack business skills and technical abilities. The Industrial Training Fund (ITF) should be strengthened to meet the present day realities.
- iii. More affordable and accessible means of funding should be created for SMEs so that our budding industries can grow into industrial giants. Financial experts are skeptical of the efficiency and effectiveness of the microfinance banks as they affect the funding of SMEs.
- iv. Nigerian Higher Institutions should make the establishment of Centres of Technical Skill Acquisition and Entrepreneurial Development their utmost priorities. This will facilitate the training and retraining of entrepreneurs and also help our youths to develop interest in skills and entrepreneurship. Nigeria government needs to renovate and equip existing technical schools with modern technologies across the six geopolitical zones. As a follow up to complement government's effort, private individuals and corporations need to make substantial investment in technical education to produce good number of technicians, artisans/craftsmen and women that can add value in various products. In addition, relevant stakeholders in government should ensure that policies and programmes implementation across various institutions that govern economic and social interactions should see light of the day to reap its benefit

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MANAGEMENT OF HOME ECONOMICS CURRICULUM AND GOALS ATTAINMENT IN PRIVATE SECONDARY SCHOOLS

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ABSTRACT

This study investigated the extent to which management of home economics curriculum influence goals attainment of private secondary schools in Cross River State, Nigeria. Stratified random sampling technique was used to select 300 out of a total of 491 private secondary schools in the three education zones of Cross River State. Two instruments were used for data collection namely Management of Curriculum Innovation Questionnaire (MOCIQ) and Goals Attainment Scale (GAS). Out of the 300 private secondary schools, 247 of both questionnaires were successfully administered and retrieved from private secondary schools and used for the study. Data were analysed using descriptive statistics (means) to answer the research question posed by the study and one-way analysis of variance (ANOVA) at .05 level of significance to test the hypothesis. The results showed that the extent of the management of home economics curriculum influences goals attainment in private secondary schools in terms of civic responsibility, National Consciousness and Cultural Value Orientation was high. The result of the hypothesis test revealed that the management of home economics curriculum significantly influences the attainment of Private Secondary School students' civic responsibility, and their cultural value orientation at 0.05 level of significance. Therefore, the management of home economics curriculum in private secondary schools greatly influences their goals attainment. Government should refocus attention in encouraging private secondary schools to prioritize the development and effective management of home economics rather than only focusing on public secondary schools.

KEYWORDS: Management, Home Economics, Curriculum, Goal Attainment, Private Secondary School.

Introduction

Education right from the apprenticeship era of pre-colonial Nigeria had had its focus essentially on the impartation of positive values on citizens. According to Olabisi (2018), the ultimate aim of traditional educational endeavor was to build good character in the individual and to make the child a useful member of the society. These objectives in fact remain the pivots around which western education was revolved in Nigeria. Though the system of education in Nigeria is founded on the same philosophy of positive value re-orientation for citizens, the situation in the country is far from the target objectives. Recently, Nigeria has been ranked

among the most corrupt countries of the world and that she is one of the few African countries that have been unable to improve their scores on the transparency index (Transparency International, 2012). It is to this end that such goals, aims and objectives of education are integrated/articulated in the Nigerian National Policy on Education, which includes respect for the dignity of labour, effective citizenship, better human relations, self-realization, and so on (Federal Republic of Nigeria, 2014). Educational goals in Nigeria are far from been attained. This is in spite of the seeming effort on the part of government and other significant stakeholders of education in the country to bridge obvious gaps in the attainment of such goals.

Home economics is one of the compulsory pre-vocational subjects taught at junior secondary education level in Nigerian education system. According to Ekpo, (2005), home economics is a skill-oriented field of study that is expected to equip learners with survival skills that make for self-reliance, employment and paid employment. Occupational skills are best understood as competency on resourceful skills capable of steering an individual to be self-reliant, independent and productive in meeting life's challenges. According to Ezewu (2002) "occupational skills are life survival skills which an individual need to function effectively and face the challenges of life". Similarly, Fennema, (2002) described occupational skills as those skills, which a person acquires, that help develop in the person, abilities and competencies needed for firm career commitments. Occupational skills in home economics include food and nutrition skills, home management skills and clothing and textile skills. Gresswell (2008) noted that the acquisition of these skills has the capability to augment and inspire productivity, and to further income generating life endeavours among people. By teaching occupational skills, home economics education program enables an individual to learn, explore and prepare for a job or trade. Thus, Home Economics could play a significant role in achieving the goals of the National Economic and Development Strategy (NEEDS). These goals include wealth creation, employment generation, reduction of poverty, elimination of corruption and the general reorientation of values (NEEDS, 2005).

In Home Economics, two things are central in developing occupational skills. Pendargast (2004) described them as the ability to produce and the ability to distribute. The ability to produce involves acquiring productive-occupational skills. Productive-occupational skills enable one to produce goods and services. On the other hand, the ability to distribute includes acquiring entrepreneurial-occupational skills that enable one to market and distribute the goods thus produced. Olibie (2001) noted that these abilities constitute the work oriented, career-oriented or occupational-oriented competencies that attempt to improve the efficiency and productivity of its recipient's attitude required as craftsmen, business men and technicians at a professional or sub-professional level. Without teaching occupational skills, Home Economics educational program would fail in its role of empowering students to cope with the daily needs of life and surmount the economic challenges that appear to effect every profession and works of life studies into the teaching and learning of home economics in secondary schools. Ajala (2002) and Ekpo (2005) lamented the inability of most secondary school graduates of Home Economics to effectively apply occupational skills to ensure productive living. As a result of this lack of skills, students continue to lose interest and cannot perform successfully in their life careers. Presently, many graduates of home economics are not sure of

their employment. Nwagwu, (2008) noted that many of the graduates are unemployed, impoverished and belong to the lower class. In addition, many secondary school leavers have no decent jobs and have no capacity to start their own business after graduation, (Oloidi, 2000). Thus, many are under-employed and cannot raise their living standard through the application of occupational skills and so they remain relatively poor.

Home Economics is one of the subjects needed by every individual irrespective of the person's profession. For anyone thriving to be self-reliant and independent, the knowledge of Home Economics is necessary. Unfortunately, students' performance in the subject has not been encouraging especially at the post basic education level (secondary schools). Post basic education level is the intermediary level between the basic and tertiary level where systematic and organized education is offered. It is believed that at this level of education, desired attitude, skill and knowledge could be obtained by the recipients. This study aims at answering the question, to what extent does the management home economics curriculum influence goals attainment by private secondary schools in Cross River State, Nigeria.

Method

This study used a survey design. Stratified sampling was used to selected schools for the study. This was done in order to obtain an adequate representative sample of principals from all the eighteen (18) local government areas constituting the three educational zones. The simple random sampling method was used to ensure that each school had equal and adequate chance of being selected. The purposive sampling technique was used in the selection of six (6) teachers in each of the sampled school to assess the principals' effective management of home economics curriculum. The sample size of the study was 300 private secondary schools in Cross River State.

The instruments used in this study were two sets of survey questionnaires. The first questionnaire was on management of curriculum in private secondary schools. It was designed for teachers to assess their principals' on the effectiveness of the management of curriculum innovations. The second set of questionnaire was on goals attainment in private secondary schools questionnaire (GAIFSSQ). This is to be completed by students who were meant to assess attainment educational goals in private secondary schools. Out of the 300 private secondary schools, copies of both questionnaires were successfully administered and retrieved from 247 private secondary schools sampled for the study.

Both the management of home economics curriculum and goal attainment of private secondary school were designed on the modified four point likert-type scale with various weight as follows: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. The research question was analysed using means and standard deviation while the hypothesis of the study was tested at .05 level of significance using one-way analysis of variance (ANOVA). One-way ANOVA was applied with the categorized management of home economics curriculum as factor and each of the goals attainment sub-variables as dependent variable. The F-ratio test was also applied.

Results

Research Question

What is the extent to which the management of Home Economics Curriculum influences goals attainment in private secondary schools?

Table 1: Mean rating of the extent of management of Home Economics Curriculum and goals attainment

	Extent of mgt Home Econs. Curriculum	N	\bar{x}	Sd	Std Error
National Consciousness	High	25	23.160	3.912	.782
	Average	189	22.730	3.737	.272
	Low	33	21.667	3.028	.527
	Total	247	22.631	3.677	.234
Civic Responsibility	High	25	23.960	3.323	.665
	Average	189	22.513	4.015	.292
	Low	33	20.273	4.002	.697
	Total	247	22.360	4.043	.257
Skills Acquisition	High	25	20.240	5.254	1.051
	Average	189	20.910	4.274	.311
	Low	33	20.636	3.983	.693
	Total	247	20.806	4.331	.276
Cultural Value Orientation	High	25	23.120	5.003	1.001
	Average	189	22.042	4.026	.293
	Low	33	20.546	3.536	.616
	Total	247	21.951	4.107	.261

Test of Hypothesis

There is no significant relationship between Management of home economics and goals attainment by private secondary schools.

Table 2: One-way ANOVA goals attainment variables by level of effectiveness of Management of home economic curriculum

Dependent variable	Source of variation	Sum of squares	Df	Mean square	f-value	p-value
National Consciousness	Between groups	39.542	2	19.771	1.468	.232
	Within groups	3285.931	244	13.467		
	groups	3325.474	246			
	Total					
Civic Responsibility	Between groups	212.209	2	106.104	6.797*	.001
	Within groups	3808.722	244	15.610		
	groups	4020.931	246			
	Total					
Skills Acquisition	Between groups	11.005	2	5.502	.292	.747
	Within groups	4603.667	244	18.867		
	groups	4614.672	246			
	Total					
Cultural value orientation	Between groups	100.934	2	50.467	3.042*	.050
	Within groups	4048.483	244	16.592		
	groups	4149.417	246			
	Total					

*significant at .05 level = $P \leq .05$ **Table 3: Fisher's least significant difference (LSD) pair-wise comparison of goals attainment variables by level of mgt. of Home Economics Curriculum**

Goals attainment variable	Level of mgt. of Home Econs.	Level of mgt. of Home Econs.		
National Consciousness	High	High	Average	Low
	High	23.960	1.447	3.687*
	Average	.087	22.513	2.240*
	Low	.001	.003	20.273
Civic Responsibility	High	23.120	1.078	
	Average	.215	22.042	
	Low	.018		
Cultural Value Orientation	High			
	Average			

Low

Discussion of Result

Table 1 shows the extent of management of home economics curriculum and goal attainment in private secondary school. The result reveals that the extent of the management of Home Economics Curriculum in terms of civic responsibility, National Consciousness and Cultural Value Orientation was high (\bar{x} = 23.960, 23.160 and 23.120) respectively. This implies that the level of management of home economics curriculum and goal attainment is high in private secondary schools.

The result of the null hypothesis which states that there is no significant influence of management of home economics curriculum and goals attainment in private secondary schools is presented in Table 2. The result indicates that the p-value against civic responsibility and cultural value orientation respectively (.001 and .050) are less than or equal to .05. Those for national consciousness and skills acquisition (.232 and .747) are greater than .05. Therefore, the null hypothesis is rejected for civic responsibility and cultural value orientation and retained for National consciousness and skills acquisition. This means that management of Home Economics curriculum significantly influences the attainment of Private Secondary School students' civic responsibility, and their cultural value orientation. However, National Consciousness and Skills Acquisition is not significantly influenced by the management of Home Economics curriculum.

Table 3 presents the fisher's least significant difference (LSD) pair-wise comparison test. For civic responsibility, the mean differences of high and low, average and low levels of effectiveness of management of Home Economics curriculum were significant (MD=3.687, P=.001, MD=2.240, P=.003) for cultural value orientation, only the difference in group means between high and low levels was significant (MD=2.574, P=.018).

The null hypothesis assert that, management of Home Economics curriculum does significantly influence the goal attainment of principals. But the result of data analysis disclosed a relevant effect of management of curriculum innovation on goal attainment of principal with reference to the natural consciousness, civic responsibility, skills acquisitions and cultural value re-orientation. Therefore, the null hypothesis was not accepted and the alternate was approved. The degree of management of Home Economics was categorized into three levels, high average and low while principal goal attainment variables was also measured by four indices namely Natural consciousness, civic responsibility, skills acquisition and cultural value re-orientation.

A close look at the analysis depict that principals who rated their management of Home Economic to be very high had higher mean for goal attainment in relation to natural consciousness, civic responsibility, skills acquisition and cultural value, re-orientation than others from the two groups. The implication of this study is that the management of Home Economics to principal aids goal attainment. It follows that those principals who properly employed management of Home Economics curriculum, will certainly out-perform their counterpart from the other two camps who do not. The above position in it's entirely is true

about the desirable goal attainment. The reason is that, appropriate utilization of management of Home Economic by principal's facilities positive goal attainment.

The current findings affirm the previous findings by Udonwa (2015) and Ogungbemi (2012) found a relevant favourable variance in the accomplishment of Home Economics students in secondary school when management of curriculum innovation are used to teach students. According to him the use of management of Home Economics curriculum in the teaching and learning of Home Economics obviously enhance the goal attainment of students. Schools were advised to provide to implement the changes in the curriculum.

Conclusion

The management of home economics curriculum significantly influence goal attainment among students in terms of civic responsibility, and their cultural value orientation. Effective compliance of private secondary school principals with the policy of the management of home economics curriculum in their schools performs better in their overall goal attainment compared to other principals. Private secondary schools should be encouraged to teach occupational skills, this will empower students to cope with the daily needs of life and surmount the economic challenges that appear to affect every profession and works of life Government should refocus attention in encouraging private secondary schools to prioritize the development and effective management of home economics rather than only focusing on public secondary schools.

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INTEGRATION OF SUSTAINABLE MESSAGING IN PUBLIC RELATIONS CAMPAIGNS: A STUDY OF SELECTED BANKS IN ABRAKA METROPOLIS

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ABSTRACT

This study explores the integration of sustainable messaging in PR campaigns. Sustainability has gained its spot as an important dimension of organizational communications by incorporating it into public relations campaigns. Hinged on the Two-Way Symmetrical Communication Model, the study focuses on identifying effectiveness, as well as alignment between organizational values and sustainable messaging in PR programs, taking into account the ever-changing opinion and current trends concerning eco-friendliness. The study combined qualitative and quantitative methodology in a bid to uncover the best way organizations can link their corporate responsibility communication with sustainability. With a hardcopy of questionnaire, data was gathered purposively from 200 respondents drawn from employees of five banks in Abraka metropolis. Findings show that integration of sustainability in PR campaigns is a strategy that organizations and corporations can leverage on to communicate effectively the mission and vision of the organization to employees to enhance transparency and inclusive culture in the workforce. This study contributes to the existing discourse on the sustainability of public relations, providing valuable information that benefits scholarly analysis and practice. Finally, this research expands knowledge about the contribution of PR towards environmental sustainability and improved corporate image perceptions among stakeholders.

KEYWORDS: Integration, Sustainable, Messaging, Public Relations and Campaigns

Introduction

There has been an obvious paradigm shift in the way organizations think of and communicate about sustainability over the past few years. With increasing global consciousness about environmental and social concerns, stakeholders such as consumers, investors, and communities have come out to demand that corporations not only engage in green business but effectively communicate this business strategy too. The entrance of public relations into corporate organizations has shown how vital its application is to any business that is striving to stand and remain standing against competitors. (Ivwithren & Umukoro, 2022; Investopedia, 2023). In this regard, public relations (PR) becomes one of the most important instruments that helps link an organization with its audience. Sustainable messaging in PR evolved as firms realized that environmental and social responsibility should not be confined to philanthropy, but has important ramifications for business survival in the long run. In the past, public relations efforts tended to be centered around the promotion of products or services, in today's world people want a more lasting relationship with brands that share their values. Therefore, it requires a deep knowledge of how sustainability integrates into organizational communication for effective communication that is genuine for stakeholders.

In recent times, the concept of sustainability has radically changed to reflect shifts at societal levels. The dynamic character of sustainability alongside fast transformations occurring in the environment calls for investigations. Sustained communication is a technique of public relations campaign used in the banking sector to market ESG practices (Rafiqoh, 2020). Such a form of messaging is much more than traditional marketing that shows the bank's concern with environmental sustainability, ethical business conduct, and positive social impact. Several empirical studies such as that of Abubakri, Ogodo, & Adedowole, (2014), Hashiguchi, (2018), Mehdi, (2022), and Decrinis, Freibichler, Kaiser, Sunstein, & Reisch, (2023) have investigated the role of and how organizations integrate sustainability into their PR practices, exploring the issues, perspectives, and strategies involved. This research on sustainable practice in PR is not only about what happens in practice today in this business but it also looks into possible future ways of adapting communication strategies to new realities associated with increasingly complicated and interdependent international problems. Thus, using four banks in Abraka as a case study of corporate organizations, this study aims to examine the effectiveness of sustainable messaging in PR campaigns while highlighting the role of digital platforms in the process. The background section will also try to establish the link between organizational values and sustainable messaging. The study aims to provide practical guides that will enhance the understanding of why sustainable messaging in PR should be relevant in corporate and institutional communication now as well as in future conditions when stakeholders set new demands on organizations.

Objectives of the Study

The specific objectives of the study are to:

1. Evaluate the effectiveness of sustainable messaging in PR campaigns
2. Explore the role of digital platforms in sustainable messaging in PR

3. Examine the alignment between organizational values and sustainable messaging

Research Hypothesis

H₁: There is no significant correlation between the degree of sustainable messaging integration in public relations campaigns and employees' perception of an organization's commitment to sustainability.

H₂: There is no significant relationship between organizational values sustainability within an organization and sustainable messaging in PR campaigns.

Literature Review

Sustainable Messaging

Stakeholder integrity in organizations emphasizes sincerity and transparency in sustainability commitments. Integrating messages into all communication systems, including traditional and digital channels, promotes stakeholder inclusion (Sun, Davey, Arunachalam & Cao, 2022). Sustainable PR evolves, demonstrating an organization's sustainability goals and learnings. Trust is built through a longitudinal approach, allowing organizations to succeed even when traditional methods fail. Sustainable communication focuses on environmentally friendly, profit-making practices while respecting workers' rights and society (Grushina, 2017). Organizations must manage relationships with diverse stakeholders in a complex social environment posed by societal and environmental issues (Decrinis, Freibichler, Kaiser, Sunstein, & Reisch, 2023).

Sustainable Messaging in PR as a Concept

According to Weder (2021), involving stakeholders in organizational decisions is essential in the present sustainability movement, associated with the social license to operate and specific forms of communication in, from, and about organizations with an impact orientation. Public relations (PR) is the practice of managing communication between an organization and its public whose goal is to build positive relationships with stakeholders, influence public opinion, and build a positive image for the organization using communication mechanisms are the tools and strategies to achieve the PR goals (Abubakri, Ogodu, & Adedowole, 2014). In the realm of public relations (PR) communication mechanisms, sustainable messaging is a strategy communication aimed at incorporating both environmental, social, and economic sustainability aspects into organizational (Long, 2019). The concept of sustainable communication aspires to move the idea of sustainability away from just corporate actions and into the realm of dialogue between the organization, its stakeholders, and consumers. However, the message is sustainable as it focuses not only on products and services but also on how organizational values relate to broader societal or environmental issues (Salnikova, Strizhakova, & Coulter, 2022). Sustainable messaging in PR emphasizes an organization's environmental responsibility, social equity, and economic sustainability, promoting harmonious wellness of the environment, individuals, and economic progress. This shift from conventional PR practices involves a responsible environmental approach arising

from its evolution. Some key milestones in the evolution of sustainable PR according to Yadav, Kar & Kashiramka, (2021) include:

Early Emphasis on Corporate Social Responsibility (CSR): The concept of corporate social responsibility became popular in the mid to late twentieth century (Yevdokimova, Zamlynskyi, Minakova, Biriuk & Ilina, 2019). PR practice started integrating features of CSR, focusing on the organization's responsibilities not only in terms of profits but also for society and the environment.

Integration of Sustainable Development Goals (SDGs): The UN's Millennium goals in 2015 gave birth to new sustainable PR strategies that were geared toward the realization of sustainable development (Long, 2019). Eventually, it led to organizations linking these SDGs with their communication strategy that highlighted their dedication to resolving the world's issues like climate change, poverty, and inequality (Ferretti, 2018).

Rise of Purpose-Driven Communication: Communication in the early part of the 21st century was directed towards specific goals. This is where organizations began stressing their core values as well as contributions towards sustainability which they wove in their brand narratives (Abubakri, Ogoto, & Adedowole, 2014). The need for products that reflect their consumers' beliefs forced organizations to emphasize their *raison d'être* rather than just profit.

Authenticity and Transparency in Communication: There is an increasing need for genuine openness in communication in recent times. The millennial and Gen Z generations are among the stakeholders who expect organizations to mean what they say. The resultant change and a more analytical outlook towards greenwashing activities have made it crucial for companies to provide valid proof of the sustainability claims they make (Dumitru, Guse, Feleagă, & Mangiuc, 2015).

Ongoing Adaptation to Global Challenges: Sustainability PR practice continues to adapt, changing with ever-changing global challenges like climate change, justice matters, and the COVID-19 pandemic (Mehdi, 2022). In today's world, organizations are often expected to take on board these challenges within their communication strategies by showing flexibility and reactivity. However, the emergence of sustainable PR can be viewed as part of the wider trend towards communicating ethical and meaningful corporate messaging (Gillan, Koch & Starks, 2021).

Role of Digital Platforms in Sustainable PR

The emergence of digital platforms has transformed how businesses interact with their stakeholders. Sustainable PR efforts are now using digital channels, social media, and the web to spread pertinent information, connect to diverse stakeholders, and cultivate a more open debate on sustainability (Kassing & Armstrong, 2022). Sustainable PR harnesses the capabilities of digital technology, data analysis, and online channels to create targeted, measurable, and impactful campaigns in the ever-evolving digital landscape. With the associated benefits of digital, several businesses around the world are seeking to improve the image, visibility, and spread of their brand (Liang, & Ma, 2022; Ivwighren, Igben & Ogwezi,

2023). The role of digital platforms in sustainable Public Relations (PR) has become increasingly crucial in the contemporary communication landscape. Below is an exploration of how organizations leverage digital platforms to effectively communicate and promote their sustainable practices, fostering engagement, transparency, and authenticity through:

Enhanced Visibility and Reach: Digital platforms like blogs, social media, and personal websites allow for instantaneous exposure for organizations beyond boundaries and borders (Gretter & Yadav, 2018). These sustainable PR initiatives can be disseminated across borders, thus increasing awareness and participation worldwide. Digital platforms allow companies to send out information on various aspects of their sustainability strategies without delay (Valdiviezo-Abad, Puertas-Hidalgo & Camacho, 2021; Valentini, 2015).

Real-time Engagement with Stakeholders: Digital media allows for instant and authentic dialogue among multiple actors. Organizations can understand instantaneous views and opinions about their sustainable actions through commenting, sharing, and liking tools (Yuen, Wang, Wong & Li, 2020). It strengthens the notion of a community since organizations get to respond quickly to any query, concern, or information they can share via this direct interaction which helps build the required transparency and trust.

Data Analytics for Informed Decision-Making: It is also possible for organizations to explore the utility of analytical tools that are embedded in digital platforms, which may help organizations understand how effective their sustainable PR has been (Bolton, 2018). The effect of sustainability messages in terms of engagement rates reach, and audience demographics is measured quantitatively using metrics. The use of a data-driven strategy enables organizations to fine-tune their approaches in response to current information and customer choices.

Crisis Management and Rapid Response: Sustainable PR requires digital platforms, which function effectively in crisis management, to perform as indispensable instruments (Hashiguchi, 2018). Swift responses by organizations in handling misinformation will protect them from reputation damage. Digital communication enables instantaneous response mechanisms, allowing organizations to publicly state their position in times of crises relating to sustainability.

Global Collaboration and Partnerships: Digital platforms help in global joint undertakings on sustainability. Through such connections, organizations can reach out to like-minded organizations and other NGOs all over the world as well as to influencers whose aim will be to amplify their sustainability messages (Yuen, Wang, Wong & Li, 2020). Sustainable campaigns done collaboratively and propagated on digital platforms can result in more attention and support for common sustainability objectives. As much as it can be debated, digital platforms serve very diverse functions in sustainability PR providing organisations with robust vehicles of communication, advocacy, and interaction. Utilizing the dynamic capabilities of those platforms allows companies to genuinely reflect their pledge towards sustainability, engage stakeholders, and be part of the worldwide conversation about ecological and societal issues (Bari, Chimhundu, & Chan, 2022).

Alignment Between Organizational Values and Sustainable Messaging

Public Relations and its authenticity is determined by the alignment of organizational values with the sustainable message. This linkage helps maintain stakeholder relevance, and consequently, builds confidence among the different constituents. It is important in a sustainable PR as scholars point out. In their views, Hawrysz & Maj, (2017), contend that organizational values congruent with communication messages enhance stakeholder inclusion as it becomes even more effective when it resonates with authentic communication and aligns with organizational beliefs. According to Kim & Ni (2013), such kind of discontent can occur between what the institution claims to be its core values and the real practices. There is a growing focus on realism associated with environmental and social responsibility as organizations seek commitments from consumers who want to know if their money will be used by these groups to protect the environment they live in, as well as society. Further, Gkogkos, (2021) notes that authenticity enhances trust in sustainability issues among stakeholders and improves the validity of organisations' sustainability messages. Commitment to sustaining values is perceived by stakeholders as true, hence stakeholder support and engagement lead to good relations. Such integration ensures that sustainability will be more than just a public relations program, it will constitute part of the basic fabric upon which the organization is founded. Effective sustainable PR hinges on alignment between organizational values and sustainable messaging (Bernal, Edgar & Burnes, 2018).

Theoretical Frameworks

The Two-Way Symmetrical Communication Model, developed by James Grunig and Todd Hunt, is a communication approach that emphasizes mutual understanding and engagement between organizations and their stakeholders (Rolos, 2020; Pir, 2019). It is particularly relevant in sustainable Public Relations (PR) as it advocates for open dialogue, transparency, and mutually beneficial relationships. The model emphasizes understanding stakeholders' perspectives, values, and concerns, actively listening to diverse voices, and demonstrating transparency and authenticity. It encourages continuous feedback, adaptation initiatives, and interactive improvements to remain responsive to changing stakeholder expectations and sustainability challenges. The model also emphasizes addressing conflicts and building long-term, collaborative relationships, fostering a culture of shared responsibility for sustainability. In essence, the model promotes a more transparent, authentic, and collaborative approach to communication in the context of sustainability (Browning, 2015; Eller, 2015).

Research Method

This study combines both qualitative and quantitative methods which allows for a comprehensive understanding of the integration of sustainable messaging. Quantitative data gathered from employees of five banks in Abraka metropolis (United Bank for Africa, Zenith, First, Fidelity, and Eco banks) provided measurable insights, while qualitative data from stakeholders, PR professionals, and campaign managers offered in-depth perspectives. For the survey, 200 copies of the questionnaire were structured using the Linkert Scale to gather quantitative data on employees' perceptions, opinions, and experiences regarding sustainable

messaging in PR campaigns. 40 copies were distributed to staff of each bank who were selected purposively as respondents and 192 copies were retrieved and analysed. Interviews were conducted with key stakeholders, PR professionals, and campaign managers to gain qualitative insights into the strategies associated with integrating sustainable messaging. For statistical analysis to interpret survey data, identifying patterns, correlations, and significant differences in stakeholders' perceptions of sustainable messaging, Stata 15.0 software was applied. The P-value of less than (<) or greater than (>) 0.05 decides the reject or failure to reject the hypothesis respectively. Informed consent was obtained from all participants, ensuring transparency regarding the research purpose, procedures, and potential outcomes.

Data Presentation

Table 1: QUESTIONNAIRE Presentation

Distributed	200
Retrieved	192
Analysed	192
Difference	8
DIFFERENCE IN PERCENTAGE	2%

Demographic Data

The variables are presented in pie charts and bar charts to show gender, role in the bank, and years of experience at the bank providing descriptive insight of the sampled respondents. Age and marital status were deliberately not observed by the researcher because all respondents are considered adult employees in a bank and the marital status was considered irrelevant to the needed data. The demographic details are presented below:

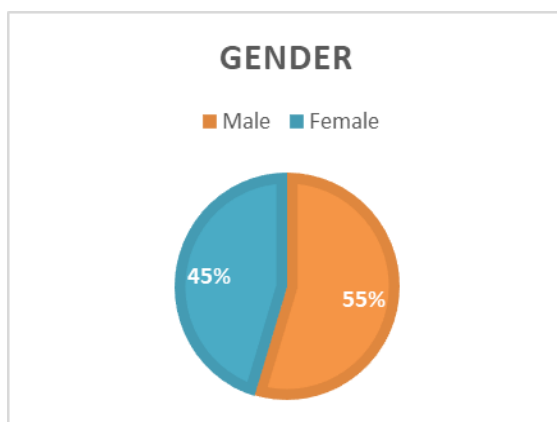


Figure 1: Gender of Respondents

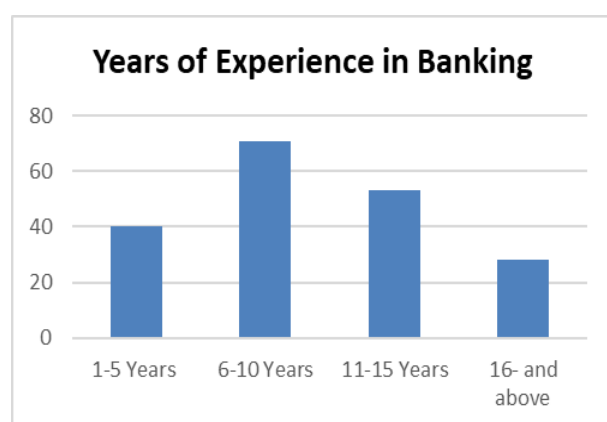


Figure 2: Years of Experience in Banking

With a 10% difference, the pie chart above for Figure 1 is a clear indication that the numbers of males are higher at 55% as against females who are 45%. Figure 2 bar chart denotes the years of experience of the respondent. It shows that 37% of the respondents have 6-10 years

of banking experience, whereas, about 28% have 11-15 years of experience. 20% have just 1-5 years as against 15% with 16 and above years of experience.

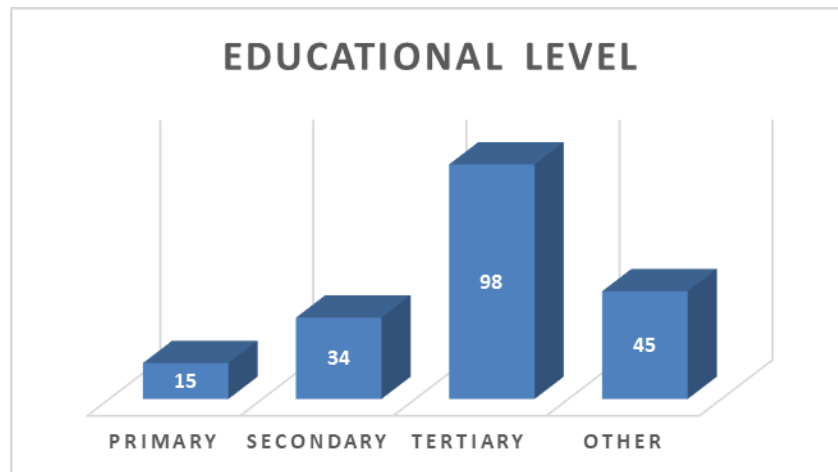


Figure 3: Educational Level

The 3-D column bar chart in Figure 3 shows that the bank employees all have formal education of different levels as 51% have tertiary education, 23% have other forms as against 18% with secondary education and 8% primary education.

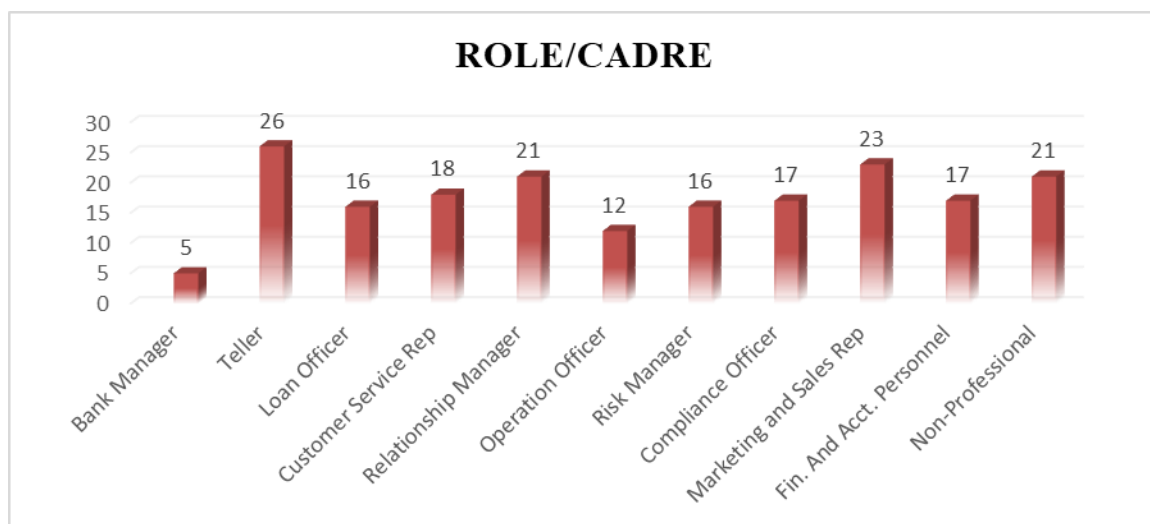


Figure 4: A Bar Chart on the work cadre of the respondent in the bank

The above bar chart in Figure 4 is a description of the different cadre or roles of employees in the banks. It is digitally clear from the above that every cadre of the employee is represented proportionally in the study.

Thematic Variables

Table 2: Effectiveness of Sustainable Integration of PR Campaigns in Banking (EFFSUSPR)

S/N	QUESTIONNAIRE ITEMS	SA 5	A 4	NEU 3	SDA 2	DSA 1	TOTAL
1	The integration of sustainable messaging enhances the credibility of public relations campaigns by banks.	61	79	43	7	2	192
2	I am very likely to be engaged with a PR campaign by a bank that effectively integrates sustainable practices.	72	60	45	11	4	192
3	The integration of sustainability in public relations campaigns by banks is essential for addressing environmental concerns.	81	67	22	10	12	192
4	The integration of sustainable messaging positively influences my perception of a bank's commitment to social responsibility.	73	79	19	14	7	192
5	I believe public relations campaigns by banks should prominently feature their commitment to environmental sustainability.	91	75	12	8	6	192
Average		76	72	28	10	6	192

Table 2 visibly shows where the respondents stand on the effectiveness of sustainable integration of PR campaigns in banking. Going by the average, the loudest voice in the opinion given as 76(40%) strongly agree on the effectiveness of sustainable integration of PR campaigns suggesting a total disregard of the 6(3%) who strongly disagree.

Table 3: Role of Digital Platforms in Sustainable Messaging in PR (RODIGPL)

S/N	QUESTIONNAIRE ITEMS	SA 5	A 4	NEU 3	SDA 2	DSA 1	TOTAL
6	Digital platforms (social media, corporate websites, etc.) effectively convey a company's sustainability efforts.	84	79	17	9	3	192
7	Social media plays a significant role in disseminating sustainable messaging compared to traditional media.	69	83	26	12	2	192
8	I am more likely to engage with sustainable messaging on digital platforms than through other communication channels.	56	78	28	21	9	192
9	Corporate websites should prominently feature a company's commitment to sustainability.	74	58	44	12	4	192
10	Sustainable messaging on digital platforms influences my perception of a company's environmental and social responsibility.	83	79	19	8	3	192
	Average	73	75	27	12	4	192

Table 3 above was used to highlight the respondent's opinion on the role of digital platforms in sustainable messaging in PR campaigns. On average, it was concluded that the majority of the respondents 75 (39%) strongly agree that the role of digital platforms is huge in sustainable messaging as against just 12 (6%) with contrary opinion`.

Table 4: Alignment Between Organizational Values and Sustainable Messaging (ALBETORG)

S/N	QUESTIONNAIRE ITEMS	SA 5	A 4	NEU 3	SDA 2	DSA 1	TOTAL
11	The company's mission and vision are reflected in our sustainable messaging efforts and sustainability.	62	76	49	4	1	192
12	The messaging in external PR campaigns aligns with the actual sustainable practices of the organization.	71	75	38	5	4	192
13	The sustainable messaging in our PR campaigns reflects the core values and principles of our organization.	65	92	18	12	5	192

14	The sustainable messaging in our PR campaigns reflects the core values and principles of our organization.	69	73	26	17	7	192
15	Employees perceive that the company's commitment to sustainability matches the sustainable messaging portrayed externally.	71	77	22	10	12	192
Average		67	79	31	9	6	192

In Table 4, alignment between organizational values and sustainable messaging has a clear position on average as the majority of the respondents 79 (41%) strongly agree in contradiction to 6 (3%) who strongly disagreed.

Qualitative Data Presentation

Stakeholder and PR Professional insights on how important the integration of sustainable messaging in PR campaigns in banking is from a Stakeholder and PR Professional's perspective. Due to the sampling process, interviews took place over the phone after establishing verbal consent and spanned approximately 25 minutes. The process followed a framework of introductory questions about the interviewee's background, current position, projects relating to sustainable messaging, PR campaign, and perceptions of inclusiveness and transparency shifts in the organizations as a whole. There was no use of an organization or individual names to maintain the anonymity of the participants. The responses are summarized as reflected below:

In this case, transparency and long-term vision are highly regarded, with sustainable messaging being a bonus and critical indicator of a bank's ethics and resilience in the long term. It enables the banks to convey their sustainability effort in an effective manner, which indicates the level of management quality and risk avoidance strategies within those institutions. It is an important consideration for any investing decision. This is a tightrope to walk, more so, in banking whose performance matters most. Other than this, authenticity becomes a concern that can be overcome by refraining from greenwashing and ensuring that the sustainable message matches actual practices. Storytelling was emphasized as an important ingredient of sustainable messaging among stakeholders and PR experts. A focus on narratives depicting how banking programs affect people and nature. This also entailed discussing how to engage and keep customers loyal by involving them in a sustainability discourse. The above-mentioned qualitative findings represent the views of stakeholders, as well as those of the public relations players in the banking arena concerning sustainable messaging. This includes demonstrating the importance of transparent communication storytelling, truthfulness, and sustainability in messaging for different stakeholders and their responses toward business decisions.

Test of the Hypotheses

Hypothesis One- H₁: There is no significant correlation between the degree of sustainable messaging integration in public relations campaigns and employees' perception of an organization's commitment to sustainability.

Table 5: Spearman's Rank Correlation

Source	Output	Decision
Number of obs	192	Reject
Spearman's rho	0.2970	
Prob > t	0.0000	

(Computation Output from Stata 15.0, 2023)

Table 5: Result for the significant correlation between the degree of sustainable messaging integration in public relations campaigns and employees' perception of an organization's commitment to sustainability done by measuring the effectiveness of sustainable integration in PR Campaigns in banking (EFFSUSPR) with the role of digital platforms in sustainable messaging in PR (RODIGPL). From the result of the test, the P-value of 0.0000 is less than the level of significance of 0.05, so the null hypothesis is rejected.

H₂: There is no significant relationship between organizational values sustainability within an organization and sustainable messaging in PR campaigns.

Table 6: Spearman's Rank Correlation

Source	Output	Decision
Number of obs	192	Reject
Spearman's rho	0.0130	
Prob > t	0.8579	

(Computation Output from Stata 15.0, 2023)

Table 6: Is the result of a significant relationship between organizational values sustainability within an organization and sustainable messaging in PR campaigns. This was done by measuring the effectiveness of sustainable integration in banking PR campaigns (EFFSUSPR) with alignment between organizational values and sustainable messaging (ALBETORG). Since the P-value of 0.8579 is less than the level of significance of 0.05, the null hypothesis is rejected.

Discussion/Conclusion

Preliminary findings indicate that co-operate organization engagement in public relations has undertaken various initiatives to sustain development and growth. The positive relationship that exists between sustainable messaging integration in public relations campaigns and employees' perception of an organization's commitment to sustainability as seen in the tested hypothesis affirms the study of Mehdi, (2022) that an organization's sustainability is related to its ability to strike a balance with its environment for opportunities, changes, trends, and risk management. These include different strategies and initiatives such as communication with employment and transparent collaborations with stakeholders. The intersection of sustainable messaging and PR is in line with the study of Abubakri, Ogoto, & Adedowole, (2014) that sustainable messaging is a never-ending commitment by organizations to behave ethically by relating the organization's mission and vision to the workforce and stakeholders to sustain trust and show transparency. Such initiative is in agreement with the two-way Symmetrical Communication Model that emphasizes mutual understanding and engagement between organizations and their stakeholders for it advocates for open dialogue, transparency, and mutually beneficial relationships (Rolos, 2020).

From the second hypothesis tested, the alignment between organizational values sustainability within an organization, and sustainable messaging in PR campaigns was established. This reaffirmed the study of Decrinis, Freibichler, Kaiser, Sunstein, & Reisch, (2023) the application of sustainable messaging strategy as a management practice to promote change in employee behavior for corporate sustainability holds a strong correlation. It further corroborates the findings of Hashiguchi, (2018) that one important factor in the integration and expectation for increased depth of sustainable messaging strategy emerged from the changing demographics of the workforce both in PR campaigns and in practice. Just as previous research shows, employees play a significant role in changing corporate culture by bringing their social causes to the forefront of their work with supported claims that a more socially conscience workforce enhances professional intentions and goals. The qualitative data provided further insights into the effectiveness of these initiatives and their alignment with organizational values of transparency, inclusiveness of all parties, and a stronger bond of trust with all stakeholders.

Contribution to Knowledge

1. Integration of sustainability in PR campaigns is a strategy that organizations and corporations can leverage to communicate effectively the mission and vision of the organization to employees and enhance transparency and inclusive culture in the workforce.
2. Organizational values sustainability has a strong link with sustainable messaging in PR campaigns that can promote better ethics among employees, enhance the trust of stakeholders, and maintain a positive image within and in the environment of operations.

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HUMAN RESOURCE MANAGEMENT VALUE CHAIN ADVANCED MODEL AND ORGANIZATIONAL SURVIVAL

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ABSTRACT

The HRM Value Chain Advanced Model is a conceptual framework that describes the various activities and processes involved in managing human resources within an organization. This model goes beyond traditional HRM practices and focuses on the integration of HR activities with overall business strategies and goals. Organizational survival refers to the ability of a company to sustain itself and thrive in a competitive business environment. In today's rapidly changing and dynamic market, the survival of organizations depends on their ability to effectively manage their workforce and adapt to evolving business needs. The HRM Value Chain Advanced Model plays a crucial role in enhancing organizational survival by aligning HR practices with business objectives. This model identifies key HR activities and processes, such as recruitment, selection, training and development, performance management, and reward systems, and establishes the linkages between these activities and organizational outcomes. By adopting this model, organizations can create a competitive advantage by developing a skilled and motivated workforce, improving employee engagement and productivity, and fostering a culture of continuous learning and innovation. This, in turn, enhances overall organizational performance and ultimately contributes to its survival and success. The HRM Value Chain Advanced Model emphasizes the strategic role of HR in driving organizational success. It highlights the importance of HR practices in attracting and retaining top talent, facilitating knowledge sharing and collaboration, promoting diversity and inclusion, and creating a positive work environment. Furthermore, this model recognizes the interconnectedness of HR activities and their impact on various organizational outcomes, such as financial performance, customer satisfaction, and employee well-being. It emphasizes the need for HR professionals to collaborate with leaders and managers across the organization to ensure that HR practices are aligned with the strategic direction and goals of the business. In conclusion, the HRM Value Chain Advanced Model is a valuable tool for organizations seeking to enhance their survival and success in today's competitive business environment. By incorporating this model into their HRM practices, organizations can effectively manage their human resources, align their HR activities with business strategies.

KEYWORDS: HRM, HRM Value Chain Advanced Model, Value Chain, Organizational Survival, HRM Practice, Performance Management, Employee Diversity and Inclusion.

Introduction

The information age has changed many of the classical business activities by altering the core values and management principles. Human resources management has also changed and has adapted to the new challenges of the 21st-century information age. The hunt for knowledge and for the determined business value is driven by more complex and far-reaching human resources activities. Companies must change their classic view on human resources to prevail and succeed in the new complex and fast-paced century. Human resources have changed its working principles to fit the requirements of constant data, information, and knowledge hunting and morphed into a proactive and dynamic business value driver. The main objective of the paper is to show and document that human resources management is a 21st-century business value and knowledge driver that business organizations must use in their quest for the ultimate competitive advantage.

When discussing a business or a business organization the concept of human resources cannot be ignored. Right next to the viability of the business idea and the needed business capital the human resources are an essential element that supports a business idea to become reality by transcending from just a well-thought business plan to an operational, activating organization. A business organization can be defined as an entity formed for the deployment of commercial activities by making use of resources to create value for its shareholders. One of the critical resources that a business organization needs to control and use is human resources. Like any other business resource, also human resources, represented by the employed or needed staff/employees need to be properly managed and handled to reach the defined business organization goal. Since the very early stages of development of human society, there was a clear need for attracting, retaining, training and developing the best available people for the achievement of an organizational goal. “During pre-historic times, there existed consistent methods for selection of tribal leaders. From 2000BC to 1500BC, the Chinese used employee screening techniques while Greeks used an apprentice system.” (Tubey, et al., 2015).

The 21st century has come with a lot of changes and challenges to the daily life of humans. One major change in the daily life of humans is determined by the information age that started in the 1990s with the breakthrough of electronic data processing. The massive adoption and rapid development of information technology have led to a paradigm shift in business management and business philosophy. Data, information, and knowledge have become the prime commodities of the information age of the 21st century. Business organizations, like any organization, are generating data, information, and knowledge from within their own organizations.

Definition of Concepts

The human resource Value Chain advanced model is an essential advanced tool used to show the added value of human resource and how human resource contributes to business goals through human resource processes and practices. (Jill Romford, 2021).

Value Chain Model It is a design including a number of main activities and supportive activities performed by the organization to achieve its objectives and competition where organization analysis and installation are performed through this model to identify its current and future resources contributing to the achievement of an added value to the organization and its clients better than the rival organizations (Stevenson, 2007).

Human Resources Management Activities It is a set of activities within the value chain model that are classified among the supportive activities and contributing to Staff development, which leads to the achievement of competition and the new value of the organization (Alnidawi, 2009). **Organizational Sustainability:** It is the process of successful sustainability and continuity creation of the organization in various fields in the light of an unstable business environment and contributes to the achievement of the organization's objectives with high efficiency and effectiveness in a continuous manner (Alnidawi, 2015).

It is a useful tool for demonstrating how the HR department contributes to the achievement of business objectives. It is true that firms struggle to demonstrate human resource value. One reason is that each company is distinct. Some things that may work for one company may not be suitable for another. Another factor is that demonstrating value in a practical manner is challenging. The human resource value chain approach is designed to address this issue. The human resource value chain shows how the outputs of human resource activities and practices contribute to company objectives. It demonstrates that the department has a number of processes and actions that result in human resource results, which help the organization achieve its goals.

Value Chain Model is a term used in the business administration area, which means all activities contributing to creating value for the product starting with search, development, engineering, and manufacturing then to the customer. (Castro *et al.*, 2006). **Value Chain Model** It is an analytical tool that gives a precise vision of the total organization's performance and helps in the determination of the factors, which affect the organization's competitiveness. (Evan, *et al.*, 2007). **Value Chain Model** It is a group of activities through which a commodity or service is formed and delivered to the clients, also achieve their satisfaction. (Flatt & Stanley, 2008). **Value Chain Model** It is an analytical tool that works on partition and analysis of main and supportive activities connected in the organization that aim to realize the value in the product, incomes, profits, and share value. (Koch, 2008). **Value Chain Model** it is an integrated model for the activities that achieve a competitive advantage for the organization. (Salmon, 2008). **Value Chain Model** It is a group of activities connected in the organization that achieves the value starting from the main inputs obtaining sources and until the product's final delivery to the clients. (Dobni, 2010). **Value Chain Model** It is a group of analytical methods used by the organization to compare its performance with its competitive position in the environment it works. (Human & Naude, 2010). A value chain is defined as a series of business actions that involve the creation, sale, and correction of goods or services. **Organizational Sustainability** It is the operation of continuity and survival in the long-term business environment with the achievement of high-performance indications that confirm and support continuity and survival (Baum, 2006). **Organizational Sustainability** It is an operation of sustainable value creation for current and future generations (David, 2007). **Organizational Sustainability** It is the operation to preserve the firm supplies, assets, and funds in the long term (Kotler & Armstrong, 2007). **Sustainability** It is the operation of the firm continuity and stays strong in the environment where it works for a long term with the existence of indications enhancing this continuity and confirming the increase of firm power (Landrum & Edwards, 2009). **Organizational Sustainability** It is the operation of ideas generation correctly and

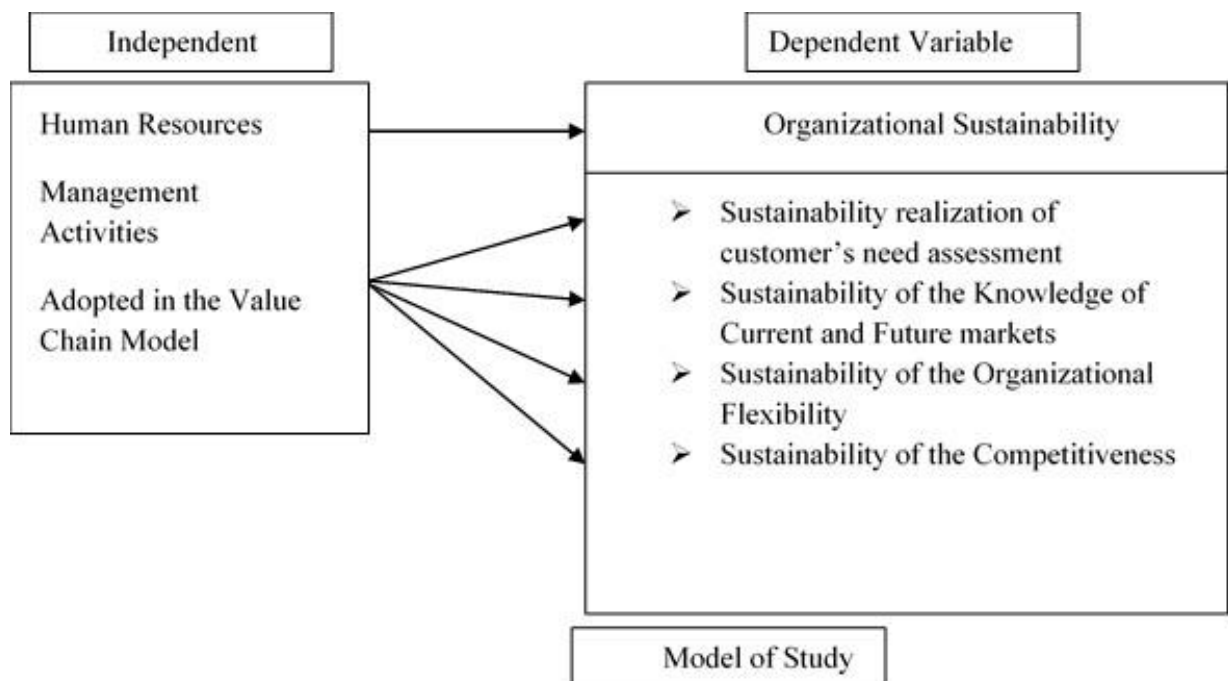
methodically to achieve continuous competence and effectiveness for the firm (Ebner & Baumgartner, 2010). Organizational Sustainability It is an operation of the firm activity realization through the optimal usage of the firm supplies to transform continuous inputs to valuable outputs for the client (Elliot, 2011). Organizational Sustainability It is a set of administrative operations conducted by business organizations to achieve economic and social competition continuously (Azua, 2012).

Economic Importance of human resource Value Chain advanced model

Economic Importance of Study The economic importance of the study is materialized by highlighting the most important factor that contributes to the achievement of organizational sustainability, which is the human resources management activities adopted in the value chain model characterized by great importance in terms of economic situation support to the organization as attracting new customers, keeping the current customers as well as supporting competitiveness for the organizations and helping them to exploit available chances and avoid threats that reflect positively on the market share of the studied organizations and on the growth, continuity, and success.

Model of Study

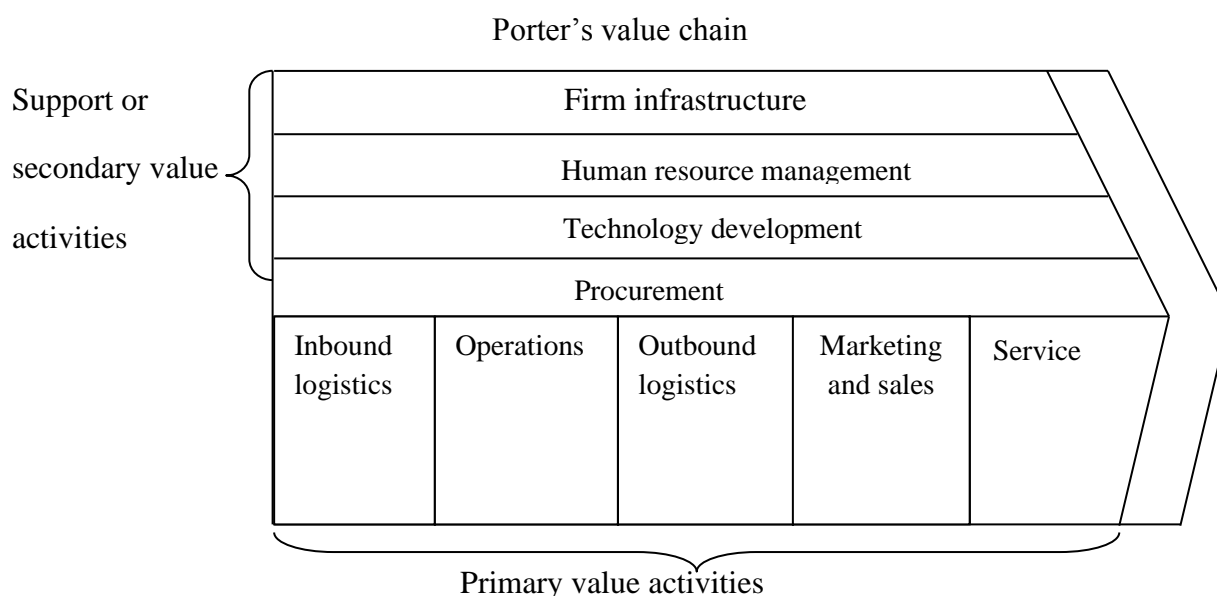
The activities of the value chain model are combined with two types of activities, such as:



1. **Main Activities:** The activities contributing directly in the operation of commodity or service production and are represented in the following operations: (Inbound Logistics, Operations, Outbound Logistics, Marketing and Sales, and Customers Services).
2. **Supportive Activities:** The activities that help and provide support for the main activities allowing them to perform their roles to achieve the organization's main objective and conclude the following: A. Firm infrastructure. B. Human Resources Management Activities.

C. Development and Technology. D. Materials Procurement. The table above Explains the Value Chain Michael Porter devised the value chain concept. Porter's value chain identifies the fundamental and secondary activities that any business engages in while creating value for customers.

Human Resource Value Chain Advanced Model

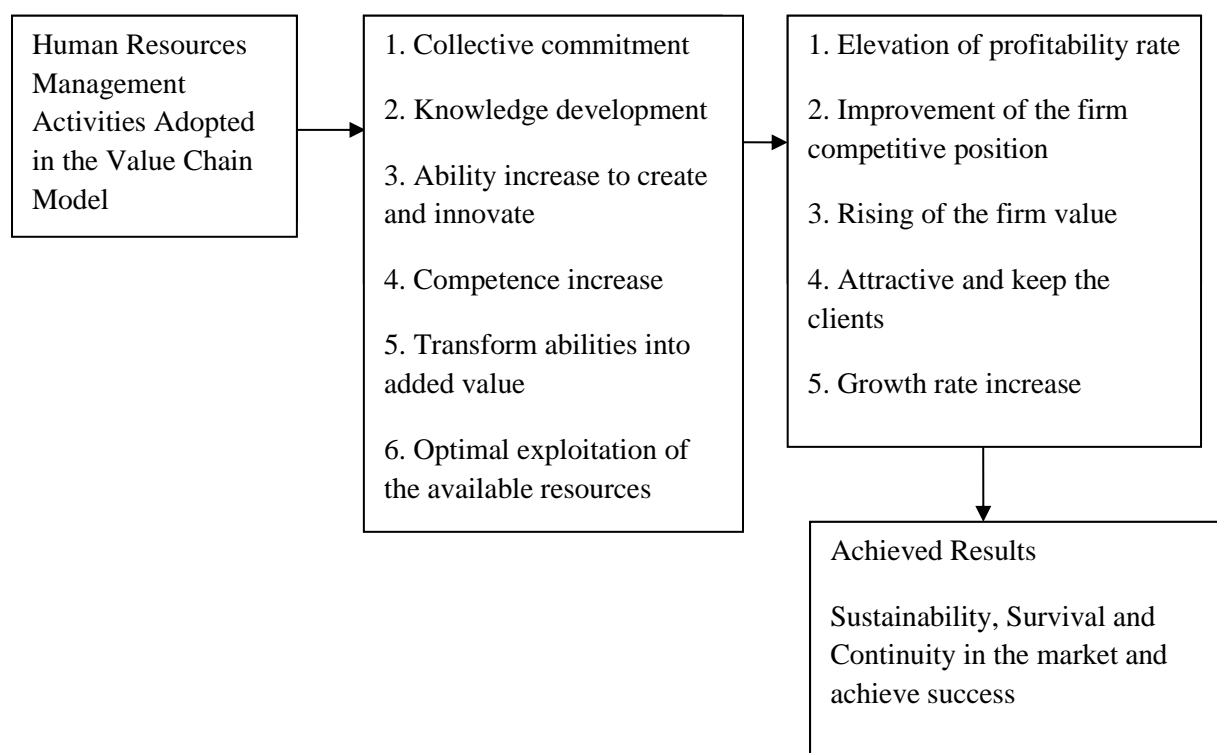


Value Chain Model

Human Resources Management Activities Adopted in the Value Chain Model We have explained that the value chain model includes a number of activities, and among the prominent supportive activities in the model are the Human Resources Management Activities as they have a major and strategic role, where all other main and supportive activities depend on the human resources as they are the essential element in building competencies and capabilities that supplement the new added value to the organization through which the firm can create competitiveness and be superior to the rivals. It is meant by Human Resource Management Activities are (a group of different, continuous, and organized activities linked to human resources and classified within the supportive activities to other operations in the Value Chain Model that contribute to creating the new added value. These activities include all functions, strategies, policies, and programs related to the human element in the organization. Value Chain Model explains the prominent activities related to human resources as the following Management Activities Adopted in the Value Chain Model;

1. Continuous and specialized education for the staff
2. Continuous development of staff communication abilities in the firm
3. Development of teamwork methods for the staff
4. Development of knowledge balance for the staff
5. Enabling the staff in the firm
6. Development of communications between the employees
7. Development of the employee's analytical and research skills
8. Improvement of staff orientation toward the excellence strategy
9. Staff psychological constitution and development of their creativity
10. Development of the employee's creative abilities
11. Encourage the staff to take initiative.

The Human Resources Management Activities Adopted in the Value Chain Model



Source: (Bounchken & Koch, 2007), (Cheraghi, *et al*, 2012).

Conclusions

The human resources management activities adopted in the value chain model indicate the organizational sustainability with its four dimensions (Sustainability of customers' Needs Assessment, Knowledge sustainability of current and future markets, Sustainability of organizational flexibility, and competitiveness sustainability). Organizational sustainability constitutes a modern reference for researchers, academics, and administrative staff in the firms for its importance in the firms' continuity and success. The human resources management activities contribute to generating new ideas which play a great role in supporting various major and supportive operations in the Value Chain Model. Contributing to the creation of a new work environment, it is characterized by openness and shared opinions, this contributes to the staff development and achievement of competence and effectiveness. It also helps the decision-makers in the different firms to take the correct procedures that contribute to the work development and success of the firm.

Recommendations

1. Development of staff communication skills through their training in the art of dealing with clients.
2. Development of communication between the staff and customers through social networks strategy.

3. Granting the staff wider powers in building interactive relations with the customers.
4. Development of teamwork methods and notify each employee of his importance in the management and organization of these methods.
5. Development of the staff research skills to perform a set of research and studies related to organizational sustainability and its different dimensions.
6. Improvement of staff attitudes through the adoption of a strategy for change.
7. Enhancing positive aspects in the staff towards change and accepting different ideas.
8. Creation of quality culture in the staff of the firm. Providing a working power that believes in continuous change, improvement, and development.
9. Creating and enhancing motivation for creativity with the staff.
10. Following different strategies to create new abilities in the staff and improving the abilities that they have.
11. Encouraging the initiative and risk spirit in the staff.

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SUSTAINABLE DEVELOPMENT PRACTICE ON INTERNATIONAL ACCOUNTING REPORTING STANDARD - THE JOURNEY SO FAR AND ITS EXPECTATION GAP

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ABSTRACT

The study conducted to investigate sustainable development practice on international accounting reporting standard - the journey so far and its expectation gap. The population of the study consisted of all members of staff of Akwa Ibom State Polytechnic, Ikot Asurua, Ikot Ekpene. The study adopted survey design, while random sampling technique was used in selecting one hundred and fifty (150) respondents. The structured questionnaire was used to elicit information from the respondents. Data collected were analyzed using Pearson analysis. The data was then organized, tabulated and analysed in frequency tables; and percentages with the help of the statistical package for social sciences (SPSS) software. It was concluded that closing the expectation gap requires sustained commitment, collaboration, and innovation to create a reporting framework that truly reflects the complex and interconnected nature of sustainable development in a rapidly changing world. While it was recommended that, innovation in reporting methodologies through the integration of technology, such as blockchain and artificial intelligence should be adopted. This can enhance the accuracy, transparency, and efficiency of sustainability reporting. Also, capacity building programs to enhance the knowledge and skills of reporting entities in sustainable development practices should be encouraged. This will empower organizations to align their reporting with evolving standards and best practices.

KEYWORDS: International Financial Reporting Standard (IFRS), IFRS Adoption, International Accounting Standards Board (IASB), Nigeria

Introduction

The worldwide corporate financial reporting scenario has changed dramatically in recent years, with an unprecedented number of nations and corporations throughout the world serving as the foundation for generating financial statements and so inheriting disparities in accounting methods. improved financial information comparability, quality, and openness (UNCTAD, 2008). The International Accounting Standards Committee was founded in 1973 by 16 specialized agencies from Australia, the United Kingdom, Canada, Mexico, Germany, Japan, the United States, the Netherlands, and France (IASC). Its goal is to create an internationally

recognized standard known as International Financial Reporting Standards (IFRS). The International Accounting Standards Committee (IASC) was reformed in 2001 to create the International Accounting Standards Board (IASB), which is in charge of creating IFRSs. However, when the European Union (EU) mandated that all listed firms in 17 member nations use IFRS in the production of consolidated financial statements beginning January 1, 2005, IFRS gained popularity. Similarly, China required public companies to apply IFRS to financial reporting from 2007, but Canada announced in 2011 that it would abolish local GAAP and replace it with IFRS (Larson and Street, 2004). In addition, the increase in earning IFRS with the US Securities and Exchange Committee (SEC) virtually, in fact, foreign companies had to adjust the US financial reporting as the US capital market criteria. The report is prepared according to IFRS according to IFRS, but must not match US GAAP. This development facilitates a smooth list of foreign companies in the US capital markets (Epstein and Jermakowicz, 2010). Traveling to the adoption of IFRS in December 2010, journey to the spread of IFRS after approval of Federal law, Nigeria (FRCN) financial reporting council (formerly known as Nigerian Accounting Standard (NASB)) designed a roadmap implementation for Bank and other important public listing companies adopt a broken standard in three stages expected to be created by December 31, 2012 based on IFRS. Phase 2 requires other public interest groups, and as of December 31, 2013, the third step is accepted by SME (SME) and is planned as of December 31, 2014. In addition, some challenges and difficulties such as low awareness, inadequate technical competence between financial statement preparers and users, weak enforcement mechanisms and inadequate capacity building, make the first stage smooth. It hindered the implementation. Very few listed companies comply with the directive. Based on the above, this study evaluates the achievements achieved so far, challenging encounters, and actions taken to ensure a smooth and successful implementation of the three phases.

1. To determine the level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria.
2. To examine the extent to which IFRS is adopted by service base firm operating in south south region of Nigeria.
3. To examine the extent to which IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria

Research Questions

The study will find answers to the following questions:

1. What is the level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria?
2. What is the effect of IFRS is adopted by service base firm operating in south south region of Nigeria?

3. What is the effect of IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria?

Research Hypotheses

1. There is no significant relationship between level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria.
2. There is no significant relationship between IFRS is adopted by service base firm operating in south south region of Nigeria.
3. There is no significant relationship between IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria

Overview of International Financial Reporting Standard

IFRSs are a set of accounting standards established by the International Accounting Standards Board (IASB). IFRS was to meet the objective of developing a single set of high quality globally accepted accounting standards premised on clearly articulated principles (Adeyemi, 2016). IFRS provide comprehensible, reliable, accurate and comparable accounting rules which can be executed across international boundaries. They are principles-based accounting standards which are developed to achieve the goal of harmonization of all accounting standards of different nations in order to foster comparability and quality of accounting information in general (Tanko, 2012). They result from the outcomes of growing multinational companies and they are increasingly replacing the national accounting standards of different nations.

Despite the fact that IFRS emerged in recent years, its origin can be traced to 1973 when different professional bodies from Germany, Holland, Canada, United Kingdom, Mexico, Japan, USA, Australia and France agreed to create an International Accounting Standard Committee (IASC). As a result of globalization and civilization, companies, business moguls, investors and policymakers are concerned with the implications of varying accounting standards among different countries. The desire to develop a set of global accounting standards led to the emergence of the International Accounting Standards (IAS) to unite all national standards and minimize the inconsistencies in international accounting principles and reporting standards (Umobong, 2015).

For several years, the efforts were actually geared towards unification which connotes minimizing the differences among accounting principles and reporting standards across the major countries of the world. In the 1900s, the notion of unification was replaced by convergence, that is, the development of a single set high-quality international reporting standards that will be acceptable across the globe.

By the year 2001, the International Accounting Standards Committee (IASC) was reformed into the International Accounting Standards Board (IASB) basically to bring convergence of international accounting standards and IFRS to high quality solution (Xu, 2014). The globalization of the world's economy and markets led companies and organizations to become key world players and more investments take place at the global scene. In 2005, the European

Union Commission issued a legislation that all SMEs quoted at its stock exchange must comply with IFRS when preparing their financial statements. Also, countries such as Germany, France, United Kingdom and Italy have adopted IFRS earlier on (Barth, 2007). Currently, over 120 countries including Nigeria, have adopted IFRS as their accounting standards.

Implementation of International Financial Reporting Standard (IFRS) in Nigeria

There is growing evidence that the world economies are more interconnected and symbolic than anyone can really imagine and it is a glaring fact that Nigeria is indeed part of this globalization. Following the changes in accounting standards across the globe, Nigerian SMEs have been mandated to comply with IFRS starting from January 1st, 2012. The implementation of IFRS in Nigeria kicked off on 28th July, 2010, when the Federal Executive Council (FEC) approved January 2012 as the effective date for the convergence of the Nigeria Generally Accepted Accounting Practices (NGAAP) to IFRSs.

The decision of the FEC to fully adopt IFRS in Nigeria was followed by the promulgation of the Financial Reporting Council of Nigeria Act in 2011, which resulted to the transformation of the Nigerian Accounting Standards Board (NASB) to the Financial Reporting Council of Nigeria (FRCN). The NASB announced its roadmap to convergence with IFRS in September, 2010. Based on this roadmap, quoted companies and key public interest entities were mandated to comply with IFRS starting from 1st January, 2012 while other public interest entities were mandated to comply with IFRS starting from 1st January, 2013 and small and medium scale enterprises are required to comply with IFRS from 1st January, 2014. The report sought the amendment of relevant laws and regulations such as Companies and Allied Matters (CAMA) 1990, Banks and Other Financial Institution Act (BOFIA) 1991, Investment and Security Act 2007, etc. In addition, the report recommended for an early nationwide intensive capacity building programs to enhance the process of adoption and the establishment of IFRS academy, an institutional platform for capacity building. This necessitated the review of CAMA and its amendments of 2020.

Benefits of International Financial Reporting Standard (IFRS) Adoption

The benefits of the adoption of IFRS cannot be undermined despite surfeit challenges that beset its implementation. Deloitte (2013) maintained that IFRS, as a single set of high quality global accounting standards, will simplify accounting procedures by allowing the use of a common reporting language. According to Madawaki (2014), Nigeria's adoption of IFRS will promote the collation of relevant data of reporting entities' performance for comparability and reliability, facilitate and enhance informed decision making process of investors and go a long way to attract foreign investments.

Adoption of IFRS brings about easy external financing to local companies, low cost of trans-border businesses, easy consolidation of financial statements of multinational companies as well as fostering easy regulation (Adeyemi, 2016). IFRS is a systematic approach that promotes understandability, reliability, relevance and comparability, improves security value and results into the accomplishment of higher market liquidity (Omoruyi, 2011). IFRS have

the ability to improve the comparability of financial statements, fortify corporate transparency and enhance the quality of financial reporting (Ronald, 2017).

Furthermore, IFRS have some unique benefits which are better quality, easy access to foreign investment, enhanced comparability and transparency in financial reporting (Tanko, 2012). The benefits of IFRS adoption as outlined by Abata (2015) include decreased cost of capital, efficient capital allocation, international capital mobility, capital market development, increased market liquidity and value, enhanced comparability, cross border movement of capital and improved transparency of results.

According to Street and Gray (2012), the general benefits of IFRS include reduced investment risk and saving in the cost of capital of entities for sound decisions; allowing multinational SMEs to lower the accounting standards compliance cost around the world; promotion of international investment opportunities; ensuring efficient cross-border capital allocation; improving the comparability of reported financial information by entities; bringing accessibility to foreign capital financing and cross-border stock exchange listing; making financial information more transparent to stakeholders; and optimization of tax planning.

Deloitte (2013), in addition stated that, IFRS fosters the comparability of entities and provides more accurate and consistent financial information; enables entities to have a clear understanding of the global marketplace, access to world capital market and promotion of new businesses; allowing investors and other stakeholders to compare the performance of their companies with competitors in the local, national and international scene; fosters additional and quality information for shareholders and supervisory authorities; easier regulation of financial reporting of entities in Nigeria; easy consolidation of financial information of the same company with offices in different countries; allows entities to have a competitive advantage in negotiations with credit institutions and reduces the cost of borrowing; helps companies to make advantage of alternative forms of finance; results in more accurate risk evaluations by lenders and to a lower risk; assurance of useful and meaningful decisions on investment portfolio in Nigeria; and the promotion of the compilation of meaningful data on the performance of various reporting entities at both private and public level in Nigeria thereby encouraging comparability, efficiency, reliability and transparency of financial reporting in Nigeria.

Adoption of International Financial Reporting Standards

IASB, 2009 said that IFRS is designed for SMEs and it is a self-contained standard of 230 pages, designed to meet the needs and capabilities of Small and Medium sized Entities (SMEs), which are estimated to account for over 95 per cent of all the companies around the world. Nobes (2004) said that due to the problems associated with worldwide accounting diversity, attempts to reduce accounting differences across countries have been ongoing debates for decades and as a result of the advantages it provides for countries and multinational companies, many countries adopt International Financial Reporting Standards. Although many argued that much of the disclosures and information required by full financial statements is regarded as not relevant to small and medium enterprises. Again the needs of the users of financial

statement are not the same for big and small organizations, especially in Nigeria where SMEs is merely family business and some do not have accounting records. The costs of SMEs reporting financial statements in IFRS should be high, the resulting statements would not meet the objective of decision-usefulness. Many SMEs in Nigeria keep incomplete records in their book keeping. Some do not have nor see reasons for keeping accounting records yet they contribute immensely to the development of the economy. SMEs do not have “public accountability” hence they do not need to disclose as much information as the listed companies do. Again, the application of IFRSs by SMEs would not be beneficial for them from the view of the cost involved. SMEs generally have limited staff and resource and they will face significant costs while adopting IFRSs. Goh/Holt (2006) define this as “a unique financial burden” that is placed on SMEs because they must pay a proportionally higher cost than big companies for the same benefit. The users of SME financial statements would be creditors, suppliers, employees and the tax authorities may focus on different information compared with the users of financial statements of listed companies. They may be more interested in short term cash flows, liquidity and interest coverage (Sivaram, 2006). However, Cheney (2004) mention the goal of IFRS for SMEs project of the IASB as: to reduce the burden of disclosure for smaller companies, while preserving the recognition and measurement principles of international standards. Iyoha and Faboyede, 2011; Apostolos et al., 2010) also maintain that adoption of IFRS has a number of important benefits for a wide range of stakeholders such as, increased comparability of consolidated accounts, increased levels of transparency, better access to the global capital markets and other stakeholders would benefit from overall better reporting and information. The secondary research made in less developed countries such as South Africa, Turkey, Kenya, Ghana (Bohušova, 2011) found out that the adoption of the IFRS for SMEs would improve their access to financial funds, would help them to penetrate foreign markets and thus their financial situation and performance would be improved. Therefore, Nigeria would not be exceptional to this case. Arsoy, Sipahi, (2008) made it clear that the adoption of IFRS for SMEs in Turkey changed the accounting system and met the needs of the users of SME financial statements, although the adoption process was complex, because of the corporate structure of SMEs and the limited education opportunities about IFRS.

The Challenges in Adopting International Financial Reporting Standards

In spite of the enumerated benefits of IFRS, there are several challenges that limit its effectiveness in different countries. The characteristics of local business environments and institutional framework to a large extent determine the form, structure and content of accounting standards (Iyoha & Jimoh, 2010). In a country, where there is good and effective governance structure, IFRS adoption is likely to be less attractive as good governance represents highquality and the cost of switching to IFRS may not be justifiable. However, many developing countries are beset with weak institution, which is one of the strategic determinants of IFRS adoption (Luez, 2010).

Duh (2009) contended that the challenges of IFRS adoption are timely interpretation of standards, continuous amendment to IFRS, accounting knowledge and expertise possessed by financial statement user, prepares, auditors and regulators as well as managerial incentive.

Although IFRS has the potentials to enhance cross-border comparability, increase reporting transparency, decrease informational costs, reduce information asymmetry and increase in the functionality of financial markets; Armstrong (2007) however opined that cultural, political and business differences may also continue to impose difficulties in the progress towards a single global financial reporting standard because a single set of accounting standards cannot reflect the differences in national business practices arising from differences in culture and institutions. Odia and Ogeidu (2013) contended that, IASB financing, staffing, governance structure and consistent adoption; compliance issues and enforcement mechanisms especially in jurisdictions with weak institutions; and application and regulatory review, can also constitute challenges. Ball (2015) argued that most IFRS adoptions are in labels and with various versions which are inconsistent with IASB's prescription.

Furthermore, Madwaki (2014) and Abata (2015) stated that cost of adoption, including the cost of restructuring, accounting system, staff training and consultancy fees; difficulty in implementation, as some of the standards do not meet the local accounting needs of some countries; the entire internal control system to ensure compliance; the need for the services of reputable audit SMEs (especially the Big Four); Staff training and adoption; and the need to consider local regulation, which demands certain reports that are not in line with IFRS; etc can also pose problems to companies' complying with these standards.

Theoretical Framework

Stewardship Theory

Stewardship theory posits that managers are good stewards of their SMEs and as such they are totally accountable to the shareholders of the company. Cornelissen, and Kim, (2016) contended that managerial opportunism is relevant and that stewardship theory are primarily developed to examine the situation in which executives as stewards are only motivated to act in the best interest of the shareholders. Political cost theory states that if a company records huge amount of profits, this might be used as a causal reason for trade unionism or lobby groups to take action for an increase in a share of that profit (by demanding for higher wages), therefore companies may adopt income-decreasing accounting methods (Leenders, & Van den Berg, 2013). Agency theory describes the relationship between the shareholders and managers. The theory views managers as the agent of the shareholders and they are required to act in the best interest of the shareholders. Sometimes, managers are motivated to act in their own best interest and create a conflict between the interest of shareholders and managers. However, it is believed that directors may sometimes take decisions which may conflict with the interest of the shareholders. The theory provides insight into systems of information, outcome uncertainty, risk and incentives (Davies, & Fraser, 2011).

Research Methodology

Introduction

Research methodology is a systematic way to solve a problem (Rajasekar, Philominathan, & Chinnathambi, 2013). It is a science of studying how research is to be carried out. Essentially,

the procedures by which researchers go about their work of describing, explaining and predicting phenomena are known as research methodology (Rajasekar et al., 2013). Its aim is to give the work plan of research.

Research Design

According to Cooper and Schindler, (2006) a research design is a strategy for study and the plan by which the strategy is to be carried out specifying the methods and the procedure for the data collection, measurement, and analysis of data. This study employed a descriptive survey design as a method of collecting information by administering a questionnaire to a sample of individuals.

Population of the study

A population is the aggregate of all the elements that share some common set of characteristics and that comprise the universe for the purpose of the research problem (Burns & Bush, 2010). The actual population can be any size and is usually referred to as the target population to which a researcher would like to generalise (Fraenkel & Wallen, 2006). The population of this study consisted of staff of Akwa Ibom State Polytechnic, Ikot Asurua, Ikot Ekpene.

Sample and Sampling Techniques

Sampling technique refers to how cases are selected for observation Mugenda and Mugenda, (2009). It provides a detailed explanation of the subject to be involved in the investigation and how these are selected from the target group. The Sample sizes of 150 respondents were in the study area. The sample size was statistically determined using the sample fraction of Krejcie, and Morgan, (1970).

Instrumentation/Research Instrument

The research instrument used for the study was self-structured questionnaire. The questionnaire was used to obtain data on the independent and dependent variables Likert (1932) scale was used in the study. Because of its quantitative nature, survey was conducted through use of questionnaires with relatively higher degree of subjectivity thus, to minimize its effects; the researcher triangulated the answers with other sources, and also posed clear questions using simple language in the whole process.

Method of Data Analysis:

The study employed Ex-post Facto analysis by use of means, percentages, and frequencies. Qualitative data that was obtained from the open ended sections of the questionnaire was analyzed using the thematic approach. The data was then organized, tabulated and analysed in frequency tables; percentages and independent t-test analysis with the help of the statistical package for social sciences (SPSS) software. Thus, the data obtained were analyzed using Pearson moment correlation analysis was used to analysed the hypotheses.

Data Presentation and Analyses

The data are arranged and analyzed in tables following the research questions and hypotheses:

Research Questions Analysis

Research Question One

What is the level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria?

Table 1: Percentage analysis of the level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria

Extent	Frequency	Percentage
Very high extent	56	37.33
High extent	44	29.33
Low extent	29	19.33
Very low extent	21	14
Total	150	100

Source, field Survey 2023

The above table 1 presents the percentage analysis of the level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria, the table show that there is very high level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria. Therefore, the result causes the research question to be significant.

Research Question Two

What is the effect of IFRS is adopted by service base firm operating in south south region of Nigeria?

Table 2: Percentage analysis of the effect of IFRS is adopted by service base firm operating in south south region of Nigeria

Extent	Frequency	Percentage
Very high extent	56	37.33
High extent	49	32.67
Low extent	21	14
Very low extent	24	16
Total	150	100

Source, field Survey 2023

The above table 2 presents the percentage analysis of effect of IFRS is adopted by service base firm operating in south south region of Nigeria, the table shows that there is high effect of IFRS is adopted by service base firm operating in south south region of Nigeria. Therefore, the result causes the research question to be significant.

Research Question Three

What is the effect of IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria?

Table 3: Percentage analysis of the effect of IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria

Extent	Frequency	Percentage
Very high extent	57	38
High extent	48	32
Low extent	22	14.67
Very low extent	23	15.33
Total	150	100

Source, field Survey 2023

The above table 3 presents the percentage analysis of the effect of IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria, the table show that there is high effect of IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria. Therefore, the result causes the research question to be significant.

Hypotheses Testing

Hypothesis One

There is no significant relationship between level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria.

In-order to test the hypothesis independent t-test analysis was used in comparing the mean score of the two groups. (See table 4)

TABLE 4: Independent t-test analysis of the relationship between level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria.

Variable	N	X	SD	t
High	89	12.01	1.30	21.45*
Low	61	15.15	0.71	

***Significant at 0.05 level; df=148; N=150; critical t-value = 1.96**

The above table 4 presents the obtained t-value as (21.45). This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 148 degree of freedom. The obtained t-value (21.45) was greater than the critical t-value (1.96). Hence, the result was significant. The result therefore means that there is significant relationship between level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria.

Hypothesis Two

There is no significant relationship between IFRS is adopted by service base firm operating in south south region of Nigeria.

In-order to test the hypothesis independent t-test analysis was used in comparing the mean score of the two groups. (See table 5).

TABLE 5: Independent t-test analysis of the relationship between IFRS is adopted by service base firm operating in south south region of Nigeria.

Variable	N	X	SD	t
High	88	12.07	1.34	18.31*
Low	62	15.00	1.09	

***Significant at 0.05 level; df= 148; N= 150; critical t-value = 1.96**

The above table 5 presents the obtained t-value as (18.31). This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 148 degree of freedom. The obtained t-value (18.31) was greater than the critical t-value (1.96). Hence, the result was significant. The result therefore means that there is significant relationship between IFRS is adopted by service base firm operating in south south region of Nigeria.

Hypothesis Three

There is no significant relationship between IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria.

In-order to test the hypothesis independent t-test analysis was used in comparing the mean score of the two groups. (Table 6)

TABLE 6: Independent t-test analysis of the relationship between IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria.

Variable	N	X	SD	t
High	87	12.41	1.65	10.96*
Low	63	14.98	0.83	

***Significant at 0.05 level; df= 148; N= 150; critical t-value = 1.96**

The above table 6 presents the obtained t-value as (10.96). This value was tested for significance by comparing it with the critical t-value (1.96) at 0.05 level with 148 degree of freedom. The obtained t-value (10.96) was greater than the critical t-value (1.96). Hence, the result was significant. The result therefore means that there are significant relationship between IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria.

Summary of Findings

The result of the data analysis in table 4 is significant due to the fact that the obtained t-value (21.45) was greater than the critical t-value (1.96) at 0.05 level with 148 degree of freedom. This result implies that there is significant relationship between level of awareness of IFRS guidelines amongst service base firm operating in south south region of Nigeria. The significance of the result caused the null hypothesis to be rejected while the alternative one was accepted.

The result of the data analysis in table 5 is significant due to the fact that the obtained t-value (18.31) was greater than the critical t-value (1.96) at 0.05 level with 148 degree of freedom. This result implies that there is significant relationship between IFRS is adopted by service base firm operating in south south region of Nigeria. The significance of the result caused the null hypothesis to be rejected while the alternative one was accepted.

The result of the data analysis in table 6 is significant due to the fact that the obtained t-value (10.96) was greater than the critical t-value (1.96) at 0.05 level with 148 degree of freedom. This result implies that there is significant relationship between IFRS knowledge affects adoption by service base firm operating in south south region of Nigeria. The significance of the result caused the null hypothesis to be rejected while the alternative one was accepted.

Conclusion

The journey of integrating sustainable development practices into International Accounting Reporting Standards (IARS) has made significant strides, marking a transformative shift in the way businesses and organizations report their financial performance. The implementation of sustainability reporting within the framework of IARS has bridged some of the expectation gaps that previously existed. Stakeholders now have access to a more comprehensive and transparent view of an entity's performance, including its environmental and social impact. This has not only improved accountability but has also contributed to a more holistic understanding of an organization's value creation.

However, challenges persist, and the expectation gap has not been entirely closed. Issues such as the lack of standardized metrics, variations in reporting practices, and the absence of a universally accepted framework continue to hinder the effectiveness of sustainable development reporting. There is a pressing need for concerted efforts from standard-setting bodies, regulatory authorities, and businesses to work collaboratively in refining and standardizing reporting mechanisms. Looking ahead, the expectation is that the journey towards sustainable development within the realm of international accounting reporting will gain further momentum. Stakeholders are likely to witness continued efforts to harmonize reporting standards, increased emphasis on materiality, and the integration of technology to enhance data accuracy and transparency. The evolving landscape presents an opportunity for all stakeholders to actively participate in shaping the future of sustainable development reporting, fostering a global business environment that values not only financial success but also societal and environmental well-being.

In essence, while significant progress has been made in incorporating sustainable development practices into international accounting reporting standards, the journey is ongoing. Closing the expectation gap requires sustained commitment, collaboration, and innovation to create a reporting framework that truly reflects the complex and interconnected nature of sustainable development in a rapidly changing world.

Recommendations

The progress made in incorporating sustainable development practices into International Accounting Reporting Standards (IARS) is commendable. The increasing awareness of environmental, social, and governance (ESG) factors has led to a paradigm shift in the way organizations approach their reporting obligations. The incorporation of frameworks such as the Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) has provided a structured approach to disclosing non-financial information, contributing to a more comprehensive understanding of a company's overall performance.

However, despite the notable advancements, there exists a discernible expectation gap between what stakeholders anticipate from sustainability reporting and the information currently disclosed. Bridging this gap requires a concerted effort from regulatory bodies, standard setters, and reporting entities alike. Therefore, this study has suggested the following as is believed will serve as valuable recommendation:

1. Efforts should be directed towards creating a harmonized set of reporting standards that facilitate consistent and comparable information across industries and regions.
2. Relevant regulatory bodies are encouraged to play a more active role in overseeing the implementation of sustainability reporting standards.
3. Emphasis should be on engaging investors, consumers, and communities, to better understand their expectations and incorporate their perspectives into reporting frameworks.
4. It is as well recommended that innovation in reporting methodologies through the integration of technology, such as blockchain and artificial intelligence. This can enhance the accuracy, transparency, and efficiency of sustainability reporting.
5. Capacity building programs to enhance the knowledge and skills of reporting entities in sustainable development practices should be encouraged. This will empower organizations to align their reporting with evolving standards and best practices.

Thus, the journey towards sustainable development practices on International Accounting Reporting Standards has been transformative, but there is still work to be done to close the expectation gap. By adopting these recommendations, we can collectively contribute to the development of a robust and effective framework that aligns with the evolving needs of stakeholders and fosters a more sustainable and responsible business environment.

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Innovations in Sustainable Technology: Navigating the Path to a Greener Future

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ABSTRACT

This paper explores the dynamic landscape of innovations in sustainable technology, emphasizing the multifaceted efforts to address environmental challenges and promote a more sustainable future. The study encompasses a wide array of technological advancements across various sectors, including energy, transportation, agriculture, and manufacturing. The research reviews breakthroughs in renewable energy technologies, such as advancements in solar and wind power, energy storage systems, and grid management solutions. It also delves into sustainable transportation innovations, ranging from electric vehicles to smart mobility solutions, aiming to reduce the carbon footprint of urban and long-distance travel. Additionally, the paper examines novel approaches in sustainable agriculture, including precision farming, agro-tech solutions, and sustainable materials for packaging. It discusses the role of digitalization, artificial intelligence, and the Internet of Things (IoT) in optimizing resource utilization and minimizing environmental impact. Furthermore, the study highlights the emergence of circular economy principles and eco-friendly materials in manufacturing, focusing on how these innovations contribute to reducing waste and promoting resource efficiency. The findings presented in this paper provide a comprehensive overview of the current state of sustainable technology innovations, their implications for environmental conservation, and the challenges and opportunities associated with their widespread adoption. This research aims to inspire further exploration and collaboration in the pursuit of technological solutions that harmonize economic development with ecological sustainability.

KEYWORDS:

Sustainable Technology: Innovations focused on creating products and systems that have minimal environmental impact and promote long-term ecological balance.

Innovations: Creative and novel advancements in technology, introducing new solutions or improving existing ones for sustainability.

Green Future: A vision of the future where technological developments contribute to a healthier and more environmentally friendly world.

Renewable Energy: Sustainable power sources derived from natural elements like sunlight, wind, or water, aiming to replace finite fossil fuels.

Smart Mobility: Intelligent and sustainable solutions in transportation, including electric vehicles, smart infrastructure, and efficient public transit systems.

Precision Farming: Advanced agricultural practices utilizing technology like sensors and data analytics to optimize crop yields while minimizing environmental impact.

Circular Economy: A regenerative system where resources are reused, reducing waste and promoting sustainability by design.

Eco-friendly Materials: Sustainable materials that are produced and used with minimal environmental impact, often biodegradable or recyclable.

Electric Vehicles: Transportation options powered by electricity, typically with lower emissions compared to traditional combustion engines.

Introduction

The journey on the exploration of "Innovations in Sustainable Technology: Navigating the Path to a Greener Future" unfolds the remarkable advancements that promise not only progress but also a harmonious coexistence with our planet. As we stand at the intersection of innovation and environmental responsibility, this examination delves into the exciting realm of sustainable technology.

This paper embark on a captivating exploration of cutting-edge solutions shaping a greener future. From revolutions in renewable energy and smart mobility to ingenious approaches in agriculture and manufacturing, these innovations are steering us toward a more sustainable and *ecologically* conscious tomorrow [3, 4, 11]. Our focus is on the transformative potential of technology to propel us into a realm where economic growth aligns seamlessly with environmental well-being.

This paper navigate through the intricate landscapes of digitalization, artificial intelligence, and the Internet of Things, where smart solutions are not just futuristic dreams but tangible contributors to a sustainable reality. This research journey discovers how eco-friendly materials, circular economy principles, and energy-efficient technologies are crafting a blueprint for a world where technology and sustainability go hand in hand.

Therefore, it worth embarking on this enlightening exploration, where each innovation becomes a beacon lighting the path to a greener, more sustainable future. Together, we can navigate this exciting journey towards a world where technological progress becomes synonymous with environmental stewardship.

Overview of Innovation in Sustainable Technology

Innovation in sustainable technology means coming up with smart and Earth-friendly ideas to make our gadgets, energy, and daily life better for the planet. It's like finding clever ways to use clean energy, recycle more, and create technology that doesn't harm the environment. So, when we talk about innovation in sustainable technology, it simply implies making cool stuff that helps the Earth and keeps everything green and happy!"

Dynamic Landscape of Sustainable Technology Innovations.

Dynamic landscape of innovations in sustainable technology is like a bustling city of ideas where brilliant minds from different corners are working together to tackle big problems our planet faces. They're not just focusing on one thing; it's like having a bunch of superheroes with various powers. These innovations are the cool solutions they're coming up with – from super-efficient solar panels to smart ways of using less energy in our homes [11]. It implies everyone's bringing their ideas to make sure our world stays healthy and happy. So, when we talk about the dynamic landscape of sustainable technology innovations, it's like a buzzing hub of creativity where people are teaming up to make our future greener and brighter.

Wide Array of Technological Advancements Across Various Sectors:

A wide array of technological advancements is like a big toolbox filled with all sorts of gadgets, and each tool is like a super-smart idea for making different parts of our world better. In the energy department, it's like finding new ways to get power without hurting the planet. For example, solar panels and wind turbines. In transportation, it's about making cars and buses that run on clean energy, e.g electricity. For agriculture, it's using smart technology to grow food more efficiently without messing up the environment. And in manufacturing, it's creating things in ways that don't make a lot of waste [10]. So, when we say a wide array of technological advancements, it's like having a bunch of really cool tools in our toolbox, each designed to make a specific part of our world a bit better.

Review of Breakthrough in Renewable Energy Technologies

Renewable energy technologies is like the superheroes of our power sources. When we say we're reviewing breakthroughs, it's like checking out the new and awesome powers these heroes are gaining. Think of solar panels soaking up sunlight to make electricity or wind turbines spinning and turning wind into power – that's the kind of superhero stuff we're talking about.

So, reviewing breakthroughs in renewable energy is like looking at the latest and greatest upgrades these heroes are getting [9, 11]. It could be making them more efficient, powerful, or even more affordable. The goal? To have these renewable energy heroes save the day by providing clean and sustainable power for all of us.

- **Latest and Greatest Renewable Energy Technology**

The latest and greatest renewable energy technologies are the superheroes of power production. These are the cutting-edge innovations that are taking clean energy to a whole new level.

Imagine super-efficient solar panels that can turn even more sunlight into electricity, or wind turbines that are sleeker and more powerful, capturing more energy from the breeze. Picture advanced batteries that can store this clean power for when we need it, even when the sun isn't shining or the wind isn't blowing [4, 11].

So, when we talk about the latest and greatest in renewable energy technologies, it's like meeting the superheroes who are making our transition to clean, sustainable energy not just possible but super exciting and efficient.

- **Sustainable Transportation Innovations**

Sustainable transportation innovations is like the cool upgrades for how we get around. Imagine cars and bikes becoming superheroes for the planet!

Electric vehicles (EVs) are like the rockstars here. Instead of guzzling gas, they run on electricity, which is way cleaner. It's like upgrading from a gas-guzzling car to one that's whisper-quiet and doesn't spit out harmful stuff [7].

Then there are smart ideas for public transport, like buses and trains becoming more energy-efficient. And how about those electric scooters zipping around the city? They're like little eco-friendly superheroes.

So, sustainable transportation innovations are basically making our rides greener, quieter, and cooler for the planet. It's like giving our transportation a high-tech makeover that's good for us and the environment.

- **Sustainable Agricultural Innovations**

Sustainable agriculture innovations are like giving our farms a technology-savvy makeover to grow food in ways that are kinder to the Earth. Technological innovations are the cool superpowers being utilized in our farms.

Precision farming is one of those powers – it's like having a superhero with a super-accurate aim. Farmers use smart technology to figure out exactly where and when to plant seeds, use water, and apply fertilizers[8]. It's about growing more food with less waste.

Then, there are eco-friendly materials for packaging, making sure our veggies don't come wrapped in tons of plastic. There are also smart machines that can weed or harvest crops without damaging the soil. So, when we talk about sustainable agriculture innovations, it's like giving our farming superheroes high-technology tools to grow our food in a way that's good for us and the planet.

Sustainable Manufacturing Innovations

Sustainable manufacturing innovations are like giving factories a green makeover – it's about making things in a way that's kinder to the planet[1]. Imagine manufacturing as a superhero, and these innovations are its cool superpowers such as:

Eco-friendly Materials: Using materials that don't harm the environment, like recycled plastics or sustainable wood. It's like making sure the ingredients for building things are planet-friendly.

Energy Efficiency: Making factories use less energy and finding cleaner ways to power them. It's like turning down the energy dial and switching to greener sources, so making things doesn't use up tons of power.

Waste Reduction: Instead of creating heaps of waste, sustainable manufacturing aims to produce less trash. It's like having a superhero that hates litter and makes sure everything gets used or recycled.

Circular Economy Practices: Imagine if products were designed to be used, reused, and then remade into something new. That's the circular economy superhero – reducing waste by keeping things in a loop.

Smart Technologies: Using smart machines and data to make manufacturing super efficient. It's like having a superhero with a supercomputer brain that plans everything to perfection.

So, sustainable manufacturing innovations are all about making the process of creating things better for our planet. It's like having a superhero factory that cares about the Earth as much as the products it makes.

Role of digitalization, artificial intelligence, and the internet of things (iot) in optimizing resource utilization and minimizing environmental impact.

Digitalization, artificial intelligence (AI), and the Internet of Things (IoT) are the superheroes of smart technology working together to save the day for the planet[5].

Digitalization: Is the process of turning everything into smart, digital versions. Farms, factories, homes – they become super connected and can talk to each other.

Artificial Intelligence (AI): This is the brain behind the operation. It can analyze tons of data super fast and make smart decisions. For example, on a farm, AI might figure out the perfect amount of water each plant needs.

Internet of Things (IoT): These are like the eyes and ears everywhere. Imagine sensors in fields, factories, and homes – they collect data and share it, making everything work more efficiently.

When these three superheroes team up, they help us use resources smarter. On a farm, for instance, they could make sure crops get just the right amount of water, reducing waste. In a factory, they might help machines work only when needed, cutting down energy use.

So, their role is to make our technology super smart, saving resources and making our impact on the environment way lighter. It's like having a technology-savvy dream team! ...

Emergence of circular economy principles and eco-friendly materials in manufacturing, focusing on how these innovations contribute to reducing waste and promoting resource efficiency

Circular economy principles and eco-friendly materials in manufacturing is like a superhero team fighting against waste and making everything more efficient[2].

Circular Economy Principles: Imagine if instead of throwing things away after we're done using them, we find ways to reuse, recycle, or turn them into something new. That's the circular economy superhero. It's about creating a cycle where materials keep going around, reducing the need for making new stuff all the time.

Eco-friendly Materials: These are materials – that don't harm the environment. Using things like biodegradable plastics or recycled metals instead of traditional materials. They're kinder to the Earth.

Now, when circular economy principles and eco-friendly materials team up in manufacturing, it basically implies creating things in a way that does not waste resources. So, products get a second life, materials don't end up in landfills, and we use fewer new resources.

It's like having superheroes in manufacturing making sure our things are made sustainably, reducing waste, and being friendly to our planet.

Implications for Environmental Conservation, and the Challenges and Opportunities with Widespread Adoption of Sustainable Technology Innovations.

Impact of sustainable technology innovations on our environment, and the hurdles and opportunities that come with their widespread use merits our consideration.

Implications for Environmental Conservation: Sustainable technology innovations act like Earth's allies. They help by using cleaner energy, producing less waste, and being mindful of our planet's health[4, 6]. They are the brain tackling pollution, conserving resources, and making sure we leave a smaller footprint. The more we embrace these innovations, the better chance we have at keeping our environment happy and thriving.

Challenges: Every hero faces challenges, and sustainable technology is no different. There are obstacles like convincing everyone to switch to cleaner energy or dealing with the costs of new technologies. Sometimes, people are resistant to change, and existing systems might not easily adapt. These challenges can slow down the superhero mission of creating a greener world.

Opportunities: But here's the exciting part – challenges bring opportunities. As we overcome obstacles, we find new and better ways to make sustainable technology work for everyone. There are chances for businesses to grow, for new jobs in green industries, and for communities to benefit from cleaner air and water. Embracing sustainable technology is like unlocking doors to a future where innovation meets environmental harmony.

So, the journey involves facing challenges head-on, but with every challenge comes the opportunity for positive change and a more sustainable way of living.

Conclusion

In conclusion, the journey through “Innovations in Sustainable Technology: Navigating the Path to a Greener Future” reveals a landscape where creativity meets responsibility. The innovations we’ve explored are like beacons lighting the way to a future where technology and sustainability are inseparable partners.

As we embrace super-efficient solar panels, smart transportation solutions, and earth-friendly manufacturing, we’re not just adopting gadgets – we’re adopting a mindset. It’s a mindset that says we can live in harmony with our planet, leveraging the power of innovation to address environmental challenges.

The superheroes in this story are not caped crusaders but innovations that reduce waste, conserve energy, and promote resource efficiency. From circular economy principles to eco-friendly materials, each innovation plays a role in creating a greener tomorrow.

However, the journey isn’t without challenges. Overcoming resistance to change and addressing economic considerations are part of the adventure. Yet, within these challenges lie opportunities for growth, job creation, and a more sustainable way of life.

So, as we navigate this path, let’s remember that every small change adds up. The innovations we adopt today pave the way for a future where technology not only advances but does so hand in hand with environmental stewardship. Together, we’re crafting a narrative where a greener future is not just a destination but a collective journey we undertake for the well-being of our planet.

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MEDIA, CREATIVITY AND SUSTAINABLE ECONOMIC DEVELOPMENT: PUBLIC EXPERIENCE

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ABSTRACT

Sustainable economic development is an essential foundation for any society. To establish and maintain economic growth, it is crucial that various stakeholders across society can clearly define and comprehend the concept of economic development. They should also understand how to leverage technical, entrepreneurial, and vocational education to foster sustainable economic progress. Recognizing the significant role of the media is equally important, as it contributes significantly to the advancement of economic and development goals, whether at the local, national, or global levels. However, the media's effectiveness in fulfilling this crucial role depends on acknowledging and respecting its position as the fourth estate of the realm. Addressing challenges such as corruption, inadequate communication channels, and insufficient grassroots media training in tertiary institutions, political instability, and ethnic conflicts is imperative to unlock the full potential of the media in promoting economic development. This paper explores the various roles the media plays in society's development and underscores how a culture of creativity can facilitate sustainable economic development across all levels.

KEYWORDS: Media, Creativity, Sustainable, Economic, Development, etc.

Introduction

The societal shift towards sustainable economic development is evident, with the concept of "development" taking on various dimensions (Fischer et al., 2023). Economists often view development as synonymous with "economic growth," however, at a fundamental level, it comprises the satisfaction of people's basic needs (Purvis et al., 2019). Amid the ongoing challenge of addressing the ever-expanding human needs and desires, the primary objective of development is to ensure access to food, health, shelter, and education.

In urban and industrial settings, development extends to the construction and maintenance of the environment, upgrade of systems and structures, as well as the modifying of traditional values. According to Eze (2019), the concept of development covers material progress, human dignity, as well as the active participation of people in the developmental process.

In 2002, Nigeria and 187 other countries globally endorsed the United Nations Millennium Declaration, featuring eight goals, eighteen time-bound targets, and forty-eight quantitative indicators. These Millennium Development Goals (MDGs) aim at the eradication of poverty, promotion of gender equality, assurance of environmental sustainability, improvement of health and education, and enhancement of a global partnership for development (UNO, n.d).

Following the expiration of the MDGs, the United Nations, along with the Heads of States and Governments of the 193 member nations, launched the Sustainable Development Goals (SDGs) in pursuit of a new development agenda. Comprising seventeen goals, one hundred and sixty-nine targets, and two hundred and thirty indicators, known as Agenda 2030, the SDGs prioritize ending poverty and hunger, promoting health and well-being, and ensuring quality education, as well as achieving gender equality, while still addressing various other global challenges.

However, unforeseen events such as the COVID-19 outbreak have posed obstacles to the full implementation of the SDGs by governments worldwide. Nevertheless, sustained and inclusive economic growth can be seen as a driving force for progress, development, and the creation of profitable jobs, ultimately resulting in the improvement of societal standards of living.

Yet, in the pursuit of sustainable development through the meeting of societal needs and enhancement of economic growth, there exists a critical oversight. This is evident in the unintended consequences, where addressing one need may create another. For instance, trying to meet the demand for paper industry raw materials by cutting down trees can jeopardize forestry, leading to desert encroachment and a lack of resources for future generations.

As humans strive for a better life, conflicts may arise which may seem almost irreparable. Phuong (2000) highlights the inherent contradiction, where people need clean air but also require cars for transportation, or the need for firewood conflicts with the necessity to protect forests against erosion and saline intrusion.

Recognizing this conflict, the World Commission on Environment and Development (WCED) defined sustainable development in 1987 as "development that meets the needs of the present without compromising the ability to meet the needs of future generations." Widely accepted, this definition underscores the crucial balance between current and future needs in the pursuit of sustainable development.

The study on media, creativity, and sustainable economic development attempts to explore how innovative media practices and creative industries contribute to economic sustainability. Understanding the relationship between media, creativity, and economic development can influence policies which foster growth, job creation, and resilience in the rapidly evolving global landscape.

Literature review

The Media, Creativity and Economic Development: A Symbiotic Relationship

The interplay between the media and economic development is intricate and symbiotic, playing a crucial role in shaping the trajectory of nations in the contemporary global landscape. Scholars and policymakers, according to Ye & Kamruzzaman (2022), have increasingly recognized the profound impact of media on economic development and vice versa. This paper explores the multifaceted dimensions of this relationship, examining how media influences economic development and, in turn, how economic conditions shape the media landscape. Additionally, this paper aims to provide a comprehensive review of recent research on these interrelated themes, shedding light on the dynamic nature of creativity, problem-solving, technological innovation, and strategic management.

Medias a Catalyst for Economic Development

The media serves as a powerful catalyst for economic development by fostering information dissemination, education, and public awareness. A well-functioning media landscape provides a platform for the exchange of ideas, knowledge, and information essential for economic growth. The rise of digital media, in particular, has democratized access to information, enabling a more informed citizenry and promoting transparency.

Recent studies showcase the positive correlation between media freedom and economic development. According to a report by the World Bank (2022), countries with a free and independent media environment tend to experience higher levels of economic development. This correlation is attributed to the role of media in holding government accountable, promoting good governance, and attracting foreign investment.

Oyebamiji (2012) states that the media also contributes to human capital development by disseminating educational content. Educational programs, delivered through various media channels, enhance literacy rates and skill development, laying the foundation for a more productive and skilled workforce. This, in turn, positively influences economic productivity and innovation.

Economic Development Shaping the Media and landscape

Economic development shapes the media landscape through mechanisms such as advertising revenue, technological advancements, and media infrastructure investment. The economic prosperity of a nation often results in increased advertising budgets, leading to a financially viable media industry (Rasool et.al., 2021). As evidenced in developed economies where robust advertising markets sustain diverse and competitive media ecosystems.

Technological advancements, a key driver of economic development, also influence the media landscape. The proliferation of the internet and digital technologies has changed how information is produced, consumed, and distributed. Social media platforms, in particular, have become influential channels for news dissemination, shaping public opinion and influencing economic trends.

Media infrastructure development is closely linked to economic progress. A study by Smith et al. (2021) emphasizes the significance of reliable and extensive media infrastructure in supporting economic activities. Countries with well-developed media infrastructure, including widespread access to broadband and communication networks, are better positioned to attract investment, foster innovation, and participate in the global economy.

Challenges and Opportunities

While the relationship between the media and economic development presents numerous opportunities, it is not without challenges. Media concentration, the spread of fake news, and censorship can impede the positive contributions of media to economic development. In some cases, media outlets may be influenced by economic interests, compromising their independence and objectivity.

The advent of digital media has also raised concerns about information integrity and the spread of misinformation. Governments and media organizations grapple with the task of regulating online content while upholding freedom of expression. Striking a balance between regulation and freedom is essential for harnessing the full potential of media in promoting economic development.

The interplay between media and economic development underscores the dynamic nature of modern societies. A free and vibrant medial landscape contributes to economic growth by fostering transparency, accountability, and human capital development. Simultaneously, economic development influences the media landscape through financial support, technological advancements, and infrastructure development.

As nations navigate the complexities of this relationship, policymakers must prioritize media freedom, invest in media infrastructure, and address challenges such as misinformation. Recognizing the symbiotic nature of the media and economic development is crucial for fostering inclusive growth and sustainable development in an interconnected world.

Media and Sustainable Economic Development

The concept of Media for Sustainable Development or Development Communication is no longer a novel idea. Essentially, it involves utilizing media to foster development or employing communication with the aim of achieving sustainable growth or sustainable economic development. This approach is crucial for communicating the sustainable development goals of each country and community, particularly in developing nations (Karin, 2000).

A fundamental aspect of Media in sustainable economic development is communication. Its importance lies in fostering economic development, as articulated by Schramm, who stated that the role of mass media in development is to expedite the social transformation necessary for economic development. According to Schramm, communication should contribute to the sense of nationhood, serve as the voice of national planning, assist in teaching literacy and essential skills, extend the effective market, prepare people for new roles in development, and ready them to assume their role as a nation among nations.

Certain communication theories emphasize the role of people as the basis of their frameworks, highlighting the importance of feedback. Communication is considered incomplete without feedback, as it allows for the consideration of others' views and opinions in the context of disseminating information about development goals or missions to the public.

Media plays various roles in the promotion of economic development, such as reporting and informing the public on a range of issues, broadening perspectives, shaping public opinion on critical matters, focusing attention on government projects and policies, fostering hopes for a better life, and providing a platform for political leaders and parties in developing countries to build leadership, increase political participation, and engage in policy-making.

In terms of communicating development goals, the media can contribute to a climate of change by instilling values and attitudes that promote collective decision-making participation. Additionally, it can bring about revolutionary shifts in power structures by disseminating information among the populace, fostering a sense of togetherness, and encouraging participation in development goals and objectives.

Media Challenges in Communicating Developmental Goals

Corruption: The presence of corrupt individuals in society poses a significant challenge to the effective communication of policies, objectives, and goals affecting economic growth through the media. Corrupt individuals may manipulate public perception using propaganda, leading the populace to believe in policies that are untrue.

Poor Communication Channels: Financial constraints act as a substantial barrier to acquiring advanced media equipment. The high costs of media equipment or its normal functioning can impede the media's ability to effectively reach the public on issues related to economic growth and development.

Lack of Grassroots Media Training in Tertiary Institutions: The absence of media equipment and qualified personnel for training individuals in the responsibilities and functions of the media deprives society of the resources needed for economic advancement, change, or growth.

Political Instability and Ethnic Conflict: Political conflicts initiated by leaders, especially for the sake of retaining power, can entangle the media. If the government is involved, the media may be utilized for political interests. This situation aligns with Normative theories of communication, where the media reflects the structure and nature of the state they operate in. Ethnic conflicts also pose a significant obstacle to the existence of the media in a given region.

Cultural Creativity

The cultural background and values that compose it interact intricately with the economic system. The economic system is defined as the network of human institutions and motivations shaping variables like economic growth rates and income distribution, leading to various economic outcomes.

Culture plays a crucial role in fostering innovation and development by creating an environment that either hinders or promotes the free exchange of ideas in society. According to Jaskyte and Dressler (2004), culture is integral to innovation outcomes as innovation processes involve learning and developing new ideas.

Innovation thrives in cultures that encourage social progress, reward productivity, exhibit long-term orientation, and embrace change. Conversely, risk-averse cultures that are unwilling to invest in new technologies hinder innovation. Culture emerges as a strategic tool influencing the economic outcomes of a society and serves as a vital means of enhancing entrepreneurial value.

Consequently, the impact of culture on economic outcomes is both direct and indirect, influencing the effectiveness of economic policies within a society. The approval of an economic policy by society is a prerequisite for its effectiveness, further highlighting the significance of cultural background in shaping economic realities (Kafka, 2020; Kafka et al., 2020).

Exploring the Nexus of Creative Thinking, Innovation, and Business Strategies

Creative thinking and problem-solving are integral components of individual and organizational success. Recent studies by researchers emphasized the significance of fostering a culture that nurtures creativity, highlighting its positive impact on employee engagement and productivity. Additionally, the work of West and Farr (2022) underscored the role of diverse teams in promoting creative problem-solving, emphasizing that diverse perspectives lead to more innovative solutions.

Innovation in Technology and Design

The rapid evolution of technology and design is a driving force behind global progress. Smith and Johnson (2023) explored the role of open innovation in the technology sector, arguing that collaboration between firms and external partners accelerated technological advancements. Furthermore, recent research by Brown and Miller (2022) delved into the critical role of design thinking in innovation processes, emphasizing the user-centric approach as a catalyst for successful product development.

Creativity in Business Strategies

In the realm of business strategies, creativity plays a pivotal role in businesses gaining a competitive edge. Porter's (2023) recent analysis underscores the need for organizations to integrate creativity into their strategic planning, noting that innovative business strategies are essential for long-term success. Moreover, the research by Simons and Collins (2022) explored the interplay between creative leadership and effective implementation of business strategies, suggesting that leaders who fostered a creative culture within their teams were more likely to achieve strategic goals.

Recent research highlighted the interconnectedness of creative thinking, innovation in technology and design, and creativity in business strategies. Organizations that prioritize these

elements are better positioned to navigate the complexities of the modern business landscape and achieve sustained success. As the field continues to evolve, further research is needed to uncover new insights and strategies for leveraging creativity and innovation for organizational growth.

The Link Between Creativity and Sustainable Economic Development Of Emerging Economies

Creativity is a driving force behind sustainable economic development in developing economies such as Nigeria, Brazil, India, South Africa, Chile, and Europe. It plays a crucial role in enhancing innovation, diversifying economies, and addressing social and environmental challenges.

In the developing economies of the world, creativity acts as a catalyst for innovation, resulting in the development of new products, services, and processes. This innovation, in turn, boosts productivity and competitiveness, contributing to economic growth. Countries that invest in creative industries, such as technology, design, and arts, often experience a positive impact on job creation and export earnings. For instance, Muzaka (2019) noted that India's information technology sector and Brazil's creative industries had become significant contributors to their respective economies.

Moreover, creativity is essential for the diversification of economies. The reliance on a narrow range of industries makes economies vulnerable to external shocks. By fostering creativity across various sectors, countries can reduce their dependence on a single industry, thereby creating a more resilient and sustainable economic base.

Addressing social and environmental challenges is another way in which creativity promotes sustainable development. Creative solutions can be applied to issues like poverty, healthcare, and environmental sustainability. According to Sheikh et al. (2023), creative initiatives have been employed to address social inequality and promote community development in South Africa.

In Europe, where creativity has long been recognized as a driver of economic growth, policies supporting the creative industries have been instrumental in enhancing sustainable development. Over the years, Gustafsson and Lazzaro (2021) posited that the European Union has implemented programs that have encouraged collaboration between creative sectors and traditional industries, fostering a culture of innovation.

Theoretical Framework

Agenda Setting Theory

Agenda-setting, originally coined by Walter Lippmann in the 1920s and further developed by Bernard Cohen in the 1960s, refers to the deliberate influence wielded by the news media in determining what the audience hears, sees, and discusses. Maxwell McCombs and Donald Shaw formalized this concept through a study on the 1968 American presidential election, revealing a relationship between media coverage and public perception of significant issues.

Rogers (1988) asserts that the theory posits the media's ability to shape public opinion by prioritizing certain issues, thereby establishing a hierarchy of news significance. Media-driven agenda-setting is susceptible to biases in politics, the economy, culture, and other factors (McCombs, 2005).

The theory underscores the media's role in shaping viewers' perceptions and creating a hierarchy of news importance, with biases in politics and culture influencing agenda-setting (McCombs, 2005). The evolution of agenda-setting, coupled with laissez-faire communication research components, has spurred rapid growth in these perspectives.

Given the substantial impact of the Agenda-setting theory on shaping opinions, it is crucial to examine its role in the media's formation of public opinions. Dhriti Yadav (2020) emphasizes two aspects of the agenda-setting theory. Firstly, the media doesn't merely present reality; it filters and shapes it before conveying it to the audience. Secondly, the media covers all societal events rather than concentrating on essential aspects, potentially influencing the public to prioritize trivial matters while remaining unaware of critical societal issues that demand attention. Regardless, the media is able to impact the public to focus on a specific matter of interest.

The agenda-setting theory proves instrumental in analyzing the intricate relationship between media, creativity, and sustainable economic development. Media functions as a powerful force in shaping public perception and influencing societal priorities. In this context, the media not only reflects but actively constructs the agenda by highlighting specific issues, thereby steering the attention of the public towards them. In the study of media, creativity, and sustainable economic development, the agenda-setting theory becomes a lens through which we can understand how media platforms contribute to shaping narratives around creativity's role in fostering sustainable economies.

Media plays a vital role in spotlighting creative initiatives that contribute to sustainable economic development. By giving prominence to innovative practices, media outlets influence public opinion and policy discourse, subsequently impacting the prioritization of creative and sustainable initiatives. The application of the theory to this study involves analyzing media content to identify the themes and issues receiving substantial coverage, evaluating the extent of their influence on public opinion and policymaking, and understanding how these factors collectively contribute to or hinder sustainable economic development. This aligns with the principles of the media's agenda-setting function, as outlined by Omego and Ochonogor (2013). They posit that when the media consistently emphasizes a specific topic in their coverage over an extended period, it effectively convinces the audience of the issue's significance. According to Ochonogor and Iheoma (2021), it is crucial to recognize that individuals can only engage with an innovation when they receive sufficient information about the matter and when these issues are consistently highlighted over time. This ensures a smooth transition from the media's agenda to the public's individual agenda. Only then can a comprehensive understanding develop, enabling the target audience to make informed decisions regarding their participation (Ochonogor and Iheoma, 2021).

Furthermore, the agenda-setting theory helps unravel the dynamic interplay between media, creativity, and sustainable development. It underscores the importance of media as a platform for not only disseminating information but also shaping societal values and perceptions, thereby influencing the trajectory of creative endeavors and their impact on economic sustainability. In essence, the agenda-setting theory provides a valuable framework for understanding the intricate dynamics that underpin the relationship between media, creativity, and the pursuit of sustainable economic development.

Development Media Theory

The development media theory proposed by Dennis McQuail in 1987 revolves around the idea that media support for government and its initiatives is instrumental in bringing about socio-economic development. The theory emphasizes the crucial role of media in shaping societal progress, fostering economic development, and contributing to social change, education, and improved health outcomes. According to Oluwasola and Omolola (2020), the theory suggests that until a country is well-established and its social-economic development is in progress, the media must provide support. Rather than solely antagonizing the government, the media should assist in the implementation of good government policies, thereby contributing to development. Through the strategic use of various communication channels such as television, radio, and digital platforms, the Development Media Theory underscores the transformative influence of media in advancing both individual awareness and collective development goals.

In the context of creativity, the media serves as a catalyst by shaping perceptions and encouraging innovative thinking. Through strategic communication, the media not only promotes entrepreneurship but also highlights success stories, fostering a culture of creativity essential for economic growth and national development. Additionally, the media addresses societal challenges by raising awareness about sustainable practices and influencing consumer behavior. Leveraging its persuasive power, the media can contribute to building a foundation for sustainable economic development, enhancing creativity, and steering societies towards being environmentally conscious and adopting socially responsible practices as they relate to development.

Empirical Review

In a research study focused on Nakuru County, Kenya, Oribu (2014) conducted a survey within local communities to investigate the impact of stakeholder collaboration and government regulations on sustainable development. The objective of the study was to identify the primary factors influencing sustainable development. Participants were asked to assess, using a Likert scale, the perceived influence of voluntary business actions, collaboration with stakeholders, and government regulations on the sustainable utilization of natural resources. The findings underscored the significance of information sharing in generating ideas for sustainable business development. The study recommended fostering information exchange and engaging stakeholders collaboratively. Additionally, it emphasized the importance of involving stakeholders in the formulation of business strategic plans to comprehend the potential impacts of various business activities on the community, thereby promoting sustainable development.

Ochonogor and Iheoma (2021) investigated the impact of media agenda-setting on the awareness and acceptance of the United Nations' Sustainable Development Goals (SDGs) among the population of Benue State, Nigeria. The study employed the media agenda-setting theory, media dependency theory, and development media theory as its theoretical frameworks. Using a survey research design, the study utilized a questionnaire to collect data from a sample of 384 Benue State residents. Data analysis involved simple percentage, frequency distribution tables, and weighted mean score (WMS). Results revealed that while the mass media influenced some residents, a majority were unaware of SDGs Goals 7-17. Additionally, respondents demonstrated greater awareness and engagement with Goals 1-5 among the 17 SDGs. The study recommended the implementation of a strategic and systematic media strategy to effectively disseminate SDGs information, sensitize, and mobilize the population to actively participate in achieving the outlined objectives in the state.

Methodology

The design or method adopted in this paper was a cross-sectional research design. In a cross-sectional design, the researchers evaluated participants' exposures and results at the same time. Since the study attempted to understand media, creativity, and sustainable economic development, a qualitative approach was used. This allowed for in-depth exploration and analysis of textual content. The qualitative method was suitable for the research as the study reviewed existing literature on the topic to gain insights.

Conclusion

Media, creativity, and sustainable economic development are intricately linked, with the potential to mutually reinforce each other. The conclusion drawn from the intersection of these elements underscores the pivotal role of media and creativity in fostering sustainable economic growth and development.

The power of media in shaping public opinion and awareness cannot be overstated. In the context of sustainable development, as indicated in the study, media plays a significant role in disseminating information about environmental issues, social responsibility, and ethical business practices. Effective communication through various media channels helps raise public consciousness, encouraging both consumers and businesses to adopt sustainable practices.

Creativity, on the other hand, emerges as a catalyst for innovation, driving economic development towards sustainability. Creative industries, including arts, design, and technology, not only contribute significantly to economic growth but also serve as platforms for addressing environmental and societal challenges. Creative solutions are essential for developing sustainable business models and products that consider ecological impact and social equity.

In addition, the relationship between creativity and sustainable economic development in developing economies is multifaceted. While it drives innovation, it as well diversifies economies and addresses social and environmental challenges, making it a vital component of a holistic and resilient approach to economic growth. As these countries continue to invest in

and harness the power of creativity, they are likely to experience more inclusive and sustainable development.

Recommendation

Recommendations stem from recognizing the potential synergy between media, creativity, and sustainable economic development. There is a need for policymakers to prioritize the development of a supportive ecosystem for creative industries, offering incentives and fostering collaboration between creative professionals and businesses committed to sustainability. Additionally, media platforms should amplify sustainability messages and provide a platform for showcasing innovative, sustainable practices. With education and awareness campaigns implemented to promote sustainable practices among consumers, media literacy programs can empower individuals to critically evaluate information related to sustainable development.

Furthermore, public-private partnerships should be promoted, as this will drive investments in sustainable projects, with media serving as a conduit for disseminating success stories and best practices. In essence, the integration of media and creativity into strategies for sustainable economic development can result in a more informed, engaged, and environmentally conscious society, fostering a future where economic growth is harmonized with social and environmental well-being.

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IMPACT OF DIGITAL TRANSFORMATION ON FINANCIAL REPORTING IN THE 21ST CENTURY

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ABSTRACT

The 21st century has witnessed an unprecedented wave of digital transformation across industries, reshaping traditional business practices and processes. In the realm of finance, this evolution has profoundly affected financial reporting, introducing new technologies and methodologies that challenge and redefine established norms. This study explores the multifaceted impact of digital transformation on financial reporting, examining how technological advancements such as big data analytics, artificial intelligence, blockchain, and cloud computing have reshaped the landscape. The research investigates how digitalization has streamlined financial reporting processes, enhancing accuracy, transparency, and efficiency. The digital transformation of financial reporting is not without challenges. The study identifies and analyzes potential risks, including cybersecurity threats, data privacy concerns, and the need for skilled personnel capable of navigating and harnessing these advanced technologies. It also considers the regulatory implications and the evolving role of standard-setting bodies in adapting to the digital era. By drawing on case studies and real-world examples, this research contributes to a comprehensive understanding of how digital transformation is reshaping financial reporting practices. The findings aim to guide financial professionals, policymakers, and academics in navigating the dynamic landscape of 21st-century financial reporting, fostering a dialogue on best practices, challenges, and future opportunities in the digital age.

KEYWORDS: DIGITAL; TRANSFORMATION; FINANCIAL REPORTING; 21ST CENTURY

Introduction

The realm of financial reporting has undergone significant metamorphosis owing to the rapid integration of technological advancements. The convergence of digital innovations with accounting practices has led to a paradigm shift, redefining how financial data is processed, analyzed, and reported. As a consequence, stakeholders across industries are witnessing a pivotal transformation in the way financial information is communicated and utilized for decision-making purposes. Barth et. al (2020) stated that financial reporting serves as the cornerstone of transparent and reliable communication between entities and their stakeholders. It encompasses the dissemination of financial data and insights, aiding investors, regulators, and management in making informed decisions. The timely, accurate, and relevant nature of

financial reports is integral in fostering trust, facilitating capital allocation, and ensuring corporate accountability.

According to Hope (2003) financial reports, comprising balance sheets, income statements, and cash flow statements, furnish stakeholders with critical insights into a company's financial position, performance trends, and cash flow dynamics. Investors and creditors rely on these disclosures to assess risks, gauge profitability, and make informed decisions regarding investments or extending credit. Furthermore, Leuz & Wysocki (2016) opined that transparency in financial reporting fosters accountability among corporate executives and management teams. It serves as a mechanism to uphold corporate governance standards, ensuring that management is answerable for its stewardship of company resources. Timely and accurate financial disclosures empower shareholders to hold management accountable for their actions. Also, DeGeorge et. al (2019) stated that robust financial reporting cultivates trust and confidence in the marketplace. When companies adhere to rigorous reporting standards and disclose relevant information promptly, it enhances credibility, fostering trust among stakeholders, including investors, customers, and suppliers.

Alles et. al (2018) asserted that the integration of cutting-edge technologies such as artificial intelligence (AI), blockchain, cloud computing, and data analytics has revolutionized accounting practices. These advancements have not only streamlined the process of financial data collection and analysis but have also ushered in an era of real-time reporting and predictive analytics. Schoder & Leoni (2017) affirmed that digital transformation has ushered in an era of automation, streamlining repetitive and time-consuming accounting tasks. AI-powered algorithms have enabled swift data processing, reduced manual interventions and mitigated the risk of human error. This automation not only expedites the accounting cycle but also liberates professionals to focus on strategic analysis and decision support. Cheng & Humphreys (2020) investigated the integration of advanced analytics tools has empowered accountants to derive deeper insights from vast datasets. Data analytics algorithms can discern patterns, detect anomalies, and forecast trends, enabling proactive decision-making based on robust and accurate financial information. This capability significantly augments the value proposition of financial reporting.

Rahman & Olibe (2021) affirmed that digital transformation has dismantled the barriers of temporal constraints in reporting. Cloud-based accounting systems facilitate real-time data access and reporting, providing stakeholders with up-to-the-minute financial information. This agility enables prompt decision-making and proactive responses to market dynamics. Iansiti & Lakhani (2017) stated that the integration of Blockchain technology has engendered trust and transparency in accounting practices. Its decentralized ledger system ensures the immutability of transactions, reducing the risk of fraud and enhancing the authenticity of financial records.

This study focuses on the pivotal nexus between digital transformation and financial reporting, aiming to illuminate the multifaceted impacts, challenges, and opportunities inherent in this technological metamorphosis. The significance of this research is underscored by the indispensable role of financial reporting in informing stakeholders, facilitating investment decisions, and fostering trust in the integrity of financial information. The accelerating pace of

technological advancements in the 21st century has engendered a transformative landscape wherein businesses grapple with harnessing the potential of digital tools while navigating the complexities of evolving regulatory frameworks and security concerns. This study seeks to dissect and analyze the impact of digital transformation on financial reporting, traversing through the realms of its advantages, challenges, and the consequent shifts in the roles and competencies demanded from accounting professionals.

The advent of digital transformation in the 21st century has revolutionized financial reporting, presenting both opportunities and challenges. One pressing issue is the rapid evolution of technology, leading to discrepancies between traditional reporting methods and dynamic digital systems. This technological shift demands constant adaptation, risking inaccuracies or inconsistencies in financial statements. Another challenge arises from the vast amounts of data now available through digital channels. While big data offers insights, managing, interpreting, and securing this information poses complexities. Without robust frameworks, the reliability of financial reports might be compromised, impacting decision-making. Globalization exacerbates these challenges, with differing regulatory frameworks across regions. Harmonizing diverse standards and ensuring compliance becomes intricate, potentially leading to inconsistencies and compliance gaps in financial reporting practices. Moreover, the integration of automation and AI introduces transparency concerns. The opacity of algorithmic decision-making processes raises questions about accountability and ethical implications, particularly in explaining financial outcomes derived from automated systems. Tackling these challenges requires concerted efforts in system compatibility, robust data governance, regulatory convergence, and ensuring transparency in automated processes. Collaboration among stakeholders, technological innovation, and regulatory adaptation are essential to navigate the complexities of digital transformation in financial reporting.

Evolution of Financial Reporting

The evolution of financial reporting is a tale of transformation from mere bookkeeping to a sophisticated tool for transparency, accountability, and decision-making. Initially, financial reporting was rudimentary, focused on recording transactions for basic record-keeping and tax purposes. However, as commerce expanded, so did the need for standardized, comprehensible reports. According to Marius Koen (2015), the birth of double-entry accounting in the 15th century laid the groundwork for accurate financial records. Over time, regulatory frameworks like the Medici Bank's ledger system and the emergence of joint-stock companies in the 17th century necessitated more detailed reporting. Fast forward to the early 20th century, the aftermath of the Great Depression spurred the establishment of the U.S. Securities and Exchange Commission (SEC) and the creation of standardized financial statements, enhancing comparability and reliability. The latter part of the 20th century saw a global push towards convergence in accounting standards, culminating in the development of International Financial Reporting Standards (IFRS). Technology revolutionized financial reporting, with software automating processes and facilitating real-time data access. Presently, financial reporting is not just about compliance but also about communicating a company's financial health and future prospects to stakeholders. It continues evolving with sustainability reporting,

integrated reporting, and the integration of artificial intelligence and blockchain technologies, promising greater accuracy, transparency, and efficiency in the years ahead.

Concept of Financial Reporting Quality

Financial reporting is often designed to provide pertinent information on the financial status, performance, and alterations in financial status of a company entity. This information is intended to be useful for various users in their decision-making processes related to economic matters. Hence, the matter pertaining to the caliber of financial reporting has garnered more scrutiny, especially in light of recent accounting scandals. However, despite the heightened scrutiny, the notion of financial reporting quality, commonly referred to as accounting quality, remains ambiguous and challenging to delineate (Isabel & Dias, 2008). In a similar vein, it should be noted that although the primary aim of the International Accounting rules Board (IASB) is to provide a consistent and superior set of accounting rules that may yield high-quality financial reporting, the IASB has not explicitly defined the idea of financial reporting quality.

Various definitions of financial reporting quality have been put forward by scholars. Penman (2002) argues that the assessment of financial reporting or accounting quality should be approached from the perspective of owners' interests and the equitable valuing of those interests. The concept of accounting quality is founded on the utility of accounting information for shareholders, with the assumption that financial reporting serves to advance owners' interests and takes into consideration the public interest.

In the present context, Penman asserts that the quality of profits has significant importance in the realm of financial reporting, since investors make purchasing decisions based on anticipated future earnings. However, despite the significance of profits for many stakeholders, the notion of earnings quality is subject to varying interpretations. While several scholars establish a connection between earnings quality and the precise depiction of fundamental economic transactions and events, other writers emphasize the concept of earnings persistence, whereby better quality profits are durable and endure over time. Financial reporting quality is often considered to be a reflection of an organization's genuine transactions, devoid of both deliberate and inadvertent mistakes and misstatements. This quality is crucial as it enables owners and the general public to make informed economic choices.

Given the aforementioned considerations, several studies use various indicators of financial reporting quality, including earnings management (also known as earnings quality), timely acknowledgment of losses, and value relevance, in order to construct this term (Barth, Landsman, & Lang, 2005). This research employs earnings quality, specifically the degree of earnings management in financial reporting, as a proxy for financial reporting quality. According to Cohen (2003), earnings quality refers to the extent to which accounting statistics effectively reflect the basic economic aspects of a company and how well they align with actual cash flow outcomes. According to Schipper and Vicent (2003), earnings quality refers to the degree to which reported earnings accurately reflect Hicksian income, which is the greatest amount that may be consumed while maintaining wealth.

In accordance with the findings of Cohen (2003), Chan et al. (2004) provide a definition of earnings quality as the extent to which the reported income accurately represents the underlying operational aspects. Yee (2006) proposed a conceptualization of financial reporting quality, suggesting that earnings quality may be understood in two distinct forms: as a basic property and as a financial reporting attribute. Fundamental earnings refer to an accounting metric used to assess a company's capacity to generate future dividend payments. Reported earnings serve as an imprecise indicator of a firm's core earnings.

Kirschenheiter and Melumad (2004) propose that good quality profits are characterized by their informativeness and their proximity to the long-term worth of the organization. This finding aligns with the theoretical framework proposed by Revsine et al. (1999), which posits that profits are seen to be of superior quality when they exhibit sustainability. According to Penman and Zhang (2002), the concept of high quality profits refers to earnings that are sustained over time and serve as a reliable predictor of future earnings. Penman and Zhang (2002) establish a connection between earnings quality and conservatism. Similarly, White, Sondhi, and Fried (2003) provide a definition of earnings quality as the degree of prudence shown in a company's disclosed profits. In a separate study, McNichols (2002) examines the concept of earnings quality or accruals quality, which pertains to the extent to which profits faithfully reflect the economic consequences of underlying transactions, specifically in relation to operational cash flows. Based on her conceptual framework, it is posited that an increase in the cash components of profits is indicative of enhanced earnings quality and improved financial reporting quality.

The idea of financial reporting quality, often known as earnings quality, is closely related to the concept of earnings management. Specifically, the extent of earnings management directly affects the level of financial reporting quality. According to Bello (2010), earnings management refers to the deliberate manipulation or customization of financial accounting reports in order to achieve a certain targeted level. The individual in question perceives earnings management as a kind of ethical misbehavior committed by accountants, and draws a connection between this behavior and the occurrence of company failures and the subsequent erosion of investor trust in financial reports and auditors.

Accruals serve as a potential indicator of increased earnings management and the potential presence of lower quality profits. Discretionary accruals have the potential to either increase revenue (positive) or decrease income (negative).

The study under consideration pertains to the notion of financial reporting quality, which specifically encompasses the quality of profits. This quality is characterized by a reduced occurrence of mistakes and management manipulations in the reported earnings. However, it is necessary to provide an analysis of the underlying reasons for engaging in earnings management and the various methods used to carry out such practices.

Financial Reporting Quality and its Measures

The notion of financial reporting quality is often considered to be unobservable, and thus, it is assessed by examining earnings quality, which includes discretionary accruals and other characteristics of accounting earnings. According to Dechow et al. (2010), financial reporting quality measurements may be classified into three primary categories: characteristics of earnings, investor reactivity to earnings, and external indicators of earnings misstatements. The concept of earnings properties encompasses several key aspects, including earnings persistence and accruals, earnings smoothness, asymmetric timeliness and timely loss recognition, and target beating. Earnings persistence refers to the ability of earnings to be sustained over time, while accruals refer to the non-cash components of earnings. Earnings smoothness pertains to the stability and consistency of earnings over a period. Asymmetric timeliness and timely loss recognition involve the differential speed at which good and bad news are reflected in earnings. Target beating refers to the extent to which earnings deviate from a predetermined target, such as small profits, which is often seen as an indication of earnings management. It is generally believed that earnings management can undermine the quality of financial reporting.

The subsequent classification of measures pertaining to the quality of financial reporting involves the evaluation of investor receptiveness towards earnings. This evaluation encompasses the utilization of an earnings response coefficient (ERC) or the R square derived from the earnings-returns model, which serves as a proxy for assessing the quality of earnings. Additionally, this evaluation examines the relationship between the ERC and other constructs, such as auditor quality. On the contrary, external indications of earnings misstatements include Accounting and Auditing Enforcement Releases (AAERs), restatements, and internal control procedural inadequacies that are disclosed in accordance with the Sarbanes Oxley Act. These indicators are often seen as signs of mistakes or earnings management.

Penman (2001) presents a theoretical framework for assessing the quality of earnings based on the concept of persistence, using discretionary accruals as a measurement tool. The estimation of earnings quality in this model is based on the comparison of the ratios between cash flow from operations and income. A greater degree of similarity between the ratio of operational cash flow and income indicates a higher level of earnings quality. In contrast, incomes are a significant aspect.

The quality of profits is enhanced when there is a greater proximity between earnings and cash, indicating that an earnings stream that serves as a reliable forecast of future operational cash flow is considered to be of high quality. Lipe (1990) elucidates an additional metric for assessing the quality of profits, namely predictability, which pertains to the capacity of prior earnings to anticipate future earnings. The underlying assumption of this model is that any modification in the reported streams of profits introduces a bias in the earnings' quality, hence rendering projections of future earnings undesirable.

Earnings persistence is often regarded as a metric for assessing the quality of financial reporting. Penman and Zhang (2002) define persistent profits, also known as sustainable earnings, as the capacity of earnings before unusual items to serve as a reliable predictor of future earnings. According to Richardson et al. (2004), the concept of earnings persistence refers to the extent to which a company's profits success continues or carries over into

subsequent periods. The basic premise of earnings persistence is that profits that exhibit more persistence provide more reliable information for equity valuation models. Consequently, a more persistent earnings figure is considered to possess higher quality compared to a less persistent earnings figure (Dechow et al., 2010). In accordance with this premise, the researchers assess the persistence of profits by conducting a regression analysis, whereby they regress future earnings on current earnings. They deduce that a larger coefficient of current earnings indicates a greater degree of persistence in the earnings stream.

Impact of Digital Transformation on Financial Reporting

Digital transformation has fundamentally reshaped the landscape of financial reporting, revolutionizing the way businesses manage, analyze, and communicate their financial data. The advent of sophisticated technologies, such as artificial intelligence, machine learning, cloud computing, and big data analytics, has ushered in a new era of efficiency, accuracy, and transparency in financial reporting processes. According to Sharif (2018) the impacts of digital transformation on financial reporting is the automation of tasks that were once manual and time-consuming. Advanced software and algorithms now handle data collection, entry, and reconciliation, minimizing human error and enhancing the speed of financial reporting cycles. This has enabled organizations to produce real-time or near real-time financial insights, empowering decision-makers with timely and accurate information.

The COVID-19 pandemic has accelerated the digital transformation of companies and organizations across the world. Digital transformation has been considered as a key ingredient in the quick response to the disruptive business systems and many organizations have strengthened their work towards the sudden changes of scenery in 2020. In addition, 80% of businesses fast-tracked at least some digital transformation programs in 2020 and 79% are reinventing their business model as a result of the disruption caused by the pandemic. Furthermore, 89% of the surveyed 4000 businesses stated that the pandemic highlighted the need for a more agile and scalable IT environment (Digital Transformation Index, 2020).

Automation and Financial Reporting and Transparency

Automation refers to the automatic execution by a machine (usually a computer) of a task that was previously performed by a human being (Madakam et al., 2019 ; Parasuraman & Riley, 1997). Automation is often believed to bring huge opportunities to accountants (Gulin et al., 2019; Jędrzejka, 2019; Törnqvist & Forss, 2018). First and foremost, scholars argue that automation of tasks allows accountants not to waste their time on repetitive actions that can be performed by software (Brousse, 2016). Machines perform the routine tasks much faster than humans do and can work round the clock (Belkadi, 2015; Kaya et al., 2019). The time required to prepare accounting documents and for reporting is therefore shortened. Productivity is thus supposedly higher while the cost for the firm is lower, which will allow customers to pay less money (Gulin et al., 2019; Jylhä & Syynimaa, 2019; Marr, 2018; Törnqvist & Forss, 2018). In addition, machines generally make fewer mistakes than humans (Jędrzejka, 2019; Törnqvist & Forss, 2018). Thus, the automation of accounting tasks has been reported to result in a better data quality, data relevance and data consistency (ACCA2, 2013 ; Jędrzejka, 2019 ; Jylhä &

Syynimaa, 2019 ; Törnqvist & Forss, 2018). Furthermore, automation would have a positive impact on employees because they could focus on more engaging tasks : indeed, many scholars (André, 2012 ; Julien, 2016 ; Jylhä & Syynimaa, 2019 ; Stancheva-Todorova, 2019) argue that the profession will undoubtedly change and that accountants will focus much more on value added consulting tasks, such as consulting in company management, asset management, risk management, in external growth, strategy, financing, etc. (Belkadi, 2015 ; Brousse, 2016). According to Gulin et al. (2019), the profession “will transform from bookkeepers and accountants to advisors, consultants and accountants engineers”.

Impact of Big Data and Financial Reporting and Transparency

Big Data refers to a very large amount of data which is too voluminous and complex to be analyzed by traditional accounting tools (Törnqvist & Forss, 2018). Big Data is traditionally characterized by a large Volume (very large amount of data being generated – approximately 2.5 quintillion (10¹⁸) bytes each day according to ACCA, 2013), a high Velocity (very fast data creation), and a big Variety (as the data come from many different sources – barcodes, telephone signals, digital images, personal location records, online searches, etc. – and have several types of structures : structured, unstructured and semi-structured) (Janvrin & Watson, 2017 ; Moll & Yigitbasioglu, 2019 ; Törnqvist & Forss, 2018). Other sources also mention the importance and difficulty of a high Veracity of the data (accuracy, reliability and thus quality) and the high Value (profit) that can be generated by analyzing this data (Janvrin & Watson, 2017; Sestino et al., 2020). These are called the 5-Vs (Törnqvist & Forss, 2018). Among the main opportunities of Big Data identified by researchers is the fact that it allows accountants to access a huge amount of data that they could not get before, the analysis of which can improve prediction accuracy and lead to better decision-making for the customers (Gulin et al., 2019; Zhang et al., 2020; Zouhri, 2019). According to scholars, accountants will also face several issues brought by Big Data. Firstly, these new technologies are not easy to use: managing quantity, quality and accessibility of data is likely to be the biggest problem (ACCA, 2013; Stancheva-Todorova, 2019; Törnqvist & Forss, 2018). The amount of data generated by these new technologies is considerable, which means accountants will have to develop the necessary skills and learn how to use Big Data analytics instruments to extract and target relevant information (Knudsen, 2020; Stancheva-Todorova, 2019). In order to achieve this, internal training for workers and customers will be necessary (Belkadi, 2015; Moll & Yigitbasioglu, 2019; Törnqvist & Forss, 2018). Accounting education should also adapt to these new technologies: students need to learn how to use them at early stages and develop questioning and analytical skills with respect to the data generated (Gulin et al., 2019; Janvrin & Watson, 2017; McKinney et al., 2017; Santouridis, 2015). Stancheva-Todora asserts in her paper (2019) that some professional accounting bodies (such as ACCA, the Institute of Chartered Accountants in England and Wales and the Chartered Global Management Accountants) have already begun introducing new technologies into their curriculum. Nevertheless, according to some scholars, these changes have not yet reached the school curricula (Törnqvist & Forss, 2018).

Effect of Block chain Technology on Financial Reporting and Transparency

Block chain is a database with a history of transactions (Rückeshäuser, 2017). This technology is normally associated with cryptocurrencies such as Bitcoin (Sarmah, 2018 ; Schmitz & Leoni, 2019). We can distinguish public blockchain technology (accessible to all like Bitcoin), and private one (access limited to certain people) (Blockchain France, 2016). Blockchain is characterized by three principles: high transparency (information accessible to all users), decentralization (there is no central control and governance authority, the blockchain is based on peer-to-peer relations: information is saved on all participants' servers) plus, a high security and data protection (Blockchain France, 2016; Desplebin et al., 2019; Schmitz & Leoni, 2019). The main positive foreseen effect of blockchain technology for accountants over of traditional databases is that the former is more secure and, therefore, less subject to fraud (Desplebin et al., 2019; Gulin et al., 2019; Moll & Yigitbasioglu, 2019). The reason why blockchain is so secure is because it includes several protection mechanisms. The first is that transactions are immutable, i.e. they cannot be changed retroactively (Schmitz & Leoni, 2019). The second is that the history of transactions is kept indefinitely (Desplebin et al., 2019). The third is that cryptography is used to encrypt the data: either the same private key is used for encryption and decryption or a public key is used to encrypt the data and a private key is used to decrypt it. Thus, everyone has access to the data but not everyone knows how to decrypt it (Desplebin et al., 2019). The fourth is a protocol called "mining" which allows no transaction to be accepted before it has been validated by the majority of the miners⁴ (by solving a mathematical problem) (Boudès, 2018; Desplebin et al., 2019). In order to falsify a transaction and commit fraud, more than half of these miners would have to be corrupted simultaneously: the fraud is thus easily spotted and rejected (Blockchain France, 2016).

Emergence of Cloud Computing and Financial Transparency

Cloud computing allows easy access via a network to a set of IT⁵ resources such as servers, storage space, applications (Fagroud et al., 2019; Leon, 2015; Medhioub, 2015). Users can access these resources from any place and at any time, via a computer device with an Internet connection (ACCA, 2013; Dimitriu & Matei, 2014; Mell & Grance, 2011). Cloud computing consists of three service models and four deployment models (Fagroud et al., 2019; Hamze, 2015; Leon, 2015; Medhioub, 2015). The three types of services offered by the cloud are: SaaS (Software as a service), PaaS (Platform as a service) and IaaS (Infrastructure as a service). cloud computing, information is available for the client and the certified public accountant in real time, without delay. They can access the data online, from anywhere in the world with a computer or a smartphone, without having to meet in real life. Thus, everything can be done virtually (Bordas et al., 2015; Dimitriu & Matei, 2015; Kamordzhanova & Selezneva, 2019 ; Prichici & Ionescu, 2015). This allows a shorter response time and faster sharing of data, accounting information and accounting analysis from and to clients and within the company (Moll & Yigitbasioglu, 2019; Stancheva-Todorova, 2019). This further shortens document preparation time and consequently, as with automation, increases productivity (Dimitriu & Matei, 2015 ; Gulin et al., 2019 ; Prichici & Ionescu, 2015). Furthermore, thanks to the fact that both parties can access and modify the data online, accounting is always up-to-date (Moll & Yigitbasioglu, 2019 ; Törnqvist & Forss, 2018). This results in a better data quality, data

relevance and data consistency. Therefore, it allows for better decision-making (Gulin et al., 2019 ; Jylhä & Syynimaa, 2019 ; Stancheva-Todorova, 2019).

Challenges of Digital Transformation in Financial Reporting

As financial reporting relies heavily on sensitive data, ensuring robust security measures is crucial. The threat landscape is constantly evolving, requiring continuous vigilance to safeguard against cyber threats and data breaches (Ponemon Institute, 2020). Compliance with regulations such as GDPR (General Data Protection Regulation) and CCPA (California Consumer Privacy Act) adds complexity to managing and securing financial data (Gartner, 2021).

Many financial institutions still use legacy systems that may not seamlessly integrate with modern reporting platforms. Migrating data from these systems to newer, more advanced ones poses challenges, including data consistency, integrity, and compatibility issues (Deloitte, 2021). The abundance of data sources in digital environments doesn't always guarantee their accuracy or reliability. Ensuring data quality becomes paramount to maintain the integrity of financial reporting (EY, 2021). Data governance frameworks and robust validation processes are necessary to address these concerns.

Financial reporting is subject to stringent regulatory frameworks. Adapting digital technologies while ensuring compliance with evolving regulations like IFRS (International Financial Reporting Standards) and FASB (Financial Accounting Standards Board) standards requires significant effort and resources (KPMG, 2021). The implementation and management of digital transformation initiatives demand a workforce with specialized skills. There's often a shortage of professionals well-versed in both finance and technology, making it challenging to drive successful digital transformation in financial reporting (Accenture, 2020).

Investing in digital transformation involves substantial costs, ranging from technology procurement to training staff. Balancing these expenses with the benefits accrued through enhanced efficiency and accuracy requires careful planning and strategic resource allocation (Forbes, 2021). The transition to digital transformation necessitates a cultural shift within organizations. Resistance to change, lack of employee buy-in, and inadequate change management strategies can impede the successful adoption of new technologies and processes (Harvard Business Review, 2019). Dependence on digital systems introduces new vulnerabilities, such as system outages or technical failures, potentially disrupting financial reporting processes. Establishing robust backup systems and contingency plans is essential to ensure continuity (PwC, 2021).

Automation is also believed to bring several threats for accountants (Gulin et al., 2019 ; Jylhä & Syynimaa, 2019 ; Törnqvist & Forss, 2018). The main one is that it could eliminate jobs. Indeed, many researchers state that routine, repetitive and structured tasks that rely on simple algorithmic processing of numerical data have already been or will be automated soon (ACCA, 2013 ; Kaya et al., 2019). Some are optimistic about the impact that automation will have on the accounting profession while others are much more pessimistic. Optimists (Gulin et al.,

2019 ; Jylhä & Syynimaa, 2019 ; Richins et al., 2017) believe that areas of accounting that involve high levels of interpersonal contact, the exercise of various professional judgments, analyzing and dealing with exceptions will not be automated or digitalized because robots cannot perform such tasks adequately. According to them, no software can replace human accountants anytime soon, because they are needed to analyze and interpret the information provided by technology. Pessimists, on the other hand, claim that there is a high probability for the accountant profession to face extinction because of automation (Frey & Osborne, 2017).

According to scholars, cloud computing raises security and confidentiality issues (Bordas et al., 2015; Crozat et al., 2019; Yin Tong, 2019). Since, thanks to the cloud, customer data is now online, if the system is not secure enough, it is easy for malicious people to hack into it and gain access to customers' private data (Moll & Yigitbasioglu, 2019; Payne, 2014).

Conclusion

The impact of digital transformation on financial reporting in the 21st century has been substantial, revolutionizing the way businesses collect, process, and present financial information. The adoption of advanced technologies, such as data analytics, artificial intelligence, blockchain, and cloud computing, has streamlined financial reporting processes, increased accuracy, and enhanced the overall transparency of financial data.

One key aspect of this transformation is the improved speed and efficiency in financial reporting. Automation of routine tasks, such as data entry and reconciliation, has significantly reduced the time required for producing financial reports. Real-time reporting capabilities have become more prevalent, enabling organizations to make informed and timely decisions based on up-to-date financial information.

Furthermore, the quality of financial information has been greatly enhanced through improved accuracy and reduced human errors. Advanced analytics tools allow for more sophisticated data analysis, providing deeper insights into financial performance and trends. This not only benefits internal decision-making processes but also enhances the confidence of external stakeholders, including investors, regulators, and creditors, in the reliability of financial reports.

Recommendations

Continuous Training and Skill Development: Given the rapid pace of technological advancements, it is crucial for finance professionals to undergo continuous training to stay abreast of the latest tools and technologies. This will ensure that organizations can fully leverage the capabilities of digital transformation in financial reporting.

Cybersecurity Measures: With the increasing reliance on digital platforms, ensuring the security of financial data is paramount. Organizations should invest in robust cybersecurity measures to protect sensitive financial information from potential cyber threats and breaches.

Integration of Emerging Technologies: Organizations should explore and integrate emerging technologies, such as artificial intelligence and blockchain, to further enhance the efficiency

and accuracy of financial reporting processes. These technologies have the potential to automate complex tasks and provide new levels of transparency.

Collaboration between Finance and IT Departments: The collaboration between finance and IT departments is essential for successful digital transformation in financial reporting. Close cooperation ensures that technology solutions align with the specific needs and requirements of financial reporting, leading to more effective implementation.

Adherence to Regulatory Compliance: As digital transformation evolves, it is crucial for organizations to stay compliant with changing regulatory requirements. Regular audits and reviews should be conducted to ensure that financial reporting processes adhere to the latest standards and regulations.

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Competencies in Artificial Intelligence for Organizational Performance: A viewpoint on B2B Marketing Capabilities

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ABSTRACT

This study examined how artificial intelligence (AI) is changing Business-to-Business (B2B) marketing and improving organizational effectiveness. While global competition pushes AI adoption for a competitive edge, many C-level executives are still undecided about its long-term value. AI has great potential to streamline manual processes and improve B2B operations. The absence of managers' grasp of AI integration's visible benefits makes it difficult to realize significant value from AI investments. The survey lists machine learning, data processing, programming, algorithmic thinking, neural networks, deep learning, and natural language processing as AI talents. These capabilities stress innovative integration of organizational knowledge, institutions, and technology as well as technical skills. In recognition of the complexity of AI capabilities, the research defines an AI competence as technical expertise, a diversified operational framework, and a commitment to continual innovation. AI competences enhance B2B marketing capabilities by allowing data analysis, decision-making, and teamwork. The use of AI in B2B marketing includes data analysis, customization, lead creation, CRM, chatbots, marketing automation, and competitive advantage. Technology acceptance in AI capabilities is influenced by perceived usefulness and simplicity, according to the Technology Acceptance Model (TAM). For B2B marketing capabilities, AI competences must match marketers' ease of use and perceived utility. Adopting AI capabilities may boost B2B marketing effectiveness. The report emphasizes AI's disruptive potential in B2B marketing, affecting organizational performance and competitive advantage. To maximize AI's potential in B2B marketing, it recommends deliberate investments in AI competences and multidisciplinary cooperation.

KEYWORDS: Competencies, Artificial Intelligence, organization, performance, B2B and Marketing Capabilities

Introduction

In recent years, there has been a renewed interest in artificial intelligence (AI) across several fields, driven by the copious amount of data and the improved availability of processing power and storage on digital devices (Enholm et al., 2021). The increasing global competitiveness among firms has accelerated the need to use artificial intelligence (AI) as a means to get a competitive edge over rivals (Ransbotham et al., 2018). According to Kietzmann and Pitt (2020), a significant proportion of executives at the C-level do not see artificial intelligence (AI) as an essential competence that organizations need to develop in order to sustain their long-term competitive advantage. The topic of B2B marketing has gained prominence as an important area of study pertaining to enterprise-to-business interactions (Mikalef et al., 2021). In the intricate corporate environment, it is crucial for business-to-business (B2B) organizations to use intelligent solutions that may increase their marketing skills. This is because B2B operations often encounter significant informational complexity and need timely decision-making. Artificial intelligence (AI) has the potential to greatly impact conventional operations because to its ability to evaluate large volumes of data and provide full insights into important business partners and customers (Bag et al., 2021). Furthermore, Paschen et al. (2020) argue that the integration of artificial intelligence (AI) applications has the potential to streamline various manual procedures, leading to the alleviation of limitations and the improvement of operational effectiveness within business-to-business (B2B) operations. According to the results of a recent study conducted by Garner, a significant number of business leaders express the conviction that artificial intelligence (AI) would play a crucial role in the future development of their firms (Shin & Kang, 2022).

Despite the considerable potential of artificial intelligence (AI) in enhancing business-to-business (B2B) marketing operations, a notable portion of firms still encounter difficulties in efficiently leveraging their AI investments to provide substantial value (Fountaine et al., 2019). The reason for this, as shown by an increasing body of scholarly literature, is that investments in artificial intelligence need careful development and use to assure alignment with the organization's activities (Collins et al., 2021; Raisch & Krakowski, 2021). In essence, it is of utmost importance that artificial intelligence (AI) be recognized as a core capacity inside an organization, and that appropriate AI applications serve to either facilitate or enhance crucial operational processes (Borges et al., 2020). While prior studies have explored the challenges associated with the integration of artificial intelligence (AI) (Mikalef et al., 2021), there remains a dearth of agreement regarding the most effective approach for organizations to leverage AI as a strategic resource to gain a competitive advantage. The poor grasp of the influence of artificial intelligence (AI) and the possible value-generating processes in the field of business-to-business (B2B) marketing is particularly evident (Huang et al., 2019). To expedite the integration of artificial intelligence (AI) in such operations and mitigate the prevalence of unsuccessful endeavors inside enterprises, it is imperative to elucidate the significance of AI in the business-to-business (B2B) domain and the means via which this significance may be actualized. In a similar manner, current polls performed with professionals in the field reveal that corporations persistently encounter substantial barriers to the implementation and exploitation of artificial intelligence (AI) that beyond mere technical

challenges. Moreover, a significant proportion of managers lack a clear understanding of the tangible advantages associated with the integration of artificial intelligence (AI), which therefore hinders its adoption in crucial operational procedures (Bhalerao et al., 2022). Based on a recent survey conducted by McKinsey, the primary areas where firms are using artificial intelligence (AI) are service optimization and business-to-business (B2B) marketing processes. The respondents of the study expressed a high level of importance and value attributed to these specific domains. Nevertheless, the realization of these advantages resulting from investments in artificial intelligence (AI) was not devoid of challenges, with one prominent hurdle being the creation of an AI capacity that consistently meets the requirements of businesses (McKinsey, 2022).

Literature Review

Business-to-Business (B2B) Marketing

To succeed in business-to-business, enterprises must build and maintain reliable customer relationships. Therefore, B2B marketing values inter-organizational networks and interactions (Gummesson, 2014). Business-to-business (B2B) marketing involves complex interactions between buyers and sellers that require higher reliability and credibility than B2C marketing, which emphasizes brand establishment and widespread communication (Reed et al., 2004). Business-to-business (B2B) settings frequently give specialized attention, whereas consumer marketing targets a large client base that may not require it. However, marketing skills are vital for success in both cases. Herhausen et al. (2020) define marketing capabilities (MCs) as organizational capacities that allow a company to execute a variety of activities utilizing available resources to achieve a performance result. Guo et al. (2018) state that marketing abilities help a firm manage and distribute resources for long-term sustainability and a competitive advantage. Thus, MCs are complex combinations of organizational abilities and resources that are unique to a firm and make it tough for rivals to copy (Mariadoss et al., 2011). Here are some key components of B2B marketing:

Target Market: B2B marketers must identify and understand the specific businesses that could benefit from their products or services. This involves market segmentation and a deep understanding of the target businesses' needs, procurement processes, and buying behavior.

Content Marketing: Providing valuable content such as whitepapers, case studies, and industry reports can be a powerful way to attract and engage potential business clients. This content needs to address the specific challenges and needs of the target audience.

Relationship Marketing: B2B transactions often involve building and maintaining long-term relationships. Relationship marketing strategies include personalized communications, loyalty programs, and customer service initiatives.

Sales and Distribution Channels: B2B marketers need to determine the most effective sales channels for reaching their business customers. This may include direct sales teams, distributors, or online platforms.

Digital Marketing: Digital marketing tactics such as SEO, email marketing, social media marketing, and online advertising are crucial for reaching and engaging B2B customers in the digital space.

Pricing Strategies: Pricing in B2B markets can be complex, with considerations such as volume discounts, long-term contracts, and negotiations playing a role.

Brand Positioning: A strong B2B brand can communicate reliability, quality, and expertise. Brand positioning involves differentiating a company's offerings from competitors and establishing a unique value proposition.

Customer Feedback and Adaptation: Continuously gathering and analyzing customer feedback is important for improving offerings and adapting marketing strategies.

Regulatory Compliance: B2B marketers must also be aware of and comply with any industry-specific regulations affecting their marketing practices.

However, external and internal factors affect AI-based marketing adoption. Our definition of B2B marketing skills includes a wide spectrum of talents. Marketing information management, planning, and execution are the complete competences addressed in this study. Marketing information management is an organization's capacity to gather and analyze stakeholder data to create successful marketing strategies (Cavazos-Arroyo & PuenteDiaz, 2019). Effective marketing strategy requires the capacity to forecast and adjust to market developments. This competence helps businesses realize their goals (Chahal & Kaur, 2014; Liu et al., 2015; Santos-Vijande, 2012). Marketing implementation competency involves executing, supervising, and assessing marketing strategies (Chahal and Kaur, 2014).

Recent discussions have focused on how artificial intelligence (AI) affects business-to-business (B2B) marketing (Mikalef et al., 2021). A growing body of research suggests that business-to-business (B2B) marketing companies are rapidly integrating artificial intelligence (AI) into their operations, mostly by automating or augmenting critical processes (Rustholkarhu et al., 2022). AI enhances customer experience, customisation, planning accuracy, and consumer insights, according to Dwivedi and Wang (2022). Other major industrial cases reinforce this claim. As a consequence, there is a lot of anecdotal data on the potential uses of AI in business-to-business marketing activities that use diverse technologies. To successfully integrate a variety of AI applications, firms should emphasize AI competency development (Lundin & Kindstrom, 2023; Pattinson et al., 2022). Proponents also argue that integrating artificial intelligence (AI) into business-to-business (B2B) marketing could expand customer outreach through focused applications, encouraging innovative operational strategies and improving existing processes (Raghupathi et al., 2023).

Artificial intelligence (AI) Competencies

Artificial Intelligence (AI) is a branch within the discipline of computer science that has a significant historical foundation. In contrast to its previous restriction inside the domain of theory, artificial intelligence (AI) has lately undergone a transition towards practical

implementation. This shift may be attributed to advancements in the fields of data collection and processing (Haenlein & Kaplan, 2019). Various interpretations have been put out on the technological components that constitute the paradigm of artificial intelligence (AI). One application is the use of a system that emulates human intellect and cognitive functions in order to address intricate and time-consuming difficulties. Another aspect that should be considered is the presence of intelligent computational agents, as discussed by Paschen et al. (2019). AI technologies are developed based on existing data and knowledge in order to carry out activities according to predetermined specifications. This notion is considered foundational in the field (Paschen et al., 2020). This provision emphasizes the importance of AI systems' ability to draw conclusions and gain knowledge via the study of previous experiences using data. Machine learning is a well-defined subfield, and possibly the most prominent, within the broader field of artificial intelligence (Ongsulee, 2017). According to Gomez-Perez et al. (2009), AI systems that are based on machine learning have the potential to adjust their functioning depending on newly acquired data. Hence, a crucial difference between this technology and prior methodologies for enabling or making judgments lies in the inherent flexibility of these algorithms, since they undergo modifications in accordance with novel information. The competencies associated with Artificial intellect (AI) include a broad spectrum of skills and capacities that enable robots to do tasks traditionally requiring human intellect. The aforementioned competences are crucial for the progress, implementation, and improvement of artificial intelligence (AI) systems. The following are an overview of the essential abilities and framework pertaining to artificial intelligence (AI).

Machine Learning (ML): This competency involves creating algorithms and models that enable machines to learn from data and make predictions or decisions. ML is at the core of many AI applications, from image recognition to natural language processing.

Data Processing and Analysis: AI systems rely heavily on data. Competence in collecting, processing, and analyzing large datasets is essential. This includes data cleaning, feature engineering, and statistical analysis to ensure the quality and relevance of input data.

Programming Skills: Proficiency in programming languages like Python, Java, or C++ is fundamental for developing AI applications. AI engineers need to write code to implement algorithms, integrate systems, and troubleshoot issues.

Algorithmic Thinking: Understanding and creating efficient algorithms is a key competency. This involves problem-solving skills to develop algorithms that can solve complex tasks with speed and accuracy.

Neural Networks and Deep Learning: Deep learning is a subset of ML that focuses on neural networks, inspired by the human brain. Competence in designing, training, and optimizing deep neural networks is crucial for advanced AI applications, such as image and speech recognition.

Natural Language Processing (NLP): NLP enables machines to understand, interpret, and generate human language. Competence in NLP is vital for applications like chatbots, language translation, and sentiment analysis.

Research and Development: Capability to conduct research on new AI techniques and stay up-to-date with the latest developments in the field.

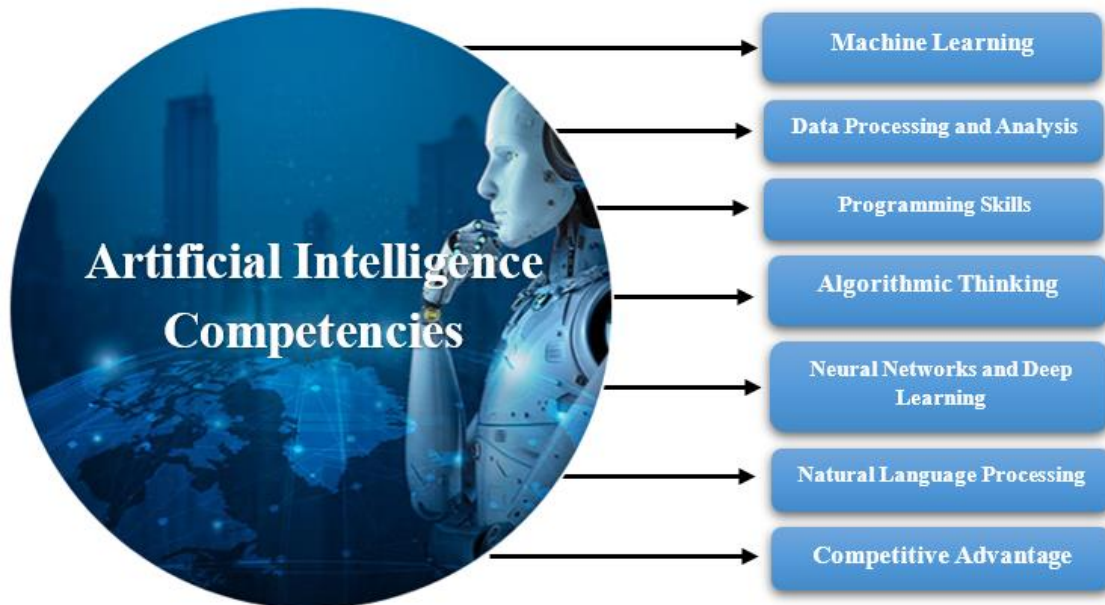


Figure 1: AI Competency Framework

Nevertheless, in spite of the considerable progress made in artificial intelligence (AI) technology in recent times, some firms are facing challenges in efficiently using their capabilities to generate value (Collins et al., 2021). There has been a growing body of scholarly study dedicated to this matter, with a particular focus on highlighting the role of the organizational environment in contributing to the challenges related to harnessing the capabilities of artificial intelligence (Chernov & Chernova, 2019). Contrarily, there exists a range of notable examples in which firms have successfully integrated artificial intelligence (AI) into their operational frameworks and discerned approaches by which these technological advancements might enhance the overall prosperity of the enterprise (Makarius et al., 2020). The aforementioned examples have shown the potential for AI orchestration to become a core competency inside a business, resulting in significant benefits for said firm (Batko & Szopa, 2016). Consequently, the notion of AI competency extends beyond the conventional perception of only advancing AI technology, to embrace their strategic design and integration inside an organizational framework, with the objective of fostering value generation. Hence, an AI competence is the outcome of a comprehensive body of scholarly research that differentiates between core technology (referred to as AI technologies) and core skills (known as AI competencies). Therefore, an AI competence covers not only technical ability in efficiently using or supporting the technology itself, but also entails the creative integration of organizational knowledge, institutions, and technology in a coherent manner (Makarius et al., 2020).

According to a study conducted by Fountaine et al. (2019), recent research and surveys conducted among prominent organizations highlight the importance of creatively incorporating artificial intelligence into new or redesigned processes in order to effectively harness its potential value. Therefore, the proficiency in integrating and consolidating AI technologies in an innovative fashion to enhance business outcomes necessitates experience in AI. Building upon existing academic literature in the realm of information systems (IS), this study introduces the notion of an artificial intelligence (AI) competency, which is consistent with other investigations conducted in this area (Ravichandran, 2018). Based on the original work by Prahalad (1993) that focuses on the definition of competences, we argue that an AI skill should exhibit three fundamental attributes. It is crucial to recognize the technical proficiency required to effectively manage technology, since this has the potential to provide a competitive advantage. Furthermore, it is essential that the framework encompasses a diverse range of activities and operations, beyond the limitations of any one business unit. In addition, it is essential for rivals to encounter challenges in replicating the product or service, hence requiring a strong focus on continuous innovation and a proactive stance. The confluence of these three factors facilitates the development of an AI aptitude.

The Effect of AI Competencies to B2B Marketing Capabilities

Market research quality greatly impacts marketing success. When performing market research, the firm must evaluate industry trends, customers, rivals, and other stakeholders. Market research may use internal and external reporting, social media, and others. Artificial intelligence is needed to analyze and interpret data from many sources. Companies are using AI in marketing decision support and market research to improve decision-making (Pietronudo et al., 2022). Sharma et al. (2022) show how artificial intelligence (AI), especially natural language processing (NLP), helps marketers analyze textual data to learn about customer traits and habits. Marketers may modify material for individual clients using this feature. It also helps understand client needs and provide customized goods and services. This study suggests that AI proficiency may affect marketing information management. For instance, firms might use AI to evaluate market data and create graphical representations to help executives make educated decisions (Farrokhi et al., 2020). Empirical studies have confirmed this association. Singh (2022) suggests that artificial intelligence (AI) might speed up decision-making and help evaluate marketing initiatives.

Advanced artificial intelligence (AI) capabilities encourage cooperation amongst marketing, operations, business, and analytics staff. Fountaine et al. (2019) believe this phenomenon transforms distinct work processes into a multidisciplinary collaboration that achieves corporate objectives. Fountaine et al. (2019) showed that AI systems can create and analyze several hundred million probable outcomes and alternatives. The algorithms then prioritize a limited number of ideal solutions for marketing decision makers. In the information systems literature, indirect evidence links business-to-business planning to artificial intelligence (Saura et al., 2021). Ravichandran (2018) found that IT skills increase organizational agility. Furthermore, Lu and Ramamurthy (2011) found a strong link between IT skills and organizational agility. Thus, we propose the following hypothesis. Fountaine et al. (2019)

suggest that marketing professionals may use their own judgment and knowledge to make a decision after AI-based systems evaluate and prioritize marketing solution strategies. AI suggestions aid this decision-making process, eliminating the need for higher-ups. It greatly improves the company's operations. According to Wamba-Taguimdje et al. (2020), an organization should improve its ability to use artificial intelligence (AI) and related technologies to make high-quality decisions faster and more efficiently. Bag et al. (2021), Rahman et al. (2021), and Singh (2022) found that AI systems in firms might triple B2B marketing effectiveness. The rise is due to AI systems' ability to get consumer, user, and market information. However, the integration of AI competencies into B2B marketing capabilities can have a profound impact on various aspects of marketing strategies and operations. Here are some key effects:

Data Analysis and Insight Generation: Artificial intelligence can process and analyze massive amounts of data faster than humans. This allows for more comprehensive segmentation, profiling, and predictive analytics for targeted marketing initiatives. The AI-powered algorithms can identify patterns and trends in data to provide marketers important insights about customer preferences, buying habits, and behavior.

Personalization: Artificial intelligence allows the creation of tailored and dynamic content that matches each customer's tastes. This technique may improve consumer engagement by offering relevant material tailored to certain demographics.

Lead Generation and Scoring: Using historical data, artificial intelligence systems can anticipate lead conversion probabilities. This lets marketing teams prioritize high-value prospects and tailor their strategy. B2B marketers save time and money by automating lead generation using AI. Potential clients are identified and generated in this process.

Customer Relationship Management (CRM): AI-automated data input and analysis accelerates CRM system administration and maintenance. This helps keep customer records accurate and updated. AI can predict consumer behavior, allowing companies to create and implement plans to retain consumers and meet their needs.

Chatbots and Virtual Assistants: Dialog Artificial intelligence-powered virtual assistants and chatbots can answer basic client questions, freeing up human resources for more sophisticated initiatives. AI-powered chatbots can provide ongoing customer care and rapid responses, improving the customer experience.

Marketing Automation: Marketing automation tools that use artificial intelligence can optimize content, timing, and channel selection to boost campaign effectiveness. These metrics lead to more effective and efficient marketing methods. Behavioral targeting uses AI to study customer behavior to optimize marketing messages. Automated customized advertising and promotional systems ensure customers obtain more relevant information.

Competitive Advantage: AI-powered B2B marketing helps companies stay ahead by using cutting-edge technology and adapting quickly to changing market circumstances. Focusing on

strategic goals and innovation with AI in marketing processes may improve operational performance.

The Impact of B2B Marketing Capabilities on Organizational Performance

In previous research, marketing competencies were found to be associated with organizational performance. Marketing capabilities, according to Mariadoss et al. (2011), may influence both technical and non-technical innovations, thereby influencing the competitive advantage of an organization. Morgan et al. (2009), on the other hand, discovered a direct correlation between marketing proficiency and business performance. According to a study by Kamboj and Rahman (2015), marketing skills have the greatest impact on the prosperity of a company. Marketing capabilities are defined in this article in terms of marketing information administration, planning, and execution.

Marketing Information

Marketing information management (Cavazos-Arroyo & Puente-Diaz, 2019) is the capacity of an organization to collect and analyze stakeholder data in order to develop effective marketing strategies. Consequently, enhanced marketing information administration could facilitate quicker information access for executives. This may assist executives in comprehending and fulfilling client desires, thereby potentially boosting customer satisfaction, revenue, and profitability. Utilizing marketing information management solutions powered by artificial intelligence may enhance performance, productivity, and decision-making. Information generated by AI technology may unveil novel concepts and commercial prospects. The organization could potentially gain a competitive advantage by rapidly introducing novel services.

Marketing Planning

In order to assist businesses in attaining their objectives, marketing planning anticipates and adjusts to market developments. By optimizing marketing planning, an organization is able to leverage its resources in order to develop effective marketing strategies. Competitors of today must have the ability to anticipate and adapt to market shifts. Failure on the part of an organization to undertake essential measures diminishes its prospects of achievement in the current volatile market. In addition to historical market dynamics, competitive research, stakeholder engagement, and industry trends, an AI-powered marketing planning procedure may generate strategic actions. Successful and competitive businesses engage in experimentation (Ravichandran, 2018).

Marketing Implementation

It is feasible to execute, oversee, and evaluate marketing strategies (Chahal & Kaur, 2014). Marketing implementation entails the execution of activities and the allocation of resources, while marketing planning anticipates market dynamics (Cavazos-Arroyo & Puente-Diaz, 2019). Successful businesses and market adaptation require the ability to assess and implement marketing strategies. Implementing suitable measures can potentially enhance operational,

financial, and market performance. AI improves the decision-making processes of businesses, thereby enhancing their performance and providing a competitive advantage (Wamba-Taguimdje et al., 2020). Strong implementation capabilities enable organizations to combine resources in order to adopt novel marketing strategies that align with their business models. Input from marketing may also be utilized to reevaluate their business models.

Research Model

Drawing from the aforementioned discussion, it is hypothesized that the procurement of AI capabilities holds importance for organizations striving to achieve improved performance results. Machine learning, data processing and analysis, programming aptitude, algorithmic reasoning, neural networks and deep learning, natural language processing, and competitive advantage comprise the set of fundamental components that comprise AI proficiencies. The amalgamation of these components enhances the functionalities of business-to-business (B2B) marketing, which are pivotal in attaining advancements in the performance of organizations. Hence, it is argued that the influence of artificial intelligence functionalities on the performance of organizations is not direct. A succinct overview of the principal direction of link within the study model is presented in Figure 2.

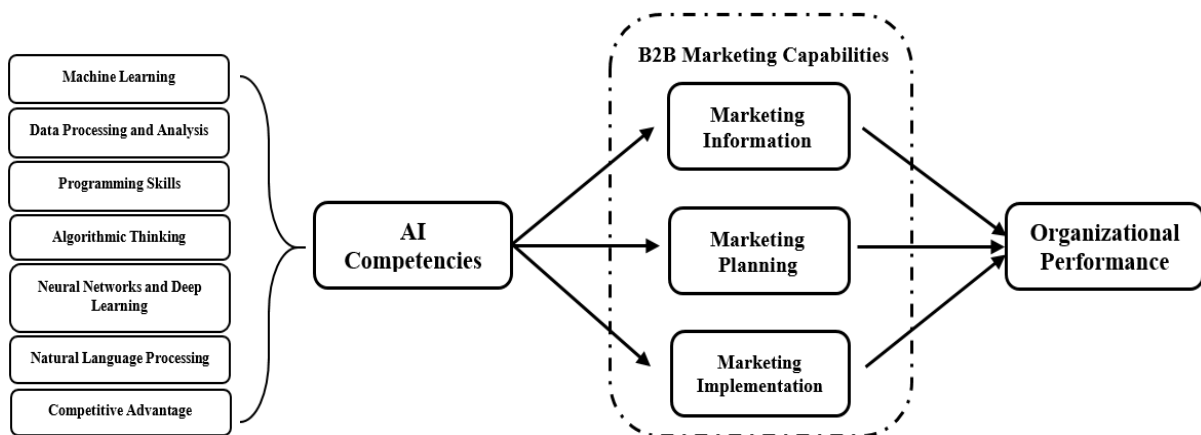


Figure 2: Structural Connection between AI Competencies to B2B Marketing Capabilities on Organizational Performance Structural Model.

The diagram presents a structural model outlining the connection between AI Competencies and B2B marketing capabilities, and their collective impact on organizational performance. In the AI competencies the block shows the foundation of the model and includes various technical and strategic elements such as machine learning, data processing and analysis, programming skills, algorithmic thinking, neural networks and deep learning, natural language processing, and competitive advantage. These competencies are essential skills and knowledge bases that are presumed to contribute to the effective use of AI within an organization. B2B marketing capabilities is directly influenced by AI competencies, as indicated by the solid lines connecting them. Within B2B marketing capabilities, three distinct areas are influenced by AI including marketing information, marketing planning, and marketing implementation. However, in the organizational performance, the goal and outcome that the model suggests is influenced by the proper execution of B2B marketing capabilities. The direct lines from each

marketing capability to organizational performance indicate that each capability directly contributes to the overall performance of the organization. The structural connections in this model suggest that AI Competencies have a multifaceted impact on B2B Marketing Capabilities. Each capability (Information, Planning, and Implementation) is directly influenced by AI competencies, implying that these competencies are not only important for gathering and processing information but also for planning and implementing marketing strategies effectively. In essence, the diagram posits that an organization's AI Competencies can enhance various aspects of B2B marketing, which in turn can improve Organizational Performance. The direct links from each aspect of the marketing capabilities to organizational performance suggest that improvements in any one of these areas can have a beneficial impact on the organization's success.

Theoretical Framework

Technology Acceptance Model (TAM) by Fred Davis (1986)

The main aim of the Technology adoption Model (TAM) was to elucidate the underlying mechanisms that drive the adoption of technology. This was done with the purpose of forecasting user behaviour and provide a theoretical framework to account for the effective deployment of technology. The primary aim of Technology Acceptance Model (TAM) was to provide practitioners with insights into the actions they may do before the installation of technology. In order to achieve the goals outlined by the theory, a series of actions were undertaken (Davis, 1989; Davis, 1993). However, Fred Davis first proposed the concept which was recognised as the Technology Acceptance Model (TAM), in his doctoral dissertation in 1986 see Figure 3. The Technology Acceptance Model (TAM) is a derivative of the Theory of Reasoned Action, designed to replicate the mechanism via which individuals embrace new information systems or technologies.

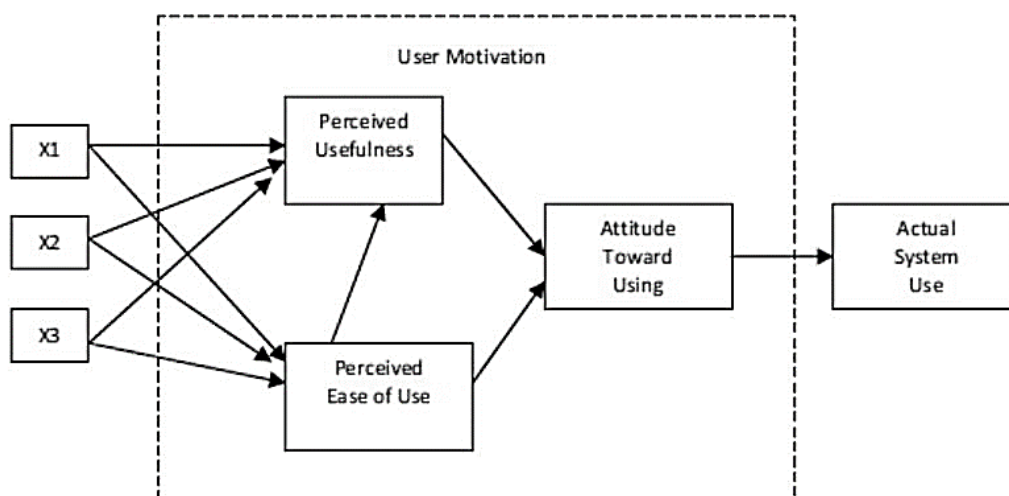


Figure 3: illustrates the first version of Davis's (1986) technology acceptance model.

In 1989, Davis used the Technology Acceptance Model (TAM) to provide a rationale for the observed computer usage trend seen in Figure 4. The objective of Davis' (1989) Theory of Reasoned Action (TAM) is to elucidate the fundamental components that govern the

acceptance of computers and, therefore, provide understanding into the actions of users across a wide range of end-user computing systems and user demographics. The TAM approach was adapted to include and evaluate specific beliefs, namely perceived utility (PU) and perceived ease of use (PEU). According to Davis (1989), the concepts of "perceived usefulness" and "perceived ease of use" refer to the subjective perception of potential users regarding the extent to which utilising a specific system, such as a single platform electronic payment system, will enhance their overall experience and the level of effort they anticipate in using the target system, respectively. Within the framework of the Technology Acceptance Model (TAM), characteristics that are not inherent to the system under investigation are denoted as external factors. The aforementioned elements might influence an individual's view of a system.

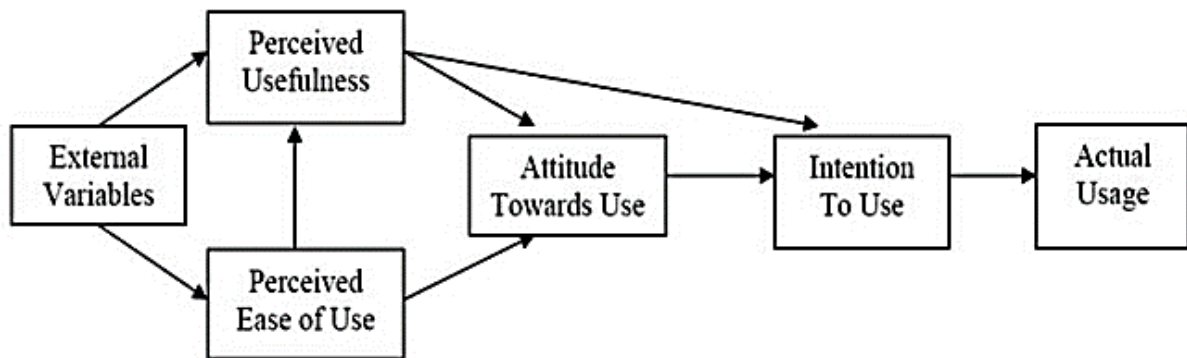


Figure 4: Davis, Bagozzi and Warshaw (1989) First modified version of TAM

Venkatesh and Davis (1996) formulated the ultimate version of the Technology Acceptance Model (TAM) after first uncovering the direct influence of perceived utility and perceived ease of use on behavioural intention. This last iteration of TAM is visually shown in Figure 5. This action was undertaken due to the elimination of the need for the attitude construct after its discovery.

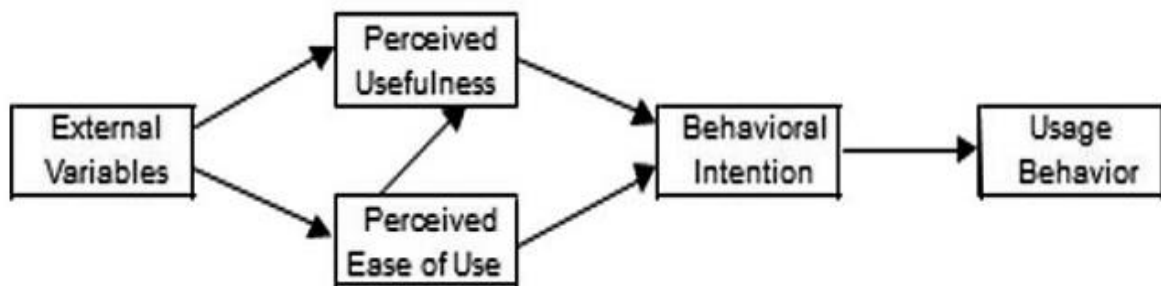


Figure 5: The final iteration of the Technology Acceptance Model (TAM), as elucidated by Venkatesh and Davis (1996).

The TAM 2 model was proposed by Venkatesh and Davis (2000), as seen in Figure 6. This research aimed to provide a comprehensive analysis of the factors contributing to users' perception of a certain system's benefits at three distinct time points: pre-implementation, one month post-implementation, and three months post-implementation. As per the Theory of Reasoned Action (TAM2), users develop their perceptions regarding the utility of a system by

mentally assessing the extent to which the outcomes of completing job tasks using the system align with significant work objectives (Venkatesh and Davis, 2000). This assessment is predicated on the users' cognitive assessment of the extent to which major work goals are congruent with the results that ensue from the execution of job duties using the system. Based on the available data, it can be seen that TAM 2 exhibited commendable performance in both voluntary and forced contexts. This is really promising.

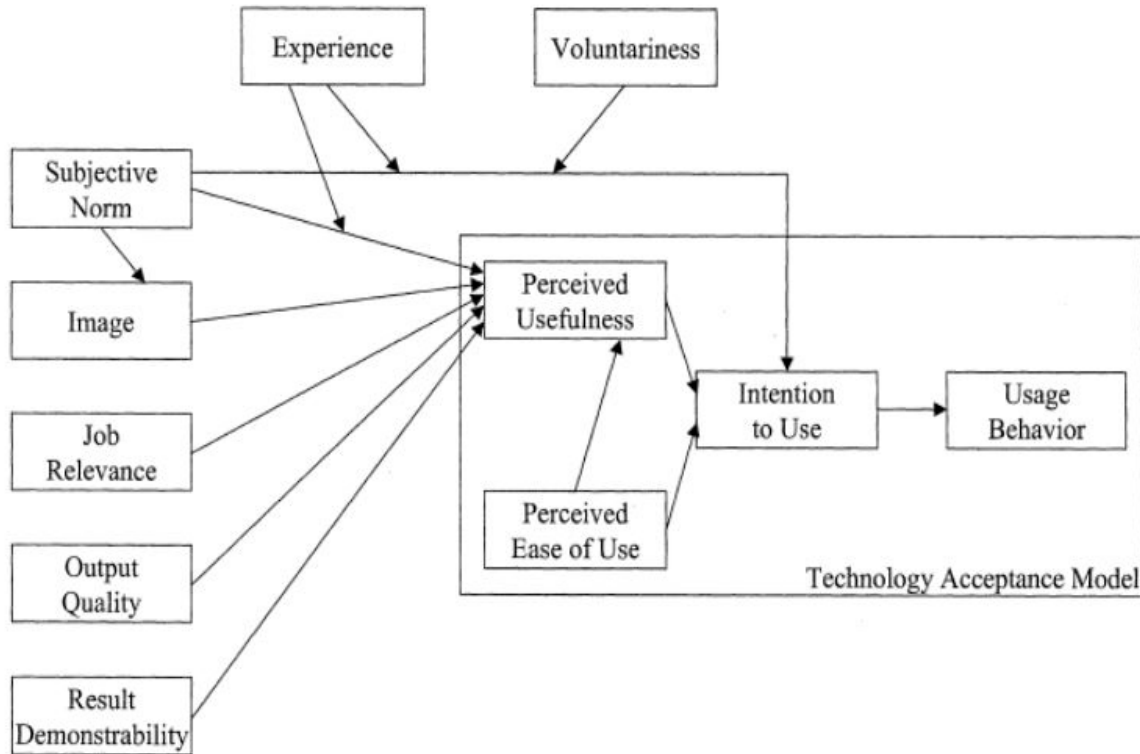


Figure 6: Venkatesh and Davis (2000) TAM 2

Implication of TAM to the Current Study

The Technology Acceptance Model (TAM) is a widely recognized framework that assesses the adoption and acceptance of technology within organizations. When applied to competencies in Artificial Intelligence (AI) for organizational performance, particularly in the context of B2B marketing capabilities, TAM offers valuable insights into the dynamics of technology integration. In the realm of AI, competencies refer to the skills, knowledge, and abilities required to effectively leverage AI tools for business objectives. TAM posits that the perceived ease of use and perceived usefulness of a technology are key determinants of its acceptance. For B2B marketing capabilities, this implies that the competencies in AI must align with the ease of use and perceived usefulness for marketers within the organization. Organizational performance in B2B marketing can be significantly enhanced by adopting AI competencies. AI can streamline processes, analyze vast datasets, and provide actionable insights, thereby improving decision-making and overall efficiency. TAM suggests that the smoother the integration and the more beneficial the outcomes perceived by users, the higher the likelihood of acceptance and successful utilization of AI competencies.

Moreover, TAM underscores the importance of external variables such as organizational culture and leadership support. In the context of B2B marketing capabilities, a culture that values innovation and a leadership team that actively supports AI initiatives can positively influence the acceptance of AI competencies. For B2B marketers, understanding and leveraging TAM in the context of AI competencies is crucial for optimizing organizational performance. By aligning AI competencies with perceived ease of use, usefulness, and organizational culture, businesses can cultivate a technology-friendly environment that propels them towards greater efficiency, competitiveness, and success in the dynamic landscape of B2B marketing.

Conclusion

The rising demand for artificial intelligence (AI) in B2B marketing signifies a transformative shift in conventional business practices. While AI presents immense potential for data processing, customer insight generation, and operational efficiency, organizations face challenges in realizing its full value. The adoption of AI in B2B marketing is driven by both internal and external processes, with a focus on marketing information management, planning, and implementation. AI competencies, encompassing machine learning, data processing, programming skills, algorithmic thinking, neural networks, natural language processing, and research and development, are critical for successful integration into B2B marketing capabilities. However, it is not solely about the technology but also the creative bundling of AI technologies, organizational knowledge, and institutions. Achieving AI competence involves technical proficiency, cross-functional collaboration, and a strategic edge that is hard for competitors to imitate. The efficiency of B2B marketing activities, heavily reliant on effective market research, is significantly enhanced by AI competencies. The impact is evident in marketing information management, planning, and implementation, where AI influences market data analysis, strategic response to market changes, and execution of marketing strategies. This multidimensional impact underscores the crucial role of AI in shaping B2B marketing capabilities, directly contributing to an organization's overall performance and competitive advantage. As organizations strive to develop AI competencies, they not only improve existing operations but also pave the way for innovative approaches to conducting business in an increasingly AI-driven landscape. Fred Davis introduced the Technology Acceptance Model (TAM) in 1986 to explain technology acceptance and give a theoretical framework for implementation. The concept is based on the Theory of Reasoned Action, which emphasises technological usefulness and usability.

Recommendations

1. Organizations should strategically invest in developing AI competencies, including machine learning, data processing, and natural language processing. This investment should not only focus on technological aspects but also on fostering a culture that encourages interdisciplinary collaboration and knowledge sharing.
2. Organizations should recognize that AI competence goes beyond the technical aspects. It involves creative bundling of technologies, organizational knowledge, and

institutional practices. Emphasize the need for a holistic approach that considers the technical ability to orchestrate AI effectively, its ability to transcend individual business units, and its potential to create a competitive advantage that is challenging for competitors to imitate.

3. Organizations should integrate of AI competencies into their B2B marketing activities. Leverage AI technologies like natural language processing to understand customer behavior, enhance market research capabilities, and personalize content. Facilitate collaboration between business, operational, and marketing teams with analytics experts to break down silos and foster interdisciplinary collaboration.
4. Organizations should strengthen marketing information management by utilizing AI competencies to acquire, analyze, and visualize relevant stakeholder information. This will empower organizations to make informed decisions, tailor marketing strategies based on customer insights, and stay competitive in dynamic B2B markets.

Implication of the Study

The implications of the study highlight the transformative potential of artificial intelligence (AI) in B2B marketing and its profound impact on organizational performance. As organizations increasingly recognize the value of AI in revolutionizing conventional practices, particularly in B2B marketing, it becomes evident that leveraging AI competencies is essential for unlocking its full potential.

It is pertinent for organizations to develop robust AI competencies that go beyond the mere application of technology. The study emphasizes that AI competence involves the creative bundling of AI technologies, organizational knowledge, and institutional structures. This not only requires technical proficiency in AI technologies such as machine learning, data processing, and natural language processing but also necessitates transcending individual business units and creating a competence that is challenging for competitors to imitate.

The efficiency of B2B marketing activities is identified as a critical area where AI competencies play a pivotal role. AI technologies, particularly natural language processing (NLP), empower marketers to understand customer behavior and preferences, enabling the creation of personalized content and the design of products and services that meet specific needs. The integration of AI competencies into marketing information management enhances the capability to analyze market data and make informed decisions, transforming traditional siloed work practices into interdisciplinary collaboration.

Moreover, the study underscores that AI competencies impact various aspects of marketing strategies and operations, including data analysis, insight generation, personalized content, lead generation, customer relationship management (CRM), chatbots, marketing automation, and competitive advantage. The multifaceted impact of AI competencies on B2B marketing capabilities is highlighted, with each capability contributing directly to the overall performance of the organization.

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COMPARATIVE ANALYSIS OF STUDENTS USAGE OF FREE INTERNET SERVICES ON ACADEMIC ACTIVITIES AND SOCIAL NETWORKING

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ABSTRACT

The study focuses on the comparative analysis of between the effect of free internet usage by students in their academic activities and it usage on other social networking activities. The major goal of the study is to see whether free internet services installed in some tertiary institutions has impacted significantly on students' academic performance or promotes it usage on other social media activities. To achieve this objective, the study focused on students from the department of Business Administration and Management, Akwa Ibom State Polytechnic, Ikot Osurua. The methodology of the study was survey research technique where Taro Yamane' statistical method was used to selected the sample size of two hundred and eight (208) respondents out of the population of one thousand and twenty one (1021). The major instrument of data collection was self-developed questionnaire while the formulated hypotheses were tested using Statistical Package for Social Science (SPSS). The results revealed that the free internet services on campuses have significant impact on academic research that its usage on social media content creation. It was also revealed that free internet access has less impact on students' virtual classes than using it on social media content such as watching online movies, playing games, gambling and chatting. The study concluded that installation of free internet on campuses could improve students' academic performance as it will help them have unimpeded learning access and at the same time speed up academic activities on campus. It was recommended that tertiary institutions should provide strong Wi-Fi signals on campus to enable students have unhindered internet services, internet service providers should put in place a mechanism to limit students access to some sites that are inimical to students learning, tertiary institutions should subscribe to online learning management system softwares to provide students with more learning experiences, and courses taught should be made to have some internet related contents to ensure that students develop interest for virtual classes.

KEYWORDS: Internet Access, Academic Performance, Social Networking, Media Content creation

Introduction

Nigeria is facing some difficulties just like any other developing nations especially in providing its people with an affordable and easily available internet. The government has been urged to offer free internet in public domain, including schools parks, airports, libraries, and government buildings, in recent years. As of January 2023, Datareportal.com reported that there were only 122.5 million internet users in Nigeria, a country with a population of over 220 million, according to Worldmeter (2023). At the beginning of 2023, 55.4 percent of Nigerians were using the internet. The goal of this is to close the digital gap by increasing internet accessibility for those who might not otherwise be able to afford it. In Nigeria, where data costs are expensive and internet penetration is still low, free internet in public areas may contribute to greater access to services and information.

Still, it's unclear if the free internet in public spaces, particularly in higher education institutions, can function in a nation like Nigeria. The United States, Canada, and some regions of Europe are among the nations that have already instituted free internet access in public spaces. Nevertheless, very few public tertiary schools, including Akwa Ibom State Polytechnic, Ikot Osurua in Nigeria have joined the league of prime movers in making available free internet access on campus for information accessibility by students. The essence of this is to give students access to information for effective academic research to improve their performance.

Statement of the Problem

The Internet shrinks the world. It connects the globe with a single click, even people are thousands of kilometers apart. Today's generation is primarily reliant on the internet. As has been seen, it has become one of the essentials, particularly in the operation of businesses, communication, studies and education, entertainment, and so on.

But the question is, does the provision of free internet access by public tertiary institutions allow for the proper utilization so as to assist student attain academic excellence? Students at Akwa Ibom State Polytechnic, Ikot Osurua, are frequently observed clustering during their free lecture periods near areas with strong Wifi signals, with the majority of them surfing for academic materials and some engaged in social media activities. Therefore, it is based on this observation that the researcher conducts the study to comparatively analyze to see whether this clustering is mainly for academic related activities which could boost their performance or is for other social media activities which could retrogress their academic performance.

Objectives of the Study

The main objective of the study was to examine the effect of free internet usage on academic performance as compare to it usage on social networking in tertiary institution. Hence, the specific objectives were:

- To examine the effect of free internet usage by students on academic researches as compared to it usage on social media content creation.
- To examine the impact of free internet usage by students on virtual classes as compared to watching online movies
- To determine the effect of free internet access on students learning abilities as compared to social media experience

Research Questions

- What is the effect of free internet usage by students on academic research as compared to social media content creation?
- What is the effect of free internet usage by students on virtual classes as compared to online movies?
- What is the effect of internet access on students' learning abilities as compared to social media experience?

Statement of Hypotheses

The researcher developed the following hypotheses to guide the research work:

HO1: Free internet access by students has no significant effect on academic research as compared to Social media content creation

HO2: Free internet access by students has no significant effect on students' virtual classes compared to watching online movies

HO3: Free internet access by students has no significant effect on students' learning abilities as compared to social media experience

Literature Review

Concept of Internet

The Internet is a global network of interconnected computer networks that serve billions of people worldwide by utilizing the standard Internet protocol suite (commonly referred to as TCP/IP, though not all applications utilize TCP). It is a network of networks composed of millions of private, public, academic, commercial, and government networks ranging in size from local to global in scale and linked by a diverse set of electrical, wireless, and optical networking technologies. The Internet provides a wide range of information resources and services, such as the World Wide Web's (WWW) interlinked hypertext pages and email infrastructure.

In the late 1950's the Advanced Research Projects Agency (ARPA) was founded in the United States with the primary focus of developing information technologies that could survive a nuclear attack.(Internet History) In 1967 ARPA university and private sector contractors met with representatives on the Department of Defense to discuss possible protocols for sharing information via computers.

The Internet was first developed by the Advanced Research Projects Agency (ARPA), established in the United States in the late 1950s with the primary goal of creating information systems that might withstand a nuclear assault. ARPA universities and private sector contractors met with representatives from the Department of Defense in 1967 to examine potential methods for information exchange via computers.

The United States Defense Department financed a study in 1969 to construct a network that could resist bombing. Essentially, the goal was to create a highly secure network that could function even after a nuclear assault. This project was known as ARPANET. The intended network was not supposed to have a centralized control, which would be an apparent target.

It linked four locations at the University of California, Los Angeles, Santa Barbara, Stanford Research Institute, and the University of Utah. During the 1970s, researchers focused on establishing protocols for managing networks, transporting messages across a network system, and providing remote access to networks. When the first email was transmitted in 1972, there were roughly two dozen computers connected at various locations, but the number of sites and messages quickly grew. There were 63 locations by 1975 (Leiner et al 2009).

Local Area Ethernet Networks (LANs) were established after ten years of study, and workstations were designed to connect to LANs. The ARPANET was then linked to these workstations and LANs. The ARPANET expanded rapidly over the following decade, thanks to its decentralized qualities. ARPANET computers communicate with one another using a standard or rule. ARPANET's standard is known as NCP (National Control Protocol). Protocol is a network word that refers to the communication standard employed by a network. However, the passage of time and fast progress in information technology repressed NCP and introduced TCP/IP (Transmission Control Protocol/Internet Protocol) into the world of networking. TCP "converts messages at the source into streams of packets, which are then reassembled into messages at the destination." These packets are routed via IP. It manages the addressing and ensures that a packet arrives at its destination after passing through several nodes and even across various networks with different standards. TCP/IP's ability to accommodate numerous networks with diverse protocols invites other networks to join ARPANET. The ARPANET gradually grew into a large network of networks that is now known as the "Internet." (Leiner et al., 2009).

The Internet has transformed the computing and communications industries like nothing before. The inventions of the telegraph, telephone, radio, and computer laid the groundwork for this unparalleled convergence of powers. The Internet is a global broadcasting capacity, a means for information transmission, and a medium for cooperation and interaction between persons and their computers that is not geographically limited. The Internet is one of the most effective examples of the benefits of ongoing investment and dedication to information infrastructure research and development.

According to Rouse (2005), the Internet, also known as "the Net," is defined as a worldwide system of computer networks - a network of networks in which users at any one computer can get information from any other computer (and sometimes talk directly to users on other computers) if they have permission.

Communication has become considerably faster as a result of the internet. It connects us to various parts of the world. People can now not only talk but also video conference. It is now quite simple to contact loved ones who live in various parts of the world. Communication is the most valuable gift that the internet has provided for the average person. Email and social networking sites are prominent examples.

Significant benefits of internet access include:

1. Academic Research

Previously, researching meant dealing with a large number of books and reading materials. All you have to do with the internet is input your topic and, with a single click, the results are in your hands. This saves you time and effort while providing you with accurate and current information.

2. Education

Education is limitless. As a result, the internet makes knowledge accessible. There are numerous tutorials, books, reference books, online assistance centers, expert opinions, and other study focused materials on the internet that may make the learning process very easy and enjoyable. There are several websites that cover a wide range of topics. You may go there and get an infinite quantity of information that you desire.

3. Financial and booking Transaction

The internet simplifies our lives. Banking and booking transactions are now quicker and simpler. People no longer need to make the effort to stand in line at the bank; instead, we can just go online.

4. Leisure

The internet provides several entertainment perspectives. Videos, games, music, and even online shopping are available.

5. Job Search

With the aid of the internet, searching for a job that will suit your qualifications is now much easier.

6. Blogging

It is one way of expressing your thoughts and feelings about a certain problem. They may not only create blogs as they desire, but they can also market their work so that it reaches the majority of people and is appreciated. There are several places on the internet that allow you to write blogs.

Meaning of Academic Performance

People frequently associate "academic performance" with a person's GPA. Several indicators, however, reflect a student's academic achievement. While some students may not finish at the top of their class, they may occupy leadership roles in many student organizations or perform well in standardized examinations.

When defining academic performance, people frequently prioritize grades. This includes institutions that rank students based on their GPA, bestowing honorific titles such as valedictorian and salutatorian to those who graduate first and second in their class, respectively. Scholarship organizations and institutions, as well as certain businesses, look at grades first, especially when employing fresh graduates. Grades are more important in some businesses, particularly in technical fields such as law, medicine, and finance. Other businesses place less emphasis on GPA, notably artistic professions like writing or painting, and vocations like sales, where interpersonal skills are more important than technical understanding.

Academic performance is a "net result" of their cognitive and non-cognitive characteristics, as well as the sociocultural setting in which they live (Liem, 2021), which is a necessary requirement for personal success as well as the creation of a wealthy society (Steinmayr et al., 2019). Personality, cognitive capacity, social interactions, family dynamics, school environment, and sociocultural context are all elements that impact children' academic achievement, according to education and psychology researchers.

Academic performance is the degree to which a student, instructor, or institution has met their short or long-term educational objectives. Academic accomplishment is defined as the completion of educational benchmarks such as secondary school diplomas and bachelor's degrees (Friedman, 2011). Academic accomplishment is routinely quantified through tests or ongoing assessments, but there is no consensus on how it should be evaluated or which components are most significant - procedural knowledge such as skills or declarative information such as facts (Bossaert et al 2011). Furthermore, there is conflicting data regarding whether individual characteristics successfully predict academic performance; components such as exam anxiety, surroundings, motivation, and emotions must be taken into account while building school accomplishment models.

Meaning of Social Networking

The Internet has swiftly grown from a purely information-sharing platform to a social networking platform where people share material, ideas, and information. Social networking is a worldwide phenomenon that has transformed how individuals communicate with one another. Education, communication, employment, politics, healthcare, social connections, and personal productivity are all affected.

A social networking system (SNS) is an Internet-based platform enabling people to create and deepen social relationships. It allows users to communicate online with individuals who share similar interests, whether for romantic or social reasons. Users may share emails, instant messages, online comments, wikis, digital photographs and videos, and blog posts. It also allows persons with impairments to express their views and opinions in a virtual setting.

Social networks play dual functions as both content sources and consumers. They provide the user the option of who can see their profile. Answers to questions such as age, location, interests, and so on are used to create a profile. Some sites allow users to upload photos, add multimedia material, or change the style and feel of their profile, make blogs, comment on postings, and construct and share contact lists. Social networks often contain restrictions that enable users to choose who may read their profile, contact them, add them to their contact list, and so on to safeguard user privacy. Facebook, Twitter, YouTube, LinkedIn, Google+, Whatsapp, TikTok, and MySpace are some of the most popular current social networking sites.

Social networking applications have grown in importance since they give Internet-based venues for its users to engage socially. Common uses include computer-mediated social contact, education, business, finance, healthcare, politics, religion, and crowdsourcing. Benefits include:

- **Social Interaction:** Social networking sites enable computer-mediated social contact and link people with similar interests and activities beyond political, economic, and geographic boundaries. They offer a contemporary type of entertainment. Others use them to make new friends, reconnect with existing ones, identify others with similar interests, and remain in contact with old acquaintances. They also give an online forum for users to chat and exchange personal information for the aim of dating. Some job searchers utilize social media to increase their chances of obtaining job offers and finding meaningful employment (Hoye, Hooft, and Lievens, 2009).
- **Education:** Social networks influence how students and instructors learn. They are

now utilized for learning, professional development for educators, and information sharing. Social media are used by scientific groups to exchange information. Researchers and librarians commonly utilize social media to maintain professional ties and share ideas. Social media may be used to establish research and learning networks. Many colleges utilize social networking sites such as Facebook, Twitter, and Instagram, with each university having at least one page on a site (Nini 2019). Privacy, genuine friendship, time consumption, and misunderstanding are all issues that educators face while using social networking. The primary advantages, on the other hand, are flexibility, reproducibility, ease, and accessibility (Zaidieh, 2009).

- **Business:** Another excellent use is business-to-business social networking. It may be a powerful marketing tool for companies, entrepreneurs, actors, singers, and artists. Companies use social networking sites in five ways: to raise brand recognition, to manage online reputations, to recruit, to learn about new technologies and rivals, and to intercept potential customers (Wikipedia). Social networking platforms assist businesses with advertising their products, recognizing customer requirements, and gathering comments on a variety of topics. The introduction of virtual money on social networks creates new prospects for global finance. Consumers may share their own experiences on social media, which helps early adopters make educated purchase decisions and reduces the risk of purchasing a new product.

- **Healthcare:** Social media facilitate many sorts of social interaction among stakeholders such as physicians, patients, and caregivers. Social networking sites (SNS) are a great teaching and learning tool for physicians and nurses since they bring new knowledge from research and help them deliver quality treatment to their patients. These technologies have the potential to alter virtually every area of healthcare. Icliniq.com, verywellhealth.com, practo.com, doctorondemand.com, and other health-related social networking sites are examples.

- **Politics:** Social networking appears to be having an influence on political life and movements all around the world. It has affected voting and caused societal transformations, riots, upheavals, and revolutions around the world. Social networking will make governments more responsible and allow individuals to use their right to free expression. It also aids in engaging people in the democratic process and involving younger generations in politics. For example, in 2008, Barack Obama successfully integrated social media into his campaign, engaging people, empowering volunteers, and significantly increasing donations. Obama was the first US president to recognize the potential of social media, (Weeden, Cooke, & McVey, 2013).

Methodology

The survey research design was used in this study, which solicited the opinions of students from the Department of Business Administration and Management at Akwa Ibom State Polytechnic to compare the effect of free internet access on academic performance to social networking on public campuses. This sort of research was deemed most appropriate due to its descriptive strategy, which guaranteed that the perspectives of students on issues ranging from the rate of free internet usage on academic performance to social networking were sought. The research included a population of 1021 students, with 208 chosen as the sample size using Taro Yamane's method. A convenience sample strategy was employed to select at will respondents for questionnaire administration. A normal confidence level of 95% and error tolerance of 5% was used. The researcher tested the hypotheses using regression analyses and Anova.

Data Analysis

Test of Hypothesis one

H01 Free internet access by students has less impact on academic research than social media content creation

Correlations

APSM Internet			
Pearson Correlation	ARSM	1.000 .030	
	Internet	.030	1.000
Sig. (1-tailed)	ARSM	.	.306
	<u>Internet</u>	<u>.306</u>	.
N	ARSM	287	287
	<u>Internet</u>	<u>287</u>	<u>287</u>

ARSM (Academic Research and Social Media Content)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin Watson
1	.0942 ^a	.830	.813	.731	1.889

a. Predictors: (Constant), Internet

b. Dependent Variable: APSM

ANOVA ^b						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	173.138	1	.138	2.58	.001 ^a
	Residual	152.273	285	.534		
	Total	152.411	286			

a. Predictors: (Constant), Internet

b. Dependent Variable: ARSM

Coefficients^a

Standardized Unstandardized Coefficients Coefficient s Correlations

Model	B	Std. Error	Beta	t	Sig.	Zero order	Partial	Part
1 (Constant)	.816	.124	13.674	.000				
Internet	.046	.032	.030	.508	.612	.030	.030	.030
a. Dependent Variable: ARSM								

The R which is the coefficient of determination was high with a value of .830 which indicate that 83% of the changes in the dependent variable can be explained by the changes in the independent variable while 17% can be explained by the stochastic terms in model. This implies that this variable (Free Internet Access) can explain up to 75 percent of Change in Academic Performance to Social Media Content Creation, leaving 25% percent unexplained. Looking at the ANOVA table; the significant value (p-value) = less than 0.05 (alpha), hence we conclude that the model is significant ($F_{1,} = .2.58, p = 0.01$). furthermore, $y = .816 + .046$ is the equation line in using the Free Internet Access variable in predicting the comparison effect on Academic Performance and Social Media Content creation Variables (otherwise called the slope) is significant at $p < 0.000$. With this, the researcher affirm alternative hypothesis and state Free internet access by students has greater impact on academic performance than Social media content creation

Test of Hypothesis Two

H02 Free internet access has less impact on students' virtual classes than watching online movies

Correlations			
VCOM Internet			
Pearson Correlation	VCOM	1.000 .164	
	Internet	.164	1.000
Sig. (1-tailed)	VCOM	.	.003
	Internet	.003	.
N	VCOM	287	287
	Internet	287	287

VCOM (Virtual Class & Online Movies

Model Summary^bStd. Change Statistics

Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin Watson
1	.164 ^a	.027	.024	.721	.027	7.917	1	285	.005	1.948

a. Predictors: (Constant), Internet

b. Dependent Variable: VCOM

ANOVA^b

Sum of Model Squares df Mean Square F Sig.						
1	Regression	412.119	1	4.119	7.917	.014 ^a
	Residual	148.292	285	.520		
	Total	152.411	286			

Model Summary^bStd. Change Statistics

Model	R	R Square	Adjusted R Square	Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin Watson
1	.164 ^a	.027	.024	.721	.027	7.917	1	285	.005	1.948

a. Predictors: (Constant), Internet

b. Dependent Variable: VCOM

Model	B	Std. Error	Beta	t	Sig.	Zero order	Partial	Part
1 (Constant)	.218	.168	13.172	.000				
Internet	.111	.039	.164	-2.814	.005	.164	.164	.164
a. Dependent Variable: VCOM								

The R^2 which is the coefficient of determination was low with a value of .027 which indicate that 2.7% of the changes in the dependent variable can be explained by the changes in the independent variable while 97.3% can be explained by the stochastic terms in model. This implies that this variable (Free Internet Access) can explain only 2.7 percent of Change in Virtual Class to watching movies online, leaving 25% percent unexplained. Looking at the ANOVA table; the significant value (p-value) = greater than 0.05 (alpha), hence we conclude that the model is significant ($F1, = .258, p = 0.01$). furthermore, $y = 141 + .046$ is the equation line in using the Free Internet Access variable in predicting the comparison effect on students joining virtual classes and watching movies online Variables (otherwise called the slope) is significant at $p < 0.000$. With this, the researcher upheld the null hypothesis and state that Free internet access has less impact on students' virtual classes than watching online movies

Test of Hypothesis Three

HO3 Free internet access has less impact on students' learning abilities than social media experience

Correlations

Coefficients^a

Model	B	B Std. Error	Beta	t	Sig.	Zero order	Partial	Part
1 (Constant)	.904	.607	9.190	.000				
Internet	.549	.247	.042	.714	.476	.042	.042	.042
a. Dependent Variable: VCOM								

The R^2 which is the coefficient of determination was high with a value of .668 which indicate that 66.8% of the changes in the dependent variable can be explained by the changes in the independent variable while 43.2% can be explained by the stochastic terms in model. This implies that this variable (Free Internet Access) can explain 66.8 percent of Change in learning abilities to social media experience, leaving 43.2% percent unexplained. Looking at the ANOVA table; the significant value (p-value) = less than 0.05 (alpha), hence we conclude that the model is significant ($F1, = 5.10, p = 0.042$). furthermore, $y = 904 + .549$ is the equation line in using the Free Internet Access variable in predicting the comparison effect on learning abilities and social media experience Variables (otherwise called the slope) is significant at $p < 0.000$. With this, the researcher reject the null hypothesis and state that free internet access has greater impact on students' learning abilities than social media experience

Findings

Based on the analyses, the researcher found out that:

- Free internet services on campuses has significant impact on academic research than its usage on social media content creation.
- Free internet access has less impact on students' virtual classes than using it on other social media content such as watching online movies, playing games, gambling and chatting
- Free internet access has greater impact on students' learning abilities than social media experience

Conclusion/Recommendations

This study was conducted to compare the effect of free internet access on students' academic performance to social networking. However, the researchers discovered that free internet access in public institutions has a greater effect on academic performance than social media content creation, whereas the opposite was true when analyzing the effect of free internet access on students joining virtual classes versus watching online movies. However, it was suggested that:

1. Tertiary institutions should provide strong Wi-Fi signals on campus to enable students have unhindered internet services.
2. Internet service providers should put in place a mechanism to limit student access to some sites that are inimical to students learning.
3. Tertiary institutions should subscribe to online learning management system softwares to provide students with more learning experiences, and courses taught should be made to have some internet related contents to ensure that students develop interest for virtual classes.

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RENEWABLE ENERGY INTEGRATION: A CROSS-DISCIPLINARY EXAMINATION OF TECHNOLOGICAL AND POLICY SOLUTIONS

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ABSTRACT

This cross-disciplinary study investigates the technological and policy solutions essential for the seamless integration of renewable energy sources into existing systems. Through an in-depth analysis of diverse disciplines, the abstract explores strategies to address challenges and enhance the efficiency of renewable energy integration. The research aims to provide valuable insights for policymakers, engineers, and stakeholders navigating the complex landscape of sustainable energy transitions. Analysis of diverse disciplines and strategies to address challenges in order to enhance the efficiency of renewable energy integration shows that bringing together expertise from these diverse disciplines and to address the challenges will create holistic and effective solutions that address the challenges and improve the efficiency of integrating renewable energy into existing systems. Each discipline contributes a unique perspective, forming a comprehensive approach to sustainable energy solutions.

KEYWORDS:

Renewable Energy Integration: The seamless incorporation of renewable energy sources, such as solar, wind, and hydro, into existing energy systems to enhance sustainability and reduce dependence on non-renewable resources.

Cross-Disciplinary Analysis: An examination that spans multiple academic disciplines, bringing together insights from various fields like engineering, economics, environmental science, and policy studies to address the complexity of renewable energy integration.

Technological Solutions: Innovative engineering and technological advancements aimed at overcoming challenges related to the generation, storage, and distribution of renewable energy, fostering more efficient and effective integration.

Policy Frameworks: The development and implementation of regulations, guidelines, and strategies by governing bodies to facilitate the integration of renewable energy, providing a supportive environment for sustainable practices.

Sustainable Energy: Energy practices that meet present needs without compromising the ability of future generations to meet their own needs, emphasizing environmental, social, and economic sustainability.

Interdisciplinary Approach: An inclusive method that combines expertise from various disciplines to address complex issues, in this case, bringing together diverse perspectives to find holistic solutions for renewable energy integration.

Energy Transition: The gradual shift from conventional, fossil fuel-based energy systems to cleaner and more sustainable alternatives, often involving changes in technology, policies, and societal norms.

Environmental Policy: Governmental strategies and regulations focused on addressing environmental challenges, including those related to energy production and consumption, to promote sustainable practices and protect ecosystems.

Clean Energy Solutions: Technologies and strategies that contribute to a cleaner and more environmentally friendly energy sector, often synonymous with the use of renewable energy sources.

Renewable Energy Systems: Integrated systems designed to harness energy from renewable sources, including solar panels, wind turbines, and hydropower installations, contributing to a more sustainable and environmentally friendly energy landscape.

Introduction

Certainly! Cross-disciplinary examination of technological and policy solutions for renewable energy integration involves looking at ways to smoothly incorporate clean energy sources, like solar and wind power, into our existing systems. It's like figuring out how to make these eco-friendly energy options work seamlessly with our daily lives and the rules that govern them. So, experts from different fields collaborate to find the best mix of technologies and policies to make renewable energy a practical and effective part of our energy landscape.

Definition of Renewable Energy

Renewable energy refers to energy derived from natural resources that are constantly replenished, such as sunlight, wind, rain, tides, and geothermal heat. Unlike non-renewable sources like fossil fuels, renewable energy is sustainable and has lower environmental impacts. Common forms of renewable energy include solar power, wind energy, hydropower, geothermal energy, and biomass. The goal is to harness these sources to generate electricity or provide heat without depleting the Earth's finite resources.

Renewable energy comes from natural sources that are constantly replenished, like sunlight, wind, and water[1]. Here are brief explanations of some common types:

- i. **Solar Energy:** Generated from the sun's rays using solar panels to produce electricity or heat water.
- ii. **Wind Energy:** Captured by wind turbines that convert the wind's kinetic energy into electrical power.
- iii. **Hydropower:** Generated by harnessing the energy from flowing water, often in dams or river systems.
- iv. **Geothermal Energy:** Extracted from the Earth's internal heat, usually through steam or hot water.
- v. **Biomass:** Derived from organic materials like wood, crop waste, or animal dung, and can be burned for heat or converted into biofuels.

These sources are sustainable and have lower environmental impacts compared to traditional fossil fuels.

Overview of Renewable Energy Integration

Renewable energy integration involves smoothly incorporating clean energy sources into existing systems[3]. Here's a breakdown:

- i. **Grid Integration:** Connecting renewable energy sources, like solar and wind farms, to the existing power grid. This requires managing fluctuations in energy production to ensure a reliable power supply.
- ii. **Energy Storage:** Storing excess energy generated during peak times for later use. Batteries and other storage technologies help balance the intermittent nature of some renewables.
- iii. **Smart Grids:** Upgrading traditional power grids to smart grids that can efficiently handle bidirectional energy flows, accommodate decentralized energy sources, and enable real-time monitoring and control.
- iv. **Policy Integration:** Developing regulations and incentives that support the growth of renewable energy. This can include subsidies, feed-in tariffs, and mandates to encourage adoption.

Technological Advances: Continuously improving renewable energy technologies to enhance efficiency, reduce costs, and address challenges such as intermittency.

By addressing these aspects, we create a more resilient and sustainable energy infrastructure that maximizes the benefits of renewable sources while maintaining a reliable power supply.

Technological and policy solutions essential for the integration of renewable energy sources into existing system

Here's a breakdown of technological and policy solutions crucial for seamless renewable energy integration[5]:

1. **Technological Solutions:**
 - i. **Smart Grid Technology:** Upgrading power grids with smart technology enables efficient communication between energy producers and consumers, allowing for better management of renewable energy fluctuations.
 - ii. **Energy Storage Systems:** Implementing advanced energy storage technologies, such as large-scale batteries, helps store excess energy during peak production times for use when renewable sources are less active.
 - iii. **Demand Response Systems:** Technologies that allow consumers to adjust their energy usage based on real-time supply and demand, helping to balance the grid and optimize energy consumption.
 - iv. **Advanced Forecasting:** Improved weather forecasting and energy production prediction models enable better planning for variable renewable sources, reducing uncertainty in energy supply.
2. **Policy Solutions:**
 - i. **Renewable Energy Standards:** Implementing regulations that mandate a certain percentage of energy production to come from renewable sources encourages investment and adoption.
 - ii. **Feed-in Tariffs (FiTs):** Offering financial incentives to renewable energy producers, guaranteeing a fixed payment for the electricity they generate, incentivizing investment in clean energy.

- iii. **Net Metering:** Allowing consumers with renewable energy systems to feed excess energy back into the grid and receive credits or compensation, promoting decentralized energy production.
- iv. **Carbon Pricing:** Implementing policies such as carbon taxes or cap-and-trade systems to internalize the environmental costs of traditional energy sources, making renewables more economically competitive.
- v. **Research and Development Funding:** Investing in research to drive technological innovation, reduce costs, and address challenges in renewable energy technologies.

By combining these technological and policy solutions, we can create an environment where renewable energy seamlessly integrates into existing systems, fostering a sustainable and resilient energy future.

Challenges that hinders the efficiency of renewable energy integration.

Several challenges can hinder the efficiency of renewable energy integration into existing systems[2]. Here are some diverse challenges:

- i. **Intermittency and Variability:** Renewable sources like solar and wind are intermittent, meaning they don't produce a consistent amount of energy. This requires solutions for balancing supply and demand.
- ii. **Energy Storage Limitations:** Storing excess energy for use during periods of low renewable generation is challenging. Current storage technologies have limitations in terms of capacity, efficiency, and cost.
- iii. **Grid Compatibility:** Traditional power grids are designed for centralized energy production. Integrating decentralized renewable sources requires grid upgrades to handle bidirectional energy flows and fluctuations.
- iv. **Infrastructure Costs:** The initial costs of building renewable energy infrastructure, such as solar or wind farms, can be high. The transition to renewables often requires substantial investments.
- v. **Technological Immaturity:** Some renewable technologies are still developing, and their efficiency may not match that of established energy sources. Ongoing research and development are needed to enhance performance.
- vi. **Land Use and Environmental Impact:** Large-scale renewable energy projects can impact ecosystems and biodiversity. Balancing energy needs with environmental preservation is a complex challenge.
- vii. **Policy and Regulatory Barriers:** Inconsistent or insufficient policies and regulations may impede the growth of renewable energy. Clear frameworks and supportive policies are crucial for a smooth transition.
- viii. **Public Perception and Acceptance:** Resistance from communities due to concerns about the visual impact of renewable infrastructure, noise, or other perceived drawbacks can slow down projects.
- ix. **Coordinating numerous small-scale renewable sources,** like rooftop solar panels, poses challenges for grid operators in terms of monitoring and management.
- x. **Global Economic Factors:** Economic considerations, such as fluctuations in the cost of traditional energy sources, can impact the competitiveness of renewable energy in the market

Addressing these challenges requires a multidisciplinary approach and ongoing collaboration between scientists, engineers, policymakers, and communities to create effective solutions for efficient renewable energy integration.

Diverse Disciplines That Explores Strategies to Address Challenges and Enhance the Efficiency of Renewable Energy Integration.

Addressing challenges and enhancing efficiency in renewable energy integration involves expertise from various disciplines[4]. Here's a glimpse into these diverse fields:

- i. **Electrical Engineering:** Experts in this field work on designing and optimizing the electrical systems that connect renewable energy sources to the grid. They focus on grid stability, reliability, and managing variable energy inputs.
- ii. **Computer Science and Data Analytics:** Professionals in these disciplines develop algorithms and data analytics tools for predicting energy production, optimizing grid operations, and managing energy storage systems effectively.
- iii. **Environmental Science:** Researchers in environmental science assess the ecological impacts of renewable energy projects and help design solutions that minimize harm to ecosystems.
- iv. **Materials Science:** Innovations in materials are crucial for improving the efficiency and durability of renewable energy technologies, such as more efficient solar panels or advanced materials for energy storage.
- v. **Economics and Policy Studies:** Experts in these fields analyze the economic viability of renewable energy projects, develop policies that incentivize clean energy adoption, and explore the socio-economic impacts of transitioning to renewable sources.
- vi. **Mechanical Engineering:** Professionals in this field contribute to the design and optimization of renewable energy systems, such as wind turbines and hydropower plants, focusing on efficiency and reliability.
- vii. **Urban Planning:** Urban planners play a role in designing sustainable cities that can accommodate renewable energy infrastructure and support energy-efficient practices.
- viii. **Cybersecurity:** With the increasing reliance on digital technologies in energy systems, cybersecurity experts are crucial to protect against potential threats to critical infrastructure.
- ix. **Social Sciences:** Researchers in social sciences study public perceptions, attitudes, and behaviors related to renewable energy adoption, providing insights into effective communication and community engagement.
- x. **Law and Policy Experts:** Professionals in this area work on developing and implementing regulations that facilitate the integration of renewable energy into existing legal frameworks.

Collaboration across these diverse disciplines is essential for creating holistic strategies that address challenges and enhance the overall efficiency of renewable energy integration.

Conclusion

In conclusion, the Cross-Disciplinary Examination of Technological and Policy Solutions for Renewable Energy Integration is like a big teamwork project. Experts from different fields, like technology, law, and the environment, come together to figure out how to smoothly blend clean energy, like solar and wind power, into our everyday lives. They tackle challenges, such as dealing with the sun and wind's unpredictable nature or upgrading our power systems. By working together, they aim to make renewable energy a reliable and eco-friendly part of how we power our homes and communities.

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OIL THEFT AND THE CRISIS OF COMMUNITY DEVELOPMENT IN SELECTED COMMUNITIES IN EMOHUA LOCAL GOVERNMENT AREA OF RIVERS STATE.

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ABSTRACT

With the emergence of oil in commercial quantity and government insensitivity towards the need of the people, various deviant attitudes have been identified. This attitude emanate through oil theft which found to impact negatively on community development. Given this led to this paper that examined oil theft and community development in selected communities in Emohua LGA of Rivers State. Two research questions and objectives were raised to guide the work. The paper equally adopted Emile Durkheim anomie theory in 1893 to explain the nexus between oil theft and community development. The mix method research design was used. Cochran formula was used to derive the sample size of 138. Also, purposive and quota sampling techniques were adopted. The respondents were elderly, security operatives and farmers. The instruments for data collection were questionnaire and in-depth interview which were supported with other relevant secondary sources. Charts, simple percentage and content analysis were all used for data analysis. The study found that the reasons for the occurrence of oil theft among communities in Emohua LGA of Niger Delta appear to be webbed in grim complexity as poverty, unemployment, government insensitivity and corruption amongst others was a factor. The paper concludes and recommended for good governance as such governance would help to provide employment, reduce poverty level, and provide adequate health care, and thus will limit oil theft as most people who venture into it are very poor and unemployed.

KEYWORDS: Oil Theft, Community Development, Environmental Pollution.

Introduction

Crude oil is a natural resource, and constitutes one of the main sources for world energy supply (Wu & Chen, 2019, Titilayo, 2019). Nigeria as a nation has a large deposit of crude oil, with proven reserves of 28.2billion barrels, making it one of the largest oil producers in Africa (Reuters, 2014; Elwerfelli & Benhin, 2018). Crude oil was discovered in Nigeria in 1956 and the first commercial oil well was drilled in Oloibiri, a town located in Bayelsa state, in the Niger Delta. The region currently houses oil fields, comprising 355 located onshore and 251 offshore (NNPC, 2019). Although crude oil has been discovered in other parts of Nigeria, such as Lagos state (Premium Times, 2016), and oil wells have been drilled in the Chad Basin, the Niger Delta is currently the sole destination for commercial production of crude oil in Nigeria. As such, the oil extracted from the Niger Delta accounts for practically all of Nigeria's oil exports (NNPC, 2010).

Asuni (2009) as well as Katsouris and Sayne (2013) posited that there are three operational methods of oil theft and they includes are: (1) a minor and small-scale pilfering of condensate and petroleum product destined local market; (2) direct hacking into pipelines or tapping with a hose from wellhead through practical removal of the ‘Christmas tree’; and (3) excess lifting of crude oil beyond the licensed amount, using forged bills of lading. Thus, the continuous theft of oil has the tendency to destroy or influence community development.

Community development means the process of helping local communities to become aware of their needs to assess their resources more realistically, to organize themselves and their resources in such a way as to satisfy some of their needs and in so doing acquire attitude, experience and cooperative skills for repeating this process again. This explanation sees community development as a dynamic process which when set in the community through their own effort are enable to more steadily toward the goal of self-government and improvement (Onua, 2019). To achieve more community development, especially the rural communities there is need to fight against the crisis that can emanate through oil theft and many other unsecured situations. In fact a study showed that people who are involved in oil theft equally exchange it or purchase arms that can be used to raise tension in the community (Eyina, 2021) and as this inflict crisis, it negates community development as study by Stewart (2004) justifies a correlation between insecurity and development.

In tying the nexus between oil theft and crisis of community development, we should be able to appreciate the relevance of oil and its producing area or region (such as Emohua LGA of Rivers State) to Nigeria; hence, there importance cannot be over-emphasized. It (oil) is the metaphorical goose that lays the golden egg. This is because more than 75% of the Nigerian’s national income is generated from oil exports (OPEC, 2019). Also, the quality of the different types of crude oil found in the Niger Delta region makes it attractive for exploration by foreign investors, as they are characterized by low Sulphur content, low salt composition and low soil to water ratio (Dickson & Udoessien, 2012). These qualities make the crude oil easy to transport through pipelines and have informed tagging the crude oil sourced from the Niger Delta, light sweet crude oil blends. In addition, the oil production activities in the region necessitates the location of foreign and local oil companies in the region, therefore providing accommodation to drilling equipment, transportation fleets, and technological devices, that aid the extraction of crude oil from land or sea within and bothering the Niger Delta.

As oil theft exists, insecurity persists too. In fact they are intertwined, thus making development becomes a challenge and this has led to the problem of underdevelopment in communities in Emohua Local government area of Rivers State. Against this backdrop, the study will unfold how oil theft induced crisis of community development in some selected communities in Emohua Local Government Area, Rivers State.

Statement of the Problem

The prevalence of crude oil theft in oil-producing communities is not peculiar to the Niger Delta only. It was reported that in the 1980s, there were reported cases of oil theft in Texas, USA (Telegraph, 1981 cited in Titilayo, 2019). In fact, countries like Indonesia and Mexico

were also confronted with this challenge (The Economist, 2020; Jakarta Globe, 2013, Titilayo, 2019). However, in the case of Nigeria, it leads the pack with a record of up to 300,000 barrels of oil being stolen daily, as against 1,000 bpd in Indonesia (Jakarta Globe, 2013) and 10,000bpd in Mexico (Reuters, 2013). Due to this enormous quantity of oil that is illegally siphoned from the Niger Delta, Nigeria is recognized as a hotspot for oil theft (The Economist, 2020). This problem is one of the issue that inspired the researcher to justify the reason for this situation. However, the challenges emanating from oil theft and refining have prompted various reactions and policies by the government. In fact, the jail term is about 45 years (Mbolo & Udousoro, 2014). Therefore, explaining why the governments are concerned about the fight against the effects of this unscrupulous act. It is not far from the fact that it degrades the environment (air, land and water).

In a report by Ejiofor (2022) titled Wike's magic wand to tackle oil theft explained how the Governor of Rivers State (Nyesom Wike) went through track roads of the forest of Ibaa community in Emohua local government area to uncover the illegal refineries that are fed with stolen crude oil. In fact, the governor lamented that some divisional police officer and commanders of the anti-vandalism unit of the Nigeria Security and Civil Defence Corps are actively involved in illegal oil theft in various communities in Rivers State. Again, Ukpe (2022) was of the view in a report titled oil theft: police, JTF on fight against oil theft, found that in Ibaa community, various illegal refineries and oil theft using network of pipelines that transits through the bushes with connected typical reservoirs as a result caused various spill and waste.

Furthermore, in Ndele community, Igonikon (2018) reported that activities of youths on oil theft led to the pollution of their rivers. As a consequences, the people cannot fish from the river and drink from it. Other observable cases of this nefarious act exist as the people in Ibaa and Ndele communities have adopted a different means of oil refining and crude theft without considering the implication to the community. Truthfully, Rivers State has experienced several environmental changes resulting from many causes but specifically the illegal oil activities. This has affected the environment, social, economic livelihood and health of the people. The study by Titilayo (2019) titled the implications of oil theft on social and economic development in the Niger Delta, found that the activities of oil theft affects social and economic activities. In that study it found that economic implications include reduced revenue, increased unemployment, and diversification of the economy while social implications also include sustained conflict, curbed social development, and displacement of persons. This situation is not far from the situation in the study area as this also prompted this study to consider the socio-economic implication, not living the health implication untouched.

Observably, the continues oil theft and illegal oil refining between 2021-2022, contributed to black soot emission in Emohua local government area and Rivers State at large, with serious health implication that spread through airborne diseases. Given the effect of black soot on human health, justifying the assertion, study by Osilem (2022) on Nigeria security and civil defence corps against illegal oil refining of crude oil in Emohua LGA, Rivers State observed that black soot have emitted the environment given the activities of oil theft; and that other

occurrences resulting from it includes oil spillage, deforestation and pollution, which effects are antithetical (negative) to the human health and livelihood.

Study by Elem (2021) on black soot and public health of Rumuolumeni residents in Port Harcourt, Nigeria confirms the consequences of the soot, as it shows that the existences of illegal oil refineries scattered across the area have lead to health challenges such as cholera, diarrhea, cancer, leukemia amongst others. A recent study by Kalagbor, Orji and Ekpete (2019) titled “*exposure to heavy metals in soot samples and cancer risk assessment in Port Harcourt, Nigeria*” reaffirms other studies in this. These scholars confirmed that soot causes leukemia, cancer of the liver oesophagus, and skin. Thus, extrapolations from the above negate development entirely. Implying that for more productivity to occur, the health of the people must be optimal as a sick person cannot be productive.

The increase of oil theft and illegal bunkering in some communities in Emohua local government area is an economic crime against Nigerian state; it undermines development strategies and engenders social disorder. In the view of Odalonu (2015), it constitutes serious economic, security and environmental challenges to the Nigerian state. However, there are fears among stakeholders and security experts in the industry that crude oil theft in Nigeria may persist for long time to come due to level of sophistication the illicit trade has assumed in recent times and the caliber of persons involved in it even from within and outside the country (Uwotu, 2013). It should be stated clearly that most of the ill-activities carried out by youths in the oil region supposed not to have been done given their huge oil resource. Evidently, despite this huge oil resource, the oil-producing communities are characterized by poor living conditions. This poverty situation however, led to some youth’s involvement into illegal oil theft as means of survival without being considerate of its impact on the people or community development.

Consequently, activity of oil theft does not only affect the economic strength of Nigeria as oil is the major factor to revenue generation, but it has affected the social and health of the people in the study area. Most of the rivers, land and farms are polluted and the local people cannot explore the river for fishing; the land were also affected given oil activities were some farm land were set ablaze by fire and thus devaluing such land and making it infertile. As studies by various scholars (Titilayo, 2019; Osilem, 2022, Mbolo & Udousoro, 2014; Odalonu, 2015) on this issue have been carried, the researcher found that many studies were done that considered oil theft but few studies exist that link then to community development, the linking of the two variables in two separate communities in Emohua LGA become a contribution and gap to fill. Also, the study will add to empirical studies on oil theft and community development in Emohua LGA of Rivers State. The paper therefore, identifies the following research questions as guide to the study.

1. What constitutes some reasons for oil theft that affects community development in the study area?
2. What are the socio-economic and health implications of oil theft on community development in the study area?

Objectives of the Study

1. To find out the reasons for oil theft that affects community development in the study area?
2. To identify the socio-economic and health implications of oil theft on community development in the study area.

Theoretical Framework

This work adopts Emile Durkheim anomie theory in 1893. Anomie means the lack of normal ethical social standard. It is also a state of lawlessness and normlessness. The theory assumes that anomic situation is a product of industrialization. Theft in such circumstance, industrialization usually brings in a new method of economic relation, thus resulting to social upheaval. As a result weaken collective conscience, previous norms and social control mechanism. By this oil economy is a new economic activity which supplanted traditional economic activities. That is each time a new economic production emerges, it occasion social disintegration, weaken collective conscience or norms. However, Robert Merton (1938) cited in Emeodu (2021) elaborated this theory and pointed that in some circumstance individual no longer find meaning in the society's rules, therefore, opt for or tend to substitute or legitimize their own norms to achieve the society's accepted goals or values. When this occurs development is stagnated and underdevelopment will continue to prevail.

Linking the theory to the situation in the area of study which is Emohua LGA, oil theft is a crime and a result of failure of societal norms and values. Oil theft is a deviant act and cannot bring about progress and development in the area. This emanates from the fact that youths are frustrated and as Durkheim posited, it was attributed to weaken collective conscience, as well as inactive norms and social control mechanism. All the activities affect health, economic activities, social activities, insecurity among others.

Conceptual Clarification

Oil Theft: Oil is unarguably the lifeblood of modern economy and it has now become the most essential commodity in the world. Hence, no nation today can survive without oil that is why Smil (2008) describes it as the "lifeblood of modern world", adding that, "without oil, there would be no globalization, no plastic, little transport, and a worldwide landscape that few would recognize". Yergin (2008) also calls it "the world's most important resource" Nigeria, being a mono-economy nation largely depends on the oil sector for its economic survival. The Nigerian economy is dependent on the exploitation of crude oil and the nation's future is very much tied to the commodity (Okere, 2013). Indeed, oil and gas resources from Niger Delta region accounts for over 90% of Nigerian export and foreign exchange earnings, and over 70% of total Nigerian revenue (Ekuerhare, 2002). This informs Wilson (2012) to state that the increase or otherwise in crude oil production affects directly the revenue base and development programmes of Nigerian state. Oil is now the mainstay of Nigeria's economy. It is the country's major export, fetching millions of petrodollars to the country each day. Sadly, that same resource is being savagely stolen in copious quantities on daily basis (Adeboboye, 2013)

Oil theft started around late 1970s to early 1980s under military rule. It was carried out under the command of top military personnel for the purpose of enriching themselves and forcefully maintaining political stability (Katsouris & Sayne, 2013). The upsurge of oil theft in the Niger Delta region of Nigeria in recent times is alarming. Oil theft can be referred to as illegal bunkering. It involves the act of hacking into pipelines to steal crude which is later refined or sold abroad (Ugwuanyi, 2013). It is an illicit trade that involves the theft of crude oil and its derivative products through a variety of mechanisms. In a related view, Asuni (2009) refers to oil theft as oil taken from pipelines or flow stations, as well as extra crude oil added to legitimate cargo that is not accounted for. In support of the above positions, it is imperative to posit that “illegal oil bunkering” in Nigeria is a generic term surrounding not only illegal loading of ships but also all acts involving the theft, diversion and oil smuggling”. The illegal activity however, took a new turn with the advent of agitation for resource control by Niger Delta indigenes and the emergence of youth militancy (Ikelegbe, 2005; Katsouris & Sayne, 2013). Given this, Adegbite (2013) posited that oil theft is carried out at different levels and quantities; hence there are various methods in which oil theft operations are carried out in the Niger Delta. The most popular method for stealing the crude oil is to puncture the pipeline conveying the product from one point to the other and tap it at the point where it had been punctured or ruptured.

At the outset of the agitations in the Niger Delta, the objective was primarily political with the citizens of the region demanding for an increase in the derivation fund (a specific percentage of oil rents accrued to the federal government), but when the government was unable to meet all their demands, many of the youths in the community took up arms against the government and engaged in criminal activities such as oil theft, kidnapping, destruction of oil facilities and sea piracy (Ikelegbe, 2005; Katsouris and Sayne, 2013). According to Ikelegbe (2005), the involvement in oil theft by youths were at first limited to providing security for oil thieves, an activity from which they were able to enrich themselves and acquire weapons, but after a while they were able to engage in oil theft autonomously and this led to escalation of the illegal activity in the region.

However, oil theft further occurs when it is carried out without requisite statutory licenses or valid documents, or in violation of the Nigerian maritime sector (Odalonu, 2015). In this sense again, oil theft is considered to be the illegal appropriation of crude or refined oil products from the pipelines of multinational oil companies. The act is facilitated by the pragmatic cooperation between security forces, militia organizations, cult groups and local people, oil company employees who use a variety of methods to steal oil from oil pipeline and multinational oil corporations that are stationed within the country (Akani, 1996; Ralby, 2017).

The reasons for the occurrence of oil theft in the Niger Delta however, appear to be webbed in grim complexity. Some authors have identified oil theft as an integral part of the economy of conflict in the oil communities region (Ezirim, 2011; Obi, 2010; Ikelegbe, 2005 and Watts, 2007). Others have linked it to the corrupt practices of government officials (Katsouris & Sayne, 2013; Asuni, 2009). Based on the different reasons identified, the first point that will be discussed is the situation of oil theft as part of the conflict in the Emohua LGA. Ikelegbe

(2008) gives a classification of the militants into three groups namely insurgent, deviant insurgent, and criminal armed, and identified the third group as those responsible for oil theft in the Niger Delta region where Emohua LGA is located. The ‘criminal armed’ groups are led by warlords and with their engagement in illegal oil bunkering and other illicit economic activities, the warlords gained access to funds with which they acquired weapons, built camps, strengthened their membership (Obi, 2010) and were able to operate with or without the support of political patrons (Watts, 2007). Basedau and Lay (2009) note that countries experiencing the resource curse have the characteristic of selective distribution of rents. Katsouris and Sayne (2013) also attest that funds that could be used for developmental projects may be diverted to non-productive areas in a rentier state. Hence, a possible basis for the low community development as well as conflict in the Emohua Local Government Area that has led to stealing of oil in the region can be said to be the rentier state structure of Nigeria.

Community Development: The issue of community development is a global phenomenon, especially the third world countries. According to Ndukwe (2005) posited that community development is a process that is concerned with the improvement as well as the transformation of the social, mental, economic, institutional and environmental conditions of the rural dwellers through the mobilization and rational utilization of their human, material and institutional resources as to enhance their capacities to cope with the daily tasks and demands of modern times.

In understanding what community development means, it becomes imperative to define the concept of development. Although, the concept of development does not attain a mono definition, hence, Walter (1972) observed that development implies increased skill, capacity, greater freedom, creativity, self-discipline, and responsibility and material well-being. While all human societies have experienced development, the levels of development vary from one society to another and even within distinct parts of the same society. Given this, Nmomo (2004) citing Brawnwell Bakeri, defines community development as an educational process. It is not better road, better bridges, pure water, nor better sanitation. It is something of the spirit more than something of material. It must reach into deep, cultural pattern of people, examining them and testing them as principle of faith. It is not a temporary, physical construction. It is a building within the heart and mind of men not a recreation centre in the middle of field. The point made in this definition is that community development is much more than construction of physical things. It must be a way of life the community embraced by every member of that community. With that, all physical solution to problem shall follow and in the proper order. For him “psychological development” is first before any other development.

The term community development involves process that is geared with the improvement and also the transformation of the social mental, economic, institutional and environmental conditions of the rural dwellers through the mobilization and rational utilization of their human material and institutional resources as to improve their capabilities to adopt with the daily tasks capabilities to contemporary times (Onua, 2019).

Mury cited in Nmomo (2004) defines Community Development as the utilization under one single programme of approaches and techniques which rely upon local communities as units

of actions assistance with organized local self-determination and efforts and initiative and leadership as the primary instrument of change. This definition as other does attempt to emphasize the importance of participation by the people of a community in improving their living conditions and physical environment.

Again, Authus cited in Nmom (2004) opined that community development is a method of helping local communities to become aware of their needs to assess their resources more realistically; to organize themselves and their resources in such a way as to satisfy some of their needs and in so doing acquire the attitude, experiences and cooperative skills for repeating this process again". By this definition, community development is a process in the sense that is a dynamic sequence which when set in motion, supplies its own motive, power, so that people in the community through their own effort are enabled to move steadily toward the goal of self-government and improvement.

Methodology

The researcher adopted a mix method design which incorporates quantitative and qualitative method. The study was carried out in two selected communities in Emohua local government area such as Ibaa and Ndele selected through purposive sampling technique. The selection of these communities was due to the fact that these communities are well known for oil theft and artisanal refining by the youths. The populations of the two communities were not known, thus Cochran formula was used to derive the sample size of 138, and is expressed as thus;

$$no = \frac{Z^2pq}{e^2}$$

Where: **no** = the sample size; Z = Confidence level for Z (1.6); e = Level of precision = (0.05)

p = Estimated proportion; q = 1-p

Thus, our sample size becomes

No =

no = 138

Through purposive sampling, the respondents were selected to include elderly, security operatives and farmers. In each community, 69 respondents were selected while in each category, 23 respondents were selected using quota sampling technique (e.g. elderly=23 persons; security operatives=23 persons; and farmers=23=persons). Thus primary (questionnaire & in-depth Interview) and secondary sources (published & unpublished materials) of data collection were utilized. Therefore, charts were used to represents the socio-demographic characteristics of respondents, simple percentage was used for the analysis of research question while content analysis was used to analyze the qualitative instrument.

Data Presentation and Analysis

Fig 1. Chart Showing Sex Distribution of Respondents

Source: Research Fieldwork (2022).

The chart above represents respondent's sex distribution. In a nutshell, it implies that more male participated than female as such 78 male and 60 females.

Fig 2. Chart showing the various categories of Respondents

Source: Research Fieldwork (2022).

The above fig two represents the categories of respondents ranging from security officers, elderly and farmers. The result showed there was equal distribution of respondents.

Research Question One: What constitutes some reasons for oil theft that affects community development in the study area?

Table 1: Showing descriptive analysis on some reasons for oil theft that affects community development

S/N	ITEMS	A%	SA%	D%	SD%	Total
1	Poverty/unemployment crisis	170 42.5%	210 52.5%	20 5%	-	400 100%
2	Resource control	230 57.5%	150 37.5%	15 3.75%	5 1.25%	400 100%
3	Government insensitivity	145 36.25%	160 40%	60 15%	35 8.75%	400 100%
4	Greed and get rich quick syndrome	200 50%	160 40%	25 6.25%	15 3.75%	400 100%
5	Economic/political agitation of the people of the Niger Delta	110 27.5%	195 48.75%	55 13.75%	40 10%	400 100%

Source: Fieldwork, 2022

Given the result of this study, it was found that poverty, unemployment situation, government insensitivity, greed and get rich quick syndrome as well as economic/political agitation of the people of the Niger Delta constitutes the reasons for the involvement of people in oil theft in the study area. All the items were accepted and is evident that people who venture into it are basically for economic reasons. In a nutshell, the study by Ikelegbe (2005) and Obi (2010) are related to findings of this study. According to them, oil theft and bunkering is a key activity of militant youths in the Niger Delta, who launch attacks against the government of Nigeria and Multinational Corporations (MNCs) in their fight for resource control; and Obi (2010) explained that the emergence of youth militancy in the oil producing area (such as in Emohua LGA) has been linked to non-violent struggles that spread through the oil producing

communities against the deplorable living conditions in the region and decrease in the derivation fund from 50% of oil rents and royalties to 1.5%.

Sadly, Ezirim (2011) lamented that from what began as a political uprising, Niger Delta militant youths are now known for 'economic and financial criminal activities including pipeline vandalization, piracy, oil bunkering, small arms proliferation, hostage taking and kidnapping. Thus, it can be said that oil theft occurs in the Emohua LGA as part of the violent escalation of the political agitation of the people of the Niger Delta and it persists as a financial mechanism for established criminal groups. Also, a basis for the political struggle in the region can be singled out as the neglect of development activities and inequitable fund allocation by the Nigerian government.

An in-depth interview on this proves that:

Most of the security personnels deployed in our community are conniving with our youths to steal oil and also refining it with them taken a good share. In fact, some of the security agencies even bribe to be posted in our area so as to have a fair share of oil stolen from the pipe (IDI/Respondents from Ibaa and Ndele communities/Rivers State/2022).

One of the respondents also has this to say:

Why our children and many strangers venture into this act is because government has abandoned us and the people are seriously suffering. What do expect a man to do when his house is on fire... is to find solution... the solution the youths found was to involve into oil bunker for survival (IChief/DI/Respondents from Ndele community/Rivers State/2022).

Some security Personnel were of the view that:

Sometimes we don't blame the boys, but just that the youths are not getting much from the government that's why they are into bunker and oil theft. Some narrated that most youths because their friends bought cars and has buildings and are living large, they have decided to involve into the business not minding the implications. Others also explain the high rate of poverty in the areas given series of communal crisis without any ideal compensation (IDI/security Respondents from Ibaa and Ndele communities/Rivers State/2022).

The above report of IDI findings shows that corruption constitutes some of the reasons for involvement of youth in oil theft. This reflects the view of Asuni (2009) who describes the existence of corruption in the Niger Delta and in Nigeria as an endemic one that has enveloped many law enforcement officials, government personnel and politicians. Also, Katsouris and Sayne (2013) also confirm the involvement of these officials in oil theft. Thus, explained that top Nigerian officials cut their teeth in the oil theft business during military rule. Over time, evidence surfaced that corrupt members of the security forces were actively involved. In fact, since the country's return to democracy in 1999 then gave some civilian officials and political 'godfathers' more access to stolen oil (Katsouris & Sayne, 2013). To explain the incentives that may have driven corrupt officials to engage in oil theft, Katsouris and Sayne (2013) report that the proceeds from the illegal activity is used to fund election campaigns and carry out atrocities such as targeted killings, buying votes or paying thugs to disrupt election processes. They also mention that the corrupt officials fund these atrocities for the purpose of remaining

in power and securing continued access to oil rents. Finally, as these occur it affects community development given its socio-economic consequences.

In more related term, study by Adegbite (2013) correlate with this study and presented that the perceived reasons for engaging in crude oil theft include (a) poverty; (b) ignorance; (c) greed; (d) lack of respect for national economic survival; (e) get rich syndrome; (f) lack of gainful employment ; (g) exploiting the loopholes in the criminal justice system to circumvent the law ; (h) evolving culture of impunity from the wrong perception that some people are above the law; (i) weak institutional structure to checkmate criminals; (j) malice; and (k) bad governance (corruption, incompetency), just to mention a few.

Also, Igbuku (2014) also identified some of the underlying causes of this scourge to include poverty, community-industry expectation mismatch, corruption, unemployment, ineffective law enforcement and poor governance. He adds that high unemployment, for instance has created a huge population of idle young people who are easily lured to oil related crimes. In any vantage it may be looked at, the study have been able to justify the various reasons why youths venture into oil theft.

Research Question Two: What are the socio-economic and health implications of oil theft in the study area?

Table 2: Showing descriptive analysis on the socio-economic implications of oil theft on community development

S/N	ITEMS	SA%	A%	D%	SD%	Total
1	Impediment to social development	120	260	18	2	400
		30%	65%	4.5%	0.5	100%
2	Sustained conflict	210	140	30	20	400
		52.5%	35%	7.5%	5%	100%
3	Increase the rate of unemployment	190	200	10	-	400
		47.5%	50%	2.5%		100% ^d
4	Reduced Manpower	140	230	20	10	400
		35%	57.5%	5%	2.5%	100%
5	It generates soot particles and other health crisis to the people	180	220	-	-	400
		45%	55%			100%
6	It displaces farmers and places threat to food security	200	120	40	20	400
		50%	30%	10%	5%	100%
7	It generate social disharmony	140	210	40	10	400
		35%	52.5%	10%	2.5%	100%
8	Most youths may lose their lives in the process	180	200	20	-	400
		45%	50%	5%		100%

Source: Fieldwork, 2022

The result of the findings showed the socio-economic and health implication of oil theft in the study area. It agreed that it leads to impediment to social development, and as well led to sustained conflict were people or youths are opportune to raise money for ammunition and causing social disharmony in the communities selected for the study. In the same vein, the study posited that the involvement of youths in oil theft led to the displacement of farmers and

places threat to food security, causing increase in the rate of unemployment as the place could not attract more development projects from the government and other sectors that boost economic activities. Evidently, a Police reports from Rumuji Divisional Police Station, established that:

Over 40 persons died from the activities of oil theft in Ibaa and Ndele communities in Emohua local government area, Rivers State. These include both male and female. It also gave that over sixty persons were arrested transporting this stolen oil to other areas.

As this occurs, it reduces manpower needed for operation and production. The researcher also revealed that the health implication of this given that it generates soot particles led to various health crises on the people.

The above study especially area of reduced economic and social manpower correlate with the findings of Soremi (2020) who observed that young people of school age may choose to join the ‘criminal armed’ gangs (or cult groups) rather than remain in school just so that they can acquire wealth from engaging in oil theft and this may lead to increase in number of out-of-school youths and increased cult activities in the study area. This may also result in loss of manpower for credible development of the community, as the cult members who involves in oil theft may lose their lives in clashes with the military or other criminal groups or even end up in prisons.

Some Respondents explained that:

Given the situation of oil activities, some farm land cannot be used for years and this is affecting the people. The rivers are affected as most fishermen cannot go for fishing. The crops are not yielding well as usual because the soil is polluted and cost of living is on increase (IDI/ Respondents from Ibaa and Ndele communities/Rivers State/2022).

Some security posited that:

Some youths and cultists in the various communities have used the money gained through these nefarious acts to purchase light guns and heavy weapons as well bullet. Explaining further that there is need to curb this crisis as the cultists has used these ammunitions to carry out activities that disrupt the harmony of the community (IDI/Chiefs and Farmers Respondents from Ibaa and Ndele communities/Rivers State/2022).

Most of the respondents decried that

There has been soot everywhere due to these illegal activities if not the early intervention of Governor Wike. The youths have adopted another means such as Keke Pot unlike the bigger drums used in the process of refining. Many youths have died and some injured (IDI/security Respondents from Ibaa and Ndele communities/Rivers State/2022).

An extrapolation from the various findings, it correlates with the findings of Obi (2010) which explains how proceeds from oil theft are often used by cultists to acquire weapons and also to recruit and train fighters. An extrapolation from this, it explains the crisis of community development, as cultists in some of the study areas sell oil and purchase guns and ammunitions to invade their rivals.

On health implication, it was found that series of health crisis existed. In fact soot was massively noticed in Emohua local government area that people cannot easily spread their clothes outside. A separate study by Akutu (2018) titled “Health issues to know about soot, preventive measures” revealed that long-time exposure to soot can cause pneumonias, that this pneumonia makes patients prone to other respiratory diseases like asthma. Observing further Yakubu (2017), claim that findings from different studies relate adverse health problems like eye and skin disorders with people who are frequently exposed to polluted air. Niranjana and Thakur (2017), in a study titled established that soot and carbon black constitute public health problem. In their study, it was revealed that soot and carbon black can cause many diseases. That soot, apart from that it is carcinogenic, can also lead to multiple diseases to man.

Its socio-economic impacts include environmental degradation, loss of economic activities for the communities, loss of revenues to the government resulting in inadequate funding for development initiatives, increased criminality in Niger Delta region, lack of security due to illegal activities and infiltration of international collaborator and bad image for the country (Duru, 2013; Okere, 2013). Also, due to the loss of oil revenue to the oil thieves, Nigeria can no longer export crude oil above two million barrels per day as opposed to budgetary provision of 2.5 million barrels per day (Olateju, 2013). Nigeria is no longer selling enough crude oil to meet budgetary provisions. The government is failing to meet some of its obligation and domestic debt is rising rapidly. For instance, the country targeted, according to its financial plans for the year 2013, 2.53 million barrels per day production, a projection it failed to meet due to oil theft. Ogbeifun (2014) noted that the negative impacts of vandalism and crude oil theft include the destruction of aquatic and farmlands, economic sabotage which explains the shortfall of Nigeria’s 2014 budget from \$29.3 billion in 2013 to \$23.3 billion in 2014 and divestments by some International Oil Companies, IOCs, with attendant job losses thereby compounding the unemployment situation in Nigeria.

Conclusion

The study has highlighted the reasons, health, economic and social implications of oil theft. In a way to ameliorate this quagmire, the Nigeria government has put various efforts in the fight against illegal oil theft. The Federal Government had also engaged the services of some ex-militant leaders in the Niger Delta like Tompolo with huge billions of naira to patrol the country’s vast coastline and protect her strategic oil installations but all these measures have not yielded a remarkable positive result. With the low standard of living in many oil producing communities, the Emolga people may see their situation where oil exist as resource curse. Apart from being among the oil producing region that is largely underdeveloped is also infamously known for oil theft as the study proves that poverty and unemployment characterized the area.

Recommendations

In recommending the way forward, the paper suggested the following:

1. There should be good governance, such governance would help to provide employment, reduce poverty level, and provide adequate health care. Such effort will limit oil theft as most people who venture into it are very poor and unemployed.
2. Furthermore, there should be increased funding and equipment of the Joint Task Force, the Navy, the Nigerian Security and Civil Defense Corp, the Nigeria Maritime Administration and Safety Agency and other security operatives working in the region by the Federal Government to enable them defeat oil theft.
3. The government should also facilitate socio-economic development of the Emohua people in Niger Delta as well as carry out intensive and extensive concerted campaign to curtail criminality and oil theft in the region.
4. The relevant bodies that are affected by and can influence oil production in the Niger Delta (particularly the different layers of government, MNCs, community groups and international bodies) should be encouraged and if possible compelled to be transparent and accountable in their modes of operation as this will help ensure that they give thorough consideration to the implication of their words and actions.
5. Again, if the Nigerian government is able to gain the confidence of Niger Delta activists and indigenes, there will be less agitation and oil thieves will have less opportunity to take advantage of a genuine social movement for executing and justifying their disreputable actions in Emohua LGA. Through this development can thrive as this would limit conflict, pollution and other health implications.

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ADDRESSING STATISTICAL ANXIETY: INTERVENTIONS AND IMPACT ON LEARNING OUTCOME

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ABSTRACT

Statistical anxiety, characterized by heightened apprehension and fear associated with statistics-related tasks, has been recognized as a significant barrier to effective learning outcomes in the field of statistics. The study explores interventions designed to address statistical anxiety and assesses their impact on students' overall learning outcomes. The study delves into the pervasive nature of statistical anxiety among students, examining its origins and the negative consequences it poses for academic performance. Numerous studies have been examined on the prevalence of statistical anxiety in educational settings and its correlation with decreased confidence, motivation, and achievement in statistical coursework. The study also focuses on various interventions employed to alleviate statistical anxiety. Cognitive-behavioral strategies, mindfulness techniques, and supportive learning environments are among the interventions investigated. Cognitive-behavioral interventions aim to restructure negative thought patterns and foster a positive attitude towards statistical tasks. Mindfulness techniques, such as meditation and mindfulness-based stress reduction, seek to enhance students' awareness and acceptance of their emotional responses to statistical challenges. Additionally, creating supportive learning environments involves promoting collaborative learning, providing personalized feedback, and employing innovative teaching methods to engage students in statistical concepts. The findings from studies concluded that successful intervention programs not only reduce statistical anxiety but also contribute to improved academic performance and increased engagement with statistical concepts. Moreover, interventions that foster a positive attitude towards statistics have a lasting impact on students' overall confidence and competence in the subject. The study suggested that, by addressing statistical anxiety through targeted interventions is essential for enhancing learning outcomes in statistics. By understanding the origins of statistical anxiety and implementing effective strategies, educators can create a more supportive and conducive learning environment.

Introduction

Statistical anxiety often stems from a lack of confidence in one's ability to comprehend and apply statistical methods. Students may find themselves overwhelmed by complex formulas, unfamiliar terminology, and the abstract nature of statistical concepts. This anxiety can lead to reduced motivation, avoidance of statistical coursework, and ultimately hindered learning outcomes (Schunk et al. 2008; Bembenuddy, 2008; Bas, 2010). Although statistical analysis

forms a fundamental part of the psychology undergraduate curriculum, around 40 per cent of new students are not aware that it will be a topic that they have to study (Ruggeri et al., 2008), and it is often perceived as the most difficult topic (Barry, 2012) with up to 80 per cent of students reporting some level of statistics anxiety (Onwuegbuzie & Wilson, 2003). Whilst statistics anxiety has been frequently explored within the pedagogic literature, there is still a limited understanding of the potential predictors of higher levels of anxiety as individual studies typically explore a rather limited number of possible predictor variables. However, these predictors may be inter-correlated, and therefore it is important to consider a wide range of variables together in order to fully understand the clearest predictors of statistics anxiety.

Incorporating interactive learning environments has shown promise in reducing statistical anxiety. Technology-assisted interventions, such as online tutorials, interactive software, and simulation tools, allow students to engage with statistical concepts at their own pace (Bas, 2010). Smith and Jones (2018) found that students exposed to interactive learning environments reported lower levels of anxiety and increased self-efficacy in statistical tasks. Collaborative learning experiences, particularly those involving peer-assisted learning, can be effective in addressing statistical anxiety. A study conducted by Brown and Garcia (2019) demonstrated that students who participated in peer-led study groups showed a significant decrease in anxiety levels and an improvement in their statistical understanding. The supportive nature of peer groups fosters a sense of community and reduces the isolation often associated with statistical anxiety. Mindfulness-based interventions, such as meditation and relaxation techniques, have gained attention as effective strategies for managing anxiety. Johnson et al. (2020) explored the impact of mindfulness training on statistical anxiety and found that students who participated in mindfulness sessions reported lower levels of anxiety and improved focus during statistical tasks. Integrating mindfulness practices into statistical education may contribute to a more positive learning experience.

The implementation of these interventions has shown promising results in improving learning outcomes for students struggling with statistical anxiety. Reduced anxiety levels are often accompanied by enhanced understanding, increased participation, and improved performance in statistical assessments. Students exposed to interactive learning environments and peer-assisted learning tends to exhibit improved academic performance in statistical courses. The study by Brown and Garcia (2019) noted a statistically significant increase in the grades of students who participated in peer-led study groups, highlighting the positive impact of collaborative learning on learning outcomes. Interventions addressing statistical anxiety contribute to higher retention rates in statistical coursework. According to Smith and Jones (2018) a decrease in dropout rates among students who engaged with interactive learning environments. By fostering a supportive learning environment, these interventions encourage students to persist in their statistical education. Mindfulness-based interventions and real-life application of statistics have been linked to a more positive attitude toward statistics. Johnson et al. (2020) found that students who participated in mindfulness training not only reported lower anxiety levels but also expressed a greater appreciation for statistical concepts. Similarly, Taylor and Miller (2017) noted a shift in students' attitudes as they recognized the practical utility of statistical methods.

Statistical anxiety poses a significant challenge for students engaging in quantitative research, hindering their ability to comprehend and apply statistical concepts. This study aims to investigate the effectiveness of interventions targeted at alleviating statistical anxiety and explore their subsequent impact on learning outcomes in a university setting. Despite the recognized importance of statistical literacy in various academic disciplines, a substantial number of students experience apprehension and anxiety when confronted with statistical tasks. This anxiety not only impairs students' confidence in their analytical abilities but may also negatively influence their academic performance. To address this gap, this research will examine existing interventions designed to mitigate statistical anxiety, such as cognitive-behavioral strategies, supportive learning environments, and technology-based tools. By conducting a comprehensive review of the literature, we aim to identify the most promising interventions and assess their impact on students' statistical anxiety levels and learning outcomes (Smith, & Smith, 2017; Johnson, & Jones, 2018).

Literature Review

Overview of Statistical Anxiety

Statistical anxiety, a psychological phenomenon characterized by fear, apprehension, and nervousness related to statistics and quantitative analysis, is a prevalent issue in academic settings worldwide. In universities, where students often encounter statistical courses as part of their academic curriculum, understanding and addressing statistical anxiety is crucial. Statistical anxiety manifests in various ways, including avoidance behaviors, nervousness, and a lack of confidence in one's statistical abilities (Ashcraft, & Moore, 2009). Individuals experiencing statistical anxiety may avoid courses, tasks, or jobs that involve statistical analysis, hindering their academic and professional progress. Moreover, when faced with statistical problems, these individuals may exhibit physical symptoms such as sweaty palms, increased heart rate, and difficulty concentrating.

Chiesi, et al, (2020) underscored several factors contribute to the development of statistical anxiety among students in universities. First and foremost is the lack of prior exposure and experience with statistical concepts. Many students enter university with limited background knowledge in mathematics and statistics, leading to a heightened sense of fear and apprehension when faced with statistical coursework. Another contributing factor is the fear of failure. The fear of making mistakes in statistical analysis can create a sense of dread, inhibiting individuals from engaging with statistical tasks (Ma, & Xu, 2004). This fear may be rooted in societal expectations, where the importance of being accurate and precise in statistical work is emphasized.

Statistical anxiety, according to Chiesi, et al., (2020) can have far-reaching consequences, impacting academic and professional success. In educational settings, individuals experiencing statistical anxiety may avoid pursuing courses or degrees that require statistical competence, limiting their career options. This avoidance behavior can perpetuate a cycle of missed opportunities and hinder personal and professional growth. In the workplace, statistical anxiety can impair decision-making processes. Individuals may shy away from using statistical tools

and methods, relying on intuition or less reliable approaches (Adeyemo, & Adeyanju, 2018). This can have detrimental effects on the quality of decisions made and hinder innovation and problem-solving within organizations.

Recognizing and addressing statistical anxiety is crucial for fostering statistical literacy and empowering individuals to navigate the data-driven world effectively (Chiesi, et al 2020; Adeyemo, & Adeyanju, 2018). Educational institutions and workplaces can implement strategies to mitigate statistical anxiety and build confidence in statistical abilities. Onwuegbuzie, (2017) highlighted effective approach is to provide targeted support and resources for individuals struggling with statistics. This may include tutoring services, workshops, and online resources designed to enhance statistical understanding and skills. Creating a supportive learning environment where individuals feel encouraged to ask questions and seek help can also contribute to overcoming statistical anxiety.

Overview of Learning Outcome

The importance of learning outcomes is underscored by the need for an education system that prepares students for the challenges of the 21st century. The National Policy on Education in Nigeria emphasizes the significance of learning outcomes in ensuring that education is relevant, functional, and geared towards national development (Federal Ministry of Education, 2013). According to Akpan, & Udofia, (2018) learning outcomes refer to the knowledge, skills, attitudes, and values that learners are expected to acquire or develop after completing a particular educational program or course. They serve as benchmarks for assessing the effectiveness of education and provide a clear framework for designing curriculum, instruction, and assessment strategies. In the educational system, the concept of learning outcomes has gained prominence as the government and educational institutions recognize the need to produce graduates who are not only knowledgeable but also equipped with the skills required for the workforce and society at large.

Several studies in Nigeria have delved into the concept of learning outcomes, examining their alignment with curriculum objectives and the effectiveness of instructional methods. For instance, Ofoegbu and Amadi (2017) explored the learning outcomes of secondary school students in mathematics and found that a well-structured curriculum positively influenced students' understanding and performance. Another relevant study by Akpan and Udofia (2018) investigated the learning outcomes of students in science education, highlighting the need for interactive teaching methods to enhance critical thinking and problem-solving skills. These studies collectively emphasize the need for continuous assessment and evaluation of learning outcomes in Nigeria's education system. Effective implementation of the learning outcome concept requires not only well-designed curricula but also pedagogical strategies that foster active engagement and deep understanding.

Nigeria has made significant strides in aligning its education system with the concept of learning outcomes. The National Universities Commission (NUC) and other regulatory bodies have mandated the inclusion of learning outcomes in the design and review of academic programs. This ensures that graduates possess the competencies demanded by employers and

the broader community. Furthermore, the incorporation of learning outcomes in the Nigerian Qualifications Framework (NQF) has standardized the education system, making it more transparent and accountable. This framework provides a clear hierarchy of qualifications and the corresponding learning outcomes, facilitating seamless articulation and transferability of credits across institutions.

Challenges of Statistical Anxiety on Learning Outcome

Statistical anxiety, characterized by feelings of fear, tension, and apprehension associated with statistics, poses a significant challenge to students worldwide. In the educational settings, the impact of statistical anxiety on learning outcomes has become a growing concern generally. Students often face challenges in grasping statistical concepts due to an inherent fear of numbers and complex formulas. A lack of well-equipped laboratories, statistical software, and experienced instructors can contribute to heightened anxiety levels among students attempting to grasp complex statistical theories. The anxiety associated with manipulating numerical data can hinder their ability to comprehend statistical principles, leading to a negative impact on academic performance (Onwuegbuzie, 2000).

The traditional teaching methods in schools may not effectively cater to diverse learning styles. As opined by Adeleke et al. (2018) rigid pedagogical approaches contribute to increased statistical anxiety among students. Innovative teaching methods that accommodate various learning preferences are essential to mitigate this challenge. The assessment methods employed in educational systems can also contribute to statistical anxiety. Overemphasis on high-stakes examinations and assessments that focus more on rote memorization than practical application may lead to increased anxiety levels among students attempting to master statistical concepts (Ojo, 2017). A study by Adewale and Ojo (2019) cultural factors can play a role in the manifestation of statistical anxiety. In the society, where certain subjects are perceived as more prestigious or essential, students may experience heightened anxiety when faced with statistical courses.

The challenges posed by statistical anxiety have significant implications for learning outcomes. High levels of anxiety can lead to decreased motivation, reduced self-efficacy, and ultimately hindered academic performance. As students struggle to cope with statistical concepts, they may disengage from the learning process, limiting their ability to apply statistical knowledge in real-world scenarios. Here are some types of challenges that may arise:

Negative Attitudes Toward Statistics:

- **Impact:** Students may develop negative attitudes towards statistics, leading to decreased motivation and engagement in the learning process.
- **Outcome:** Reduced interest in the subject can result in lower effort and commitment, hindering overall learning outcomes.

Fear of Numbers and Formulas:

- **Impact:** Some individuals may experience a fear of numbers and formulas, making it difficult for them to grasp statistical concepts.
- **Outcome:** Difficulty in understanding basic concepts may lead to poor performance in assessments and hinder the overall learning process.

Lack of Confidence:

- **Impact:** Statistical anxiety can erode students' confidence in their ability to understand and apply statistical methods.
- **Outcome:** Reduced confidence may result in avoidance of statistical tasks, limiting the opportunities for practice and mastery.

Difficulty in Translating Real-world Problems into Statistical Language:

- **Impact:** Students may struggle to connect real-world problems with statistical concepts and methods.
- **Outcome:** Difficulty in applying statistical tools to real-life situations may impede the development of practical skills and the ability to use statistics in decision-making.

Perception of Irrelevance:

- **Impact:** Some students may perceive statistics as irrelevant to their academic or career goals.
- **Outcome:** Lack of perceived relevance can lead to disengagement, with students failing to see the practical applications of statistical knowledge in their chosen field.

Poor Study Habits and Time Management:

- **Impact:** Statistical anxiety may contribute to poor study habits and ineffective time management.
- **Outcome:** Inadequate preparation and lack of consistent effort can lead to suboptimal performance in assessments, affecting overall learning outcomes.

Test Anxiety:

- **Impact:** The fear of taking exams related to statistics can exacerbate statistical anxiety.

- **Outcome:** Test anxiety may hinder the ability to recall and apply statistical concepts during assessments, negatively impacting grades and learning outcomes.

Ineffective Teaching Methods:

- **Impact:** Instructors using teaching methods that do not address statistical anxiety may contribute to increased stress among students.
- **Outcome:** Ineffective teaching strategies may fail to provide the necessary support and encouragement, leading to a suboptimal learning experience.

Limited Resources and Support:

- **Impact:** Inadequate access to resources, such as tutoring or support services, can hinder students' ability to overcome statistical anxiety.
- **Outcome:** Without sufficient support, students may struggle to navigate challenges and may not reach their full potential in mastering statistical concepts.

Addressing statistical anxiety involves a combination of pedagogical approaches, creating a supportive learning environment, and acknowledging the diverse learning needs of students.

Statistical Anxiety Intervention on Learning Outcome

Statistical anxiety is a pervasive issue affecting students across various academic disciplines. As a subcategory of mathematics anxiety, it specifically relates to apprehension and fear associated with statistics courses. Given the increasing emphasis on data-driven decision-making in today's world, addressing statistical anxiety becomes crucial for fostering a positive learning environment. Numerous studies have highlighted the negative correlation between statistical anxiety and academic performance. Smith et al., (2018); Johnson & Williams, (2020) have consistently found that high levels of statistical anxiety can hinder a student's ability to comprehend statistical concepts and solve problems. This anxiety can lead to avoidance of statistical coursework, limiting the student's overall academic and professional development.

However, several intervention strategies have been proposed to alleviate statistical anxiety and improve learning outcomes. Cognitive-behavioral interventions, as suggested by Watkins and Regan (2019), involve identifying and challenging negative thoughts associated with statistics. This approach aims to reframe the way students perceive statistical tasks, fostering a more positive attitude towards learning. Incorporating real-world applications of statistics in the curriculum has also shown promise in reducing anxiety levels (Johnson et al., 2021). By connecting statistical concepts to practical scenarios, students can better understand the relevance of statistical knowledge, making the learning process more engaging and less intimidating. Furthermore, implementing mindfulness techniques has gained traction as an effective intervention for reducing statistical anxiety (Brown & Jones, 2017). Mindfulness practices, such as deep breathing and meditation, help students manage stress and anxiety,

ultimately enhancing their cognitive abilities and focus during statistical tasks. Providing a supportive learning environment, offering additional resources, and encouraging collaborative learning are key strategies (Martin & Green, 2019). Moreover, incorporating formative assessments and regular feedback can help identify and address areas of difficulty early on, preventing the escalation of anxiety. Thus, various interventions can be employed to address statistical anxiety and improve learning outcomes. Here are some types of statistical anxiety interventions that can positively impact learning:

Education and Training Programs: Provide workshops and training sessions specifically focused on statistical concepts, offer tutorials on statistical software tools to enhance practical skills, and to develop online resources and tutorials for self-paced learning.

Counseling and Support Services: Offer counseling services to address anxiety-related issues. Provide peer support groups where students can share their experiences and strategies for coping with statistical anxiety. Include mental health resources and information on stress management.

Real-world Applications: Emphasize the practical applications of statistics in various fields to highlight its relevance. Use case studies and examples that demonstrate the real-world impact of statistical analysis.

Active Learning Strategies: Incorporate active learning methods such as group discussions, problem-solving activities, and hands-on projects. Use interactive tools and simulations to make statistical concepts more engaging.

Progressive Difficulty: Design courses with a progressive difficulty level, starting with simpler concepts and gradually increasing complexity. Provide ample practice opportunities with feedback to build confidence.

Flexible Assessment Methods: Implement varied assessment methods, such as projects, presentations, and practical applications, in addition to traditional exams. Allow for multiple assessment attempts to reduce the pressure associated with a single high-stakes evaluation.

Personalized Learning: Recognize and accommodate diverse learning styles. Provide individualized support and resources tailored to the needs of each student.

Positive Reinforcement: Encourage a growth mindset by emphasizing the ability to improve with effort. Provide positive reinforcement for progress and achievements, no matter how small.

Accessible Resources: Ensure easy access to textbooks, online resources, and tutorial materials. Offer additional support through online forums, discussion boards, or virtual office hours.

Instructor Support: Foster a supportive learning environment by being approachable and responsive to student concerns. Clearly communicate expectations and provide regular feedback.

By implementing a combination of these interventions, educators and institutions can create a more inclusive and supportive learning environment, helping students overcome statistical anxiety and achieve better learning outcomes.

The Impact of Statistical Anxiety Intervention on Learning Outcome

Anxiety is often characterized by fear and apprehension associated with statistics courses, leading to reduced academic performance and hindered comprehension. Recognizing the detrimental effects of statistical anxiety on learning, various interventions have been developed to alleviate these concerns and enhance educational outcomes.

One effective intervention strategy is cognitive-behavioral therapy (CBT), which targets negative thought patterns associated with statistical anxiety. A study by Smith et al. (2019) demonstrated that students who underwent CBT interventions showed significant reductions in statistical anxiety levels and subsequently exhibited improved academic performance. The findings suggest that addressing the cognitive aspects of anxiety can positively influence the learning outcomes of students struggling with statistics. Furthermore, incorporating technology-based interventions has gained prominence. Virtual reality (VR) platforms have been utilized to create immersive statistical learning environments. Chang and Lee (2021) found that students exposed to VR-based interventions reported lower levels of statistical anxiety and displayed enhanced statistical reasoning skills. This indicates that leveraging technology can provide a novel and engaging approach to alleviate anxiety and foster a better understanding of statistical concepts.

A study by Johnson and Brown (2020) highlighted the impact of instructor support and teaching strategies on student anxiety levels to include:

Improved Understanding:

- **Conceptual Clarity:** Interventions can enhance students' conceptual understanding of statistical concepts, reducing confusion and misconceptions.
- **Comprehension of Methods:** Students may gain a better grasp of statistical methods and procedures, leading to improved problem-solving skills.

Increased Confidence:

- **Self-Efficacy:** Interventions can boost students' confidence in their ability to tackle statistical problems and engage with statistical concepts.
- **Reduction of Anxiety:** Addressing statistical anxiety can contribute to increased self-assurance, making students more comfortable with statistical tasks.

Enhanced Performance:

- **Academic Achievement:** Interventions may positively impact academic performance by helping students overcome barriers associated with statistical anxiety.
- **Test Scores:** Students who receive intervention may experience improvements in their performance on statistical assessments and tests.

Positive Attitude Towards Statistics:

- **Attitudinal Shifts:** Interventions can influence students' attitudes toward statistics, fostering a more positive and open mindset.
- **Interest and Engagement:** Students may become more interested and engaged in statistical learning, leading to a deeper appreciation for the subject.

Long-term Retention:

- **Retention of Knowledge:** Interventions may contribute to better long-term retention of statistical concepts, ensuring that students retain and apply their learning in future contexts.

Reduction of Avoidance Behavior:

- **Increased Participation:** Students who previously avoided statistical tasks may become more willing to participate in class activities, discussions, and assignments.
- **Decreased Procrastination:** Interventions can help reduce procrastination related to statistical tasks, promoting a more proactive approach to learning.

Development of Study Skills:

- **Effective Study Habits:** Interventions may equip students with effective study strategies and problem-solving skills that can be applied beyond the specific statistical context.

Positive Impact on Mental Health:

- **Stress Reduction:** Addressing statistical anxiety can contribute to a reduction in overall stress levels, positively impacting students' mental well-being.
- **Enhanced Coping Mechanisms:** Interventions may provide students with coping mechanisms to manage stress and anxiety associated with statistical challenges.

It's important to note that the effectiveness of interventions can vary based on individual differences and the specific nature of the intervention. Tailoring interventions to the needs of

students and providing ongoing support can maximize their positive impact on learning outcomes.

This highlights the importance of educators adopting proactive measures to address anxiety issues among their students. Fostering a supportive learning environment was associated with decreased statistical anxiety and improved learning outcomes. Peer-assisted learning interventions have also demonstrated positive effects on statistical anxiety. Collaborative learning environments, where students work together to solve statistical problems, can create a sense of community and reduce individual anxiety levels. A study by Garcia and Rodriguez (2022) revealed that students participating in peer-assisted learning reported increased confidence in their statistical abilities and exhibited higher achievement levels.

Conclusion

In conclusion, the exploration of addressing statistical anxiety through various interventions has shed light on the significant impact it can have on improving learning outcomes in the field of statistics. As highlighted throughout this analysis, statistical anxiety is a prevalent challenge that can hinder students' ability to grasp statistical concepts and perform well in related assessments. However, the implementation of targeted interventions, such as cognitive-behavioral strategies, educational technologies, and supportive learning environments, has demonstrated promising results in alleviating statistical anxiety.

The studies reviewed indicate that interventions not only address the immediate symptoms of statistical anxiety but also contribute to a more positive and conducive learning atmosphere. By fostering a sense of confidence and competence among students, these interventions empower learners to approach statistical tasks with a more open mindset and enhanced problem-solving skills. This, in turn, translates into improved academic performance and a deeper understanding of statistical concepts.

Furthermore, the positive impact of these interventions extends beyond academic achievements, influencing students' overall attitudes towards statistics and their future engagement with quantitative disciplines. As educators and institutions continue to recognize the importance of addressing statistical anxiety, incorporating evidence-based interventions into teaching methodologies becomes imperative for fostering a more inclusive and effective learning environment.

While the field has made significant strides in understanding and mitigating statistical anxiety, further research is encouraged to explore the long-term effects of interventions, their scalability, and their applicability across diverse student populations. Additionally, ongoing efforts to destigmatize statistics and promote a growth mindset towards quantitative skills are essential for creating a positive learning culture.

Recommendations

The research conducted in this paper demonstrates a deep understanding of the psychological barriers that hinder students' progress in statistical subjects. The identification of statistical

anxiety as a significant factor impacting learning outcomes is a valuable contribution to the field. The authors meticulously review existing literature, providing a solid foundation for their study and ensuring the relevance and significance of their findings.

One of the key strengths of this paper lies in the thorough examination of various interventions designed to address statistical anxiety. The authors not only present these interventions but also evaluate their impact on learning outcomes. This practical approach adds a valuable dimension to the research, offering educators and policymakers actionable insights to enhance statistical education.

The paper is well-structured, making it accessible to a wide audience, including educators, researchers, and policymakers. The recommendations derived from the study have the potential to influence pedagogical practices, curriculum development, and student support services, ultimately contributing to improved learning outcomes in statistical education. Addressing Statistical Anxiety: Interventions and Impact on Learning Outcome, is a noteworthy and impactful piece of research. Its insights into statistical anxiety and effective interventions make it a valuable resource for anyone involved in the field of education.

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Assessing the Effectiveness of Entrepreneurship Training Implementation in Nursing Colleges: A case study of Nursing Colleges in Benin City, Edo State, Nigeria

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ABSTRACT

Background: Entrepreneurship is becoming a significant part of every profession. Despite the rigorous training embarked on by students during their nursing training they are meant to have an idea of independency and being self-employed, thus the need to assess the effectiveness of entrepreneurship training implementation in nursing Colleges.

Aims and Objectives: The aim of this study is to assess the effectiveness of entrepreneurship training implementation in nursing colleges. This study also seeks to find out if entrepreneurship training can well be achieved in nursing colleges and if the implementation would be faced with setbacks such as; lack of facilities and equipments and students willingness to partake in such training due to their rigorous activities in the college.

Methodology: A descriptive survey design was used to carry out the study. The study was conducted in 3 nursing colleges in Benin City, Edo State, Nigeria. A Multi-stage random sample method was used for colleges, faculty members and students of nursing and midwifery (n=230) with students enrolled from the year 2021-2023, available at the time of study and members of faculty. An AEETIN questionnaire was developed to carry out this research, with analysis carried out using frequencies, mean and SPSS statistical tools. These results were interpreted and presented.

Results: Most of the nursing and midwifery students showed awareness and a positive mindset towards entrepreneurship training (87.3% & 85.4% respectively) with satisfactory knowledge level, few of the nursing and midwifery students (45% & 36% respectively) supported the relevance and effectiveness of entrepreneurship training in meeting the evolving demands of the healthcare industry, most faculty members saw strengths (80%) rather than weaknesses (50%) in the current entrepreneurship training initiatives, faculty members had a negative perception as the introduction of this training would increase the work load on a few faculty members, while there was lack of some facilities and equipments (45%) for the success of entrepreneurship training programme in the Colleges.

Conclusion: There was a highly statistical significant positive correlation between entrepreneurship training and total knowledge and mindset; total support for relevance and effectiveness; total strengths and weaknesses; while there was negative correlation between entrepreneurship training and total perception of faculty members ; total presence of facilities and equipments in all program phases.

Recommendations: The members of faculty in the nursing colleges should be encouraged to provide seminars, training programs and workshops about entrepreneurship for nurses and midwives, hospital management should emphasize on new trends in nursing administration such as nursing entrepreneurship to increase the knowledge and perception of both student's nurses and nurses themselves.

KEYWORDS: Entrepreneurship, Implementation, Faculty members, AEETIN: Assessing the Effectiveness of Entrepreneurship Training Implementation in Nursing Colleges

Introduction

Education is regarded as a powerful instrument of social change and national development. This holds for all societies, developed and less developed to the extent that promoting and sustaining quality education are never left to chances. To this end, it is believed that the quality of life in the society can be greatly enhanced through education, hence the five main national goals of Nigeria, which have been endorsed as the necessary foundation for the National Policy on Education are the building of:

- (a) a free and democratic society
- (b) a just and egalitarian society
- (c) a united, strong and self-reliant nation
- (d) a great and dynamic economy and a land full of bright opportunities for all citizens (Esene, 2014).

The National Universities Commission (NUC) was given presidential directives by the Federal and State Ministries of Education to supervise and coordinate the programme of introducing Entrepreneurship Development Education in Nigerian educational institutions of higher learning in collaboration with all other regulatory bodies of higher institutions namely the National Board for Technical Education (NBTE) and the National Commission for Colleges of Education (NCCE) to be handled by the Committee set up by the federal government. As with many areas of education, Entrepreneurship Development Education (EDE) has a general education as well as a professional education component. The goals of EDE as offered to students in tertiary educational institutions, polytechnics and colleges included are to inculcate in the trainees/students the ability to:

- a. identify and solve problems using critical and creative thinking
- b. work effectively with others as a practice team member and cultivate the ability to resolve conflicts
- c. organize and manage oneself and one's ability
- d. collect, analyze, organize and critically evaluate information (to make decisions that must be carried through)
- e. communicate and negotiate effectively
- f. reflect on experiences and explore various strategies for effective learning (to learn at all times)

- g. become curious leading to readiness to experiment and innovate, being never satisfied with the status quo and considers self-employment as a viable option upon graduation from their institutions (NBTE, 2008). Also, NBTE listed in great detail the infrastructural facilities, workshops, studios, laboratories and the instructional materials and equipment for effective teaching and learning EDE courses. According to NBTE (2008), if students must acquire the relevant skills needed for the world of work, these items must be on ground for use by the lecturers and students.

Background

Entrepreneurship has evolved over time as the world's economy has changed as well. An entrepreneur is an innovator who helps in the development of technologies. The word entrepreneur is French and, literally translated, means "between-taker" or "go-between." Entrepreneurship is the act of creation and setting up of new establishments and organizations. The entrepreneurship concept is used to encourage persons to design and lead their own projects that help in improving their own finances and the economics of the country through small and intermediate projects (Al-Jubari, Hassan & Liñán, 2018).

The involvement of the creation of something new which is of value to the entrepreneur and to the audience is entrepreneurship, thus this audience can be any individual or a group of individuals who are concerned with the new product or service. To achieve such fit entrepreneurship requires the not only character but the devotion of necessary time and effort in bringing a new idea into operations and as such bringing it to the market. This process is difficult with most entrepreneurs. Entrepreneur receives the rewards for his efforts. Nevertheless, most entrepreneurs indicate independence and personal satisfaction as the most important personal rewards (Almeida, Daniel, & Figueiredo, 2021).

Entrepreneurship is becoming increasingly important within the health care sector as societal changes give space for new entrepreneurs in the field (ICN 2004, Boore & Porter 2011, Österberg-Högstedt 2009). However, quite a little research has been done on entrepreneurship in the health care sector and particularly on enterprise education and entrepreneurship training in nursing education. There are many studies which have identified a number of set-backs that may hinder nurses from becoming entrepreneurs, which include; a lack of business competence and skills, economic obstacles (e.g., business cycles), and a lack of support from their colleagues and society in general (Drennan et al., 2007 & Shirey 2007).

In addition, entrepreneurship in the health care sector is also dependent on the politics related to public health care services, for example, social enterprises [Department of Health 2010, Roberts, Bridgwood, & Jester 2009]. Some studies indicate that a lack of competence in entrepreneurship is a major barrier for nurses who want to become entrepreneurs (ICN 2004, Drennan et al., 2007 & Shirey 2007).

An entrepreneurial culture and procedures are best realized in cooperation with the operational environment according to the objectives set for entrepreneurship education at each level of education (European Commission 2008).

The nurse entrepreneurs claims that when educating a nurse is based on the traditional forms of nursing, there is a tendency that it does not provide them with all the necessary knowledge about entrepreneurship or establishing and organizing a company (Elango, Hunter & Winchell 2007, Sankelo & L. Åkerblad 2008). Therefore, a critical discussion about the role of education in enhancing entrepreneurship among nurses is needed (ICN 2004).

Nurse entrepreneurs can benefit nurses and consumers because they have the desire to change things in health care delivery or service and also in other spheres of life, which have the benefit to society as a whole. Nurse entrepreneurs provide services primarily focused on assisting patients and families to navigate the health care system, sometimes related to specific chronic illnesses or disorders (Al-Qudah, Al-Okaily & Alqudah, 2022).

Stress and burnout can also accompany self employment, and these experiences related to factors such as balancing family and business demands, lack of social support, and financial uncertainty. From other studies and research suggestions have been given that the control over one's work is a channel in the stress/self-employment relationship. Therefore, the negative stressors can be reduced when nurse entrepreneurs make caring for themselves a priority Arkorful, H. & Hilton, S. (2021).

Entrepreneurial motivations are significantly and positively related to the choice of entrepreneurial career paths Ajzen's theory of planned behavior asserts that, "Intentions are assumed to capture the motivational factors that influence a behavior; they are indications of how hard nurses are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (Autio & Fu, 2019).

There are many studies which have shown that many nurses nowadays either study other field to change their profession or leave the country to other countries for greener pastures. This is a serious problem facing hospitals and the nursing profession as a whole.

This problem put a burden on the hospitals due to shortage and high turnover rate, profession through increasing the nursing shortage and negatively affect in improving the social image about nursing profession. The change in nursing and health care makes a greater diversity in nurses' roles and significant advances in nursing knowledge and education (Badawi, 2019).

Therefore it is worthy of note to ensure that nurses have a form of entrepreneurship education during their training to help solve the problem of wanting to migrate to other fields and countries in the nearest future. Thus assessing the implementation of entrepreneurship training in nursing colleges has become necessary as this would help in understanding the nature of entrepreneurship training and further more help in finding solutions to the needs of this training where necessary.

Methodology

The descriptive research design was used to carry out this study, with a population of 700 students (nursing and midwifery) and 55 faculty members. A multi stage sampling technique was used to carry out the sampling with simple random sampling at the first stage to determine the number of students and stratified sampling to determine the number of faculty members. A sample total of 200 students (nursing and midwifery) and 30 faculty members were obtained. The Data collection for this study was done electronically by sending a questionnaire (AEETIN questionnaire) to each respondents after which they were analysed. Reliability for the test instrument was carried out using Cronbach alpha with a result of 0.78 showing that the instrument was reliable. Also 2 faculty members were sent the instrument for validation. The data was analysed using SPSS 23 statistical tool, frequency, and mean calculation.

Results and Analysis

The results obtained are shown in the tables below:

Entrepreneurial Mindset

The participants consist of 200 nursing and midwifery students from 3 colleges. Majority of the students agreed that they have heard about entrepreneurship and had a positive mindset of entrepreneurship. They agreed (up to 85% on the average) that the training has had a great influence on their mindset about entrepreneurship.

S/N	Items	SA	A	SD	D	SA%	A%	SD%	D%
1.	Entrepreneurship training is new to you?	146	10	4	40	73	5	2	20
2.	Entrepreneurship is needed in life pursuit	102	18	38	22	51	9	19	11
3.	Do you believe you can cope with its extra demands?	88	34	40	46	44	17	20	23
4.	Do you believe in skills development outside nursing?	147	4	38	11	73.5	2	19	5.5
5.	This type of training would make life better?	112	14	41	33	56	7	20.5	16.5
6.	Entrepreneurship training has had a great influence on your entrepreneurial mindset and skills?	108	35	36	21	54	17.5	18	10.5

Table 1: Analysis for entrepreneurship mindset

3.2 Entrepreneur training as valuable part in non-traditional roles within the healthcare industry

Participants also agreed that entrepreneurship training plays a great value in non-traditional roles (50%) within the healthcare industry.

S/N	Items	SA	A	SD	D	SA%	A%	SD%	D%
1.	Entrepreneurship training would help you in your carrier?	104	38	34	24	52	19	17	12
2.	In your final role as a nurse, do you believe entrepreneurship is needed in the healthcare industry?	93	18	75	14	46.5	9	37.5	7
3.	Do you consider entrepreneur training valuable in preparing you for non-traditional roles in healthcare?	82	4	98	6	41	2	49	3

Table 2: Analysis of entrepreneurial training as a valuable part in non-traditional roles in healthcare industry**3.3 Strengths and Weaknesses in the current Entrepreneurship Training**

Participants were of the opinion (45%) that the programme's timing, impact on their studies and how well it would help them in their present studies was not significantly high

S/N	Items	SA	A	SD	D	SA%	A%	SD%	D%
1.	Is the timing of the programme right for you?	62	12	103	23	31	6	51.5	23
2.	Would the programme have an impact on your studies or your profession?	85	8	93	14	42.5	4	46.5	7
3.	Would the programme help you in any way?	84	44	34	38	42	22	17	19

Table 3: Analysis of strengths and weaknesses in the current entrepreneurship training**3.4 Faculty members and the Integration of Entrepreneur Training**

The faculty members who participated (30) agreed that though the entrepreneurship training was good and indeed a welcome development there was need to get more hands for the training, train more staffs and also invest in all the necessary facilities and equipments to enable proper running of the training (Table 4 &5).

S/N	Items	SA	A	SD	D	SA%	A%	SD%	D%
1.	There are challenges in the implementation process?	12	8	2	8	40	26.7	6.7	26.6
2.	There are successes in the implementation process?	15	5	4	6	50	16.7	13.3	20
3.	Challenges in your centre are as a result of lack or low finance?	20	4	3	3	66.7	13.3	10	10
4.	Challenges in your centre are as a result of poor operations?	18	8	1	3	60	26.7	3.3	10
5.	Are challenges in your centre as a result of insufficient manpower?	22	3	2	3	73	10	6.7	10
6.	The integration made the curriculum voluminous?	11	8	5	6	36.7	26.6	16.7	20
7.	This integration affects your work schedule?	22	5	1	2	73	16.7	3.3	6.6
8.	The integration of this programme a good idea?	21	6	2	1	70	20	6.7	3.3
9.	This integration will increase your work load?	19	8	1	2	63.3	26.7	3.3	6.7

10.	This integration will affect the teaching and learning process	8	4	12	6	26.7	13.3	40	20
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Table 4: Analysis on integration of entrepreneurship training**3.5 Facilities and Equipments for Entrepreneur Training**

S/N	Items	SA	A	SD	D	SA%	A%	SD%	D%
1.	There are facilities to cater for all the training in your college?	25	2	2	1	83.3	6.7	6.7	3.3
2.	All the various skills being learnt have their required equipments?	23	5	1	1	76.7	16.7	3.3	3.3
3.	Students can gain access to these equipments when necessary?	26	1	2	1	86.7	3.3	6.7	3.3
4.	All equipments were purchased by the college?	20	8	1	1	66.7	26.7	3.3	3.3
5.	Students understand these skills without the required equipments?	18	9	2	1	60	30	6.7	3.3

Table 5: Analysis of facilities and equipments**Summary and Findings**

The requirements of education policy by NBTE press to respond to changing society. One of the requirements is the development of the entrepreneurial activities and training in every sector of education including health care education and as such these skills can be acquired through professional courses or by training. In other to teach entrepreneurship and train students on entrepreneurial skills in health care education it means that teachers should develop their knowledge about entrepreneurship and how to teach it and also experts on various skills should be brought in to train students depending of their interest and skill set picked. This can be supported by the study of Hytti and O’Gomann (2004) stating that entrepreneurship teaching activities are positively associated with teachers’ prior experience with entrepreneurship.

It was also discovered from the analysis that students have been properly introduced to the training and thus have a mindset of interest in the training as this would help in the training process, from various observations once an interest is built on something, the willingness to participate is made available. For any programme, initiative or training to succeed there must be made available resources, equipments, materials and facilities to ensure that the intention of the learning process and training is well achieved by the participants as such it is important that all the necessary equipments and facilities necessary for the training is provided to ensure proper and effective implementation.

Conclusion

The introduction and practice of Entrepreneurship training in the educational sector in Nigeria especially in nursing colleges is a new development in the Nigerian education system that was recently initiated by the NBTE.

There are grounds on which every training curriculum is implemented, and if such implementation would want to help in the development of manpower for the country, it is thus necessary that they be fully practiced with every guidelines were important.

The changing working life has made entrepreneurial skills necessary in the health care field, irrespective of the sector, thus education programmes in health care especially nursing and midwifery should pay close attention to entrepreneurship training. There are few teachers in the field of health care that teach entrepreneurship at the moment, even though many teachers cooperate with entrepreneurs and companies.

This study assessing the effectiveness of entrepreneurship training implementation in nursing colleges stated the meaning and gains in entrepreneurship training to students in the healthcare sector including nursing and midwifery and its tasking nature to the students of nursing and midwifery. Sample was collected from a population of the 3 colleges, though this population was not evenly distributed.

The instrument for collection was a questionnaire which was shared electronically using a google form. The information obtained from the respondents was interpreted and necessary recommendations made from the analysed results. It was further concluded that the implementation of entrepreneurship training has started in the colleges and it will be of great benefit to the student, the school and the society at large.

Recommendations

The following recommendations were deduced from the findings:

1. The students showed a strong mindset and willingness to entrepreneurship training and as such it is necessary for the schools to ensure that this programme is well monitored and conducted in the schools and should be taken seriously by students and stakeholders.
2. From the results it was observed that many students perceive entrepreneurial training as valuable in preparing them for non-traditional roles within the healthcare industry, to this cause it is of importance that the entrepreneurship training is taken into great cognizance in Nursing Colleges.
3. In the area of provision of necessary equipments and training for personnel's, improvement is needed, it is necessary for the colleges to ensure that adequate funds is released to help in purchase of equipments, training of personnel and materials where necessary. There can also be collaboration with other parastatals including government and NGO's.

4. In areas where there are gaps to be filled and where there is need to help in entrepreneurship training faculty members where necessary should be made to be involved in the process and if possible more hands should be employed to help in the training process
5. Any training or learning process cannot be effective without all necessary facilities and equipments. This does not exclude entrepreneurship training, it is thus recommended that funds are made available for necessary facilities and equipments and in cases of practical training materials are purchased as at when due.

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MARKETING STRATEGIES AND STUDENT PATRONAGE OF SELECTED PUBLIC TERTIARY INSTITUTIONS IN AKWA IBOM STATE, NIGERIA

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ABSTRACT

The study investigated marketing strategies and the student patronage of selected public tertiary institutions in Akwa Ibom State (University of Uyo, Akwa Ibom State University and Akwa Ibom State Polytechnic). Three objectives and three null hypotheses were raised and formulated to guide the study. It was motivated by the fact that public tertiary institutions in Akwa Ibom State find themselves in a competitive environment and may not know which marketing strategy is effective in increasing student patronage. The study adopted the survey research method. 320 questionnaires were distributed to students in selected public tertiary institutions in the three senatorial districts of the Akwa Ibom State. This formed the sample of the study. The data obtained was analysed using descriptive and inferential analysis which was computed electronically by the use of Statistical Package for Social Science (SPSS) version 21. The study revealed that there is a significant effect of product strategy, price strategy and promotion strategy on the student patronage of public higher institutions in Akwa Ibom State. It is therefore recommended that marketing strategies such quality programmes, low tuition, scholarship and online information should be used to increase student enrolment, since it is a modern way of awareness creation and communicating values of the institutions' product services to the prospects. This will serve to increase patronage, thereby increasing literacy in the country for social and economic well-being.

Introduction

Marketing strategy has become a veritable tool globally for any organization to remain in competitive market environment and wax stronger. Marketing strategy is a vital prerequisite of Industry's ability to strengthen its market share and minimize the impact of the competition (Adewale, Adesola, & Oyewale, 2013). Owomoyela, Oyeniya, and Ola, (2013) also see

marketing strategy as way of providing quality product that satisfies customer needs, offering affordable price and engaging in wider distribution and back it up with effective promotion strategy. (Adewale et al, 2013). A successful marketing strategy must tell an organization where they would want to be on a long-term basis that is why it is often said that marketing strategy is a continuous process Education being a global service that every country strives to provide for their citizens since it serves as a tool for socio-economic development. The expansion in population poses the demand for establishment of more higher institutions in Nigeria and Akwa Ibom State in particular, which will accommodate more students for knowledge acquisition. It is on this note, education has been liberalized by the government to allow private sector participation at all levels. The private sector participation has brought about increase in number of higher educational institutions to serve the growing populace, programme quality, and general innovation in modern educational practices. Following the private sector participation, which bring about “profit focus” has given rise to institutions competing for students and for academic performance. Recently, there have been a significant explosion in private tertiary education especially in response to innovation, demand for meeting standard for globalization and tertiary education in Nigeria (Onyemaechi, 2016). Public tertiary institutions in Akwa Ibom State find themselves in a competitive environment both locally and globally, hence effective marketing strategies are required to improve their educational performances. This paper examines marketing strategies (product strategy, price strategy and promotion strategy) and their impact on performance in Akwa Ibom State.

Objectives of the Study

The main objective of this study was to determine the relationship between marketing strategies and students patronage of public tertiary institution in Akwa Ibom State, Nigeria.

The Specific objectives were:

- (1) To examine the relationship between product strategy and student patronage of public tertiary institutions in Akwa Ibom State, Nigeria.
- (2) To investigate the relationship between price strategy and student patronage of public tertiary institutions in Akwa Ibom State, Nigeria.
- (3) To ascertain the relationship between promotion strategy and student patronage of public tertiary institutions in Akwa Ibom State, Nigeria.

Research Hypotheses

Based on the objectives of the study, the following hypotheses were formulated:

- H0₁:** There is no significant relationship between product strategy and student patronage of public tertiary institution in Akwa Ibom State, Nigeria.
- H0₂:** There is no significant relationship between price strategy and student patronage of public tertiary institution in Akwa Ibom State, Nigeria.
- H0₃:** There is no significant relationship between promotion strategy and student patronage of public tertiary institution in Akwa Ibom State, Nigeria.

Literature Review

Dimensions of Marketing Strategies

Product strategy

Kotler and Armstrong (2016) define a product as anything that can be offered to a market for attention, acquisition, use, or consumption that might satisfy a want or need. They further define a consumer product as the product bought by the final consumer for personal consumption. Consumers buy products frequently, with careful planning, and by comparing brands based on price, quality and style. Borden, (2014) sees a product as about quality, design, features, brand name and sizes. Mohammad et al, (2012) also say that product is the physical appearance of the product, packaging, and labeling Information, which can also influence whether consumers notice a product in-store, examine it, and purchase it. Past researchers have clearly suggested that product influences have a significant impact on business performance (Kazemand Heijden, 2010; Kemppainen et al, 2012; Ogunmokun and Esther, 2014; Owomoyela et al, 2013).

Pricing strategy is an important strategic issue because it is a significant indicator of products' quality. Lovelock observed that in services marketing the role of pricing is even more important, as many services are intangible in nature, so customers rely mostly on price while assessing the level of their quality. In general, pricing decisions involve choices regarding the level of prices to be charged, discounts, terms of payment and the extent to which price differentiation is to be pursued. These decisions are similar to the issues facing a good marketer, however some differences occur. Most services are perishable and they cannot be stocked in inventory. If there is no demand, the unused capacity is wasted. On the other hand, when the demand exceeds the capacity, a number of customers may not buy a product. Thus, a key issue for services marketers is to smooth demand using dynamic pricing strategies. Price is a very important component of the marketing mix strategy, because it brings revenue for a company while other elements represent costs. Price is also a very flexible element and can be used as an important tactical tool. Unlike other marketing mix elements, such as product features, distribution network, and advertising, price can be changed quickly and adopted to market conditions. Lovelock (2017) opined that setting the right price is a difficult task since many factors should be considered at the same time.

Promotion strategy according to Johann (2015), no marketing program can succeed without communications, which involves different methods and techniques used to deliver information about an offer, persuade the target customers of the benefits of a specific brand, and encourage them to take action at specific times. The traditional promotion mix includes advertising, personal selling, sales promotion and public relations. In the case of services marketing these elements are also important, but because services are produced and consumed at the same time, service personnel can become an important component of promotional activities as well as tangible elements of service environment. Also, because of services intangibility, the role of services communications is to create confidence in the firm's capabilities and reduce the perceived risk of purchase. The marketing communications mix, often called promotion mix, refers to a combination of marketing tools used to communicate the marketer's message to achieve the company's communications objectives.

Personal selling: The sales personnel plays a very important role in the communications strategy of many service companies. This is because firms typically have a control over service delivery channels including service outlets, which gives cost-effective and powerful

communications opportunities. Personal selling is a unique communications tool because it allows for personal interactions between sales staff and customers. According to (Attih and Essien 2023) Personal selling ignites a customers buying decision which is the actual purchase decision.

Advertising: Is especially effective in building brand awareness and brand preference and remains the most popular form of communication in consumer markets. When it comes to making a choice about which media to select, marketers should consider many factors, such as target audience media habits, product characteristics, message characteristics, and cost. Analyzing the content of ads, research shows that ads for services contain more factual information on price, warranties, documentation of performance, and availability than ads for goods (Kotler, 2013).

Sales Promotion: Service companies often use sales promotion as a very important ingredient of their communications strategy. Conversely to advertising which gives a reason to buy a product, sales promotion offers an incentive to buy it. This category of communications embraces a diverse collection of tools such as samples, coupons, discounts, gifts, and competitions with prices. They can be used in consumer markets and in business markets.

Public relations: Besides communication tools which are typically designed to attract target market customers, service companies must use also tools that allows communications with all groups of stakeholders and general public. Public relations involve techniques aimed at promoting a company's image or its individual products. They include press releases, press conferences; obtaining testimonials from public figures, community involvement, fundraising, and sponsorship of sporting events and other activities.

Internet: The role of e-marketing tools is growing in importance since they can complement or even supplement conventional communications channels. The Internet provides opportunities for a greater interaction with customers and personalization of message at a reasonable cost. The typical forms of e-marketing communications include company's own websites and online advertising,

Word of mouth: This form of communication involves recommendations from other customers and is more credible than promotional activities initiated by a company. When the perceived risk associated with the service purchase is relatively high, customers are more likely to rely on the word of mouth communication. As many services tend to have credence attributes, the perceived purchase risk is high and customers seek information from reliable sources. For this reason positive word of mouth is very important for service companies.

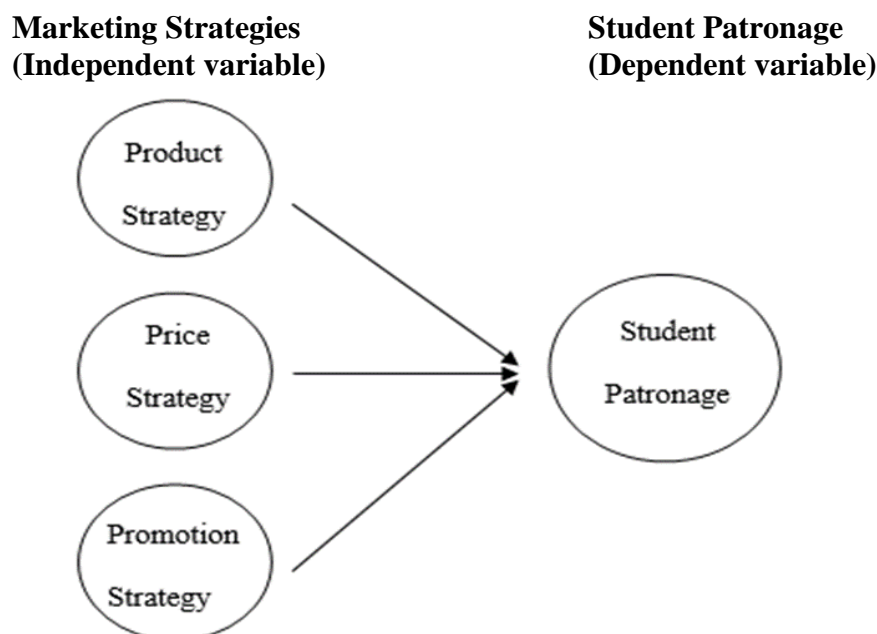


Figure 1: Conceptual frame of marketing strategies and student patronage

Empirical Review

Below are some empirical reviews of works on the subject matter of study:

In the study by Ebitu (2016), he examined the impact of three marketing strategies (product quality, marketing communication and relationship marketing) on the performance of selected small and medium scale entrepreneurs in Akwa Ibom State, Nigeria. The study adopted the survey method. Data obtained were analyzed using pearson product moment correlation analysis. Findings showed that there was a significant impact of product quality strategy and relationship marketing strategy on the profitability of SMEs in Akwa Ibom State.

The study by Mumel, Hocevar & Snoj (2017) revealed that there is a significant correlation between the number of marketing communication activities a company uses and their net sales and customer loyalty. However, they noted that companies aspiring for better performance should concentrate more on the frequency of using specific marketing communication activities and not so much on how many marketing communication activities they should use. This is so because according to research, the frequency of using certain marketing communication activities correlates with the number of business.

The study by Attih, (2020) was carried out to determine the relationship between packaging attributes and consumer patronage of beverages in Akwa Ibom State. The survey research design was used for this study. Data for the study were obtained through questionnaire administered to 385 respondents across the three senatorial districts in Akwa Ibom State. A multi-stage sampling technique – stratified and simple random sampling techniques were used to select the respondents for this study. A total of 376 copies of questionnaire were retrieved and used for the analysis. Five hypotheses were formulated and tested at the 0.05 level of significance. Data obtained for the study were analyzed using tables, frequency and percentage while hypotheses were tested using multiple linear regression. The findings revealed that there is significant positive relationship between design of wrapper, printed information, packaging size, packaging innovation and consumer patronage of beverages in Akwa Ibom State. This implies that when there is an improvement in design of wrapper, printed information, packaging size and packaging innovation, there will be significant positive influence on

consumer patronage of beverages. It was concluded that packaging plays an important role in the marketing of beverages and can be treated as one of the vital components of product that influence consumer patronage. Based on the findings of the study, it was recommended among others that attention should be given to the overall improvement of design of wrapper, printed information, packaging size and packaging innovation by beverage manufacturing firms in offering their products to the target market.

Theoretical Framework

The Theory of Marketing Mix(4ps) by Professor Jerome MCarthy in 1960.

This theory focuses on the key elements marketing: Product, Price, Promotion and Place. By carefully considering this key element of marketing, educational institutions can develop strategies to attract student. For example, they can create appealing course offerings (product) set competitive tuition fees (price), and implement targeted promotional campaigns (promotion), then ensure convenient locations or online accessibilities (place)

Methodology

This section focuses on methods and procedures used in collecting and analysing data. It includes research design, population of the study, sample size/sampling technique, instrument for data collection and methods of data analysis.

Research Design

The survey research design was adopted for the study. The primary data were obtained through the use of a structured questionnaire.

Population of the Study

The target population consists of students of selected public tertiary institutions in Akwa Ibom State, namely University of Uyo, Akwa Ibom State University and Akwa Ibom State Polytechnic representing each of the senatorial district of the State for fair representation. The population of the study consists of 30,000 students of the University of Uyo, 12,000 students of Akwa Ibom State University and 15,000 students of Akwa Ibom State Polytechnic. Totally 55,000 as the population. According to Nigeria Tertiary institutions database, 2021 and Nigeria Board for Technical Education report, 2021. (Internet Source).

Sample size/Sampling technique

The sample size was determined using the Taro Yamane formula since the students' population of the selected public tertiary institutions is known. From the computation, therefore, a representative sample size of 397 students was obtained for the research. A simple random sampling technique was adopted to reflect a fair representation of the institutions. Out of 397 questionnaires administered, 320 were correctly filled and returned for analysis.

Taro Yamane for determining known sample size:

$$n = \frac{N}{1 + N(e^2)} = \frac{55,000}{1 + 55,000(0.05)^2} = \frac{55,000}{138.5} = 397$$

Where:

N = Sample size

N = Population

E = error margin

Instrument for Data Collection

The research instrument was a structured questionnaire which contained 12 items and was constructed on a five point Likert scale items ranging from strongly agree 5 to strongly disagree

Methods of Data Analysis

The data obtained through questionnaire administration were analysed using tables, frequency, percentage, and simple linear regression. All hypotheses were tested at 95% or 0.05 level of significance. Statistical package for social sciences (SPSS version 21) was used for data analysis.

Conceptual Specification of Model

In line with the research hypotheses, conceptual model was developed to determine the relationship between independent variables and dependent variable. The model specifies that marketing strategies of government owned higher institutions a function of student patronage.

Empirical Specification of Model

To determine the relationship between independent variable (Marketing Strategies) – Product strategy, Price strategy and Promotion strategy and dependent variable (Student Patronage) of selected public tertiary institutions, a multiple regression model was developed.

The model is expressed mathematically as follows:

$$Y = f(X_1, X_2, X_3)$$

$$Y = a_0 + b_1X_1 + b_2X_2 + b_3X_3 + e$$

Where:

Y = Student Patronage

X₁ = Product

X₂ = Price

X₃ = Promotion

a = Constant

b₁, b₂, b₃ = Regression coefficient of each variable

e = error term

Analysis and Results

Table 1: Total number of questionnaire retrieved useable

Institutions	Copies allocated	Copies retrieved Useable	Percentage (%)
University of Uyo	217	170	78
Akwa Ibom State University	108	88	81
Akwa Ibom State Polytechnic	72	62	86
Total	397	320	81

Source: Field Survey, 2022.

A total number of 397 structured questionnaires were distributed among respondents in the three selected public tertiary institutions representing each of the senatorial districts of Akwa Ibom State, 320 were appropriately filled and returned. This implies that 81% of questions administered were retrieved means that the number of returned questionnaires is good enough to make valid conclusions.

Table 2: Frequency Table

Variables	SA(%)	A(%)	N(%)	D(%)	SD(%)
Product Strategy					
The programs offered in my school are of global standard.	51.2	30.4	4.4	8.0	6.0
The student/Lecturer relationship in my school is cordial.	26.2	34.4	4.5	27.5	7.4
With our academic programs we can complete anywhere in the world.	39.3	39.8	2.0	17.2	1.6
Price Strategy					
Our fees are affordable	39.3	39.8	2.0	17.2	1.6
We have cheap accommodation fees.	36.9	48.8	2.0	11.1	1.2
The percentage of scholarship to students in our school is good	29.9	49.6	1.6	17.2	1.6
Promotion strategy					
The publicity of our academic programs is good enough to increase our enrolment.	41.4	49.6	2.5	6.1	0.4
Most of our new intake comes in through word of mouth communication.	25.0	36.5	5.7	27.0	5.7
Every information about our school can be accessed online.	23.0	38.9	6.6	25.8	5.7
Student Patronage					
The academic programs in our school have really boasted student patronage.	23.4	30.3	4.5	29.5	12.3
Our student enrolment is increased as a result affordable fees	25.0	43.9	5.7	20.5	4.5
The accessibility of our school online has brought about more patronage.	46.7	45.1	0.4	7.4	0.3

Source: Field Survey, 2022.

Data collected from the copies of questionnaire on marketing strategies attributes and student patronage are shown in Table 2 the data collected revealed that 73.76% of respondents showed a positive attitude towards product strategy as an influence to student patronage. 3.63% of respondents were neutral on whether product strategy had any influence on the patronage of students. 22.56% expressed negative responses towards the product strategy at the selected public tertiary institutions.

Respondents representing 81.43% had a positive view on pricing strategy as an influence to student patronage in government owned higher institutions. 1.18% were neutral of this marketing strategy factor, and 16.65% were of a negative view on pricing strategy of public higher education on student patronage.

On promotion strategy, 72.9% expressed a positive view that publicity of school programs, referral through word of mouth communication and the accessibility of information about their school online help increased patronage. 9.13% were uncertain and 17.86% had a negative view that promotion strategy had any influence on student patronage.

On considering general questions about student patronage, 71.46% were positive on their programs meeting global standard, affordable tuition and accessibility of their academic programs anywhere in the world. 23.56% of respondents expressed a negative view, while others were not certain.

Test of Hypotheses

Hypothesis one:

Ho: There is no significant relationship between Product Strategy and Student patronage.

Table 3: Model summary of the Product Strategy on Student patronage

Model	R	R ²	Adjusted square	R	Std error of the Estimate
1	.893 ^a	.763	.760		2.386

a. Predictors: (Constant), Product Strategy

Source: SPSS computed results

Table 4: ANOVAa of the effect of Product Strategy on student patronage of government owned higher institutions.

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	1319.966	1	1319.966	742.388	.000 ^b
Residual	408.913	319	1.778		
Total	1728.879	320			

a. Dependent Variable: Customer patronage

b. Predictors: (Constant), Product Strategy.

Source: SPSS computed results

Table 5: Coefficientsa of the effect of product strategy on student patronage

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig
	B	Std error	Beta	
1 (Constant)	5.273	.606		.000
Product Strategy	.523	.061	8.703	.000

a. Dependent Variable: Student patronage

Source: SPSS computed results

Interpretation of Result

The results on Tables 3, 4 and 5 show the linear regression analysis of the effect of product strategy on student patronage of public tertiary institutions in Akwa Ibom State. Table 3 which is the model summary reveals that the correlation (relationship) between both variables (product strategy and student patronage) is 89.3 percent (seen in R column), which indicates a very strong degree of correlation. The coefficient of determination (R^2) of 0.763 indicates that up to 76.3 percent of the variants in the dependent variable (student patronage) is explained or predicted by the independent variable (product strategy). This implies that a unit change in product strategy will affect student patronage of public tertiary institutions product services by up to 76.3 percent when other factors are held constant. The F-test (742.388, $P < 0.05$) statistic in Table 4 indicates that the overall prediction of the dependent variable by the independent variable is statistically significant; therefore, the regression model provides substantive evidence to conclude that product strategy has a significant effect on students' patronage of government owned higher institutions product services. Also, the coefficient table (Table 5) shows that the independent variable (product strategy) significantly contributes to the model as the P value (0.000) is less than 0.05 error margin, and the t-test result ($t = 8.590$) explains that the relationship between both variables is a direct and positive one. Hence, the null hypothesis is rejected, and the alternative hypothesis is accepted, leading to the conclusion that product strategy has a significant effect on students' patronage of public higher education.

Hypothesis Two

H₀: Price strategy has no significant effect on student patronage

Table 6: Model summary of the effect of Price Strategy on customer patronage of public higher institutions.

Model	R	R ²	Adjusted R	Std error of the Estimate
1	.893	.724	.720	2700

Predictors: (Constant), Price Strategy.

Source: SPSS computed results

Table 7: ANOVAa of the effect of Price Strategy on customer patronage

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	1251.802	1	1251.802	603.569	.008 ^b
Residual	477.077	319	2.074		
Total	1728.879	320			

a. Dependent Variable: Student patronage

b. Predictors: (Constant), Price Strategy

Source: SPSS computed results

Table 8: Coefficients^a of the effect of Price Strategy on student patronage of public higher institutions

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig
	B	Std error	Beta	
1. (Constant)	8.241	.793	.873	.000
Product Strategy	.185	.070		.008

a. Dependent Variable: Students' patronage

Source: SPSS computed results

Interpretation of Result

The results on Tables 6, 7 and 8 show the linear regression analysis of the effect of price strategy on student patronage of public higher schools. Table 6 which is the model summary reveals that the correlation (relationship) between both variables (price strategy and student patronage) is 87.3 percent (see the R column), which indicates a very strong degree of correlation. The coefficient of determination (R²) of 0.724 indicates that up to 72.4 percent of the variants in the dependent variable (students' patronage) is explained or predicted by the independent variable (price strategy). This implies that a unit change in price strategy will affect student patronage of government tertiary institutions by up to 72.4 percent when other factors are held constant. The F-test (603.569, $P < 0.05$) statistic in Table 7 indicates that the overall prediction of the dependent variable by the independent variable is statistically significant; therefore, the regression model provides substantive evidence to conclude that price strategy has a significant effect on student patronage of public tertiary institutions service products. Also, the coefficient table (Table 8) shows that the independent variable (price strategy) significantly contributes to the model as the P value (0.008) is less than 0.05 error margin, and the t-test result ($t = 2.665$) explains that the relationship between both variables is a direct and positive one. Hence, the null hypothesis is rejected, and the alternative hypothesis is accepted, leading to the conclusion that price strategy has a significant effect on student patronage of services offered by universities, polytechnics and colleges of Education owned by government.

Hypothesis 3

HO3: Promotion strategy has no significant effect on student patronage of public higher institutions

Table 9: Model summary of the effect of promotion strategy on customer patronage

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	.535 ^a	.412	.408	2.740

a. Predictors: (Constant), Promotion Strategy.

b. Source: SPSS computed results

Table 10: ANOVAa of the effect of promotion strategy on customer patronage of public tertiary institutions.

Model	Sum of Square	Df	Mean Square	F	Sig
1 Regression	712.068	1	712.068	161.065	.000 ^b
Residual	1016.811	319	4.421		
Total	1728.879	320			

a. Dependent Variable: Student patronage

b. Predictors: (Constant), Promotion strategy

Source: SPSS computed results

Table 11: Coefficients^a of the effect of promotion strategy on student patronage of public higher education

Model	Unstandardized Coefficients	Standardized Coefficients		T	Sig
	B	Std Error	Beta		
1 (Constant)	10.789	.945		11.413	.000
Promotion strategy	.042	.080	.535	4.525	.000

a. Dependent Variable: Student patronage

Source: SPSS computed results

Interpretation of Result

The results on Tables 9, 10 and 11 show the linear regression analysis of the effect of promotion strategy on students' patronage of public tertiary education products. Table 9 which is the model summary reveals that the correlation (relationship) between both variables (promotion strategy and student patronage) is 53.5 percent (see in the R column), which indicates a strong degree of correlation. The coefficient of determination (R^2) of 0.412 indicates that up to 41.2 percent of the variants in the dependent variable (Student patronage) is explained or predicted by the independent variable (promotion strategy). This implies that a unit change in promotion strategy will affect student patronage of public tertiary education services by up to 41.2 percent when other factors are held constant.

The F-test (161.065, $P < 0.05$) statistic in Table 10 indicates that the overall prediction of the dependent variable by the independent variable is statistically significant; therefore, the regression model provides substantive evidence to conclude that promotion strategy has a significant effect on student patronage of government owned tertiary institutions. Also, the coefficient table (Table 11) shows that the independent variable (promotion strategy) significantly contributes to the model as the P value (0.000) is less than 0.05 error margin, and the t-test result ($t = 4.525$) explains that the relationship between both variables is a direct and positive one. Hence, the null hypothesis is rejected, and the alternative hypothesis is accepted, leading to the conclusion that promotion strategy has a significant effect on student patronage of public education services in tertiary levels.

Discussion of Findings

The study reveals that there is a significant relationship between the product strategy and student patronage in public tertiary institutions of Akwa Ibom State. This finding is supported by the position of Adewale et al, (2013) which states that product influences and total quality management could serve as marketing strategy which impacts on business patronage. In Akwa Ibom State, public tertiary institutions agreed that product strategy factors responsible for the

increase in student enrolment includes quality of their service product, good cordial relationship among students and Lecturers and their competitive nature of the programmes globally.

The findings of this study also reveal that there is a significant relationship between price strategy and business patronage in public higher institutions in Akwa Ibom State. According to Martins (2015) low tuition, scholarship and other pricing strategy helps to ensure long-lasting customers and repeat sales (patronage) among students. Showing customers that you value and appreciate them encourages them to refer other potential customers which may be their colleagues, friends, relatives, and others to your business. As further supported by Rouse (2015), the goal of price strategy is to ensure that student can have quality products at affordable rate and connects with the brand that can lead to on-going relationship.

The findings of this study also reveal that promotion strategies have a significant impact on student patronage in government owned higher education in Akwa Ibom State. In a study conducted by Adewale, Adesola, & Oyewale, (2013) this was confirmed as their study revealed that the relationship between promotion consideration and business performance is significant. This may be due to online promotion of the school information and referral through word of mouth marketing by students and other stakeholders of public higher education.

Summary, Conclusion and Recommendation

Summary of the Findings

From the analysis of data used in the survey research and based on the objectives of our study, the following findings were made:

1. Product strategy has a significant effect on student patronage of public tertiary institutions in Akwa Ibom State.
2. There is a significant effect of pricing strategy on student patronage of public tertiary institutions in Akwa Ibom State.
3. Promotion strategy exerts a significant effect on student patronage of public tertiary institutions in Akwa Ibom State.

Conclusion

Public tertiary institutions are faced with a lot of challenges in their service delivery daily in Nigeria and Akwa Ibom State in particular, as a result of the stiff competition from the private tertiary education sector. These challenges hamper their enrolment and patronage. This study examined the marketing strategies adopted by selected government owned higher institutions and their effects on student patronage. Product strategy, pricing strategy, and promotion strategy were found to have significant effect on student patronage of public higher. The study concluded that marketing strategies are effective tools that can influence student patronage if managed well, and can also increase student enrolment base of government owned third tier of education.

Recommendations

Based on the foregoing, the study recommended as follows:

1. Public tertiary institutions should always ensure that their product service (academic programmes) is of very high quality in order to meet up with the global standard of education. This will also guarantee student patronage and ensure great value for their money.
2. Pocket-friendly prices are recommended for their product services such as tuition, acceptance fees, transcripts and other product services.
3. It is also recommended that public tertiary institutions should use the less costly promotional tools word-of-mouth communication, social media platforms such as facebook, youtube, whatsapp, Instagram, in promoting their products. This will enable them reach a wider range of people at lower cost.

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RELEVANCE OF MENTORS AND ROLE MODELS IN SUSTAINABLE CAREER GROWTH AND DEVELOPMENT OF ACADEMICS IN AKWA IBOM STATE POLYTECHNIC, IKOT OSURUA, IKOT EKPENE

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ABSTRACT

The study was conducted to ascertain the relevance of mentors and role models in sustainable career growth and development of academics in Akwa Ibom State Polytechnic, Ikot Osurua. The specific objectives of the study were to: find out the extent academics in Akwa Ibom State Polytechnic, Ikot Osurua have mentors and role models to help their career growth and development; ascertain the perception of academics in Akwa Ibom State Polytechnic, Ikot Osurua, towards the contribution of mentors and role models to their sustainable career growth and development, and to determine the contribution of communication in the mentoring and role modeling process of academics in Akwa Ibom State Polytechnic, Ikot Osurua. To achieve these objectives, the survey method was adopted for the study. The population of the study comprised 486 academic staff of the institution. And using Philip Meyer's sampling procedure, 248 respondents were selected for the study. The study was anchored on three theoretical frameworks –the Revised MELDS Model of Development Communication, Social Learning Theory, and the Corruption Likelihood Model. Findings of the study revealed that all the participants in the study either have a mentor and/or role model, or see themselves as one. Further finding showed that majority of the respondents, especially the lower ranking ones, perceived that mentors and role models can help or contribute to their career growth and development to a great extent. Additional finding revealed that majority of the respondents believed that interpersonal communication can help them, to a great extent, to learn from their mentors and role models. The work, therefore, recommended that to achieve speedy career growth and development, it is pertinent for every academic in the institution, especially the newly employed, to adopt a mentor and/or role model, whom they can submit to and learn from.

KEYWORDS: Mentors, role models, mentees, protégés, perception, career growth and development.

Introduction

A mentor is generally seen as a person who offers expert knowledge for a novice and helps to grow and bring out inherent or inborn or undeveloped talents to become more explicit. Mentoring is basically described in two ways i) it is seen as a professional development relationship in which a more experienced person assists a less experienced one in developing and growing in a chosen career; and ii) it is viewed as a guiding relationship between an adult and a young person with the main focus of helping the younger person to realise his or her potential and perhaps overcome some barriers or challenges. In both instances, it is the mentor who provides advice and support, and may also serve as a role model to the mentee (Ganesh, Bozas, Subban and Munapo, 2015).

Whereas these examples generally imply long-term relationships, mentoring can be used as an instructional strategy on a smaller scale. In a phenomenological viewpoint of the mentoring literature, there are eight attributes of mentoring that commonly appear. These include: an active relationship between the mentor and the mentee; a helping process where the mentor intentionally helps the mentee or protégé to grow and develop; a teaching-learning process where the mentee willingly surrenders himself/herself to learn from the mentor; reflective practice where both parties, from time to time, sit down to reflect on the progress so far made; a career and personal development process where the mentor helps the mentee to grow and develop on the career; a formalised process where both parties formally set the boundary for the relationship; and a role constructed by a mentor for mentee to model after (Ganesh et al., 2015).

Mentors give us the magic that allows us to enter the darkness; a talisman to protect us from evil spells, a gem of wise advice, a map, and sometimes simply courage. Mentors are people with advanced experiences and knowledge who are willing and, in most cases, committed to providing upward mobility and support to their protégés' career development. They are professional guides who nurture and promote the learning and success of their protégés.

The differing definitions of mentors reflect the various characteristics that seem to define informal and formal mentoring relationships. Informal mentoring relationships are psychosocial mentoring relationships, enhancing protégés' self-esteem and building confidence through interpersonal dynamics, emotional bonds, mutual discovery of common interests, and relationship building. Formal mentoring relationships, in contrast, are generally organized and sponsored by work-places or professional organisations; a formal process matches mentors and protégés for the purpose of building careers (Ganesh et al., 2015).

Objectives of the Study

Mentoring is very important to organisations that have the success of its future in mind. Such organisations intentionally organize mentorship programmes for their employees since they know the benefits they would derive in the long term. UN Women (2020 p.1) notes that serious minded organisations all over the world engage in mentoring programmes due to the fact that:

mentoring provides employees with an informal opportunity for education and learning; increase staff morale and job satisfaction, thereby reducing turnover; enables organisations to transfer leadership and management skills to newer staff; saves time when solving a problem, and when recruiting new employees; and keeps the employees focused on project-oriented tasks.

Further research revealed that organisations which practice intentional mentoring of their employees report a revenue increase averaging about 47,000 US Dollars, (about 106 per cent increase). Organisation with no intentional mentoring programmes increased their revenue by an average of 6,600 US Dollars, (about 14 per cent). Another study found that about 92 per cent of small business owners agreed that mentors had a direct impact on the growth and survival of their businesses. In the United States of America, organisations whose founders were mentored by top-performing entrepreneurs were three times more likely to become top performers themselves. And around 75 per cent of top managers in the USA reported that mentoring played a huge role in their careers (UN Women, 2020).

On the part of the employees who were intentionally mentored, they enumerated the benefits they derived from such mentoring experiences to include: higher financial compensation;

greater number of promotions; having more confidence in career advancement opportunities; more job satisfaction; greater commitment to a career within the organisation.

Equally, it should be noted that by improving employee satisfaction and engagement, mentoring can also improve an organisation's performance. According to Ghosh and Reio (2013) about 95 per cent of employees with mentors noted that their level of productivity has increased. On the other hand, employees without mentoring support were 35 per cent more likely to leave their jobs than employees who had participated in mentoring programmes, and 77 per cent of organisations surveyed reported that mentoring programmes decreased brain drain from their employees.

Unfortunately, it is observed by the researchers of this study that in spite of the level of importance attached to mentoring in most develop countries, many organisations in Nigeria do not pay much attention to the idea of intentionally exposing their employees to be mentored. The management of the Akwa Ibom State Polytechnic deserves some commendations in this regard. This commendation is born out of the belief that the idea of attaching newly employed staff of the institution to older and more experienced ones to co-teach a course is a way of matching them for mentoring.

However, it is not yet certain whether the new employees make adequate use of such mentoring opportunities, on one hand, and whether the old and more experienced staff see themselves as mentors, who should conduct themselves as role models, for the new employees attached to them to emulate, on the other. This study is conducted to fill this noticeable gap, with the aim of providing answer to this pertinent question: What is the relevance of mentors and role models in the sustainable career growth and development of academics in Akwa Ibom State Polytechnic, Ikot Osurua, Ikot Ekpene?

Objectives of the Study

The general objective of this study is to ascertain the relevance of mentors and role models in sustainable career growth and development of academics in Akwa Ibom State Polytechnic, Ikot Osurua. However, the specific objectives are as follows:

- a. find out the extent academics in Akwa Ibom State Polytechnic, Ikot Osurua, have mentors and role models to help their sustainable career growth and development;
- b. ascertain the perception of academics in Akwa Ibom State Polytechnic, Ikot Osurua, towards the contribution of mentors and role models to their sustainable career growth and development;
- c. ascertain the relevance of communication in the mentoring and role modeling process of academics in Akwa Ibom State Polytechnic, Ikot Osurua.

Review of Literature

Mentorship

Mentorship entails the voluntary, developmental relationship which exists between a person of greater experience and a person of lesser experience, characterised by mutual trust and respect. Such relationships nurture principles of professionalism, moral development, and moral judgment. Professions such as dentistry, law, and education administration utilise mentorship

as a means to foster, not only professionalism, but also moral judgment and character (Thompson, 2019).

Mentorship is also a pillar of leadership and career development in an organisation. Mentoring relationships help junior employees in an organisation to develop strengths, improve weaknesses, and become a better person. Mentorship is necessary in any organisation due to the fact that it strengthens the values and beliefs of the organisation and grounds mentees ethically and morally. Also, mentoring is essential for the growth and development of future leaders in any organisation. Thevenin (2014, p14) states that:

A mentor is an experienced employee who serves as a role model, provides support, direction and feedback regarding career plans and interpersonal development. He is also seen as someone who is in a position of power, who looks out for you, gives you advice and/or brings your accomplishments to the attention of people who have power in the company. A mentor is also a person who has influenced your career decisions by actively giving advice, encouraging (or discouraging), supporting, providing information, or helping you make decisions.

In the psycho-social sphere, the mentor offers role modeling, counseling, confirmation, and friendship, which can help the younger generation to develop a sense of professional identity and competence.

Mentorship has to do with a personal developmental relationship in which a more exposed or experienced individual, who helps a less experienced person or a beginner to advance and acquire relevant knowledge that helps him to become better than he/she was. The recipient can be a male (protégé), or a female (protégée). Mentorship is part of many societal culture and way of life (Uma, Onwusogbolu and Obidike, 2015).

Mentoring relationships contribute to the psycho-social development of individuals. For the protégés, involvement in a mentoring relationship has been associated with career enhancement, promotions, higher job satisfaction, and larger incomes. Mentors also seem to gain from these relationships. Psycho-social functions of mentoring include those aspects of a relationship which enhance an individual's sense of competence, identity and effectiveness; while the career functions are those aspects of a relationship which enhance the individual's advancement in an organization (Mertz, 2004, p549). Based on this description, career functions of mentoring is divided two categories of professional development, which pertains to activities designed to help individuals grow and develop professionally; and career advancement which has to do with activities designed to help individuals advance professionally.

Mentoring is a factor that promotes guidance on career development, as well as role modeling where both contribute significantly to employee's development. Mentoring relationships can have significant effects on the career development and advancement of employees in an organisation. Both the mentor and the mentee can benefit from such a relationship. Whatever the term, a mentor usually represents the superior characteristics, accomplishments, skills, and virtues to which the protégé aspires as a result of the mentoring relationship.

Dada (2020) notes that the generic meaning of a mentor is a 'father' figure that guides and instructs a younger person. Traditionally, certain types of institutions such as the family churches, neighborhoods, schools have provided opportunities for the younger generation to connect with natural mentors.

Role Modeling

The traditional idea of a role model is that of a person in an influential role position, such as a parent, teacher, supervisor or mentor, who provides an example for individuals to imitate. A role model is a person you know personally, or know of, who has influenced your career decisions by being admirable in one or more ways. He or she is someone to whom individuals look up, or whom they turn to for social and emotional support and affirmation or from whom they seek to learn something related to their ‘personableness.’

Role models are people who, either by doing something or by being admirable to you in one or more ways, have had an impact on the academic and career decisions you have made in your life. Role models may be people you know personally, or they may be people you simply know of. They may have a positive as well as a negative influence (James and Sam, 2023).

Thompson (2019) differentiates role models from mentors and other types of developmental relationships. According to him, role model relationships influence self-concept and provide learning, motivation and inspiration. Self-concept, as defined in Bandura’s (1986) social cognitive theory, is the evaluation of oneself formed through experiences and evaluations of performances from significant others. A person’s self-concept can be positive by judging oneself favorably; or negative by devaluing oneself, and these perceptions may vary across activities.

Hence, mentors, role models, and other supportive relationships generally fall into categories such as: family members (father, mother, uncle); significant other (friend, peers, partner); educational (teacher, instructor, advisor); career (co-worker, supervisor), and others (acquaintances, public figures, media personalities) (Thompson, 2019).

According to Hansmann (2012) other words that are sometimes synonymously used in place of mentors are: coach; teacher; guide; pathfinder; leader; pilot; advisor; supporter; counselor; director; sponsor; conductor; caretaker; and friend. All these words reflect notions that seem to fit various definitions and ideas of a mentor. Just uttering the word “mentor” may bring to mind images of supportive people in the past or present that have assisted people and continue to sustain them in their professional and personal lives.

In many instances, the words protégé and mentee are used interchangeably. But for the purposes of clarification, it is important to differentiate between these terms. The term protégé has a clear history in mentoring research, and primarily applies to individuals engaged in senior-junior, or mentor-protégé relationships within an organization, where the protégé is seen as being “under the wing” of a mentor, whose duty it is to protect and nurture over time. Whereas, the term mentee is used here to refer to the broad range of individuals who may be in the role of “learner” in mentoring relationships, regardless of the age or position of the mentor and mentee.

Mentoring is seen as a process of serving as a mentor, or someone who facilitates and assists another person’s development. The process of mentoring includes modeling, because the mentor must be able to model the messages or the desirable behaviour. Ganser (2016), states that mentoring is a tool which had remained very significant in improving management skills and staff development. Therefore, mentoring is a dynamic relationship that leads to the creativity, professional growth, and mastery over problem-solving techniques.

Furthermore, a role model is a person who individuals in the society look up to, or to whom they turn for social and emotional support and affirmation or from whom they seek to learn something related to their person-ness. However, Thevenin (2014, p 15) states that:

The traditional idea of a role model is that of a person in an influential role position, such as a parent, teacher, supervisor or mentor, who provides an example for individuals to imitate. Role models are people who, either by doing something or by being admirable to you in one or more ways, have had an impact on your life. They may be people you know personally, or they may be people you simply know of. They may have had a positive influence on you, or they may have had a negative influence.

Thevenin (2014) further notes that the term role model has also been inconsistently used and vaguely defined in literature. For instance, Gibson (2003) states that role model relationships influence self-concept and provide learning, motivation and inspiration. Self-concept here refers to an evaluation of oneself, formed through experiences and evaluations of performances from significant others; a person's self-conceptions can be positive (a person judges oneself favorably) or negative (a person devalues oneself) and these perceptions may vary across activities.

Importance of mentorship and role modeling in career growth and development

The act of mentorship is often done consciously or unconsciously. However, the outcome is always helpful to the mentee or protégé. In order to delve into the importance of mentorship, it is pertinent to have a good understanding of the word mentor. Microsoft Encarta Dictionary (2009) defines a mentor as an experienced adviser and supporter: somebody, usually older and more experienced, who advises and guides a younger, less experienced person. A mentor can also be seen as a trainer: a senior or experienced person in a company or an organisation who gives guidance and training to a junior colleague. A mentor as a person who oversees the career and development of another person, usually a junior, through teaching, counseling, providing psychological support, protecting and at times, promoting or sponsoring.

Indeed, mentorship is like a master/student relationship. A master has acquired the necessary knowledge, experience and skill. Out of love, he spends time and energy to teach, encourage, motivate, direct and lead others to come up and become mature to forge ahead. Some products of mentorship often adopt the same procedure by being there for others. This is why mentorship is a continuous process. Suffice it to say that without mentorship some people would not have opted to do certain things they have done which helped to repackage them to become what they are today and also be the source of their life sustenance at present.

Some benefits of mentoring are efficiency and professional growth. This is because mentors sharpen their coaching, leadership and communication skills as they advise and motivate their mentees, which they can in turn apply to their day-to-day work. It often reenergizes the mentors by empowering them to come up with new business ideas. Besides, mentoring does increase knowledge and insights about other workers. Mentoring makes it possible for mentors to work with employees of different ages, backgrounds, values, styles of working and professional expertise. The established contact between a mentor and the mentee breaks down barriers and gives mentees information about other areas of business venture.

Fresh perspective on performance is acquired by both the mentor and mentee. This is achieved when mentees' question compel the mentor to re-examine his advice, take a critical look at how he has performed as a leader, and possibly consider areas in his operation to adjust for improvement. The success of mentees based on mentor's advice does boost the mentor's

morale. Mentees gain more self-confidence from mentoring and get advancement in their aspiration.

James and Sam (2023) supporting this assertion note that a mentor is like a traveler who has already traveled the road of success in life before arriving at where he is. This means that he had already made the mistakes and that, through experience, has learnt how to navigate through what would have constituted a barrier. To this end, a young lecturer who is under the mentorship of a senior can avert some of the pitfalls that the mentor had gone through in his earlier stage of the career.

Undoubtedly, both the mentor and mentee or protégé do derive gains from mentoring. It is like learning in the course of teaching and yet the learner acquiring knowledge. In actual fact, each party is improving in ability and capability in this respect which helps the society in general in repositioning production and service delivery, thereby contributing in a way to the development of the society.

Mentoring Models in Organisations

There are basically six models of mentoring as identified by UN Women (2020). These include one-to-one mentoring, peer mentoring, mentoring circles, inter-agency mentoring, reverse mentoring and reciprocal mentoring.

- **Traditional or one-to-one mentoring:** This is a traditional hierarchical mentoring process in which one person is more experienced and is mentoring the one with less experience. This type of mentoring can also be understood as more of a “teacher” or “guru” style; the mentor is taken more as an expert who has the answers due to experience or knowledge.
- **Peer mentoring:** Individuals with a similar status or position in a company can mentor each other. Here, the focus falls more on mentoring skills, relationships and organizational development than in the traditional approach. This type of mentoring still requires one mentor and one mentee, even though they may be peers. Mentoring sessions can be conducted in pairs or small groups.
- **Circle mentoring:** In an effort to create safe mentoring opportunities for all employees, many companies are turning to mentoring circles. This is a form of group mentoring that may encourage participation from all levels, demographics and genders within an organization. Sometimes, the mentoring circles target a specific group of employees, such as women. The mentoring circle proposes topics of interest for group discussion and growth. By initiating mentoring circles, organizations can create intentional networks to help employees grow, share experiences and develop in a number of ways.
- **Inter-agency mentoring:** This is when companies establish mentoring programmes with like-minded companies or partners. Mentors or mentees can be selected from different agencies. The strength of this model is that mentees are exposed to mentors they do not know and who may have different career paths and broader networks.
- **Reverse mentoring:** In this model, cross-generational collaboration is supported through the mentoring process, in which junior employees assume

the responsibility of mentoring senior mentees. For example, junior staff may provide mentoring support to senior staff on technology-related topics.

- **Reciprocal mentoring:** As the name suggests, reciprocal mentoring involves guidance and transfer of knowledge bilaterally within organizations. This productive way of mentoring allows participants to play the role of both mentor and mentee at the same time. The strength of this approach is that both parties have the opportunity to experience the benefits of the mentoring process. Some companies are using this approach when working with staff from different generations, while some larger companies use this with staff across different departments.

Theoretical Framework

This study is anchored on two theoretical principles of Cyclical MELDS Model of Development Communication, and Corruption Likelihood Model.

Cyclical MELDS Model of Development Communication

The M in the model stands for Mobilisation; E = Education; L = Liberation; D = Development; and S = Self-Actualisation. The revised model is presented graphically thus:

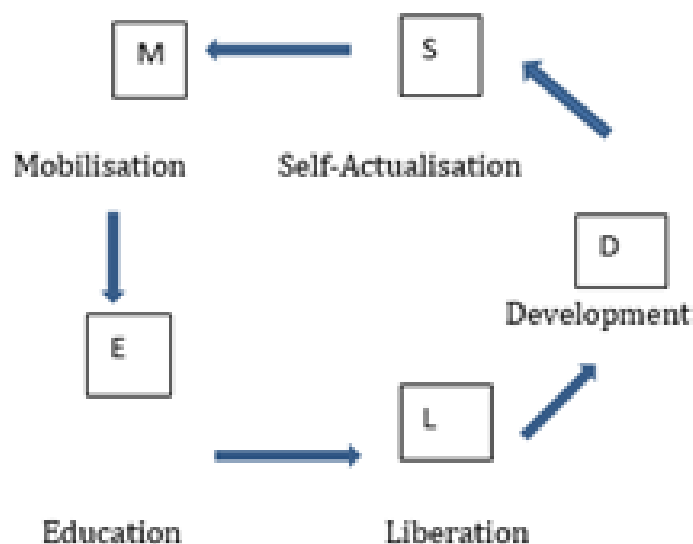


Figure 1: Cyclical MELDS Model of Development Communication by Sam (2023)
adapted from Wilson (2005)

The MELDS Model of Development Communication as propounded by Wilson (2005) is linear in nature, and does not make provision for an individual to act as an agent of change in the society. On the other hand, the Cyclical MELDS Model of Development Communication by Sam (2023) postulates that apart from the mass media, it is possible for an individual, who sees himself as mentor or role model, to be an agent of change. Another postulation of the redesigned model is that once a cycle of change occurs, it could be repeated in the sense that a person whose attitude towards the change object has been positively influenced could himself become an agent of change, and the cycle continues. For instance, an individual who has been *mobilised*, and *educated*, and who is *liberated*

to attain a certain level of *development*, and who has achieved *self-actualisation*, can set the whole process in motion all over again. This could be seen in a situation where someone who has been mentored, grows to the point where he becomes a mentor to someone else in the future, and the cycle continues. The postulations of the model are expatiated in the following segment of this study as follows:

- (i) **Mobilisation:** This is the state of readiness which the individual or group is placed as a result of the message that has been available in the open society. This active state of psychological and social motivation is also a product of social rewards, which the participants receive from the mobilisers. The participants in a communication mobilisation process can be motivated for good or evil depending on the social structure and the message content. The postulation of the Cyclical MELDS Model is that the process of talking to someone, or being talked to is mobilisation. Additionally, the real process of mobilisation may not have to be verbal, but learnt and adopted through observation, mentorship, and role modeling. In this context, a mentor can mobilise his mentee by showing him/her what to do. This can only be effective when the mobiliser (mentor) is seen by the person being mobilised (mentee) as a worthy role model who does not tell the mentee “do as I say, not as I do” but himself practices what he preaches.
- (ii) **Education:** Some of the functions of communication include provision of education, enlightenment, and ethicisation to the society. Education as a communication objective, once provided for, would ginger society to higher levels of development, and through it people acquire the knowledge for better ways of doing things. In a mentoring relationship, the mentor educates his protégé or mentee by inculcating in them the values and social norms of the society. When the protégé is thus educated, he is enlightened on the ethics of the chosen profession. Such enlightenment would help to eliminate illiteracy, mental serf dom and ignorance. The ripple effects of such education/enlightenment would then lead to the change that the society desires, and brings about sustainable career growth and development.
- (iii) **Liberation:** In the context of mentoring, liberation comes when a mentee learns the rudiments of the chosen profession from the mentor, and uses the knowledge so acquired to better himself on the job. Such betterment would attract higher financial compensation; greater number of promotions; having more confidence in career advancement opportunities; more job satisfaction; greater commitment to a career within the organisation. These outcomes of education, in themselves, liberate the mentee from financial stress, stagnation on the job, and low self-esteem.
- (iv) **Development:** Communication for development can only succeed if democratic principles are upheld in society. Communication that would bring meaningful change should provide information, which can lead to positive change in our homes, villages, towns, cities, nations and the African continent at large. Such positive change would then lead to development. The position of the Cyclical MELDS Model of Development Communication is that the process of disseminating change-oriented information must be participatory in nature. This means that the mentor should give a listening ear to the mentee and give

them the opportunity to express themselves freely in the course of the mentoring process as much as possible. It is through such democratic information practice that true development can be achieved. Development in this context could mean advancement on the job, regular promotions, and avoidance of mistakes which could lead to queries, stagnation, and sack.

- (v) **Self-Actualisation:** According to psychology, self-actualisation is at the highest level of human needs attainment. But the point of its attainment varies from one individual to another and from one society to another. Self-actualisation entails having a healthy confidence in one's own abilities; which include possession of independent, self-supporting, self-satisfying and self-propelling abilities. When mentoring is properly executed, the mentee will be able to benefit through a reduction of uncertainties around him. This situation will, in turn, lead to the attainment of the much-desired goals or a considerable part of it. The desired goals of mentoring in a job environment vary from getting promoted on the job, to the mentee eventually becoming a mentor to others in the future. At this point it can be said that the mentoring process which began in mobilising in order to educate and liberate, has led to development, which has brought about self-actualisation. And the cycle can be put in motion all over again.

The position of the revised model is that as far as majority of Nigerians, and by extension Africans, are not individually self-actualised, the country and continent would still be seen as not having developed yet. It therefore behooves moral-minded mentors to ensure that they perform their duty of mentoring and role modeling function, whether through verbal means (as in the use of words) or non-verbal means through upright living (modeling behaviours) till true development and self-actualisation is achieved, by individual mentees, the organisation, and for the country as a whole.

i. Social Learning Theory

The Social Learning Theory was propounded by Albert Bandura in 1977. The theory is predicated on the notion that learning occurs through social observation and subsequent imitation of the modeled behaviour. According to this theory, human beings learn from observing the actions and resulting consequences of others. By doing so, individual can learn to imitate the observed behaviour and, thus, reap the rewards. On the other hand, such individuals can learn not to imitate a particular action, and thereby, avoid disagreeable consequences. Social Learning Theory involves reciprocal interaction between cognitive, behavioural, and environmental influences.

Lyons and Berge (2012) state that through observing others, human beings have the capacity to develop ideas about how new behaviours are performed. This information is then coded, stored in memory, and serves as a guide for actions, either immediately after the observation, or for use on later occasions. The four major postulates of observational learning or modeling include the following:

1. **Attention:** In order for learning to take place during observation, individuals must pay close attention to the modeled behaviour.
2. **Retention:** If individuals are to learn from observed behavior, they must, in turn, remember the modeled activities. Retention and recall can be aided

through the use of imagery and descriptive language, thus, increasing the likelihood that the modeled behavior can be reproduced by the observer.

3. **Reproduction:** At this stage, the observer translates the modeled behavior into their appropriate individual actions. Reproducing the observed behaviour involves converting the retained imagery and language, provided by the model, into a response that is in line with the modeled pattern. This process continues to improve as the observer keeps practicing the new behavior.
4. **Motivation:** Reproducing observed behavior requires some motivation to do so. Without some reason for imitating the modeled behavior, it is unlikely that the individual would make the required effort to perform the modeled action or behaviour.

ii. Corruption Likelihood Model by Sam (2023)

The Corruption Likelihood Model as proposed by Sam (2023) is presented graphically thus:

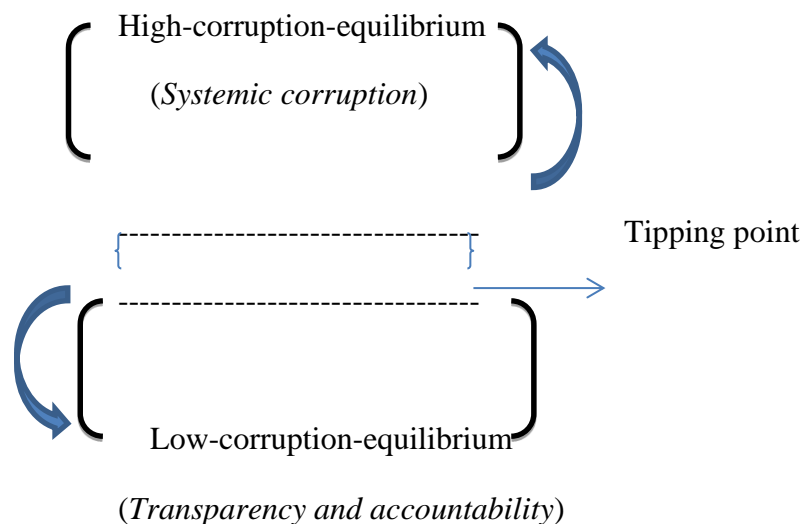


Figure 2: Corruption Likelihood Model by Sam (2023)

The postulations of the model are as follows:

- The more citizens in a country perceive corruption to be prevalent in the society, the more likely that corruption will be pervasive in such a society.
- The more costly the consequence of being caught or uncovered for a corrupt act, the less likely members of the society would want to engage in corruption.
- In a country where there is systemic corruption, there is a high tendency for corruption to thrive. Such a country is termed *High-corruption-equilibrium country*.
- In a country where there is high level of transparency and accountability, there is the likelihood that the level of corruption in such a country will be marginal. Such a country is termed *Low-corruption-equilibrium country*.

- At the region known as Tipping Point, something significant can happen which can take a country from a High-corruption equilibrium country to *Low-corruption equilibrium country and vice-versa*.

There are certain individuals in the society who would never be tempted to engage in a corrupt act, no matter the potential benefits of such act, while others have no scruples, whatsoever, to offer and receive bribe. The higher the moral costs, the higher the corruption figure must be to compensate for the burden of violating the person's moral principles. Moreover, the thought of having to face public shame and reputational damage if the corrupt act is uncovered and publicised may also serve as a deterrent to morality-conscious individuals. This, therefore, suggests that the personal net benefit of corruption depends on the probability of being caught, as well as on the size of costs and benefits. However, this cost-benefit decision depends on the individual's perception of the magnitude or prevalence of corruption already present in the society (Moene and Soreide, 2019).

For instance, the likelihood of offering a bribe depends, to a very large extent, on the briber's expectation that he will be dealing with a corrupt (or corruptible) and "trustworthy" counterpart. A briber will be careful not to propose a corrupt deal to someone who might report the incident to a law enforcement agency. In a society with pervasive corruption, the estimated risk of being detected by an honest, non-bribable citizen in the society is lower than in a society where corruption is not widespread. Moreover, the moral cost of corruption will be higher in a society where few are corrupt. Hence, the temptation to accept a bribe depends on the perceived extent of corruption, among other factors. These perceptions may matter more than the rigour of the laws or the law enforcement system.

When corruption is systemic in a country, such a country may find itself in high-corruption-equilibrium, which may be difficult to escape from the level of corruption in such country. On the other hand, some countries may experience low levels of corruption. This suggests that with little effort, such countries manage to keep the problem of corruption under control. A low level of corruption makes monitoring and supervision more effective, and honesty more valuable. This kind of country enjoys a low-corruption-equilibrium, which helps effectively deter some individuals from corrupt tendencies.

Meanwhile, somewhere in-between the low-corruption-equilibrium and the high-corruption-equilibrium, there must be a critical threshold, a tipping point. As long as corruption does not exceed this threshold, the country remains in the low-corruption state, and vice versa. But once the threshold is crossed from below, corruption approaches the level associated with a high-corruption-equilibrium level.

What might trigger a development toward more or less corruption – or shake a society to bring it out of an otherwise sustainable equilibrium situation, could be a major scandal in the country, or a huge rise in bribes paid by multinationals. Alternatively, a comprehensive anti-corruption programme initiated by a new government in an otherwise high-corruption equilibrium country might trigger a downward movement toward lower levels of corruption in such a country.

If these arguments about how corruption corrupts in a society are correct, it is, therefore, important to know what various stakeholders in the society perceive about the prevalence of corruption in such a society. Besides, the extent to which the society condemns corruption, and the sincerity in the anti-corruption fight of government, through the prosecution, and subsequent punishment of offenders also go a long way to help reduce the level of corruption in a country.

It is pertinent to add here that if an individual in the society has a mentor or a role model upon whom he looks up to, there is the likelihood that the mentee will be moral or corruption-free to the extent that he sees or observes his mentor to be. If the mentor is corruption-free, the mentee will not engage in corrupt practices, but on the other hand, if the mentor is neck deep in corruption, the mentee will definitely want to outdo the mentor. This, therefore, suggests that mentors can have either positive or negative influence on the mentee.

Furthermore, if the mentor is not corrupt, the mentee would likely not want to disappoint his mentor, knowing full well that the mentor would not be pleased with him for bringing shame upon the mentor. So, the idea of bearing the shame in the face of the mentor would serve as a deterrent from engaging in corrupt practices. This assertion, therefore, justifies the selection of this model as one of the theoretical anchors for this study.

It is pertinent to state here that for the Corruption Likelihood Model to really fit into the study at hand, wherever the words “country” and “society” are used could be comfortably replaced with the word “organisation.” This, therefore, means where these words appear in the model, would be replaced them with the word “organisation.” For instance, where we have “high-corruption-equilibrium country” it would now read “high-corruption-equilibrium organisation.” Also, where the word “citizen(s)” appears could be replaced with the word “employee(s).” To this end, the first postulate of the Model would then read “the more employees in an organisation perceive corruption to be prevalent in the organisation, the more likely that corruption will be pervasive in such an organisation.

Research Methodology

The quantitative research design was adopted for this study, with the survey method using the questionnaire as the instrument of data collection. The population of the study comprised all the 486 academic staff in the Akwa Ibom State Polytechnic, Ikot Osurua, Ikot Ekpene. Using Philip Meyer’s procedure for sample selection, 248 respondents were selected for the study. The questionnaire was placed on the ASUP WhatsApp platform in the institution. The first 248 persons who participated in the study were considered and the entry was then closed.

Data obtained through the questionnaire were presented in table and analysed using simple percentages, and used to answer that research questions set at the outset of the study. The findings are presented in the following segment of the study.

Data Presentation and Analysis

Out of the 248 respondents envisaged as the sample size of this study, 239 academic staff in the institution, representing 96% of the sample of the study, successfully participated in the study by filling the questionnaire online and sending same to the data bank where the data were collated. Consequently, this number was then used for the presentation and analysis of the findings of the study as follows:

Table 1: Rank of the Respondents in Akwa Ibo State Polytechnic, Ikot Osurua

Ranks	No. of Respondents	Percentages
Assistant Lecturer	44	18
Lecturer III	52	22
Lecturer II	47	20
Lecturer I	40	17
Senior Lecturer	29	12

Principal Lecturer	17	7
Chief Lecturer	10	4
Total	239	100

Information in Table 1 reveals that the majority of the respondents (77%) who participated in the study were between the ranks of Assistant Lecturer (18%), Lecturer III (22%), Lecturer II (20%), and Lecturer 1 (17%).

Table 2: Respondents having Mentors and Role Models They Emulate

Responses	No. of Respondents	Percentages
Yes	202	84
No	9	4
Not sure	12	5
Can't say	16	7
Total	239	100

The data presented in this table indicate that the majority of the respondents (87%) agreed that they have a mentor and/or role model they want to emulate at one time or another as a way to enhance their career growth and development. However, 9 of the respondents (4%) said they do not have anyone they look up to either as a mentor or a role model.

Table 3: Respondents' Perception on Mentors and Role Models Contributing to their Career Growth and Development

Perception	No. of Respondents	Percentages
To a very great extent	110	46
To a great extent	89	37
To a little extent	26	11
To a very little extent	14	6
Total	239	100

The data in this table reveal that the majority of the respondents (83%) either said they believed mentors and/or role models can contribute to their career growth and development to a very great extent (46%), or to a great extent (37%). However, 26 of the respondents (11%) said they believe mentors and/or role models contribute to their career growth and development to a little extent.

Table 4: Extent of Respondents' Perception that Interpersonal Communication helps in the Mentoring and Role Modeling Process

Responses	No. of Respondents	Percentages
To a very great extent	70	29
To a great extent	126	53
To a little extent	14	6
To a very little extent	29	12
Total	239	100

The information presented in Table 4 shows that the majority of the respondents (82%) either said that interpersonal communication can help them to learn from their mentors and/or role models to enhance their career growth and development to a very great extent (29%), or to a great extent (53%). Twenty-nine of them (12%) however said interpersonal communication can help in the mentoring process to a very little extent.

Table 5: Respondents' Perception that Observational Learning can help them to learn from Mentors and Role Models

Responses	No. of Respondents	Percentages
Yes	200	84
No	9	4
Not sure	13	5
Can't say	17	7
Total	239	100

The data in Table 5 reveal that 200 respondents (84%) said that apart from interpersonal communication, they can also learn from their mentors and/or role models by observing what they do and/or say. However, a small fraction of the respondents (4%) said "No" to this assertion.

Table 6: Extent Respondents Believed they can learn from their Mentors and Role Models through Observation

Responses	No. of Respondents	Percentages
To a very great extent	119	50
To a great extent	84	35
To a little extent	23	10
To a very little extent	13	5
Total	239	100

Information in this table indicates that the majority of the respondents (85%) said that they believed they can learn from their mentors and/or role models through observation either to a very great extent (50%), or to a great extent (35%). However, 23 of the respondents (10%) said they believed they can learn from their models and/or role models to a little extent.

Table 7: Respondents' Perception that they too can be Mentors and Role Models in Future

Responses	No. of Respondents	Percentages
Yes	222	93
No	-	-
Not sure	7	3
Can't say	10	4
Total	239	100

Information in Table 7 reveals that almost all the respondents (93%) said they saw themselves becoming a mentor and/or role model to someone else in the future. But 10 of them (4%) could not say if they would become a mentor and/or role model in the future.

Table 8: Extent Respondents Believed Seeing Themselves as Future Mentors and Role Models Affect their Behaviour and Speech

Responses	No. of Respondents	Percentages
To a very great extent	143	60
To a great extent	79	33
To a little extent	9	4
To a very little extent	8	3
Total	239	100

Data presented in Table 8 reveal that majority of the respondents (93%) said seeing themselves as future mentors and/or role models affects the way they behave and speak, either to a very great extent (60%), or to a great extent (33%). However, 9 of the respondents (4%) said they believed seeing themselves as future role mentors and/or role models affect their behaviour and speech to a little extent.

Table 9: Type of Influence Respondents think Mentors and Role Model have on their Career Growth and Development

Responses	No. of Respondents	Percentages
Positive	207	87
Negative	17	7
No influence	5	2
Can't say	10	4
Total	239	100

Information presented in this table reveals that majority of the respondents (87%) said mentors and/or role models have a positive influence on their career growth and development. However, 17 of the respondents (7%) said their mentors and/or role models have a negative influence on their career growth and development.

4.2 Discussion of Findings

4.2.1 Research Question One: To what extent do academics in Akwa Ibom State Polytechnic, Ikot Osurua, have mentors and role models to help their sustainable career growth and development?

Answer to this question is provided in Tables 1 and 2. The data provided in Table 1 revealed that the majority of the respondents (77%) who participated in the study were between the ranks of Assistant Lecturer (18%), Lecturer III (22%), Lecturer II (20%), and Lecturer I (17%). More finding in the table showed that 29 of the respondents (12%) were Senior Lecturers, 17 of them (7%) were Principal Lecturers, while 10 of them (4%) were Chief Lecturers.

Further finding provided in Table 2 revealed that the majority of the respondents (87%) agreed that they have a mentor and/or role model they want to follow and emulate, at one time or

another, as a way to enhance their career growth and development. However, 9 of the respondents (4%) said they do not have anyone they look up to either as a mentor or a role model in their career; 12 of them (5%) were not sure of such a person in their career path; while 16 of them (7%) could not say if there is anyone they could point to either as a mentor or as a role model.

These findings are supported by the findings of Ganesh et al. (2015, p18) which states that in a phenomenological viewpoint of the mentoring literature, eight attributes of commonly appear. These include:

An active relationship between the mentor and the mentee; a helping process where the mentor intentionally helps the mentee or protégé to grow and develop; a teaching-learning process where the mentee willingly surrenders himself/herself to learn from the mentor; reflective practice where both parties, from time to time, sit down to reflect on the progress so far made; a career and personal development process where the mentor helps the mentee to grow and develop on the career; a formalised process where both parties formally set the boundary for the relationship; and a role constructed by a mentor for mentee to model after.

The findings are also supported by UN Women (2020) that about 92 per cent of small business owners agreed that mentors had a direct impact on the growth and survival of their businesses. In the United States of America, organisations whose founders were mentored by top-performing entrepreneurs were three times more likely to become top performers themselves. And around 75 per cent of top managers in the USA reported that mentoring played a huge role in their careers (UN Women, 2020).

The findings are further buttressed by the mobilisation component of the Cyclical MELDS Model of Development Communication by Sam (2023), which postulates that apart from the mass media, it is possible for an individual, who sees himself as mentor or role model, to be an agent of change; and that once a cycle of change occurs, it could be repeated in the sense that a person whose attitude towards the change object has been positively influenced could himself become an agent of change, and the cycle continues.

Research Question Two: What is the perception of academics in Akwa Ibom State Polytechnic, Ikot Osurua, towards the contribution of mentors and role models to their sustainable career growth and development?

The answer to this question is prion Tables 3, 9, 7 and 8. Data provided in Table 3 pertaining to the perception of the respondents about the relevance of mentors and role models to their career growth and development revealed that the majority of them (83%) either said they believed mentors and/or role models can contribute to their career growth and development to a very great extent (46%), or to a great extent (37%). However, 26 of the respondents (11%) said they believe mentors and/or role models contribute to their career growth and development to a little extent; while 14 of them (6%) said they think that mentors and/or role models can contribute to their career growth and development to a very little extent.

These findings are supported by James and Sam (2023) who note that a mentor is like a traveler who has already traveled the road of success in life before arriving at where he is. This means that he had already made the mistakes and that, through experience, has learnt how to navigate through what would have constituted a barrier. To this end, a young lecturer who is under the mentorship of a senior can avert some of the pitfalls that the mentor had gone through in his earlier stage of the career.

More findings of the study provided in Table 9, which had to do with the type of influence that mentors and/or role models have on the career growth and development of academics in Akwa Ibom State Polytechnic, Ikot Osurua, revealed that majority of the respondents (87%) said mentors and/or role models have a positive influence on their career growth and development. However, 17 of the respondents (7%) said their mentors and/or role models have a negative influence on their career growth and development; 5 of them (2%) said there is no such influence; while 10 of them (4%) said they could not point to any such influence.

These findings are supported by the Corruption Likelihood Model by Sam (2023). The Model postulates that there is the likelihood that a mentee will be moral or corruption-free to the extent that he sees or observes his mentor to be. If the mentor is corruption-free, the mentee will not engage in corrupt practices, but on the other hand, if the mentor is neck deep in corruption, the mentee will definitely want to outdo the mentor. This, therefore, suggests that mentors can have either positive or negative influence on the mentee.

Further findings of the study provided in Table 7, which pertained to the perception of the respondents seeing themselves as future mentors and/or role models, revealed that almost all the respondents (93%) said they saw themselves becoming a mentor and/or role model to someone else in the future. But 10 of them (4%) could not say if they would become a mentor and/or role model in the future; while 7 of them (3%) were not sure of being mentors and/or role models in future.

These findings are supported by the Cyclical MELDS Model of Development Communication by Sam (2023), which states that:

An individual who has been *mobilised*, and *educated*, and who is *liberated* to attain a certain level of *development*, and who has achieved *self-actualisation*, can set the whole process in motion all over again. This could be seen in a situation where someone who has been mentored, grows to the point where he becomes a mentor to someone else in the future, and the cycle continues.

Additional findings of the study provided in Table 8, pertaining to the perception of the respondents that seeing themselves as future mentors and/or role models would affect their behaviour and speech, revealed that majority of them (93%) said seeing themselves as future mentors and/or role models affects the way they behave and speak to a very great extent (60%), or to a great extent (33%). However, 9 of the respondents (4%) said they believed seeing themselves as future role mentors and/or role models affect their behaviour and speech to a little extent; while 8 of them said it affect their behaviour and speech to a very little extent.

The fifth postulate of the Corruption Likelihood Model by Sam (2023), which state that at the region known as Tipping Point, something significant can happen which can take an organisation from a *high-corruption-equilibrium organisation* to *low-corruption-equilibrium organisation* and vice-versa. The Model further notes that what might trigger a development toward more or less corruption – or shake an organisation to bring it out of an otherwise sustainable equilibrium situation, could be a major scandal in the organisation, or a huge rise in bribes paid by multi-nationals. Alternatively, a comprehensive anti-corruption programme initiated by a new administration in an otherwise high-corruption-equilibrium organisation might trigger a downward movement toward lower levels of corruption in such an organisation.

Research Question Three: What is the relevance of communication in the mentoring and role modeling process of academics in Akwa Ibom State Polytechnic, Ikot Osurua?

The answer to this question is provided in Tables 4, 5 and 6. The information presented in Table 4 showed that majority of the respondents (82%) either said interpersonal communication can help them to learn from their mentors and/or role models to enhance their career growth and development to a very great extent (29%), or to a great extent (53%). Twenty-nine of them (12%) however said interpersonal communication can help in the mentoring process to a very little extent; while 14 of them said it would help them to learn to a little extent.

These findings are supported by UN Women (2020) which state that employees who were intentionally mentored through communication (both verbal and non-verbal), enumerated the benefits they derived from such mentoring experiences to include: higher financial compensation; greater number of promotions; having more confidence in career advancement opportunities; more job satisfaction; greater commitment to a career within the organisation.

Further findings of the study provided in Table 5, which pertained to the perception of the respondents on the relevance of observation in the mentoring and role modeling process, revealed that majority of the respondents (85%) said they believe they can learn a lot by observing what their mentors and/or role models do; 17 respondents (7%) were not sure they can learn from their mentors and/or role models through observation, 12 of them could not put a finger on any such thing.

These findings are supported by Social Learning Theory used as one of the anchors of this study. According to Bandura (1977) learning occurs through social observation and subsequent imitation of the modeled behaviour. Human beings learn from observing the actions, and the resulting consequences of the actions taken by others. Through observation, individuals in the society can learn to imitate the observed behaviour of other people and, can reap the rewards of such lessons. Conversely, individuals can also learn to desist from taking negative actions after learning from the negative consequences of such actions taken by others.

Finally, findings provided in Table 6 which pertained to the extent that the respondents perceived observational learning to be relevant in the mentoring and role modeling process, showed that the majority of the respondents (85%) said that they believed they can learn from their mentors and/or role models through observation either to a very great extent (50%), or to a great extent (35%). However, 23 of the respondents (10%) said they believed they can learn from their models and/or role models to a little extent; while 13 of them (5%) thought they can learn from their mentors and/or role models through observation to a very little extent.

These findings are supported by the Corruption Likelihood Model by Sam (2023). The postulate of the Model which buttresses the findings states that if an individual in the society has a mentor or a role model upon whom he looks up to, there is the likelihood that the mentee will be moral or corruption-free to the extent that he sees or observes his mentor to be. If the mentor is corruption-free, the mentee will not engage in corrupt practices, but on the other hand, if the mentor is neck deep in corruption, the mentee will definitely want to outdo the mentor.

Conclusion

Form the findings of the study as presented, analysed and discussed, it is safe to conclude here that academics in Akwa Ibom State Polytechnic, Ikot Osurua, Ikot Ekpene strongly perceive that mentors and role models are very relevant to their career growth and development. This conclusion drawn based on the fact that majority of them said they believe mentors and/or role models can contribute to their career growth and development to a great extent.

Furthermore, it can also be said that because academics in Akwa Ibom State Polytechnic think that mentors and/or role models are very relevant to their career growth and development, they themselves are ready to behave and speak in a way that would portray them as worthy future mentors and role models. It is the belief of the researchers of this study that this perception is born out of the fact that the academics see communication and observational learning as being very important in the mentoring and role modeling process.

It is safe to assert here that the high level of perception by academics in Akwa Ibom State Polytechnic that they are future mentors and role models, with the corresponding perception and effects on their behaviour and speech could be attributed to the high level of morality brought about by the leadership of the institution, led by the Rector of the institution, Barrister Moses Umobong. His coming on board as the Rector of the institution could be the Tipping Point that has brought about the remarkable shift from the hitherto high-corruption-equilibrium organization to the low-corruption-equilibrium currently witnessed in the institution, which has emboldened the employees to see themselves as future leaders.

Recommendations

Since mentorship and role modeling is seen as being very relevant to the career growth and development of academics in Akwa Ibom State Polytechnic, the researchers, therefore, offer the following recommendations:

- Management of Akwa Ibom State Polytechnic, Ikot Osurua, should be more intentional in pairing younger, and most importantly, newly employed staff, to teach with older and more experienced one as a way of exposing them to learn from the experiences of the older ones.
- Older academics who are expected to mentor the younger ones are advised to exercise their mentoring function with an open mind, not grudgingly, or doing it with the intent to exploit the mentees. They should also do the best they can to carry out their teaching function in the institution morally, knowing full well that they are being observed by others. This way, professionalism and morality would be handed down from one generation of staff to another, and the institution would stand to benefit from such mentoring and role modeling process.
- On the other hand, newly employed staff attached to the mentors should not grieve them, but encourage them to exercise the function happily. Especially, since they know that they too will become mentors themselves to others someday.
- Finally, without waiting to be paired by management, younger and newly employed staff are advised to intentionally observe and, subsequently, adopt moral and upright older colleagues, and then submit to them. They should not only adopt the mentors, but they should be ready to let go of their pride and submit in order to be able to learn from the chosen mentors. This is because no mentor would be excited to mentor a proud and heady mentee. This will help them to leverage on the experiences of the mentors, which will then enhance their career growth and development.

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SUSTAINABLE DEVELOPMENT AND POPULATION DYNAMICS IN NIGERIA

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ABSTRACT

This paper examined the relationship between population dynamics and sustainable development in Nigeria. Sustainable development has become the buzzword in development treaties. As population continues to grow at an alarming rate most especially in sub-Saharan Africa with Nigeria leading, agricultural production has been estimated to decline in the coming decades. Relying on data from secondary sources, the study x-rayed the Malthusian theory, the Cornucopian, Simon and Boserup theories, the demographic theory and Solow growth model in an attempt to establish the relationship between sustainable development and population dynamics in Nigeria. The study revealed that population growth rate, age structure and spatial distribution affects sustainable economic development in Nigeria. It is recommended that policy makers should adopt a cross-sectoral and multi-dimensional approach to addressing the challenges of population, environmental change and sustainable development; there is urgent need for proactive planning for population dynamics with the systematic use of available population data and projections by the Nigerian government. This also entails development of the technical capacity of technocrats and bureaucrats on programme design, research, implementation and application of research evidence in decision-making processes for sustainable development.

KEYWORDS: Sustainable Development, Population, Population Dynamics, Policy makers.

Introduction

The world as a whole is experiencing a rapid demographic change (Bongaarts, 2009), especially in the human population. Population change by size and growth has continued to be one of the most important factors affecting sustainable development in Nigeria, given the current dilemma of the nation's economy which is deteriorating almost on a daily basis (Jack & Uzobo, 2017). Also, the Department of Economic and Social Affairs of the United Nations (2015) reported that the world's population reached 7.3 billion as of mid-2015, implying that the world has added approximately one billion people in the span of the last twelve years. Sixty per cent of the global population lives in Asia (4.4 billion), 16 per cent in Africa (1.2 billion), 10 per cent in Europe (738 million), 9 per cent in Latin America and the Caribbean (634 million), and the remaining 5 per cent in Northern America (358 million) and Oceania (39 million). For now, the world's population is projected to increase by more than one billion people within the next 15 years, reaching 8.5 billion in 2030, and to increase further to 9.7 billion in 2050 and 11.2 billion by 2100 (Department of Economic and Social Affairs of the United Nations, 2015). However, the pace of global growth has slowed considerably since around 1970, and the world's population is expected to stabilize by the end of the century (Wilmoth, Menozzi, & Bassarsky, 2022). The problem of population, according to United

Nations Population Information Network (POPIN), is not simply a problem of numbers; it is a problem of human welfare and development (POPIN, 2013).

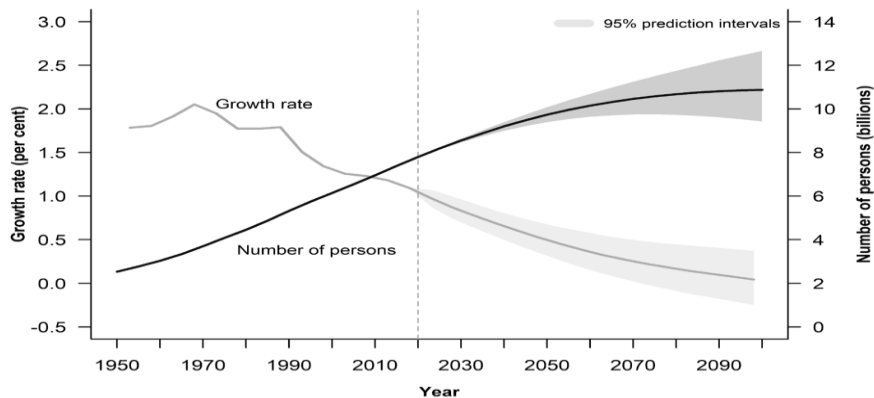


Figure 1: Global population size and annual growth rate: estimates, 1950-2020, and projections with prediction intervals, 2020-2100.

Source: United Nations (2019).

Note: Prediction intervals (shaded area around a projected trend) were derived from a probabilistic assessment of projection uncertainty. For a given year, the future trend is expected to lie within the predicted range with a probability of 95 per cent.

The 2030 Agenda for Sustainable Development adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries – developed and developing – in a global partnership. They recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. Sustainable development has become a ubiquitous development paradigm which catchphrase for international aid agencies, the jargon of development planners, the theme of conferences and academic papers, as well as the slogan of development and environmental activists (Ukaga, Maser & Reichenbach, 2011).

Statement of the Problem

The relationship between sustainable development and population dynamics is not clear-cut and relies largely on empirical evidence (Furuoka, 2009). Various studies on how population affects development in developing countries have found mixed results (World Bank, 2000; Sinding, 2009). That is, it is unclear whether population dynamics in growth, age structure, and rural-urban disparities contribute positively, negatively or have no significant impact on sustainable development. The currently available empirical literature on the effects of population phenomenon sustainable development in Nigeria is scanty. Closely related studies by Mlia and Kalipeni (1987) as well as by House and Zimalirana (1992) focused on implications of rapid population growth on natural resources and social amenities. The ultimate finding was that the increasing pressure from population depleted resources and exacerbated poverty.

Nigeria has one of the fastest growing populations in the world with an estimated growth rate at about 3.2%. At this rate, it is projected that the population will double in size in just 24 years (NPC, 2009). Nigeria has experienced a general decline in the four mortality indicators: infant,

child and under-five mortality rates, and maternal mortality rates. The NDHS shows that infant mortality rates dropped from the 100 per 1,000 live births in 2003 to 69 per 1,000 live births in 2013; child mortality rates dropped from 112 per 1,000 live-births in 2003 to 88 per 1000 live-births in 2008 and to 64 per 1000 live births in 2013. Under-five mortality rate dropped from 201 per 1000 live births in 2003 to 128 per 1000 live births in 2013 (NPC and ICF International, 2013). Maternal mortality estimates varied among different sources.

Life expectancy at birth is one of the most important demographic indicators. It shows the number of years a new born infant would live assuming that birth and death rates will remain at the same level during the whole lifetime. Total life expectancy (both sexes) at birth for Nigeria is 47.6 years. This is below the average life expectancy at birth of the global population which is about 71 years (according to Population Division of the Department of Economic and Social Affairs of the United Nations, 2013). Male life expectancy at birth is 46.8 years. Female life expectancy at birth is 48.4 years.

Conceptual Framework

Population Dynamics

The concept of population dynamics refers to changes in the size, demographic structure and spatial distribution of a given population over time. Such changes can be traced to natural environmental changes, changes in economic and political circumstances, changes in reproductive health management technology and, ultimately changes in human reproductive and location decisions (UNDESA/UNDFPA, 2013; ACF/IRIS, 2016).

Sustainable Development

The concept of sustainable development is long known and recognized as important. The most famous definition of sustainable development is given in the 1987 Brundtland Report: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainable development encompasses various aspects of human life, explicitly laid out in the key objectives of the renewed EU Sustainable Development Strategy (European Council, 2006): environmental protection, social equity and cohesion, economic prosperity, and meeting our international responsibilities. These four objectives are also reflected in the United Nations Millennium Development Goals (MDGs). Using this description alone, we are able to grasp the concept behind sustainable development: it is multi-dimensional in multiple dimensions.

Empirical Literature Review

Population Dynamics and Sustainable Development

Studies have found out that Population sizes and distributions will continue to influence development challenges especially in the developing countries. Population dynamics could potentially affect the availability of natural resources such as agricultural land and water. In this section we shall be looking at some of the implications of population dynamics with special focus on population growth on sustainable development. Population growth firstly has an impact on food security. As population continue to grow at an alarming rate most especially in sub-Saharan Africa with Nigeria leading, agricultural production has been estimated to decline in the coming decades (Population Action International – PAI and the African Institute for Development Policy-AFIDEP, 2012). Population growth will put pressure on crop land. It has been predicted that Sub-Saharan Africa will be one of the regions to be most severely affected

by drought and temperature increases as a result of population growth. PAI and AFIDEP (2012), has stated that food crises, such as those that have occurred in the horn of Africa, will become more common. They also added that even in the short-term, every country on the continent, except Zambia, is projected to experience a decline in agricultural production. In essence, the challenge of population growth is likely to compound food insecurity.

Secondly, it has been predicted that Population growth will have a negative impact on water resources. Developing countries of Africa and Asia are projected to be severely impacted by water scarcity, which will be exacerbated by environmental change effects. It was estimated that about 400 million people in 15 countries in sub-Saharan Africa are currently suffering from water scarcity. This number is projected to double to over 800 million by 2050 as more countries join in the problem of water scarcity. Djibouti, Cape Verde, Kenya and Burkina Faso have been discovered to be the most severely affected by water scarcity (PAI and AFIDEP 2012). Studies have further found out that countries with acute water scarcity all have high population growth rates. With growth rate of Sub-Saharan Africa, water scarcity in these countries has been predicted to even be more acute (PAI and AFIDEP 2012).

A study by Stamnova and Gveroski (2016) on the role of spatial distribution on economic development in Macedonia showed that rural areas have high importance in the development of agrarian economies. Compared to urban areas, findings indicate that rural areas significantly contribute to the reduction of unemployment and poverty. This is achieved by employing most of the working population in production, trade and other areas of economic gain. With many natural opportunities for primary agricultural production, countries where agriculture is predominant require special emphasis on the development of rural areas to foster faster economic development. Bloom and Freeman (1986) made an analysis focusing on the impact of population growth on labour supply and employment in developing countries. They argue that fertility, mortality and migration affect labour supply differently with mortality and migration having immediate effects and fertility having delayed effects. These factors culminate in a varying age distribution. This is manifested by various age-specific growth rates of a population by which the age structure of the population changes through time. They noted that population growth that is due to high birth and death rates is inconsequential to economic growth and development whereas population growth which is due to low birth and death rates is associated with a higher growth of national income.

In essence, the latter population dynamics allow the working age group to grow faster relative to the dependent population which drives more saving and investment. In essence, their conclusion was that timing and components of population growth were revealed as important in the development process. Others have found mixed results (World Bank, 2000; Sinding, 2009). In essence, this leans to the direction that there is no clear prescription on how population trends and dynamics affect development outcomes. Such conclusions for particular economies can only be established through empirical evidence.

Theoretical Literature Review

This section advances two main schools of thought relating population to economic development. The first is the pessimistic school which regards population to have adverse impacts on development. This is championed by the Malthusian model. The other school of thought criticizes Malthus by providing alternatives which suggest that population can generate positive consequences on development. Models in this school include the Cornucopian model, the Boserup model, the Demographic Dividend and Simon's theory.

Malthusian Model

The Malthusian model of population was propounded by Thomas Robert Malthus in his essay on population growth and food supply (Malthus, 1798). The theory postulates that population increases geometrically while food supply increases arithmetically implying that population growth eventually outpaces the supply of food for the population. Malthus (1798) made propositions that population needed two major kinds of checks to avoid overpopulation. Preventive Checks entailed individuals' voluntary use of methods to limit population growth while 'positive checks' entailed methods of controlling population growth which are resultant of the lack of utilization of the Preventive checks to repress increases which already begun. In his prediction, without preventive action, scarce resources would be increasingly shared among a growing number of people then inevitably, factors such as famine and diseases would eventually level the population with the productive capacity of the population (Malthus, 1798). This limitation to growth has been commonly referred to as "the Malthusian population trap" depicted in Figure 2.

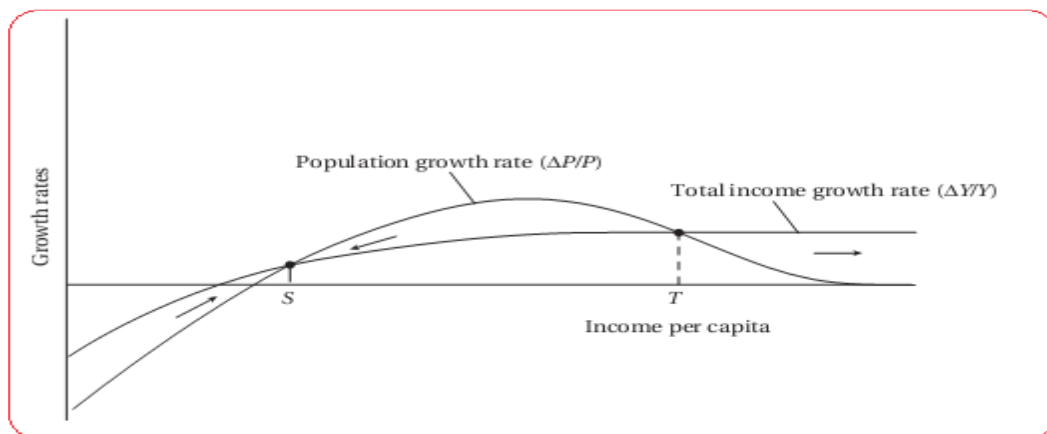


Figure 2: The Malthusian population trap

Source: Todaro and Smith (2012)

The vertical distance between income and population growth is the growth rate of per capita income. That is, whenever income growth supersedes population growth, per capita income increases causing a rightward movement along the x-axis. At a low level of growth of income, the population faces poor livelihoods such as infectious diseases as well as poor health service (Todaro & Smith, 2012). Starvation becomes inevitable. This describes the conditions as depicted to the left of the subsistence point S. Income levels beyond that point signify periods of improved health and nutrition which cause the population to grow. As population growth exceeds income growth, per capita income falls and thus moves leftwards towards point S. Point S is thus technically a stable equilibrium. Point T is an attainable threshold ideally for rich economies after which population growth is less than income growth and per capita income grows perpetually at a steady rate.

Cornucopian, Simon and Boserup Theories

Unlike the sentiments made by Malthus, Cornucopians advance a contemporary view on population growth. In their view, increases in population have positive effects to the development of the economy (Jackson, 1995). Increase in population leads to an increase in a pool of human capital capable of producing ideas to curtail challenges associated with population growth for the sustenance of the population and improvement of living standards

These ideas in turn generate various modern technologies which enable specialization of labour and more effective and efficient production systems (Jackson, 1995). The negative consequences of population growth can thus be averted through the utilization of the various technologies. With Technical Progress, a country is able to generate a level of income that is greater than the growth rate of population at all levels of per capita income through changes in economic and social institutions. The economy is thus able to produce self-sustaining growth.

Julian Simon's theory also issues a criticism to Malthusian perspectives of "limits to growth" (Aligica, 2009). He put forward an alternative in the pro-growth paradigm. Contrary to diminishing returns as implied by Malthus' model, Simon's theory suggests that detrimental effects of population growth are only transitory but economic gains are achieved in the long run (Simon, 1977). Similar to the Cornucopian perspective, a moderately growing population can take advantage of Technological Progress resulting in economies of scale in which much productivity can be realized and food production can surpass population growth itself (Simon, 1992).

Demographic dividend

The concept of the demographic dividend was coined by demographic economists to imply a prospective economic benefit of a youthful population increasing in the share of working age adults to child dependents due to a decline in birth and death rates (Fang, 2010). This is intuitive in the sense that for a substantial period, the economy benefits from a huge chunk of the labour force with a minimal drag in resources with fewer dependents. There is thus a need for policy intervention to facilitate rapid declines in fertility as well as create favourable conditions to combat mortality so that it declines as well.

According to Lee and Mason (2006), with fewer dependents, the working aged population also has a larger propensity to save and accumulate assets which can also in turn boost portfolio investment on the capital market. The efficacy of the demographic dividend can be augmented with increased investment in education and job creation to make the most of the working class (Fang, 2009). In this light, harnessing the demographic dividend can boost economic growth and development. In the dawn of the new millennium, the concept of the demographic dividend proceeds to assume a major role in development planning in various countries with youthful populations like Nigeria. With over 60 percent of Africa's population aged 24 and below, the prospects of forthcoming economic development emanating from the youth are very high (African Union, 2017). This was widely recognized by the 2007 African Population Commission, 2012 State of Africa Population Report, 2013 Africa regional conference on population and development, 2014 Executive council report as well as the 2017 Africa Cup of Nations which all called for investments in the youth in order for African nations to harness the demographic dividend (African Union, 2017).

This study will delve into the age distribution of Nigeria's population as a crucial element of Nigeria's population dynamics to decipher its short and long-run linkages to economic development.

Solow Growth Model

This is a Neoclassical theory of economic growth propounded by works of both Robert Solow and Trevor Swan in 1956 (Acemoglu, 2008). The model employs Capital and Labour as factors of production. Both factors experience diminishing returns in production but constant returns to scale. Economic growth in the long term is generated by an exogenously determined

technological change while the labour force growth and depreciation only account for the level of economic output in the long term. Their collective effects are thus only transitory.

Figure 3 illustrates the mechanics of the Solow growth model.

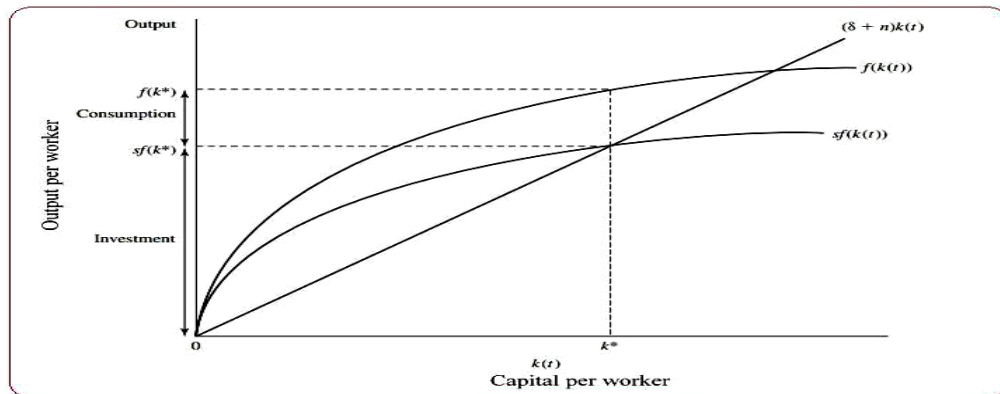


Figure 3: Solow growth model

Source: Acemoglu (2008)

The economy's total per capita output at time t is represented by $f(k(t))$ where $s(f(k(t)))$ is the fraction that is saved for investment while the rest is used for consumption. The labour force grows at a rate of n per year which is in this case the rate of growth of population while the capital stock depreciates exponentially at a rate equal to δ . The total stock of capital increases when savings which are equal to Actual Investment $[s(f(k(t)))]$ are greater than the investment requirement to service for depreciation and new workers joining the labour force $[(\delta + n)k(t)]$. Conversely, when this actual investment falls short of the investment requirement to replenish capital, the stock of capital falls.

The dynamics are given as: $\Delta k = (k(t)) - (\delta + n)k(t)$ (3.1)

When actual investment equals the investment requirement, the economy reaches a long-run condition known as the steady state signified by the level of capital per worker k . This is a stable equilibrium towards which levels of capital beyond and below eventually converge. In this model, only the change in the growth rate of technical progress affects the growth of capital per worker in steady state. The effect of population growth is that it raises the investment requirement and thus steers the economy to converge to a lower level of steady state capital per worker.

The Solow model has high relevance to the study's analysis. Whereas the rate of growth of population captures labour force growth, the analysis modifies the model prescription to include dynamics of age structure and spatial distribution.

Research Methodology

This chapter discusses the measures of economic development and those of population dynamics. Then, the modelling and econometric specification is provided followed by a description of the variables used in the study as well as their expected direction of effect. The source of the data is also stated along with the design the study will take. The chapter concludes by laying out various tests crucial in establishing evidence as intended by the study.

Measures of Population Dynamics and Economic Development

While economic development is a broad concept, the study selects reasonable measures. These include per capita GDP, the Inequality-adjusted Human Development Index and the Net Per capita Food Production Index. Per capita GDP is here in applied to capture economic growth while the Inequality adjusted Human Development Index captures socioeconomic development and the Net Per capita Food Production Index captures the economy's capacity of producing food. Intuitively, a developing economy should achieve higher levels of economic growth, food production and socioeconomic development. Population dynamics which emanate from Fertility, Mortality and Migration are measured by population size, growth, and share of young people in the total population, share of working-age people in the total population, share of rural residents, and share of urban residents. Population size and growth will capture the possibility of economies of scale of population, the respective shares of population in terms of age will capture the population's age structure while the respective shares according to area of residence will capture the spatial distribution.

Measures of sustainable development

There port by the Commission on the Measurement of Economic Performance and Social Progress (Stiglitz et al., 2009) and the OECD "Better Life Initiative" (Ibid, 2011) has shifted the attention of policy makers and researchers back to the shortcomings of measuring a country's development solely on the basis of GDP or GDP per capita. In their recommendations Stiglitz et al. clearly point out that this production-based measure is not adequate for measuring society's well-being. Their first recommendation is to "... look at income and consumption rather than production, (...) when evaluating material well-being..." (p.12). Further, social development as well as environmental conditions should be considered as these also have strong impacts on living conditions now and in the future. Both social and environmental factors, though, are often hard to capture in one indicator. Possible indicators such as school enrolment rates or CO₂ emissions are available for long time periods for at least the developed countries. What these indicators do not measure is the quality of education or the impact of CO₂ on the environment. Nevertheless, according to Stiglitz et al. (2009) these should be measured. In this context the notion of sustainable development has gained importance in the past decade.

First, from the Brundtland Report, we have the reference to the presence and the future. That means that we are not only looking at one point in time, but also consider future consequences of our actions today. Sustainable development is an inter-temporal issue.

Second, from the EU Sustainable Development Strategy (EU SDS) we learn that we may not only concentrate a single subject, i.e. the economy or economic growth, but also take into account other aspects of development: the environment and also social issues. These three aspects of development are often referred to as the three pillars of sustainable development: the economic, the social, and the environmental pillar.

The last key objective of the EU SDS and MDG 8, reflect the third and last multi-dimensional dimension of sustainable development. It does not concern one person, one group of people, one city, or one country only. Development has to be sustainable globally.

Theoretical Framework

The study adopted the Solow-swan model. The model is derived as follows:

$$Y_t = K_t \alpha (A_t L_t)^{1-\alpha}, 0 < \alpha < 1 \quad (3.1)$$

Y_t is the GDP or Output; K_t is the capital used in production and $A_t L_t$ is effective labour as the labour used is augmented by an exogenously determined level of technical progress A . The parameter α is the elasticity of output with respect to capital for which the inputs capital and labour jointly produce constant returns to scale.

Initial levels of Y_t , K_t , A , and L_t are taken as given. Their respective changes overtime are given by the derivatives with respect to time given as:

$$Y_t = dY_t/dt, K_t = dK_t/dt, A_t = dA_t/dt, L_t = dL_t/dt.$$

Growth rates in the labour force given as population growth rate, as well as technical progress, are given as $L_t/L_t = n$ and $A_t/A_t = g$ respectively.

Capital accumulation is given as $K_t = sY_t - \delta K_t$, where s is the fraction of output that is saved and δ is the rate of depreciation of capital. This implies that its corresponding growth rate is given as $K_t/K_t = sY_t/K_t - \delta$

Putting Equation (3.1) in growth terms, we obtain:

$$Y_t/Y_t = A_t/A_t + \alpha K_t/K_t + (1-\alpha) L_t/L_t \Rightarrow Y_t/Y_t = g + \alpha K_t/K_t + (1-\alpha)n.$$

In steady state, $Y_t/Y_t = K_t/K_t$

$$\Rightarrow Y_t/Y_t = g + 1 - \alpha + n.$$

The steady state growth rate in output per worker is given by the growth rate in Y_t/L_t which may be given as $Y_t/Y_t - L_t/L_t = g + 1 - \alpha$. This indicates the steady state rate of growth of output per worker only depends on the rate of growth of technical progress. The effects of population growth rates, saving rates and depreciation rates on output are thus transitory.

The long run level of output per worker is more generally given as:

$$(Y_t/L_t)^* = A_t^{1/(1-\alpha)} (s(g + 1 - \alpha + n + \delta))^{1/(1-\alpha)} \quad (3.2)$$

Relating the model to the study, output growth is a function of population growth. The study adopts this relation with modification to include other pertinent population dynamics of age structure and spatial distribution.

Conclusion and Recommendations

Over the years, Nigeria has been facing many social, physical and economic problems due to the rapid population growth caused by high fertility levels, and these have been posing threats to sustainable development. With an estimated population of over 190 million people in 2017 and a population growth rate of 2.6 per cent per annum, Nigeria is Africa's most populous nation and the seventh most populous country in the world (UN, 2017).

The Nigeria demographic structure reflects that of a growing youthful population with a broad-based population pyramid. Based on the 2006 National Population census, about 42% of the people were aged less than 14 years, 29% were aged 15-19 years and 24% were in the prime age 30-59 years (NPC, 2009; UN, 2013). The population of the aged was also estimated at 4.8% in 2006 and 5.1% in 2015, while the median age of the population was estimated at 17.9 years (17.3 for males and 18.4 for females). The literacy rate is estimated at 61% in 2008 (NPC and

ICF Macro, 2009) and 78% in 2010 (NBS, 2010); with an estimated 58% primary school enrolment in 2008-2011 (UNICEF, 2012). According to the 2006 Census, Nigeria's population of 140 million comprises 71,709,859 males and 68,293,683 females with a sex ratio of 105. The sex ratios across the age groups are as follows: at birth: 106; 0-14 years: 105; 15-24 years: 105; 25-54 years: 97; 55-64 years: 85; 65 years and over: 85 (CIA, 2013). Literacy rate is higher for male than female in Nigeria with an estimated rate of 84% for male compared with 74% for female (NBS, 2010).

Following the conclusion from the study the following recommendations were proffered: population dynamics, reproductive health, family planning, poverty reduction, environmental protection and sustainable environmental resource management should be incorporated into an overall sustainable development policy framework; the government and Policy makers should adopt a cross-sectoral and multi-dimensional approach to addressing the challenges of population, environmental change and sustainable development; there is urgent need for proactive planning for population dynamics with the systematic use of available population data and projections by the Nigerian government. This also entails development of the technical capacity of technocrats and bureaucrats on programme design, research, implementation and application of research evidence in decision-making processes for sustainable development.

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YOUTH PARTICIPATION: AN ELIXIR FOR INSECURITY AND SUSTAINABLE DEVELOPMENT IN NIGERIA

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ABSTRACT

The purpose of this study was to examine the nexus between youth participation, insecurity and extension sustainable development in Nigeria. In spite of the growing population of young people in the country, they are largely excluded from core decision making. Thus, the young people in Nigeria feel largely marginalized from governance, leaving them helpless about their continued exclusion as evidenced in the low percentage of youth who hold political and leadership positions in the country. This study adopted ex-post factor method of analysis. The findings revealed that youths have not been participating effectively not only in decision making but also in the trajectory of Nigerian security. This has significant effect to achieving sustainable development in the country. It was therefore recommended in this study among others that government should strengthen the capacity of youths in governance as well as incorporate them in peace building mechanism.

KEYWORDS: Youth, Political Participation, Insecurity, Exclusion, and Sustainable Development.

Introduction

Security is the concern of every human society, irrespective of its level of civilization. It is a pivotal condition for national development (Ibrahim, 2018). Though security is everyone's business, it is the primary responsibility of the state to protect the lives and properties of her citizenry. Drawing from the contract theorists, Radda (2008) as cited in Ibrahim (2018) boldly states that failure to fulfill this role makes the state an illegitimate one; thus citizens have no obligation to obey the state's commands.

The current national security situation in Nigeria is affecting the rate of human development and posing many challenges among which Nigerian youths are major contributors. Some of the youths succumb to armed-robbery, religion/public disturbances like that of the Niger Delta Militants (NDM), Odua People's Congress (OPC), and the Boko Haram (BH) sects because they are jobless. In fact, Nigeria is at war with self as insecurity remains her greatest challenge.

As Ibrahim & Mukhtar (2017) rightly pointed out, since 1960s militia groups began to be formed in different parts of Nigeria, mostly on ethnic sentiment, but disguised to provide

security (e.g. Bakassi Boys), self-determination (e.g. Movement for the Actualizations of Sovereign States of Biafra), and to gain advantage for their own ethnic group (e.g. Movement for the Survival of Ogoni People). Maitatsine uprising of the 1980s was on religious radicalism. Also, kidnappings, vandalizations, and hostage-takings by members of Movement for the Emancipation of the Niger Delta (MEND) were because of environmental injustice on the people of the region by the government. Some of these have taken place for some decades back, but story of Nigeria's present security challenge is not complete without mentioning Boko Haram. These violent groups and other organized criminal syndicates have ravaged the Nigeria's national security. However, since youths are at the forefront of the rebellion and perpetration of many crimes; they equally constitute an important structure for bringing positive change in the country.

Nigeria is witnessing a number of security challenges associated with militancy (Oladeji 2000). About 67 million young Nigerians are jobless because they do not possess the relevant skills that will make them to be employable (Kola, 2020). These problems also have the very damaging consequence of giving the signal to the rest of the international community that Nigeria is not a safe and secure place and as such not suitable for economic investment and activities. This is particularly important in view of the efforts being made to create the desired atmosphere to attract foreign investment (Oladeji, 2000).

As the Nigerian population continues to increase, so does the number of youth. The population of youth (18–35 years) in Nigeria is 52.2 million (i.e., about 28% of the total population), which is more than the entire population of Ghana, London and Benin Republic put together. In spite of the prospects that this number holds, young people in Nigeria are largely marginalised from governance, leaving them helpless about their continued exclusion. The leadership cadre is filled with aged politicians who think nation building is their exclusive preserve and as such youth should not be given a chance. Perhaps, their stand explains why though youths are said to be leaders of tomorrow, that future never comes (Abah, 2015). This is evidenced in the low percentage of youth who hold political and leadership positions in the country (Afolayan, 2018).

The youth constitute a large proportion of the societies in developing countries with pressing health, education, social and economic needs. As at 2009, the United Nations estimated the youth population to be billion or approximately 18 percent of the world population. About 64 percent of African youth live in countries where at least one third of the population lives on two dollar or day. (Encarta, 2009). Despite the critical value of youth to nations, Nigeria like most African countries under-invest in youth participation in the security of the society, thereby breeding an army that is turned into unprofitable activities. The age bracket within which people can be classified as youth varies across countries. The World Bank and the United Nations categorized youths as those persons between the age of 14-1 years while the world Health organization include persons up to the age 34 years (Elegbeleye, 2005).

Therefore, they are the force for nation development thus making their actions and inaction a necessary impetus for embedding and consolidation the vertical and horizontal integration of any society their under utilization has economic and psychological cost which increase poverty and social insecurity. Afolayan (2018) opined that Nigeria is at crossroad now, and only the youths can better appreciate and refocus her strength for the great re-direction and turn-around needed to achieve a stable polity, devoid of rancorous, turbulent, and uncertainties presently characterising our political landscape.

The involvement of young people in the development, implementation and evaluation of youth mental health services, security, policy and research programs is essential to ensure they are appropriate and responsive to the needs of young people. Despite the increasingly central role that youth engagement and participation plays internationally, such activities are rarely described in detail. The task of this paper therefore is to examine the role of the youth in curbing insecurity which has become a recurring decimal in Nigeria.

Conceptual clarification

Youth can be define as a special group of people with strong stamina and passion for realizing certain set goals and objectives. Thus, for the purpose of this paper, we shall define youths as a period of transition from the dependence of childhood to adulthood's independence. The youths share certain characteristics that distinguish them from other age group. They are vibrant, great, enthusiastic, zealous energetic and ambitious. Also, youth share certain characteristics that distinguish them from others generation. Such characteristic include, impatient for change, zealousness, radicalism, rebellions, curiosity, hard work, ego and ambition etc. These are the propelling factors for national development.

National development can be seen as the general improvement in the lives of individual, groups, and environment. Looking at these two concepts, it is safe to say, that, youth are the engine and actualizes of national development, if their mindsets are channels in the right direction. Therefore, their actions and inaction are necessary impetus for entrenching and consolidating the vertical and horizontal integrations of any society or country like Nigeria.

Youth participation can thus be regarded as the process of guiding and designing micro- and macro-society by and with young persons. It is a democratic process in which young persons challenge society to bring about positive changes for sustainable development. Youth participation centers on creating an environment where youth work in partnership with adults with mutual respect and understanding.

In terms of spheres of participation in national development, the UN General Assembly (UNDESA, 2004) defined youth participation as comprising four components: economic participation, relating to work and development; political participation, relating to local, national, regional, and international decision-making processes; social participation, relating to involvement in community activities; and cultural participation, relating to the arts, cultural values and expression.

The Role of Nigerian Youths in Achieving Sustainable Development

Youth are one of the greatest assets any nation can be proud of. Not only are they legitimately regarded as the future leaders, young women and men are potentially and actually the vital resources worth of investment by a country as well as the valued possession for national development. As critical stakeholders, they are the center of reconstruction and sustainable development of any nation (Kura, 2008).

The role of youth on national development cannot be over emphasis. The wheel of development of any country lies on the shoulder of how productivity and creativity the youthful populations are. The youth in any society are the engine of growth and development; because, they provide the labour force for production of goods and service to take effect. And also, are the critical masses of people, whose action and inaction can develop or destroy the hegemonies of their society. For example according to the 2006 census, the youthful population constituted

over 70% of the population. So, therefore, this quantum of population is great assets for the Nigerian state if harness and utilize in the right direction.

Interestingly, the transition of society from one generation to another is critical to the formative and developmental aspiration of such society. That, is why society that prepare their youth for the sake of future aspiration will not only secure her future development; but, will prepare her next set of leaders with the challenges of national reconciliation and development. So, therefore, the role of youth on national development is sacrosanct to the whole developmental aspiration of any society.

The youth are the cornerstone to societal rejuvenation. Societies are not only recreated through the youthful population, but, youth are often referring to as leaders of tomorrow. So, their mindset and roles is of major important to the development of any society. It is perplexing to say, that, no nation will experience development when the preponderance of the population that constitutes the largest percentage of the population are idle and ineffective. So, therefore, the youths have a greater role to play on national development. It has been suggested that a demographic window of opportunity opens as fertility and high youth dependency declines. In Nigeria could by 2030 reap the benefits of what some called a “demographic dividend” if it invest now in human development. Nigeria current demographic structures could be future assets when fact, To the Nigeria youths, not oil is the future of Nigeria in the 21st century.

Unfortunately, these projections, expectations, and future forecasts, seem to be an abysmal blindfolded future, if the prevailing realities is anything to go by. Abah (2015) lamenting on this noted that:

youths are the building blocks of every developed nation. The stronger the youth of a country, the more developed that country. For a country like Nigeria with about 70% youth population, one wonders why we are where we are but why would this not be so when the future of the youth has been mortgaged for selfish gains; when we have been denied the benefits of good education, when our minds have been chronically infested with low morality and loss of values, when the leadership class is riddled with notoriously corrupt individuals which the justice system has helplessly fail to punish. Why won't it be so when government's plans and readiness to revive youth un-productivity is but a mere lip service? They only engage us during election and turn us intelectoral thugs instead of building enough schools and creating adequate employment opportunities.

The current state of the mind of Nigerian youth is not encouraging and does not inspire confidence. Societal neglects and government inability to design an integrated and implementable policy framework targeting the youthful energy for national development, has left the youth without guardianship, mentorship and direction. Instead of utilizing their energy, curiosity, creativity, passion and impatient for change to foster national development; unfortunately, the gamut of the society has left the youth without, hope, guardianship, mentorship and future aspiration, if the agonies of poverty, unemployment, frustration, despondences, confusion, hopelessness, parental and governmental neglects, are anything to go by.

The role Nigerian youths are never to be neglected if the country is to be among the League of Nations in terms of development. The sad reality is that the potentials of the Nigerian youths have been grossly untapped. A look at the present Nigeria policies and politics; One will realize that the youths have not been giving the ground to showcase their potential. Good policies have been made by the Nigeria over the years to arrest unemployment and lack of access to quality

education which is some of the problems majorly faced by the youths. But the obvious reality is that little or nothing has been done to lift these policies out of the pages and begin its implementation (lastmessenger, 2015).

Again worthy of mentioning is the heartbreaking reality that the youths themselves have remained ignorant choosing rather to tow the same line that the corrupt politicians are, allowing themselves to be bought over by the men who have held the country hostage for a very long time. A look at the activities of the youths in the social media in defending the corrupt politicians either because of ethnic affiliations or religious grounds is a sad reality that leaves a bitter taste in the mouth. They have majored on the minor leaving behind important matters like unemployment, corruption, insecurity and lack of access to basic medical care. Yet these problems affect all Nigerian youths notwithstanding the ethnic or religious affiliations. Everybody in one way or the other is affected by the effect of bad leadership and yet we occupy ourselves in fighting to defending our ethnic nationalities at the expense of national development. This trend must be arrested and the youth must make a dramatic shift in their thinking and general evaluation of national matters (lastmessenger, 2015).

When young men and women understand their rights, they can become empowered to engage in civil society, public service and political processes, at all levels. They need to know the channels through which they may exercise their civil and political rights and contribute to decision-making processes that impact their lives (UNDP, 2014 as cited in Ibrahim, 2018). Channels for youths' engagement include formal political processes such as youth advisory boards at local level, youth parliaments or shadow councils at national level, and engagement with United Nations processes at the global level, for example (UNDP, 2014 as cited in Ibrahim, 2018). Other entry points, include volunteerism, access to civil service positions and decision-making processes in the public administration, initiatives for transparency and accountability, promotion of human rights, legal reform, and support for youth organizations.

Factors Affecting Youth Effective Participation in Nigeria.

a. Improper orientation of the Youths

Many youths have a warped Philosophy of what life is all about and have lost will power to shun nefarious activities such as Thuggery, Cultism, Truancy, Robbery etc. This is as a result of poor orientation and motivation arising largely from failure in some aspect of the society such as negative peer group and social media influence. Dwindling habit of reading and acquisition of useful skill through formal or information channels has contributed to improper orientation. Youths need to be well grounded in the moral value and cultural ethics.

b. Lack of Social Safety Net

Policy (unemployment support scheme), There is the absence of social safety programme to financially support the unemployed youths in the country. In some advanced Jurisdiction (U.S.A, Great Britain and New Zealand) the programme helped to provide workers who are unemployed through no fault of their own with monetary payment for a specific period of time until the workers find a new job.

Unemployment benefit are provided by the state unemployment insurance programmes within quinquennial establishment by Federal Law eligibility for unemployment insurance benefit amount and the length of time benefit are available are determined by state law. Operations of these programmes help the youth to execute career pathway entrepreneurship activities in the medium term

c. Poor societal attitude to technical and vocational education development.

There exist very low public status for technical and vocational education, this phenomenon has made vocational training unattractive. Inadequate schools: There is glaring shortage of teaching facilities are not functional which negatively attracts the quality of learning.

d. High rate of unemployment

There is high rate unemployment among the youths in the world across the Federation at large. This is by implication the outcome of poor industrialization high level of illiteracy among the Nigeria local Areas and youth reduce them to the immediate job available no matter how negative or inhuman.

e. Corruption and Mal-administration

Corrupt and despotic politicians as well as Bad government exposes the Nigerian Youth to armed conflicts and acts of violence by engaging them in thuggery, cultism and robbery just to satiate their selfish interest thereby causing societal unrest disturbing peaceful co-existence in the society.

Conclusion

No doubt; Nigeria is seating on a gun powder ready for explosion, if the reality of frustration and hopelessness among the vast of Nigerian youths are anything to go by. Therefore, it is important, for policy makers, parents and gate keepers, to understand and appreciate that, youth are the future of this country; therefore, their mindset and creativity should be a major concern to the nation. There is need for the government to create atmosphere favourable for the youth to achieve their desire objectives. The agonies of Boko Haram, Militancy, armed Robberies, Scams and other social deviance are the product lack of guardianship and vision for national development.

Recommendations

The youths must shun ethnic and religious sentiments in their choice of who to vote into political position. This is important because the cost of voting in a corrupt politician into a political position is too great. They can longer continue to make the same mistake which has kept the country moving in circles.

Again the youths must have one voice when making their stand known in matters concerning the running of affairs of the country. Enough of these ethnic and religious divide things that make us quarrel. They must begin to see themselves first as humans before considering their little differences which must also be harvested to foster a stronger unity among the Nigerian youths.

The youths should also take interest in political matters. They must stop being complacent and nonchalant in the politics of this country. You cannot change what did not touch; therefore if the political atmosphere of Nigeria will change for the good, the youths must be actively involved in politics. They must come out to vie political position with the bid to set good examples and create a lasting legacy which others will follow. Think of how advantageous it will be to have many youths as law makers in the national assembly.

Furthermore, in vesting in knowledge and skill is critical to youth development. Education is the cornerstone of Nigeria's future.

And lastly it is time for the youths to widen their horizon and begin to actively engage in economic activities. There other areas of the economy where the youth can fully engage and make their impact felt. In the Transportation sector, manufacturing sector, agriculture sector, energy sector, oil and gas, mining etc abound opportunities yet untapped where the youth can go in and excel, contributing positively into the economic development of the country. Enough of the constant complaining that there is no job. According to the first laws of motion by Isaac Newton; nothing moves until a force is applied. The time has come for action. It is time to make Nigerian a great country for us and the future of our unborn children.

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PERSPECTIVES OF URBAN AND REGIONAL PLANNING PROFESSION TOWARDS ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT AGENDA IN NIGERIA

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ABSTRACT

Urban and regional planning is a specialist, scientific, rational, analytical, and technically skilled discipline for spatial problem-solving, change and decision management. This study adopted a review technique of history, process and practice of urban and regional planning as a discipline and profession. 151 peer-review chapters and articles on relevance of urban and regional planning and sustainable development agenda in Nigeria were selected and 32 were accordingly reviewed for this study. The analysis shows that urban and regional planning has been implemented since the historic Garden City – Radiant City- City Beautiful Movement civilizations and as national development planning strategy. The study further shows that urban and regional planning is directed towards equity, participation, public welfare, efficiency, health and sanitation and environmental protection principles for sustainable development meant to control adverse social and economic impacts of human development. Thus, modernization has evolved in a bottom-top environmental planning and management approach as well as planning education for a sustainable development agenda. The study therefore argues that continued implementation of socio-eco based planning programmes and projects needed adequate funding as planning is strategic and inevitable towards the achievement of viable, equitable, livable and durable neighborhood for human living, working, recreation and circulation against extreme poverty, hunger and social inequality in our generations.

KEYWORDS: Environment, Urban, National Planning, Sustainable Development, Poverty.

INTRODUCTION

The United Nations Sustainable Development Agenda means social, economic, environmental and cultural equity potential to improve the quality of life and to afford global citizens the right to essential welfare including clean water, sanitation, hygiene and health, food security and nutrition, and adequate housing in the neighborhoods and communities which will not only improve socio-economic well-being and environmental integrity but also significantly combat widespread adverse impacts of unsustainable development incidences of extreme poverty, hunger, illiteracy and environmental disruptions (UN, 2015).

On the other hand, urban and regional planning is a development oriented discipline and profession. According to Aguncan et al (2017), urban and regional planning as a discipline is conceived as an accumulated and organized body of knowledge and concepts that focuses specially on the spatial management of relationships of physical, economic and social forces that to a great extent influence and determine the outcome and quality of life of people. Therefore the aim of urban and regional planning profession is fashioned to provide enabling

environment that is safe, orderly, functional, economical and efficient for human living, working, recreation and circulation (Obateru, 2005).

However, despite this, the world has witnessed significant disparities in the patterns of development in different countries. For instance, global population had relatively remained low, of about 1 billion persons between 1000 and 1830 AD (ie in 830 years). According to the United Nations Population Division (UNPD) statistics, the population had grown to over 6.8 billion persons in 2010 (just only in 180 years) and it is projected to about 8.1 billion in 2025 or 9.7 billion in 2050 (in 1050 years). This increase is significantly in the developing countries of Africa and Asia than in developed countries. It also observes that high population increase obviously means that additional billions of persons will have additional needs for food, cloths, shelter, employment and numerous welfare infrastructure and services (UNPD, 2004)

At the dawn of the MDGs, it was estimated that about 1.2 billion persons already lived in extreme poverty in developing countries with an average income of \$1.25 per day while some 2.5 billion people live on \$2 per day. (UNPD, 2004). Though the MDGs framework had made significant progress in many areas, such as the reduction of number of measles casualties in Africa by 91 % and the number of people falling victims of AIDS, it was still conceded that the progress of development has been uneven, particularly in Africa and other least developed countries, landlocked developing countries and small island developing states were some of the goals remained off-track, in particular those related to maternal, newborn and child health and reproductive health. Had the MDGs fully achieved in 2015 as designed, it would have been that more than 400 million persons delivered from extreme poverty and many millions of lives would have been saved (UN, 2000).

Obviously, the incidences of global high population, mobility, urbanization and attendant poverty and health care deficiency since the industrial revolution, have adversely impacted not only on the well-being of the entire population but particularly degraded the physical environment and resources against sustained and equitable development in the developed and developing societies. However, it was also observed that about the MDGs period, indicators of economic production had improved, having doubled since 1986, with the average gross domestic product (GDP) growth rates of 4.5 % in the 1990s, rose to 6.5 % in early 2000s in some low-income countries; though real incomes in the developing countries fell below those of developed countries mostly due to large scale imbalance and disparities in population, affluence and consumption patterns, use of knowledge and technology (Wright & Boorse, 2012).

From the Garden City history, elements of urban and regional or called in different ways, have been employed by planners to improve the quality of life, human activities and environment. Most countries have embarked on development planning as a way to increase economic growth and a balanced regional development. In recent development, environmental planning and management approach to incorporate the concerns of environmental integrity to social, political and economic policies of development planning. These sustainable development principles are therefore intended to achieve a society that is just, fair and inclusive, an economy that is viable and an environment that is livable (UN, 2015). The focus of the study is to review the concepts, paradigm and approaches of urban and regional planning, development planning and environmental planning and management contributive relevance to the achievement of sustainable development as agenda in Nigeria.

RESEARCH MATERIALS AND METHODOLOGY

This study is aimed to review the contributive relationship and relevance of urban and regional planning solutions to the achievement of the Sustainable Development Agenda. To achieve this aim and objectives, the study adopted the literature review survey mechanism of 151 peer review chapters and articles were selected from urban and regional planning and sustainable development-based publications including NITP (2013); NITP & TOPREC MCPDP (2013); TOPREC & CHSUD (2017); Egunjobi Vol. 11(2016) Egunjobi Vol. 111 (2017); and Uyanga & Ekong (2018) respectively. This method of research previously has been proved effective in a global review of peri-urban development and planning (Woltjer, 2014).

A sample size of 32 articles (21%) of selected population was considered adequate and suitable for the study. Some of the sectors and institutions selected in which sustainable URP services and opportunities are relevant include Facilities and Services; Security and Safety; Population; Environmental Risk; and Governance among others. Some of the concepts or thematic outlines that have been reviewed include Accessibility and Agenda; Agriculture and Agency; Biodiversity and Conservation; Culture and Climate change; Crime control; Development and Dialogue; Green Infrastructure and Food Security; Institution and Justice; Land and Law; Livelihood and Location; Leadership and Legislation. Others are Management and Modernism; Policy and Public good, Settlement and Society; Space and Standard; Strategy and System; Sustainable Development and Sustainable Development Goals; Violence and Vulnerability among others.

CONCEPTS AND APPROACHES

Urban and Regional Planning Conceptuality

Urban and regional planning discipline and profession can be conceived in different terminologies occasioned by differentials in operational definitions, environmental space and time. In different climates and orientations, urban and regional planning activities have been construed simply as urban planning, town planning, town and country planning, regional planning, City planning, spatial planning, land use planning or physical planning (Obateru, 2005; NITP, 2010; UN, 2015, Ekong, 2018). Obateru (2005, however argues that the appropriate designation of the profession should be spatial planning, land use planning or physical (environmental) planning due to their pre-occupation with spatial organization of land use (being the physical dimension of development planning), as other terms merely describe the location or area of professional activity rather than the form of contribution made by the profession. Thus the concept of the urban and regional planning profession largely relies on the ideas of pioneer professionals in the field

including Patrick Abercrombie (1933), who referred to the profession as Town and Country planning; Thomas Adams (1935), saw it as Town planning; F. Stuart Chapin, Jr. (1965), described it as City planning; and Lewis Keeble (1969), saw it as Town and Country planning. In tertiary training institutions in most countries, the programme is predominantly referred to as town and country planning in the United Kingdom (UK), urban planning in Malaysia, Canada and Australia, and urban and regional planning in the United States of America (USA) and in Nigeria. According to Uyanga (2018) history of professional practices dates back to the era of “Garden City concept (after Ebenezer Howard in 1898); Regional planning decentralization approach (after Patrick/ Geddes, Lewis Mumford and Clarence Stein), the “Radiant City” (after Le Corbusier); and the “City Beautiful Movement” (Plant/Land use Zoning and Subdivision Regulations (as reaction of planning Acts).

Due to its multidisciplinary context, urban and regional planning profession is defined variously by different pioneers and contemporary researchers. For example, Keeble (1969) defined Town and Country Planning as “the spatial ordering of the use of land and character, siting of buildings and communication routes so as to secure the maximum practicable degree of safety, convenience, economy and beauty”. Obateru (2005) believes that physical planning should appropriately be defined as “the art and science of space (land) use organization involving the location of land uses and allocation of land to them for the purpose of creating physical environments that are orderly, economical, functionally efficient and pleasant for living, working, recreation and circulation. He therefore opines that a physical planner as an artist and scientist is concerned with the organization, design and management of environmental space. In the study of risk and disaster management in urban and regional planning practice, Ekong (2018) shows that the definition of urban and regional planning or city planning has over time changed very little from when it emerged as a profession, that the profession is now concerned with general pattern of land use, the character, and location of public buildings and structures, the design of streets infrastructure, the location and development of transit and transportation systems, and all other physical facilities that are needed to enhance economic growth, promote environmental protection and social welfare as intended to bring about sustainable growth and development among residents.

As art and applied science discipline that evolve from architecture, civil engineering and public health background, the role and orientation of urban and regional planning activities becomes distinctive in creating and achieving urban and regional investments.. Elizabeth Howe (1980) identified three major roles for planners in the United State of America, namely, technical, political and hybrid roles on the scale of public interest. Technically, planners seek to ensure public safety in a good environmental and settlement designs in order to mitigate completely the incidences of substandard and haphazard physical development. Ekong (2018) also identifies two technical tools of development planning and development control in planning as measures necessary to mainstream physical, economic and social development. Development planning involves the utilization of design standards in planning and engineering in preparing and producing development or general plans such as metropolitan master plan, city plan, rural plan or disaster risk plans more for land use purposes than economic growth and investments. According to Ekong (2018), a plan is an official document that outlines and indicates by legislation detailed development policies concerning future physical development of a particular urban or regional settlements. To this, development control measures usually entail an organized monitoring and evaluation systems of development plans by setting up centralized authorities or bodies such as ministries, department and agencies (MDAs). An example is the Uyo City Capital Development Authority (UCCDA).

Urban and regional planning also assumes the public policy role of government occasioned by public interest, health and safety needs in the society. Planners are therefore interested in identifying the goals and ends, determine the means and programme to achieve these goals and ends through the planning process. Planning at this level becomes the official function of government by preparing alternative long, medium and short term urban and regional development plans through policy formulation, implementation, and monitoring and evaluation systems by the MDAs. Though planners act as specialists and catalysts in development planning decision-making role in the organization, coordination and use of support groups to garnish and present plans, the role is mostly viewed as political perhaps due to professional values and biases (Harman, 1980, Ogbazi, 2014). As a scientific discipline, the basic planning process includes data collection and analysis, plan preparation and presentation (with alternatives) as well as plan implementation and evaluation (Ekong, 2018). The actions

that combine and balance both technical and political aspects are the hybrid oriented through professional activeness, skillfulness, comprehensiveness and independency (Howe & Kaufman, 1979). Thus, conceptually, planning is strongly viewed in three dominant management activities: as a basic human activity concerned with the organization and control of future projected course of actions (Gulick, 1937). It is also considered as a rational choice based on utilization of scientific knowledge (Dahl, 1959). Planning is also directed towards reformation, change and social (public good) welfare by the use of democratic process in compensatory policies, programmes and projects (Waldo, 1948, Etzioni, 1968). These activities are strong agents for sustainable development achievement.

Concept of Sustainable Development

The concept of sustainable development evolved as a result of adverse economic and social impacts on the physical and socio-cultural environments particularly since the 19th Century industrial revolution. The concept became a global strategy with the Brundtland Report of 1987, for the World Commission on Environment and Development (WCED). The Report popularly referred to as “Our Common Future” provide its classical definition. It defines sustainable development as the “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. Although the Sustainable Development Resolution (SDR) was adopted by the General Assembly of the United Nations on 25 September, 2015, the principles of sustainable development had long begun as embodied in the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. Generally, Rio Summit was designed to put strong emphasis on the protection, conservation, and sound management of natural resources as well as addressing the concerns of disparities between the developed and developing countries in the patterns with regards to environmental stress, economic growth, poverty, unsustainable consumption patterns particularly in the later (Atakpa, 2019, 67). In addition, the World Summit on Sustainable Development (WSSD) also referred to as “RIO+10” was held in Johannesburg, South Africa in 2002 to broaden the scope of the Rio Summit in 1992. According to Shah, (2002), the key issues for discourse included poverty, water quality and availability, cleaner energy, health, good governance, technology as well as patterns of economic production and consumption. Others are ocean and fisheries, tourism, globalization and women’s rights.

Another significant global attempt at the principles of sustainable development was the Millennium Development Goals (MDGs) Resolution adopted during the UN Millennium Summit in the year 2000. The MDGs had 8 goals bordering at poverty, primary education, gender equality and empowerment, HIV/AIDS, environmental sustainability and global partnership for development (Wright and Boorse, 2011). On the whole, it is on these premises that the UN made the solemn declaration tagged “Transforming our world: the 2030 Agenda for Sustainable Development”. According to the UN (2015), the Agenda is a plan of action on cardinals “5Ps” to end poverty of the People; to protect the Planet through sustainable production and consumption; to ensure Prosperity for mankind; to foster global Peace without exclusion and violence and to ginger global collaborative Partnership among stakeholders to strengthen solidarity towards the needs of the poorest and vulnerable people and nations. The Agenda has 17 straight goals that are identifiable and measurable with 169 targets and 304 indicators. The Agenda also specifies a global partnership as the means of implementation with follow-up and review at national, regional and global levels (UN, 2015).

Generally speaking, sustainable development concept has three main structures; environmental, economic and social structures though cultural content is very potent as the fourth. In Figure 1 below, a sustainable or durable development is achieved over a viable eco-

economy; and livable neighborhood is achieved where natural resources are preserved, greenhouse emissions and wastes are reduced while clean water and sanitation facilities are available to all. This emphasizes green, blue and brown conservations against unsustainable human actions. Socio economic fairness will demand valuable lifestyles, access to individual's rights as well as inclusiveness and participation; to combat exclusion and inequality and promote solidarity, collaboration and partnership. These developmental attitudes can be envisioned through sustainable urban and regional development planning.

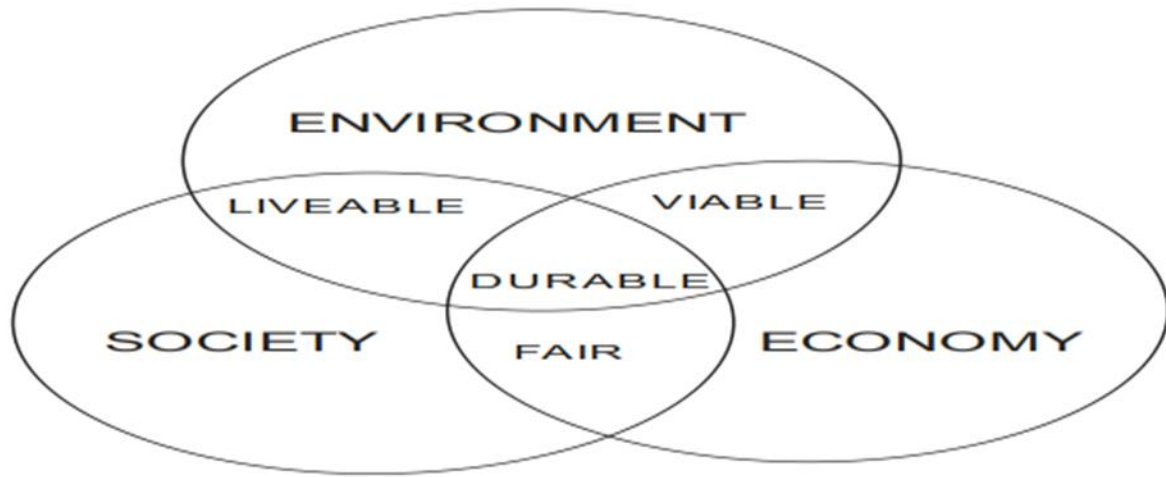


Figure 1. The structure of Sustainable Development

Source: Adopted from Greenly Earth, 2023.

Urban and Regional Planning within Development Planning Process in Nigeria

By development is meant creating the conditions for the achievement of human socio economic well-being and full personality (Ajayi, 2013). This can be accessed through reduction in (extreme) poverty level, unemployment, and inequality in income and social amenities. In most quarters, development planning is often referred to as economic development planning, which incorporates economic planning, physical planning and social planning actions. Obateru (2005) defines economic development planning as “the process of raising the standard of living of a society or country to a level of desirable well-being and self expression”. He points out that economic development planning is neither synonymous nor coterminous with economic growth. He also defines economic growth in terms of “the process of increasing per capita income or the gross national product (GNP) of a country over a sustained period of time through continuing growth of per capita productivity”. Thus, the overall aim of development planning is to safeguard and foster the growth of national economy through adequate welfare provisions including food and nutrition, housing, quality education, healthcare, recreational services and means of circulation that are in orderly, efficient, and economical in patterns. Economic development planning therefore is dependent on economic growth, or the growth of the nation's income capacity (Obateru, 2005).

Economic planning is the first popular stage of development planning. For a long time in the history of planning in Nigeria, economic development planning has been mistaken as economic planning itself. As a process, the primary objective of economic planning is to enable the achievement of critical national, regional, urban or local economy that is sufficient to ensure full employment and raising the standard of living of the people, while also being able to minimize inflationary trends. According to Obateru (2005) among other functions, economic planning is useful in physical planning as a means of balance in national development, in the

spatial distribution of population and employment with regards to available capital resources. Physical planning function, as already pointed out, even in development planning is basically concerned with the spatial organization of locating and allocating rural and urban land uses to create an environment that is orderly, economical, functionally efficient and aesthetically pleasant for all inclusive living, working, recreation and circulation. The techniques include land use planning, master planning, zoning regulations and subdivisions. For instance, in the urban areas, it is concerned with the spatial organization of residential, industrial, commercial and public systems for transportation, recreation, waste management, water and energy supply and communication networks etc, while contributing to raising the living standard of rural populace through natural resources conservation and provision of socio-economic and physical infrastructure for taming rural-urban drift.

At the national, state or regional levels, it is concerned with minimizing inequalities in development opportunities between the component entities. In the local scale, physical planning concerns about spatial arrangement of buildings, and structures of roads, utilities, community facilities and services for the purpose of achieving underlined goals (Obateru, 2005). Social planning or better still, social welfare planning is mostly practiced in socialist states though it is also practiced in mixed economic system like Nigeria. Lomas (1978) defines social planning as “the planning that seeks to achieve expanding opportunities for the raising of the standard of life of the whole population, through deliberate steps initiated in the main by government, influencing both economic activities and the physical environment when necessary to achieve this goal”.

NITP (2014), Ajayi (2013) and Asaju & Robert (2012) have outlined physical planning and national development efforts in Nigeria. They maintain that in the colonial period, development planning was a potential strategy for achieving economic development and social progress. They identify the two colonial national development plans in Nigeria to include the 1945-1955 Development Plan and the 1955-1960 Plan. The independence Development Plans include the First National Development Plan (NDP I) (1962-1968), the Second National Development Plan ((NDP II) (1970-1974), the Third National Development Plan (NDP III) (1975-1980) and the Fourth National Development Plan (NDP IV) (1980-1985). As observed, the National Development Plans in Nigeria were mainly focused on economic growth while physical and social developments were underrated (Obialo, 2005). For instance, the NDP I was focused on agricultural and industrial production that was aimed at achieving 4% growth rate per year of its GDP at constant process by investing 15% of its GDP annually. Some of these Plans were abruptly interrupted by the civil unrest and military interventions. The NDP II was post-war reconstruction Plan with a number of physical projects and social programmes including federal roads, the National Youth Service Corps (NYSC) and federal scholarship and loan schemes for the Nigerian students (NITP, 2014). Other National Development Plans also include the National Rolling Plan (in the 1990s), Vision 2010, and the Vision 20:2020 including National Economic Empowerment Development Strategy (NEEDS), State Economic Empowerment Development Strategy (SEEDS), the Local Economic Empowerment Development Strategy (LEEDS), the Millennium Development Goals (MDGs) and currently the Sustainable Development Goals (SDGs).

We now have the National Development Plan (NDP) 2021-2025 and Nigeria Agenda 2050 that is succeeding the previous Blueprint for Economic Recovery and Growth Plan (ERGP) 2017- 2020 and Nigeria Vision 20:2020 “Economic Transformation Plan”. The NDP 2021-2025 envisions to make Nigeria a country that has unlocked its potential in all sectors of the economy for sustainable, holistic, and inclusive national development with the following

objectives: To establish a strong foundation for a diversified economy, with robust MSME growth, and a more-resilient business environment; To invest in critical physical, financial, digital, and innovative infrastructure; To build a solid framework and enhancing capacities to strengthen security and ensure good governance and; To enable a vibrant educated, and healthy population; Investing in the social infrastructure and services required to alleviate poverty; and promoting development opportunities across states to minimize regional economic and social disparities (FRN, 2017). Poverty alleviation and social protection objectives, target and key performer indicators are presented in Table 1 below

Table 1: Poverty Alleviation and Social Protection Objectives and Targets

S/N	Objectives	Key Performer indicator	Baseline	Target
1	Significantly reduce poverty in Nigeria	Reduction in poverty headcount rate	40%	34%
2	Access to social services by the most vulnerable in the communities	Increase in number of POCs provided with relief materials (food, on-food, medical)	37,647	1,000,000
3	Design a social protection data ecosystem o reach the most vulnerable Nigerians	Share of vulnerable Nigerians with Digital identities (NIN and BVN (%)	Approximately 10%	95%
		Completeness of social protection data system (5)	Approximately 10%	90%
Sources: FRN (2017) NBS and NIMC for Baseline data; Target are projections				

PERSPECTIVES OF PLANNING AND SUSTAINABLE DEVELOPMENT

Environmental Planning and Management (EPM) Approach

The world today is faced with immense challenges of rising inequalities, youth unemployment, intense and frequent natural disasters, racial conflicts and violence and health threats as a result of unsustainable development patterns in different countries and communities (UN, 2015). According to Yator (Online), environmental planning and management evolved in the mid 20th Century as a potential tool for achieving sustainable development. He notes this process might have begun in 1972 at the UN Conference on the Human Environment in Stockholm through the Declaration of Sustainable Development Goals in 2015. Environmental planning and management is a new agenda for achieving sustainable environment and human development. It becomes a new way of how man can reorganize his thoughts, mobilize resources and take action in issues of development. The UNCH/UNEP (1993) defines Environmental Planning and Management as “a continuing and dynamically evolving process and procedure whose purpose is to formulate development policy and implement progressively more responsively to environmental considerations”. Sadeghi & Khakzand (2016) also describe EPM as “a general and integrated approach to deal with the environment beyond the traditional, professional and administrative borders directing toward guaranteeing long-term goal of environmental sustainability”.

Zannat (2017) gives another concept of EPM as the process of evaluating how social, political, economic and governance factors affect the natural environment when considering development issues. Thus the goal is not only decision making in managing relationships

within and between natural and human systems in most effective, orderly, transparent and equitable patterns, it has a view to ensuring efficient socio-economic production and consumption to guaranteeing ecological sustenance for coming generations. It therefore promotes resource conservation; construction of space development; enhance environmental quality; social equity and political participation. As a social, economic, political and ecological process, it provides protection and conservations of green (biodiversity resources), blue (wetland and marine ecosystems) and brown (humanity and human activities) against the impacts of destructive human activities (Zannat, 2017). The process of environmental planning and management follows four stages: the policy formulation and transmission into strategic and operational plans; plans approvals; implementations (management) of strategic and operational plans; and the follow-up by monitoring and evaluation to ensure ecological protection and conservation. This process is illustrated in Figure 2.

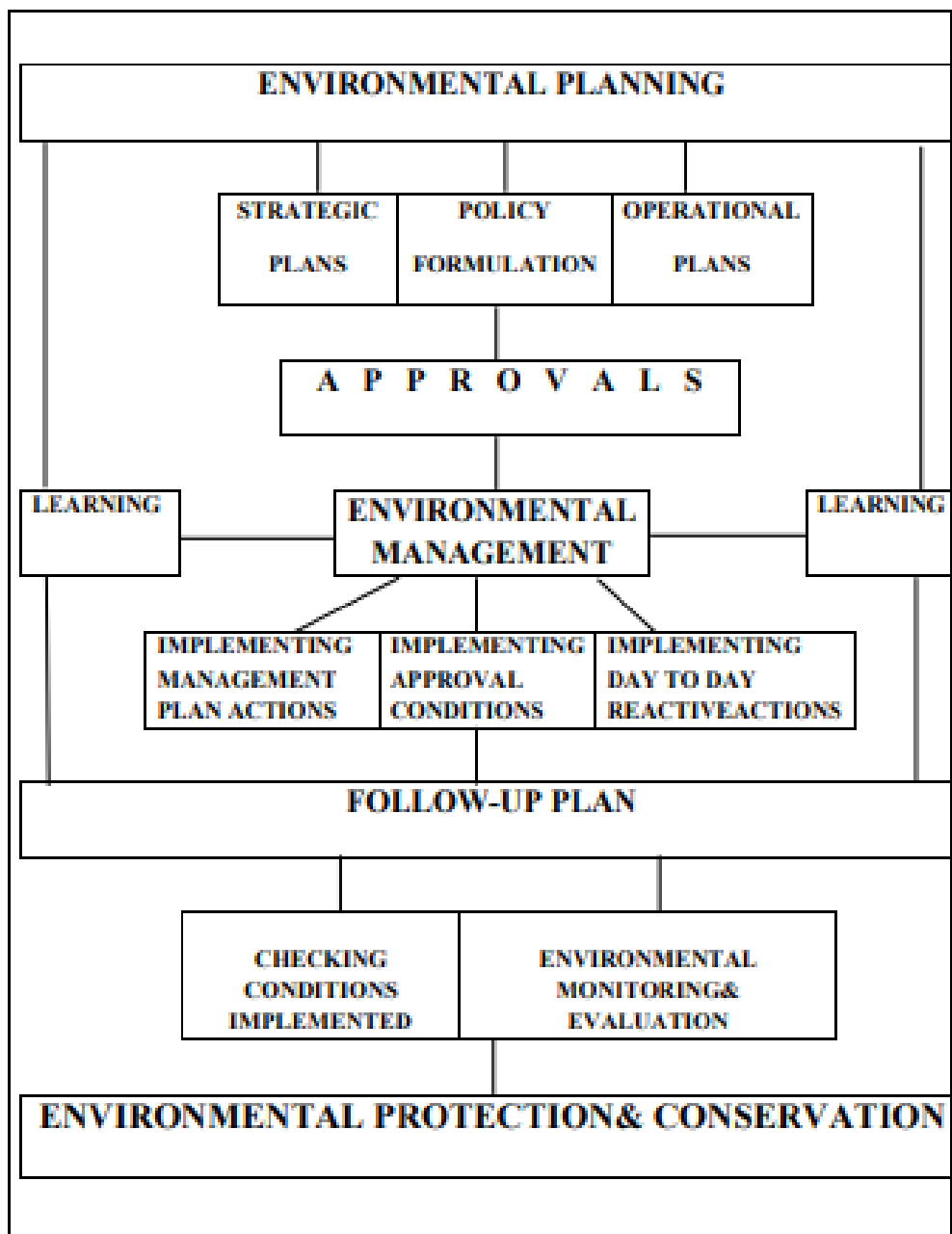


Figure 2 Environmental Planning and Management process

Source: Adopted from Esraz Ul Zannat (2017)

NITP AND TOPREC Educational Programme

There is need for environmental planning and management education. This is in two ways: to train and retrain practitioners in urban and regional planning; and to communicate trends of environmental space to the general public by way of enlightenment programme. One important area of effective communication is in the legal and constitutional development that concern urban and rural daily living. For example, most urban residents are ignorant about sanitation and waste management regulations, building codes and other rights and responsibilities arising from acts of parliament on urban and rural life. In other words most of the regulations made by the local councils, state houses of Assembly and the National Assembly are unknown to those who are to carry them out. Ekong (2020) proposes the need to communicating climate change in Africa through the “theatre” for development process. The proposal is on the basis of successful community project by Nda (2007) in Ikot Ayan Itam in Itu. Ekong opines that the theatre communication project should be well organized and planned through consultation with the community, meeting with the community, meeting with the volunteer performance group, scripting, casting, rehearsals, venue, the performance as well as monitoring and evaluation. This is another EPM model in communication.

There are two important organs in the structure of formal education and training for urban and regional planners in Nigeria, these are: the Nigerian Institute of Town Planners (NITP) and The Town Planners’ Registration Council of Nigeria (TOPREC). The NITP is the recognized professional body for URP practitioners in Nigeria through the TOPREC Decree No. 3 of 1988. In 1992, Urban and Regional Planning Law (Decree NO. 88 of 1992) was promulgated. NITP Constitution (2010) provides for its aim and objectives. The aim of NITP is:

“to guide the path for all developmental activities and to ensure for man an environment which is livable, healthy, friendly, efficient and economically viable, through ethical professional training and practices that are responsive to needs and societal dynamics”

The objectives include but not limited to:

- (i) To create awareness of the significance of planning and relationship with the society;
- (ii) To advance town and country planning education, training and research in Nigeria; (iii) To hold conferences, seminars, meetings and exhibitions, for the purpose of disseminating planning information and knowledge;
- (iv) To publish the journal of the Institute as its official organ and the issuance of newsletter
- (v) To protect the practice of the profession and promote the welfare of its members
- (vi) To establish an Education Board charged with the responsibilities of devising and imposing the means for testing the qualifications candidates for elections Corporate, Graduate or Student members etc.

On the other hand, the Town Planners’ Registration Council of Nigeria (TOPREC) is the Regulatory Council established for Town Planning under CAP 431 (T7) Laws of the Federal Republic of Nigeria 2004 (NITP, 2010). Thus the Council and the Institute in collaboration organize annual Mandatory Continuing Professional Development Programme (MCPDP) on contemporary issues that border on the theory and practice of the profession. This is often held in three centres within the country. According to NITP (2014) between 1995 and 1999, 5 workshops had been organized; between 1999 and 2014, 16 MCPDP were organized; and

between 1969 and 2012, 44 Annual Conferences were successfully organized. For example “the Role of Physical Planning and Development in Poverty Alleviation’ was the theme for 2000 Annual Conference in Minna. These workshops, MCPDPs and Conferences are sources of urban and regional planning desirable and progressive impacts for the Sustainable Development Agenda in Nigeria. (See MURP and PhD educational curricula in Table 2).

Table 2: The Curricula for Master in Urban and Regional Planning (MURP) and Doctor of Philosophy in Urban and Regional Planning.

MASTER OF URBAN AND REGIONAL PLANNING PROGRAMME FIRST YEAR-FIRST SEMESTER COURSES (600 LEVELS)			
S/N	Course Code	Course Title	Units
1	URP 611	History of Cities and Urban Planning	2
2	URP 621	Project Evaluation	2
3	URP 623	Environmental Analysis in Physical Development Planning	2
4	URP 625	Traffic and Transportation Planning	2
5	URP 631	Quantitative/ Research Methods and Computer Applications	2
6	URP641	Design Studio	2
SECOND SEMESTER COURSES			
1	URP 622	Planning Theory	2
2	URP624	Regional Development Planning	2
3	URP 626	Rural Development Planning	2
4	URP628	Housing Process and Policies	2
5	URP642	Urban and Regional Planning Workshop	2
6	URP 652	Professional Planning Practice	2
7	URP656	Urban Planning Law and Administration	2
SECOND YEAR- FIRST SEMESTER COURSES (700 LEVELS)			
1	URP 721	Contemporary Issues in Urban Planning Theory & Practice	1
2	URP 731	Research Methodology in Urban and Regional Planning	2
3	URP 733	Information Technology in Urban & Regional Planning	1
4	URP 741	Urban Design / Planning Workshop	1
5	URP 791	Research Seminar in Urban & Regional Planning	2
SECOND YEAR- SECOND SEMESTER COURSES			
1	URP 794	Project Report	8

2	Urp 796	Dissertation / Thesis	10
3		One course in the specialty area of dissertation from the a special subject Area.	2
Source: Uchegbu, 2010			

CONCLUSION AND RECOMMENDATION

Urban and regional planning is a unique scientific, rational, analytical, futuristic and technically skilled discipline oriented toward spatial problem-solving, change and decision management with its distinctive conceptual and procedural theories. From the Garden City through City Beautiful Movement civilizations to this Sustainable Development Agenda, urban and regional planning discipline and profession has continued to impact meaningfully in the management of ecological, spatial, human and infrastructural resources for sustainable coexistence and development. Urban and regional planning principles and sustainable development goals are founded on the cardinal pillars of environment, society and economy and are therefore oriented toward providing viable, equitable, livable and durable environment for human living, working, recreation and circulation to control widespread extreme poverty, hunger and social inequality in our generations.

Thus, Urban and Regional Planning is an interdisciplinary and multidimensional discipline just like Sustainable Development Agenda. The application of Environmental Planning and Management (EPM) approach in Urban and Regional Planning is therefore complementary to land use planning, Master planning, Development control, Zoning Regulations and Land Subdivision in achieving Sustainable Development Agenda. Furthermore, Planning Education is a major asset to Sustainable Development Agenda. Urban and Regional Planning educational and development programmes, and projects require huge and phase funding; and it is only when they are well funded that the envisioned dividends of Sustainable Development Agenda will be visible in 2030.

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MARKET ENTRY STRATEGIES AND THEIR EFFECT ON SALE MARGINS: A STUDY OF FOREIGN BRANDS IN NIGERIA

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ABSTRACT

This research investigates the market entry strategies employed by foreign brands in Nigeria and their impact on sales margins. With the increasing globalization of markets, understanding how companies enter and navigate foreign markets is crucial for both scholars and practitioners. Nigeria, as a rapidly growing economy in Africa, serves as a pertinent case study for exploring the dynamics of market entry and its subsequent effects on sales performance. The study employs a mixed-methods approach, combining qualitative and quantitative analyses to gather comprehensive insights. Qualitative data is gathered through in-depth interviews with key stakeholders, including representatives from foreign brands, local distributors, and regulatory authorities. Quantitative data is obtained through surveys and financial analysis of sales margins. The study revealed that foreign brands adopt diverse market entry strategies, ranging from joint ventures and strategic partnerships to wholly-owned subsidiaries. The choice of strategy often depends on the industry, the regulatory environment, and the brand's specific objectives. Establishing a strong local presence through partnerships with Nigerian companies appears to be a common and effective approach, providing valuable insights into the local market and facilitating smoother operations.

KEYWORDS: **MARKET; MARKET ENTRY; SALE MARGINS; FOREIGN BRANDS IN NIGERIA**

INTRODUCTION

International business is any commercial transaction that crosses the borders of two countries (Obatu, 2021). It comprises a large and growing portion of the world's total business. International business comprises a large and growing portion of the world's total business. Today, global events and competition affect almost all companies, large and small, regardless of industry. This is the result of selling output to and securing supplies and resources from foreign countries, as well as competing against products and services from abroad (Ssebugwawo, 2010). Thus, most managers need to approach their operating strategies from an international standpoint. Companies operating internationally have more diverse and complex operating environments than those that conduct business at home. International

business has been going through the most fundamental and far-reaching process of change in the post-World War II period (Kutkut, 2020). The implications of this change pose a significant challenge both to industry and government throughout the world and promise to alter not only the nature and structure of competition but also the balance of economic power (Magunga, 2010). The increase in globalization has also contributed to companies re-examining the manner in which they do business internationally, forcing them to adopt global strategies for survival (Mugeni, 2020).

Thus, there is a rapid growth of strategic alliances between firms in various parts of the world in a desperate attempt to gain economies of scale in production, distribution, and marketing. At the center of international business are multinational corporations. Various definitions propose different criteria for multinational corporations (Ishimwe, 2020; Kagabo, 2021; Magunga, 2010; Mutio, 2020). Among these notions and definitions is the examination of different metrics. A multinational firm is one that is structured so that business is conducted or ownership is held across a number of countries, or one that is organized into global product divisions (Avulyte, 2014). The specific ratio of foreign business activities or assets to total firm activities or assets is another criteria used in the definition of multinational corporations (Cheptegei, 2021). A multinational firm is one where a firm earns a certain percentage of its earnings, assets, sales, or personnel from or in foreign locations (Mutambah, 2021). Another definition is based on the perspective of the corporation in relation to the scope of its activities. This definition holds that if the management of a corporation has the perception and the attitude that the parameters of its sphere of operations and markets are multinational, then the firm is indeed a multinational corporation (Mwende, 2020). The definition of a multinational has ownership, global products, and mixed nationalities of management as other determining characteristics (Wagitu, 2011).

While the entry of foreign brands into Nigeria presents opportunities for market growth and development, it also poses challenges related to the dynamics of sales margins. Understanding the specific issues and factors influencing sales margins in the context of market entry strategies is crucial for both foreign entrants and the local business environment. This study seeks to identify and address these challenges in order to contribute valuable insights to academic discourse and practical business applications.

There is a need for foreign businesses to determine the mode of foreign entry that best suits their objectives and strategic fit in the foreign business environment (Ngendo, 2021; Njui, 2020; Nyaga, 2014; Nyakango, 2020). The entry mode chosen has a major impact on the level of control the multinational enterprise has over the venture (Varmah, 2021). Huge amounts of funds are involved in international business, and the choice of a particular entry mode is very significant for the business across borders. It can also be defined as the process by which firms both increase their awareness of the direct and indirect influences of international transactions on their future and establish and conduct transactions with other countries (Wanjiru, 2020). Business firms are currently interested in international markets due to shifts in demand and supply characteristics in markets throughout the world, as well as the ever-changing competitive environment (Mumelo, 2021). The process of finding new markets has therefore prompted an increasing number of firms to develop strategies to enter and expand into markets outside their home countries (Folea, Nurul, & Ajayi, 2008). The selection of foreign markets and entry modes therefore lies at the heart of any business or organization that aspires to operate internationally (Njui, 2020). Firms may pursue internationalization for a variety of reasons. Some of the motives may be proactive, while others could be reactive (Mokeira, 2020; Muchiri, 2021; Mugeni, 2020). A good example of a reactive motive is the need to serve a key customer

who has expanded abroad (Munyao, 2020). On the other hand, a proactive motive would be to tap foreign market opportunities or acquire new knowledge. Most firms enter regional markets sequentially, beginning in markets with which they are more familiar. They also introduce their largest and strongest lines of business into these markets first, followed by their other lines of business once the first lines are successful (Wagitu, 2011).

They also need to devise entry strategies that will position them to take advantage of the opportunities in the economy in a sustainable manner (Lepa, 2021). For an international firm to enter a foreign market, it is a function of various parameters, some of which are firm-specific; others are influenced by the foreign business environment; and others are influenced by the very context in which the decision is being made (Ngendo, 2021). Entry modes are very challenging for international business managers, and the wrong decision on entry mode choice can be very costly to organizations in terms of time and resources (Ndwiga, 2021). Research shows that a firm's foreign market entry strategy is directly related to the firm's performance. An appropriate strategy can be an important source of competitive advantage in a new market and, on the other hand, can be a competitive liability leading to a competitive disadvantage (Mutio, 2020; Ndwiga, 2021). Most multinational corporations would prefer to remain domestic, but several factors push them into entering foreign markets. Some of these factors are: higher profit opportunities in international markets; the need for a large customer base to achieve economies of scale; reducing dependency on any one market; counterattacking global competitors in their home markets; and global customers who need international service (Cheptegei, 2021; Kagehe, 2021; Kavata, 2020; Kiandiko, 2010). Organizations require massive amounts of time, energy, and personnel on a national level. Adding an international component greatly intensifies the amount of resources needed; this commitment is staggering and is generally avoided by many domestic businesses (Avulyte, 2014). Organizations must consider many factors before going international; among other things, they must evaluate their personnel, assets, international experience, and the suitability of their products. The organization should review these factors in terms of its overall short-term and long-term strategic goals and objectives (Ishimwe, 2020). Organizations have to review all these factors in order to use the appropriate entry strategy to enter a foreign market (Kiandiko, 2010). Nigeria is the largest economy in Eastern Africa and among the biggest in Africa, and this study wishes to explore the different market entry strategies adopted by multinational corporations and the challenges associated with those strategies.

Objectives of the Study

1. The primary objectives of this research are as follows:
2. To analyze the effect of market entry strategies on sale margins in the Nigerian context.
3. To identify the factors influencing the success or failure of market entry strategies in relation to sale margins.

Research Questions

1. To guide the investigation, the following research questions are formulated:
2. How do market entry strategies impact the sale margins of foreign brands in the Nigerian market?

3. What are the key factors influencing the success or failure of market entry strategies concerning sale margins in Nigeria?

THEORETICAL FRAMEWORK

Transaction cost theory

Among the four perspectives, transaction cost theory is the most frequently used theoretical perspective (Brouthers and Hennart, 2007). Transaction cost theory is concerned with the costs of transacting in the market and states that the boundaries of firms are determined by firms selecting the governance structure that minimizes the transaction costs of carrying out their activities (Williamson, 1985). The theory is based on two behavioral assumptions, namely bounded rationality and opportunism. According to Williamson (1985), three factors influence transaction costs and thereby the choice of governance structure: asset specificity, internal and external uncertainty, and task frequency. According to Anderson and Gatignon (1986), the entry mode decision is a trade-off between control and resource commitment.

When the transaction costs of operating in a particular foreign market are low, firms utilize the market. In other words, the default entry mode under the transaction cost perspective is a low resource commitment mode, such as exporting. When the transaction costs of operating in a foreign market are higher, the need for control is higher, and firms must engage in an entry mode that involves a higher commitment of resources, such as establishing a subsidiary abroad.

METHODOLOGY

This research adopts the expost-facto survey method, combining qualitative and quantitative data collection methods. The review of the literature was done using the variables of the research objectives. This was accomplished by employing past research works, academic journals and textbooks, and an inspection of selected renewable energy firms operating in Nigeria. Using a similar method proposed by Krecie and Morgan (1970), a sample of 196 respondents who indicated working for or promoting foreign brands was selected from a pool of more than 15321. A snowball sampling method was also used to find the respondents. The questionnaires were distributed using Google Forms and administered to sampled respondents via WhatsApp group and email, and their responses were included in the study. The snowball sampling method prevented researchers from visiting respondents in person to collect information. As participants were already linked to one another, the snowball method was effective in locating them. The collected data were analyzed using appropriate statistical techniques, such as regression analysis, to test the null hypothesis.

DATA ANALYSIS AND RESULTS

Table 1: Analysis of Age Distribution of the respondents

Age	No. of respondents	% of Percentage
18 years	9	4.59
19-24 years	30	15.31
25-29 years	73	37.24
30-34 years	76	38.78
40-45 years	8	4.08
Total	196	100

Table 1 above shows that nine (9) respondents representing 4.59% of the sample were between the ages of 18 and 24, thirty (30) respondents representing 15.31% were between the ages of 19 and 24 years, seventy-three (73) of the respondents representing 37.24% were 25 and 29 years, respectively, and seventy-six (76) respondents representing 38.78% of the sample were between the ages of 30 and 34 years, and eight (8) respondents representing 4.08% were within the age range of 40 and 45 years.

Table 2: Analysis of Marital status of the respondents

	No. of Respondents	% of Respondents
Married	154	78.57
Single	42	21.43
Total	196	100

Table 2 shows that one hundred and fifty-four (154) respondents, representing 78.57% of the sample, were married women, and forty-two (42) respondents, representing 21.43%, were single, respectively.

Table 3: Highest Level of Education of the respondents

	No. of respondents	% of Percentage
RN	56	28.57
B.Sc	47	23.98
PGD/ M.A/M.Sc./M.Ed./LL.M/MBA/M.Phil./Ph.D.	22	11.22
Total	196	100

Table 3 above shows that fifty-six (56) of the respondents representing 28.57% were RNs, forty-seven (47) respondents representing 23.98% of the sample were B.Sc. holders, and twenty-two (22) respondents representing 11.22% were PGD/M.A./M.Sc./M.Ed./LL.M./MBA/M.Phil./Ph.D. holders.

Answering of Research Questions

Research Question One:

To analyze the effect of market entry strategies on sale margins in the Nigerian context.

Table 4: Mean rating analysis of the effect of market entry strategies on sale margins in the Nigerian context

Sn	Items	X	SD	Decision
1	The chosen market entry strategy significantly influences our sales margins in the Nigerian market.	3.05	1.65	Agree
2	Adopting a joint venture or partnership approach has positively impacted our sales margins in Nigeria.	2.97	1.39	Agree
3	Adopting a joint venture or partnership approach has positively impacted our sales margins in Nigeria.	2.95	1.36	Agree

4	The level of government regulations in Nigeria influences the success of our chosen market entry strategy in terms of sales margins.	3.21	1.41	Agree
5	investing in local advertising and promotional activities has a direct impact on improving sales margins in the Nigerian market.	2.98	1.48	Agree
	OVERAL INDEX	3.03	1.45	Agree

Legend: X = Mean; SD = Standard Deviation; N: 196

Table 1 presents the findings of the research study pertaining to the effect of market entry strategies on sale margins in the Nigerian context. The entire index had a grand mean of 3.03 and a standard deviation of 1.45. Item 4 indicates that the assertion “improved ergonomic conditions would lead to a reduction in absenteeism and sick leaves” has the highest average score of 3.21. Conversely, the statement "Market entry strategies on sale margins in the Nigerian context" has the lowest mean score of 2.95 and a standard deviation of 1.36. Therefore, based on the above analysis, the effect of market entry strategies on sale margins in the Nigerian context

Research Question Two:

To identify the factors influencing the success or failure of market entry strategies in relation to sale margins.

Table 5: Mean Rating analysis of the factors influencing the success or failure of market entry strategies in relation to sale margins.

SN	ITEMS	X	SD	DECISION
1	The alignment between our market entry strategy and the local market conditions significantly impacts the success of our sales margins.	3.27	1.55	Agree
2	Effective market research and analysis play a crucial role in determining the success of our market entry strategy in relation to sales margins.	3.21	1.24	Agree
3	The adaptability of our market entry strategy to the cultural nuances of the target market is a key factor influencing sales margins.	2.85	1.35	Agree
4	The effectiveness of our marketing and promotional activities is a critical factor in determining the success of our market entry strategy and subsequent sales margins.	3.04	1.33	Agree
5	The regulatory environment in the target market plays a pivotal role in the success or failure of our market entry strategy with respect to sales margins.	2.88	1.58	Agree
	OVERAL INDEX	3.04	1.41	Agree

Legend: X = Mean; SD = Standard Deviation; N: 1996

Table 2 presents the findings of the research study pertaining to the factors influencing the success or failure of market entry strategies in relation to sale margins. The entire index had a grand mean of 3.04 and a standard deviation of 1.41. Item 1 indicates that the assertion "Collaboration enhances the exchange of innovative ideas among individuals and groups, contributing to the emergence of new business ventures" has the highest average score of 3.45. Conversely, the statement "collaborative interactions facilitate the pooling of diverse skills and expertise necessary for the successful launch of new businesses" has the lowest mean score of 2.88 and a standard deviation of 1.53. Therefore, based on the above analysis, the factors influencing the success or failure of market entry strategies in relation to sale margins

Conclusion

In conclusion, this study sought to explore the market entry strategies employed by foreign brands in Nigeria and their impact on sales margins. Through an in-depth analysis of various case studies and market dynamics, several key findings have emerged, shedding light on the complexities of entering and thriving in the Nigerian market.

The study revealed that foreign brands adopt diverse market entry strategies, ranging from joint ventures and strategic partnerships to wholly-owned subsidiaries. The choice of strategy often depends on the industry, the regulatory environment, and the brand's specific objectives. Establishing a strong local presence through partnerships with Nigerian companies appears to be a common and effective approach, providing valuable insights into the local market and facilitating smoother operations.

The study found a nuanced relationship between market entry strategies and sales margins. Brands that invested in building robust local infrastructure and engaged in community-focused initiatives tended to experience higher sales margins over time. Additionally, those that effectively leveraged digital marketing and e-commerce platforms witnessed a positive impact on sales, indicating the importance of aligning strategies with the evolving consumer landscape.

Recommendations

Companies entering the Nigerian market while applying a franchising model will not face a major number of internal and external factors that would affect them in a significant or unhelpful way, causing their operations to fail. Moreover, it was shown that franchising as an entry strategy favors the food industries.

It is also recommended that since imports are the cheapest and easiest way to go global, industries in the food and beverage sector should first embark on imports as their first entry strategy, and as the business grows, other foreign market entry strategies can be considered.

As for the firm that wants to go global, it is significant to analyze the external and internal factors firsthand before making a decision. Then, to choose the most suitable way of entering among the possible entry modes, find the most effective and efficient way for the company's international expansion.

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UTILIZATION OF MATHEMATICS INSTRUCTIONAL MATERIALS IN SENIOR SECONDARY SCHOOLS IN AKWA IBOM STATE

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ABSTRACT

The study investigated the utilization of Mathematical Instructional Materials in Senior Secondary Schools of Akwa Ibom State. A total of twenty two (22) schools were sampled using random sampling from the three Senatorial Districts of the state. Random sampling technique was used to select forty (40) Mathematics teachers and two hundred and sixty (260) students from the sampled schools. Three research questions were formulated and three hypotheses were tested. t-test statistics were used to determine the extent of utilization of mathematics instructional materials at 0.05. The research instrument was Mathematics Instructional Materials Rating Scale (MIMRS), with the reliability coefficient of 0.75. The result of the research shows that there is a deficiency in the utilization of Mathematics instructional materials. The result of the research also revealed that there is a significant relationship between utilization of Mathematics Instructional material in the teaching of mathematics in Akwa Ibom State. The recommendation from the study is that Mathematics teachers should endeavour to utilize the available instructional materials for effective teaching of mathematics in secondary schools. Also the government should provide enough instructional materials for mathematics education in secondary schools.

Introduction

Effective teaching and learning of any subject depends on the utilization of suitable instructional materials. This is mostly noticed in many secondary schools subjects such as Mathematics. Aboula (2003) stated that instructional materials are major part of the teaching and learning process and that the aims and objectives of education are achieved primarily on the effective utilization of instructional materials. National Teachers Institute (2002) defined instructional materials as those resources which promote the effectiveness of instruction. Also, Umar (2004) stated that instructional resources which promote the effectiveness of instruction. Also, Umar (2004) stated that instructional resources facilitate the teaching of the subject matter with increasing effectiveness at all levels of learning. In the same vein, Olubor (2008) stated that instructional materials are the resources that both teachers and students use to influence the effectiveness of teaching and learning process. In other words, for teaching of Mathematics to be effective and efficient, it is compulsory for teachers to make use of varieties of instructional materials. Adekuole (2011) emphasized that there was no adequate instructional material in teaching and learning process in Ogun State. Similarly, Liman (2004) observed that in post primary school in Bida, 70% of students said mathematics teachers did not have instructional materials to utilize in the teaching and learning of mathematics. Thus,

mass failure a reported in some research works could be traced to ineffective utilization of the available resources.

Statement of the Problem

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

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

Purpose of the Study

The study sought to:

1. Find the extent of utilization of available Instructional materials.
2. Find the extent of which the mathematics instructional materials are utilized in private and public schools.
3. Determine the extent of which the mathematics instructional materials are utilized in urban and rural schools.

Research Questions

1. To what extent do teachers utilize mathematics instructional materials in senior secondary schools of the study area?
2. To what extent is the mathematics instructional materials utilized in private and public schools?
3. To what extent is the mathematics instructional materials utilized in urban and rural schools?

Hypotheses

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

- Ho₁: There is no significant difference between the mean rating of teachers and student of the extent of utilization.
- Ho₂: there is no significant difference between the mean rating of private and public schools on the extent of utilization.

H₀₃: there is no significant difference between the mean rating of urban and rural schools on the extent of utilization.

METHODOLOGY

The design of this research work is a descriptive survey that was conducted to find out the utilization of Mathematics Instructional Materials in Senior Secondary Schools in Akwa Ibom State. The researcher used combinations of stratified, simple random sampling as well as purposive sampling techniques to get the sample of respondents for the study. Stratified sample were used to select schools. The categories consist of boys and girls in Senior Secondary Two (SS II) class and Mathematics teacher of the selected schools in Akwa Ibom State. These helped reduced bias in the selection of schools. Simple random sampling technique using balloting method was used to select the 22 secondary schools in the sample area. The researcher selected 40 Mathematics Teachers and 260 students from the sampled schools. This enables both teachers and students' have equal opportunity to participate in the study.

Data Presentation and Results

Hypothesis One

H₀₁: There is no significant difference between the mean ratings of teachers and students on the extent of utilization of mathematics instructional materials.

Table 1: t-test Analysis on the extent of utilization of mathematics instructional materials

Respondents	N	\bar{X}	SD	t-cal	df	t-crit	Remarks
Teachers	40	1.99	0.41	3.18	298	1.96	significant
Students	260	1.78	0.17				

Hypothesis Two

H₀₂: There is no significant difference between the mean rating of Private and Public school on the extent of utilization.

Table 2 t-test Analysis of the difference between mean rating of private and public schools on the utilization of instructional materials

Respondents	N	\bar{X}	SD	t-cal	df	t-crit	Remarks
Private School Students	84	2.35	0.23	7.50	258	1.96	significant
Public School Students	176	2.17	0.17				

Hypothesis Three

H₀₃: There is no significant difference between the mean rating of urban and rural secondary schools in the utilization of mathematics instructional material in Akwa Ibom State.

Table 3 t-test Analysis of the difference between urban and rural schools on the utilization of instructional materials.

Respondents	N	\bar{X}	SD	t-cal	df	t-crit	Remarks
Urban School Students	140	2.35	0.29	6.80	258	1.96	significant
Rural School Students	120	2.18	0.21				

Discussion of Findings

- One salient finding was the fact that the extents of utilization of Instructional materials was low. It has also been observed that the condition of the mathematics instructional materials is poor and shabby.
- It was observed that the type of school influences the Utilization of instructional materials. This is because out of twenty two schools, mathematics instructional materials were available in five private schools and only two public schools.
- Also, the result shows that mathematics instructional materials were properly utilize in private schools than in public schools.
- Furthermore, results show that mathematical instructional materials were properly utilized in urban schools then in rural schools.

Conclusions

- Based on the study findings, it was observed that: the utilization of mathematics instructional materials influences students' achievement.
- The extent of teachers' utilization of mathematics instructional materials during lessons with the students influences academic performance of students. This is true because without availability of the required instructional materials for any topic, such topic cannot be taught successfully.
- Finally, it has also been discovered that utilization of mathematics instructional materials has significant influence on academic achievement of students. Actively participating in concrete example are retained longer than abstract symbols.
- Furthermore, for effective learning to take place, learners must have access to adequate instructional materials.

Recommendations

The following recommendations were made.

1. The teachers should to utilized the available instructional materials for effective teaching and learning of mathematics.

2. Government should ensure the adequate employment of dedicated and qualified mathematics teachers to teach the subject in all secondary schools.
3. Recommended textbooks of mathematics should be made available to all secondary schools.
4. Teachers should attend conferences, seminars and workshops on utilization of mathematics instructional materials.

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PROVENANCE STUDY OF SEDIMENTS FROM OWUWU RIVER, OKHUOKHUO, EDO STATE, NIGERIA.

BY

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ABSTRACT

Sixteen samples obtained from Owuwu river in Okhuokhuo area, Edo state, Nigeria. Used for grain size and petrographic analysis. The result of the grain size analysis revealed that the grains ranged from very coarse grained to medium grained, very well sorted to poorly sorted, coarse skewed to strongly fine skewed, and very platykurtic to leptokurtic grain. Petrographic study shows that the sediments are composed of mainly quartz (A.V 92.4%), feldspar (A.V 2.68%), Rock fragments (2.62%), Garnet (0.8%), Tourmaline (0.7%) and Rutile (0.6%). More so, observation from petrographic study revealed that the grains are angular in shape. This indicates a short distance of transport and also suggest depositional history close to source. The heavy mineral analysis shows that the sediments consist of heavy minerals which include zircon, rutile, tourmaline, sillimanite, garnet, apatite and opaque minerals. These mineral assemblage reflect sediments contribution mainly from a regional metamorphic terrain with considerably input from acid igneous rock, this suggests that the sediments were probably derived from the magmatic – gneiss complex of the Oban massif and the schist belt of the South – Western Nigeria basement

INTRODUCTION

Provenance study referred to the origin of materials or source area. The source area could be determined using various criteria such as maturity of the sediment, quartz type and rock fragments.

Sediment studies are relevant in discussing the sources of sediment such as weathering process broad scale and diffuse or localized to site specification sources via erosion and socio-economic activities of man (Tamene et al., 2005; Sear et al., 2003). Sedimentary rock often consist of features (such as mineral grains , sedimentary structures and fossils) which bear similarities to those of the pre-existing rocks that ended, and supplied sediments that eventually lithified to give rise to the sedimentary rocks source area (provenance) of such sedimentary rock can be referred using these features that survived the whole journey before they laid down (Friedman and Sanders, 1978). The present study tends to address the provenance of stream sediments from owuwu river, Okhuokhuo Edo state, Nigeria.

GENERAL OBJECTIVES OF THE RESEARCH

The general objective of this research is to investigate the provenance of river owuwu sediments,

SPECIFIC OBJECTIVES OF THE RESEARCH

The specific objectives of this study are to.

- Determine the particle size distribution
- Determine the mineralogical composition of the sediments
- Determine the provenance of the sediments

LOCATION MAP OF THE STUDY AREA

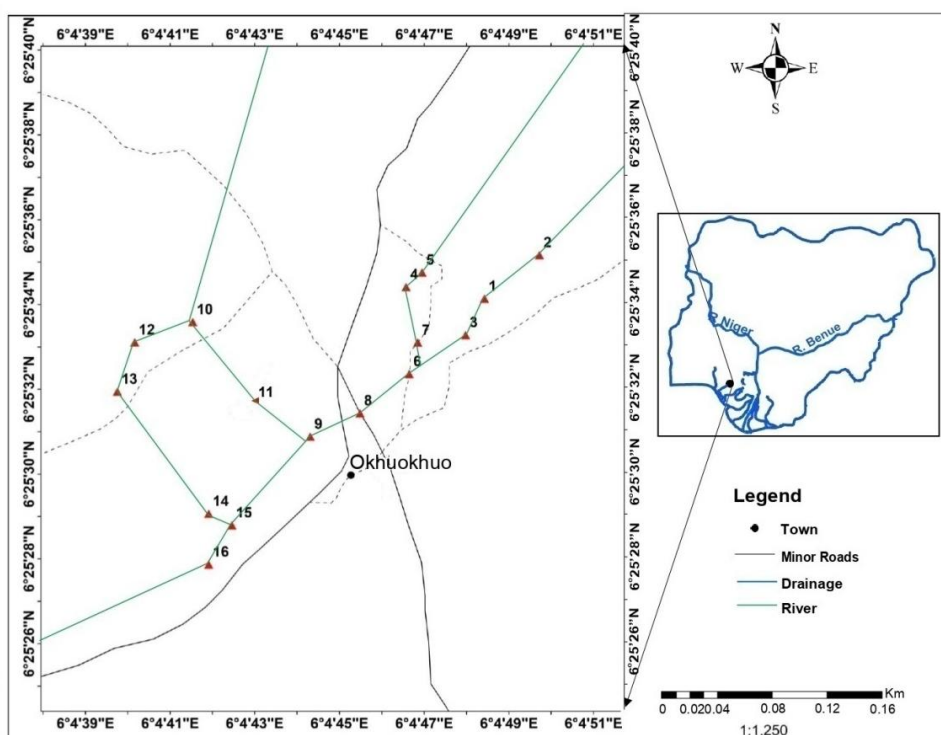


Fig 1. Location map of the study area showing the sample points. Inset: Map of Nigeria showing study area (black dot)

GEOLOGY OF THE STUDY AREA

The study area lies within the Ogwashi – Asaba Formation of the Niger Delta Basin in Southern Nigeria. The formation is characterized by widely differing lithologies comprising alternation of clays sands and lignite's. The Niger Delta Basin extends from latitude 3° and 6°N and longitude 5° and 8°E. Niger Delta is one of Africa's greatest subaerial basins. It covers around 75,000km² of subaerial area, 300,000 km² of total area, and 500,000 km³ of sediment fill. The Niger Delta Basin is located in the continental margin of Southern Nigeria.

The Niger Delta is situated between the Benue Trough and the Equatorial Atlantic Ocean. Its tectonic evolution is related to the development of a triple junction formed as a result of rift faulting of the Precambrian basement. The triple junction and the basement blocks aligned in a NE – SW and NW – SE trends are believed to have developed during the continental rifting and separation of Africa from South America. To the East, the Niger Delta extends to the Calabar flank, and bounded by the Oban Massif. Webber noted that the Niger Delta was formed by a set of older and stable mega – tectonic elements (e.g. along the Benin and Calabar Hinge lines). The basin is bounded in the North by the cretaceous Anambra Basin.

The pro- delta unit of the Niger Delta developed in the Northern part of the basin during the Campanian transgression and ended with Paleocene transgression. Formation of the modern Delta began during the Eocene, three major depositional environments that are characteristic of most deltaic environments (marine, mixed and continental) are observable in the Niger Delta. These environments and associated deposits correspond to the Akata, Agbada and Benin Formations. The paleo – Niger – Benue River system supplied majority of the ancient deltaic sediments. The Akata and Agbada Formations are only found in the subsurface; the Ameki group and the younger Ogwashi - Asaba Formation are the outcrop equivalents of the Akata Formation.

METHODOLOGY

The research method employed for this study includes:

- Field study
- Sample preparation
- Laboratory analyses

FIELD STUDY

A field study of the sample area was made on reaching the field Geographical locations with elevation where noted with the aid of a global positioning system (G.P.S). Samples of streams sediments were collected and labeled for laboratory analysis.

SAMPLE PREPARATION

Total of sixteen (16) samples were collected in the study area. The samples collected were air dried prior to analysis. The contents of each sample bags was then divided into four parts, a portion be used for grain size analysis, heavy mineral analysis, petrographic analysis and geochemical analysis.

LABORATORY ANALYSES

Grain Size Analysis

Heavy mineral separation

Petrographic analysis (Thin Section)

Grain Size Analysis

100 grams (G) of each samples was weighed with the aid of a measuring balance and passed through a set of seven (7) sieve with different mesh openings ranging in size from 2.30 to 0.63 mm. the separation of the various grains sizes was made possible by the manual shaking the sieve set, maintaining a circular motion for at least fifteen (15) minutes. The content remained in each sieve was ten measured and each measurement recorded. The retained weights were used for the construction of cumulative curves. Various parameters were calculated from the constructed grain sized distribution curves. Using the method of Folk and Wards (1957).

Heavy Mineral Separation

Sample were air dried for 24 hours, a separating funnel was mounted and filled to $\frac{3}{4}$ full of bromoform, the soil samples is then poured into the separating funnel containing bromoform and stirred, the heavy minerals contained in the sample sinks to the bottom of the funnel and later collected in a filter paper this is all the bromoform, the heavy mineral is mounted on a clean glass slide using DPX mountant, the slide is then read for study under the petrographic microscope.

Petrographic Analysis (Thin Section)

Sample were air dried for 24 hours, were pulverized and homogenized a size approximately less than 0.3 mm. a portion of each of the sample were initially impregnated prior to cutting. The impregnation helps to harden the samples. The samples were each mounted with polished slide on glass slide using Canada balsam. Each of the samples were cut in thin sections. The prepared slide were viewed under plane polarized light using a petrographic microscope.

PRESENTATION AND INTERPRETATION OF RESULTS

Grain size analysis

The results of the grain size analysis for stream sediment collected within the study area are displayed in table 1.

Table 1 RESULTS OF GRAIN SIZE ANALYSIS

Location	Graphic mean (m)	Inclusive graphic standard deviation (σ)	Inclusive graphic skewness (SK)	Kurtosis graphic (K)	INTERPRETATION
1	1.0	0.70	-0.30	2.0	Coarse, Moderately well sorted, Coarse skewed, Very leptokurtic grained
2	1.1	0.40	-0.30	1.2	Medium, well sorted, Coarse skewed, Leptokurtic grained
3	0.50	1.0	0.10	1.0	Coarse, Moderately sorted, Symmetrical, Mesokurtic grained.
4	0.40	0.60	0.05	0.60	Coarse, Moderately well sorted, Symmetrical, Very platykurtic grained
5	0.50	0.80	0.20	0.70	Coarse, Moderately sorted, Fine skewed, Platykurtic grained
6	0.10	1.10	0.30	0.80	Coarse, Poorly sorted, Strongly fine skewed Platykurtic grained

7.	-0.05	0.70	0.50	2.4	Very coarse, Moderately well sorted, Strongly fine skewed, Very leptokurtic grained
8	0.20	1.1	0.20	0.90	Coarse, Poorly sorted, Fine skewed, Platykurtic grained
9.	1.10	0.60	0.01	2.1	Medium, Moderately well sorted, symmetrical, Very leptokurtic grained
10.	1.20	1.20	0.10	1.1	Medium, Poorly sorted, Fine skewed, Mesokurtic grained
11	0.30	0.70	0.08	0.70	Coarse, Moderately well sorted, symmetrical, Platykurtic grained
12	0.2	1.2	0.30	0.90	Coarse, Poorly sorted, fine skewed, Platykurtic grained
13	-0.60	1.30	0.70	0.80	Very coarse, Poorly sorted, Strongly fine skewed, Platykurtic grained
14	-0.10	1.0	0.30	0.70	Very coarse, Moderately sorted, fine skewed, Platykurtic grained
15	0.03	1.20	0.08	0.70	Coarse, Poorly sorted, symmetrical, Platykurtic grained
16	0.5	0.80	-0.10	0.80	Coarse, Moderately sorted, symmetrical, Platykurtic grained
TOTAL	5.73	14.4	2.22	17.4	
AVERAGE	0.35	0.90	0.13	1.08	

Different interpretation of the statistical parameters were made and summarized in the table 1. the result shows the following.

Grain Size: The sediments in the study area range in grain size from

-0.05 to 1.20 and 0.35 on the average ; these correspond to a range from very coarse grained to medium grained and coarse grained on the average.

Sorting: The standard deviation is a measure of sorting (Friedman and Sanders). The sediments of the study area have standard deviation ranging from 0.40 to 1.30 and 0.90 on the average, these correspond to a range from well sorted to poorly sorted and moderately sorted on the average.

Skewness: The sediments show a range from -0.10 to 0.70 and 0.13 on the average ; these imply that they range from symmetrical to strongly fine skewed and fine skewed on the average.

Graphic kurtosis: The sediments generally show a range from 0.60 to 2.4 and 1.08 on the average, these correspond to a range from very platykurtic to very leptokurtic and mesokurtic on the average.

RESULT OF HEAVY MINERAL SEPARATION

The heavy mineral separation analysis of the sediments indicate that the sediments are made up of heavy minerals consisting of, Zircon, Tourmaline, Rutile, Sillimanite, Garnet, Apatite and opaque minerals.

The heavy mineral assemblages reflect sediment contribution mainly from a regional metamorphic terrain with considerable input from acid igneous rocks. This suggests that the sediments were probably derived from the magmatic – gneiss complex of the Oban massif and the schist belt of the South – Western Nigeria basement.

Table 2: Heavy mineral separation analysis

SAMPLE NO	ZIRCON (%)	RUTILE (%)	TOURMALINE (%)	SILLIMANITE (%)	GARNET (%)	APATITE (%)	OPAQUE (%)
LOC 14	7	6	7	4	3	4	26
LOC 16	8	6	7	4	4	3	24
LOC 15	6	7	8	4	5	3	23
LOC 6	8	8	7	5	3	4	22
LOC 11	9	7	8	4	4	3	25
LOC 12	8	9	6	3	5	3	25
LOC 13	7	7	8	5	3	4	24
LOC 1	7	6	7	4	4	3	25
LOC 5	8	7	8	5	3	4	24
LOC 4	7	8	6	4	5	3	23
LOC 3	8	7	8	3	3	4	24
LOC 2	7	8	6	5	3	4	25
LOC 7	7	6	8	4	4	3	23
LOC 10	8	8	7	5	3	4	24
LOC 8	7	7	9	4	3	3	25
LOC 9	8	9	7	6	4	2	23

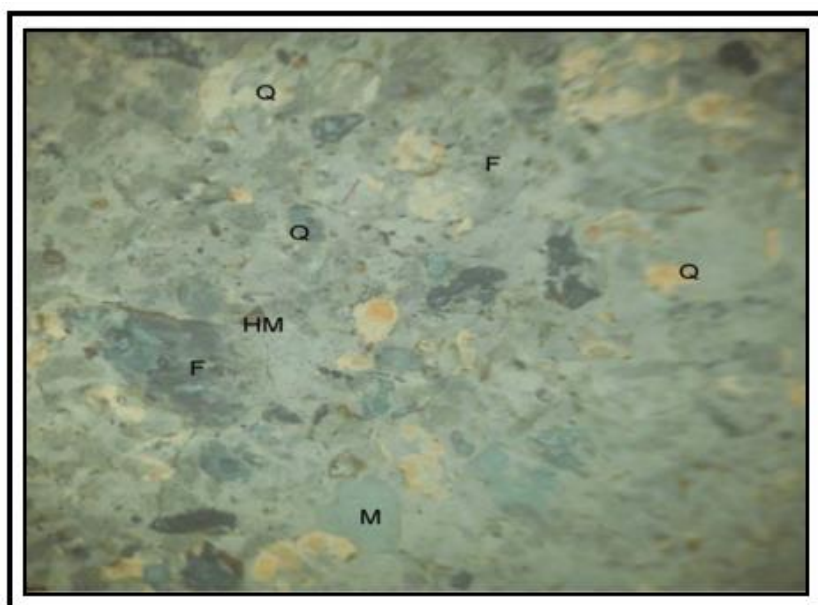
RESULT OF PETROGRAPHY

Based on their optical properties, the minerals identified under the petrographic microscope. The sediments of the study area consist predominantly of Quartz, which is about 92.4%, followed by Feldspar 2.68%, then Rock fragments 2.62%, Garnet 0.8% and Tourmaline and Rutile comprise 0.7% and 0.6% (Table 4.3) respectively.

From the section photographs provided in this study , the presence of the quartz (SiO_2) runs through all presentations (fig 4) . Though varying in color due to impurities . The large crystals and conchoidal fractures is easily discerned . This confirm the high percentage composition of quartz. More so, observation from the petrographic study reveal that the grained are angular in shape which suggest depositional history close to source.

Table 3: Average modal analysis of the sediment samples.

SAMPLE NO	QUARTZ	FELDSPAR	RUTILE	GARNET	TOURMALINE	ROCK FRAGMENT
LOC 14	92	3	1	1	-	3
LOC 16	93	2	-	1	1	3
LOC 15	92	3	1	-	1	3
LOC 6	93	3	-	1	1	2
LOC 11	91	3	1	1	2	2
LOC 12	93	2	-	1	1	3
LOC 13	92	3	1	1	-	3
LOC 1	92	3	-	1	1	3
LOC 5	93	3	1	1	-	2
LOC 4	92	3	1	1	-	3
LOC 3	93	2	-	1	1	3
LOC 2	92	3	1	-	1	3
LOC 7	93	2	1	1	1	2
LOC 10	93	3	1	1	-	2
LOC 8	92	3	-	1	1	3
LOC 9	93	2	1	1	1	2

**Fig 2. photomicrograph of thin section sample viewed under PPL (Mg x 250)**

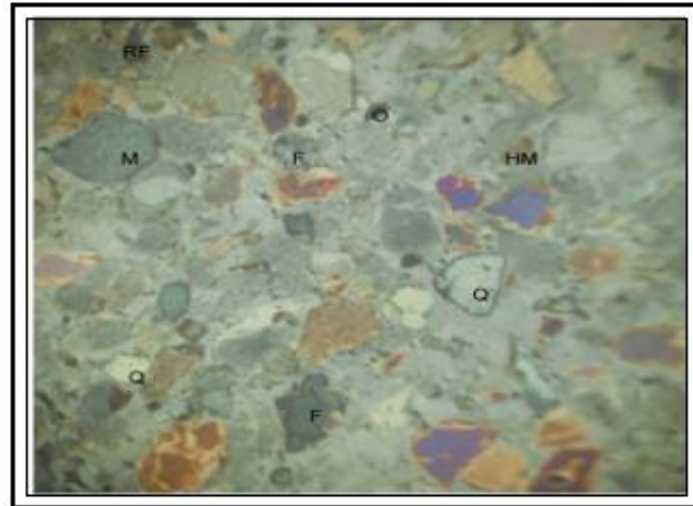


Fig 3 photomicrograph of thin section sample viewed under PPL (Mg x 250)

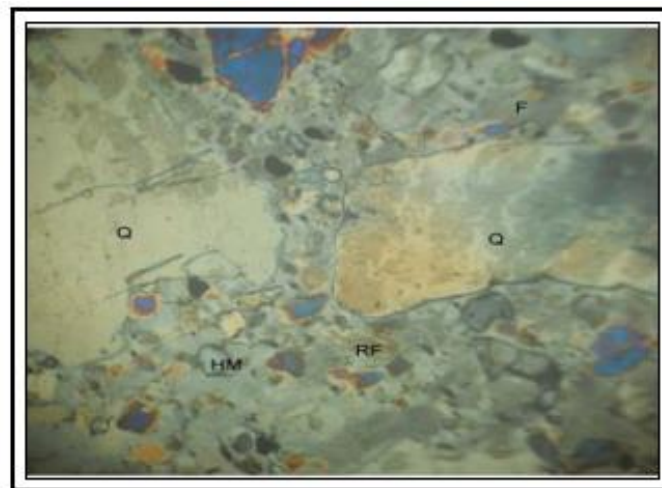


Fig 4. photomicrograph of thin section sample viewed under PPL (Mg x 250)

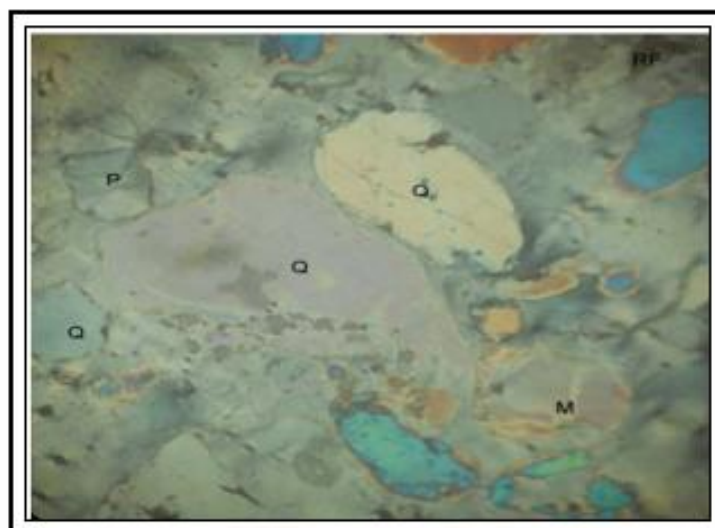


Fig 5. photomicrograph of thin section sample viewed under PPL (Mg x 250)

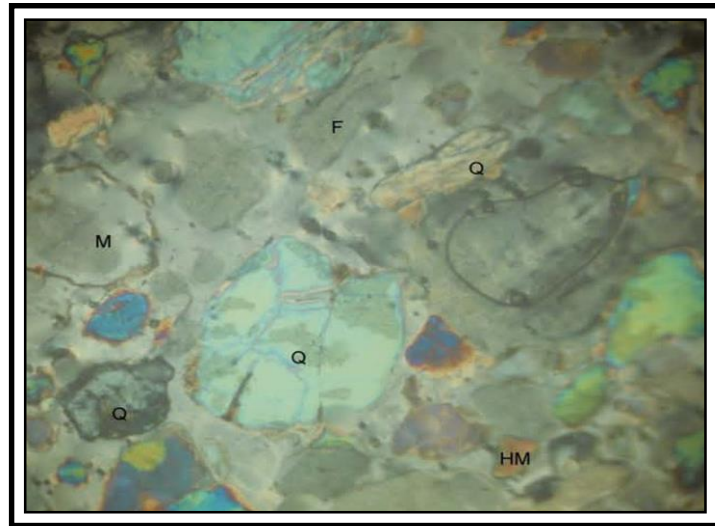


Fig 6. photomicrograph of thin section sample viewed under PPL (Mg x 250)

DISCUSSION OF RESULT

GRAIN SIZE ANALYSIS

From the results, the mean values of the statistical parameters were used for textural classification of the sediments. The graphic mean values obtained range from -0.05 to 1.20 and 0.35 on the average; these correspond to a range from very coarse grained to medium grained and coarse grained on the average. From this study, it was observed that 3 samples (location, 7, 13, and 14) fell within very coarse grained, 10 samples (1, 5, 4, 6, 8, 11, 12, 18, and 16) fell within the coarse grained while 3 samples (location 2, 9, 10) fell within the medium grained, therefore the sediments sizes vary from very coarse grained to medium grained are present.

The very coarse grained to medium grained observed were associated with high energy conditions in which smaller grains were washed away leaving the coarse grains that are relatively heavy and were deposited by gravity as the water current was reduced.

Sorting measures the scatter around the mean and the greater the scatter the higher the standard deviation and the poorer the sorting. The sediments of the study area have sorting values ranged from 0.40 to 1.30 and 0.90 on the average , these correspond to a range from well sorted to poorly sorted and moderately sorted on the average from the study it was observed that 1 sample (location 2) fell within well sorted , 5 samples (location 1, 4, 7, 9, 11,) moderately well sorted, 4 samples (location 3, 5, 14 16) are moderately sorted, 6 samples (location 6, 8, 10, 12, 13, 15) are poorly sorted. The poorly sorted sediments indicates that they have not been transported far away from their source and also indicates high energy of transportation, the moderately sorted sediments indicate that they have been transported relatively further away from their source with relatively lower energy of transportation. The moderately well sorted and well sorted are probably been transported very far from the source at regular low energy of transportation and relatively low sedimentation rate.

The inclusive graphic skewness (SK) determines or measures symmetry in the scatter of a distribution as well as the degree of lop-sidedness of a curve. The values shows that they range from 0.10 to 0.70 and 0.13 on the average, there imply that they range from symmetrical to strongly fine skewed and fine skewed in the average. It was observed that 2 location (1, 2) are coarsed skewed (negatively skewed) , 6 location (3, 9, 11, 15, 16, 4) are symmetrical , 5 location (5, 8, 10, 12, 14) are fined skewed, 3 location (6, 13, 7) are strongly fine skewed.

The graphic kurtosis is the peakedness of the distribution and measures the ratio between the sorting of the tails and central portion of the curve. If the tails are better sorted than the central portion, then it is termed as platykurtic, whereas leptokurtic, if the central portion is better sorted. The sorting kurtosis of the sediments shows that they vary from platykurtic to very leptokurtic.

PETROGRAPHY

From the section photographs provided in this study, the presence of quartz (SiO_2) runs through all presentation (appendix). Though varying in colour due to impurities, the large crystals and conchoidal fractures without cleavage is easily discerned. This confirms the high percentage composition of quartz (greater than 88%) in the laboratory results throughout the stations occupied.

Petrography of rocks is better understood through microscopic study of thin sections. Thus other metallic oxides were detected in minute fractions and form the matrices of the samples. However, mineral textures and structures are clear from the petrographic photographs. The quartz grains are well fragmented and smaller in size at L10 than other locations where the grains are larger in size and angular in shape. Also at many locations other than L10, the quartz grains have varied coloration, i.e., milky white, smoky yellow, purple (appendix). These observations are indicative of the different surface processes that the L10 environment is undergoing. More so, observation from the petrographic study reveals that the grains are angular in shape which suggest transport history close to source.

From the heavy mineral analysis, it shows that the sediments consist of heavy minerals which include zircon, rutile, tourmaline, sillimanite, garnet, apatite and opaque minerals. The heavy mineral assemblages reflect sediments contribution mainly from a regional metamorphic terrain.

SUMMARY AND CONCLUSION

The sediments ranged from very coarse grained to medium grained, very well sorted to poorly sorted, coarse skewed to strongly fine skewed, and very platykurtic to leptokurtic grain. Petrographic study shows that the sediments are composed of mainly quartz (A.V 92.4%), feldspar (A.V 2.68%), Rock fragments (2.62%), Garnet (0.8%), Tourmaline (0.7%) and Rutile (0.6%). More so, observation from petrographic study revealed that the grains are angular in shape. This indicates a short distance of transport and also suggest depositional history close to source. The heavy mineral analysis shows that the sediments consist of heavy minerals which include zircon, rutile, tourmaline, sillimanite, garnet, apatite and opaque minerals. These mineral assemblages reflect sediments contribution mainly from a regional metamorphic terrain with considerable input from acid igneous rocks. This suggests that the sediments were probably derived from the magmatic – gneiss complex and the schist belt of the South – Western Nigeria basement.

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