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Strategies for Enhancing Effectiveness of Committee System in Nigerian Universities

By

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Abstract

The committee system in Nigerian universities plays a crucial role in decision-making, policy formulation, and the overall governance structure. However, its effectiveness is often hampered by challenges such as inefficiency, poor coordination, and limited stakeholder engagement. This study explores strategies to enhance the effectiveness of the committee system within Nigerian universities. Key strategies identified include the need for clear and transparent communication channels, ensuring that committee objectives are well-defined and aligned with the institution's goals. Additionally, the study emphasizes the importance of capacity building through regular training and development programs for committee members to enhance their skills and knowledge. The incorporation of technology, particularly in the form of digital collaboration tools, is recommended to streamline operations, improve coordination, and ensure timely decision-making. Furthermore, fostering an inclusive environment that encourages various perspectives and active participation from all stakeholders is highlighted as a critical factor for success. Establishing a robust feedback mechanism is also essential to monitor the performance and impact of committees, allowing for continuous improvement. Finally, the study underscores the need for strong leadership and administrative support to ensure that the committee system operates efficiently and effectively. By implementing these strategies, Nigerian universities can enhance the effectiveness of their committee system, leading to improved governance, better decision-making, and ultimately, the achievement of institutional goals.

Keyword: *Committee system, Nigerian universities, strategies, effectiveness*

Introduction

The committee system is a vital governance structure in Nigerian universities, playing a key role in ensuring participatory decision-making and administrative efficiency. Committees facilitate collective action and provide a platform for the inclusive participation of academic and administrative staff in university governance. Over the years, universities have increasingly relied on committees to handle a wide range of functions, from curriculum development to research oversight, administrative affairs, and student-related matters. This decentralized approach allows universities to address complex challenges by drawing on the diverse expertise of their members (Adebayo & Olawale, 2021). However, despite its potential for fostering

participatory governance, the effectiveness of the committee system in Nigerian universities has often been hindered by several challenges. Studies show that committees frequently face issues such as a lack of clear roles, insufficient resources, poor communication, and delayed decision-making processes, all of which compromise their efficiency (Ibrahim & Yusuf, 2022). Furthermore, in many cases, the committee system is undermined by internal politics and limited accountability mechanisms, which often result in unproductive meetings and redundant decision-making (Olatunji et al., 2023).

Research highlights the importance of revisiting and refining committee structures and processes to enhance their effectiveness.

According to Akinola and Bello (2023), universities that have adopted strategic reforms to improve committee operations such as better-defined goals, transparent resource allocation, and the use of technology to facilitate communication have seen improved decision-making processes and greater alignment with institutional goals. This underscores the need for strategic approaches that address the systemic inefficiencies currently plaguing committees in Nigerian universities. Given the significant role committees play in institutional governance, enhancing their effectiveness is crucial for Nigerian universities to achieve their broader educational and administrative objectives. This article explores the key strategies that can be adopted to strengthen the effectiveness of committees in Nigerian universities, drawing on recent insights from the literature between 2020 and 2024. These strategies include capacity-building initiatives, technological integration, and improved accountability frameworks, all of which are designed to foster a more collaborative and efficient committee system (Adeyemi & John, 2024). By addressing these issues, Nigerian universities can ensure that their committee systems are well-equipped to handle the complexities of modern higher education governance. It is on this backdrop that the current study examines strategies for enhancing effectiveness of committee system in Nigerian universities.

Objectives of the Study

The primary objective of this study is to explore strategies for enhancing the effectiveness of the

committee system in Nigerian universities. Specifically, the study aims to:

1. Examine the current structure and functionality of committee systems in Nigerian universities – to identify their strengths, weaknesses, and areas requiring improvement.
2. Identify the challenges affecting the efficiency of committees in Nigerian universities – including issues related to accountability, resource allocation, communication, and leadership.
3. Analyze best practices from universities with effective committee systems – to extract lessons that can be applied to Nigerian universities to improve governance and decision-making processes.
4. Propose strategies for enhancing the operational efficiency of committees – focusing on areas such as capacity building, the integration of technology, and the promotion of transparency and collaboration.
5. Evaluate the potential impact of a more effective committee system on university governance and goal achievement – to assess how these improvements can contribute to the overall success of Nigerian universities in achieving their educational and administrative objectives.

Concept of Educational Administration

Educational administration refers to the systematic process of planning, organizing, directing, and controlling human and material resources within educational institutions to achieve specific objectives. In Nigerian universities, educational administration plays a key role in ensuring the smooth functioning of academic and administrative activities,

fostering an environment conducive to learning, and promoting institutional growth and development. The administrative framework in Nigerian universities is designed to coordinate various functions such as curriculum development, staff management, financial planning, student services, and infrastructure maintenance (Oladele & Mohammed, 2021). In Nigerian, educational administration is shaped by a combination of internal and external factors. Internally, university administrators are tasked with managing the academic and non-academic staff, ensuring quality in teaching and research, and maintaining a harmonious academic environment. Externally, university administrators must navigate regulatory frameworks imposed by bodies like the National Universities Commission (NUC) and respond to the evolving needs of the labor market and society at large (Adebayo, 2022). This multifaceted role requires administrators to possess leadership skills, strategic thinking, and the ability to implement policies that align with both the university's mission and national education policies.

A key aspect of educational administration in Nigerian universities is decentralization of decision-making through the committee system, which allows for participatory governance. Committees made up of academic and administrative staff are responsible for various university functions, including admissions, examinations, promotions, and academic programs. This system is intended to foster collective responsibility, enhance transparency, and improve the efficiency of

administrative processes (Abiola & Akinpelu, 2023). However, as noted by Ibrahim and Adeyemi (2020), challenges such as bureaucratic delays, poor coordination, and inadequate funding often hinder the effectiveness of educational administration in Nigerian universities. Moreover, educational administration in Nigerian universities faces significant challenges, including underfunding, political interference, and inadequate infrastructure. According to Okonkwo and Nwafor (2023), many Nigerian universities struggle to manage limited financial resources while meeting the growing demands of staff salaries, student enrollment, and research funding. Additionally, political interference in the appointment of key administrative officers can undermine the autonomy and effectiveness of university governance. This has led to calls for reforms that would grant universities more financial and administrative independence, enabling them to improve the quality of their services and better meet the needs of students and staff.

In recent years, scholars have advocated for the adoption of modern administrative practices to enhance the efficiency of educational administration in Nigerian universities. A study by Eze and Olatunde (2024) highlights the role of technology in streamlining administrative processes, such as student admissions, staff appraisals, and financial management. The integration of information and communication technology (ICT) in educational administration can significantly improve the speed and accuracy of decision-making, reduce

administrative bottlenecks, and facilitate better communication among stakeholders.

Concept of Committee System

The committee system is a vital structural and procedural element within legislative bodies globally, including Nigeria. It entails the division of legislative tasks among smaller groups of members who specialize in various policy areas. This system is designed to enhance efficiency, expertise, and detailed scrutiny in legislative processes. According to Adedayo and Omololu (2021), the committee system in Nigeria's National Assembly is fundamental in managing the workload and ensuring thorough examination of proposed laws, budgets, and policies. In Nigeria, the committee system operates at both the federal and state levels, with each legislative house constituting several standing and ad hoc committees. These committees are tasked with specific functions such as finance, health, education, defense, and judiciary matters. The primary role of these committees is to conduct detailed analysis and provide recommendations on legislative proposals, thereby shaping the legislative agenda and outcomes. Eme and Onwuka (2022) argue that the effectiveness of these committees significantly impacts the quality of legislation and oversight functions of the Nigerian legislature.

One of the core functions of the committee system is legislative oversight, which involves monitoring and evaluating the activities of the executive branch and public agencies. This function is crucial for ensuring accountability and transparency in governance. Uzochukwu (2023) highlights that through various

investigative hearings, budget reviews, and performance assessments, committees in the Nigerian National Assembly play a pivotal role in curbing executive excesses and promoting good governance. Furthermore, the committee system fosters specialization among legislators. Members are often appointed to committees based on their expertise, interests, and professional backgrounds, enabling them to develop deeper insights into specific policy areas. As a result, committees can conduct more informed debates and make well-grounded recommendations. Adamu (2020) notes that this specialization contributes to more efficient and effective legislative processes, as complex issues are dissected by those most knowledgeable about them.

Despite its benefits, the committee system in Nigeria faces several challenges. One significant issue is the politicization of committee appointments, which can undermine the objectivity and effectiveness of committee work. Often, committee leadership positions are distributed based on political patronage rather than merit, leading to inefficiencies and biased decision-making. According to Afolayan (2021), this politicization hampers the committee's ability to function as a non-partisan entity focused on national interest. Additionally, there are concerns regarding the adequacy of resources and support staff available to committees. Effective committee work requires access to relevant data, research support, and administrative assistance. In many instances, Nigerian legislative committees operate with limited resources, which constrain their capacity to perform thorough

investigations and analysis. Okeke (2022) points out that enhancing the logistical and intellectual support for committees is essential for improving their functionality and the overall legislative process.

Types of Committees in Nigerian Universities

In Nigerian universities, committees play a central role in institutional governance and administration. The types of committees commonly found include:

Governing Council Committees: These are top-level committees responsible for overarching university policies and financial oversight. They ensure the university's adherence to regulations and laws, with the aim of promoting academic excellence and financial sustainability.

Academic Committees: These committees focus on academic policies, curriculum development, student admissions, and research programs. They are vital for maintaining academic standards and improving the quality of teaching and research.

Senate Committees: The Senate Committees are involved in academic governance and decision-making related to educational programs, faculty promotions, and the approval of degrees. This group directly influences the academic direction of the institution.

Administrative Committees: These committees handle the university's operational and administrative matters, such as staff recruitment, facility management, and logistics.

Student Affairs Committees: These committees focus on addressing student needs and concerns, such as housing, extracurricular

activities, and disciplinary issues. They ensure that student welfare is promoted alongside academic endeavors.

Disciplinary Committees: These are responsible for enforcing regulations and handling cases of student or staff misconduct. They ensure compliance with university rules, maintaining order within the institution.

Research and Ethics Committees: These committees oversee research activities, ensuring adherence to ethical standards and promoting innovative research agendas within the institution.

Roles and Responsibilities of University Committees

University committees in Nigeria have specific roles that contribute to the efficient management and operation of the institution. The key roles and responsibilities include:

1. Policy Formulation and Review: Committees, particularly academic and governing council committees, are responsible for developing and reviewing policies that guide the university's functions. They ensure the institution adheres to academic standards, governance principles, and regulatory requirements.

2. Decision-Making and Implementation: Committees are essential decision-making bodies that influence the direction of university policies and practices. Senate and academic committees, for example, make decisions regarding academic programs, promotions, and student matters.

3. Resource Allocation: Administrative committees often manage the allocation of university resources, including finances,

facilities, and human resources. These committees are tasked with ensuring optimal utilization of the university's resources for academic and administrative success.

4. Conflict Resolution and Disciplinary

Action: Committees such as disciplinary and student affairs committees play a key role in resolving conflicts, handling grievances, and ensuring disciplinary measures are enforced. Their decisions help to maintain peace and order within the institution.

5. Monitoring and Evaluation: University committees are responsible for monitoring the implementation of policies, evaluating the performance of academic and administrative units, and providing feedback for improvement.

6. Research Oversight: Research and ethics committees guide the ethical conduct of research, evaluate research proposals, and ensure compliance with national and international research standards.

Challenges Facing the Committee System in Nigerian Universities

1. Lack of Accountability and Transparency:

A key challenge affecting the committee system in Nigerian universities is the absence of accountability and transparency in committee operations. Poor record-keeping, lack of clear performance metrics, and the absence of mechanisms for holding committee members accountable have been highlighted as critical issues. According to Oladimeji and Afolabi (2022), this deficiency in accountability hinders the effective implementation of decisions and policy guidelines, thereby reducing the overall efficiency of committee governance. Similarly,

Adewale and Omotayo (2021) argue that without transparent processes, committees risk losing stakeholder trust and may fail to achieve their intended objectives.

2. Inadequate Resource Allocation:

Committees often struggle with insufficient financial and human resources, which limits their operational capacity. Ibrahim and Abubakar (2023) noted that many committees within Nigerian universities face funding challenges, which impair their ability to carry out tasks effectively. In their study, Oseni and Balogun (2020) also observed that many committees do not have access to the necessary tools and technologies, further compounding inefficiency. This lack of resources often leads to delays in decision-making and poor outcomes in terms of goal achievement.

3. Inefficient Communication Channels:

Ineffective communication is another significant problem that undermines the success of committees. Poor communication between committee members, faculty, and other university stakeholders can lead to misunderstandings, delays, and misaligned goals. Ajayi and Fagbohun (2021) emphasize that the absence of streamlined communication platforms exacerbates delays in the dissemination of decisions and feedback. In a related study, Ojo and Eke (2022) highlight that ineffective communication not only hinders collaboration among committee members but also affects their ability to engage with external stakeholders.

4. Leadership and Management Issues:

The effectiveness of committees is also influenced by leadership and management capabilities. In

some cases, committee leaders lack the necessary leadership skills to drive the team towards achieving its objectives. Akinyele and Babalola (2021) argue that weak leadership contributes to poor decision-making and can demotivate committee members. Furthermore, Mohammed and Yusuf (2023) found that inefficient committee management often results in the misallocation of time and resources, ultimately affecting the university's overall performance.

Best Practices for Effective Committee Operations

1. Clear Definition of Roles and Responsibilities: A clear delineation of roles and responsibilities is critical to the success of committee operations in universities. When committee members understand their duties, decision-making processes become more efficient and accountability is enhanced. According to Oduola and Afolabi (2021), committees with well-defined roles experience fewer conflicts and achieve their objectives more effectively. Additionally, ensuring that committee members are aware of their specific functions within the broader institutional framework promotes a cohesive approach to university governance (Adeyemi & Bello, 2022).

2. Efficient Meeting Management and Decision-Making Processes: Efficient meeting management is essential to maximizing the productivity of university committees. Agendas should be well-prepared, and discussions should remain focused to prevent time-wasting. According to Onabanjo and Yusuf (2023), committees that employ structured meeting

agendas and allocate time wisely tend to achieve better decision-making outcomes. Furthermore, utilizing consensus-building techniques and ensuring that all members have a voice contribute to more balanced and well-informed decisions (Okon & Udo, 2020).

3. Integration of Technology for Committee Work: Technology plays an increasingly important role in enhancing the efficiency of committee work. The use of digital tools, such as online meeting platforms, document-sharing software, and project management tools, can streamline communications and reduce delays in decision-making. According to Omotayo and Sanni (2021), the integration of technology in committee operations allows for faster information exchange and better documentation, which ultimately improves the decision-making process. These tools also allow for remote participation, ensuring inclusivity and flexibility for all members (Adewale & Ogunleye, 2022).

4. Fostering Collaboration among Committee Members: Fostering a collaborative environment is essential to ensuring that committees function effectively. According to research by Nwogu and Aina (2020), committees that encourage open communication, trust, and cooperation among members tend to be more successful in achieving their goals. Building a culture of collaboration allows members to leverage their diverse skills and perspectives, leading to more innovative and well-rounded decisions. In addition, fostering collaboration helps to prevent conflicts and promotes unity in pursuit

of institutional objectives (Ibrahim & Musa, 2023).

Strategies for Enhancing the Effectiveness of the Committee System

1. Improving Training and Capacity Building for Committee Members: Providing regular training and capacity building for committee members is essential to ensure that they have the skills and knowledge required for effective participation. Adequate training helps members understand their roles, enhances decision-making, and improves leadership qualities. As noted by Oladele and Olanrewaju (2021), capacity-building programs can foster stronger leadership within committees, ultimately increasing productivity and goal alignment. Afolabi (2023) highlights the need for targeted training to develop competencies in areas such as project management, policy analysis, and conflict resolution within committees.

2. Promoting Transparency and Accountability Mechanisms: Promoting transparency and accountability in committee operations is crucial for trust and credibility. This can be achieved by establishing clear guidelines for reporting, decision-making, and documentation. Adeyemi and Ogunyemi (2022) emphasize that transparency enhances stakeholder confidence in committee processes and ensures that decisions are made based on merit and fairness. They also argue that implementing accountability frameworks helps to monitor the performance of committees and prevents misuse of power.

3. Ensuring Adequate Resource Allocation and Support: Adequate resource allocation is critical for committees to function effectively.

Without sufficient financial, human, and technological resources, committees may struggle to execute their mandates efficiently. Ibrahim et al. (2021) suggest that universities should prioritize budgetary provisions for committee activities, including access to relevant tools and technologies. Uche (2020) further asserts that proper funding of committees not only improves their efficiency but also motivates members to be more committed to the tasks at hand.

4. Strengthening Communication and Coordination across Committees: Effective communication and coordination among committees are vital for avoiding duplication of efforts and ensuring coherent policy implementation. Nwosu (2022) highlights the importance of establishing communication protocols and shared platforms that allow for seamless exchange of information among committee members and between different committees. Eze and Amadi (2023) also argue that fostering inter-committee collaboration enhances problem-solving and facilitates timely decision-making processes.

5. Incorporating Feedback and Continuous Improvement Mechanisms: Introducing feedback and continuous improvement mechanisms allows committees to assess their performance and make necessary adjustments. This helps in identifying areas of improvement and fostering an adaptive approach to committee governance. Ajayi and Bello (2020) argue that regular evaluation of committee outcomes through feedback from stakeholders ensures that the committees remain relevant and responsive to the evolving needs of the

university. Okoye and Salami (2021) also emphasize the importance of using feedback to update policies and processes, making committee systems more flexible and innovative.

Case Studies of Effective Committee Systems in Nigerian Universities

University of Lagos (UNILAG): Committee for Strategic Planning and Development: The University of Lagos established a Committee for Strategic Planning and Development aimed at advancing its long-term goals and institutional development. This committee played a critical role in aligning university activities with its strategic vision. Through a participatory approach, including stakeholders such as faculty, administrative staff, and students, the committee has been instrumental in improving decision-making processes related to academic programs and infrastructure development. UNILAG saw improved administrative efficiency and student satisfaction through the committee's emphasis on stakeholder engagement. Clear communication and stakeholder participation are essential for the successful implementation of university policies (Afolayan & Ijeoma, 2021).

Obafemi Awolowo University (OAU): Research and Innovation Committee OAU's Research and Innovation Committee is noted for its contributions to fostering a strong research culture within the university. By promoting interdisciplinary research and collaboration with external partners, the committee has improved the research output of the institution. Furthermore, the committee has

been responsible for the creation of platforms that encourage early-career researchers. The committee's initiatives led to OAU receiving numerous national and international research grants. Collaboration between university committees and external partners, both national and international, boosts the credibility and visibility of a university (Ogunleye et al., 2022).

Covenant University: The Quality Assurance Committee at Covenant University has played a significant role in maintaining and enhancing academic standards across departments. By regularly evaluating the performance of both students and staff, the committee has ensured that the university maintains its high academic standing within the country and internationally. Covenant University's ranking as one of the top universities in Nigeria can be partly attributed to the effectiveness of its quality assurance committee. Regular assessment and monitoring of academic activities foster continuous improvement and elevate the institution's reputation (Oladele, 2020).

Success Stories from Nigerian Universities

1. **University of Ilorin:** The establishment of the Senate Committee on Academic Policies resulted in a better alignment of departmental curriculums with national education standards. This led to a smoother accreditation process and improved student learning outcomes (Abiola & Fatimah, 2021).

2. **Nnamdi Azikiwe University:** The introduction of a Student Welfare Committee led to the successful implementation of various student-centered programs, including health and counseling services. The university

reported a significant improvement in student well-being and academic performance (Nwosu & Adiele, 2022).

Impact of an Effective Committee System on University Goal Achievement

1. Contribution to Strategic Planning and Policy Implementation: An effective committee system is integral to the strategic planning and policy implementation processes of universities. Committees bring together experts from various fields who contribute diverse perspectives to institutional planning. These bodies assess the university's long-term goals, identify challenges, and develop strategies to overcome them. By engaging multiple stakeholders in decision-making, committees ensure that policies are well-informed and aligned with the university's mission. This collaborative effort leads to the successful execution of institutional plans, improving the university's ability to meet its goals.

2. Enhancing Governance and Decision-Making Processes: Committees play a critical role in improving governance by decentralizing authority and promoting transparency. An effective committee system ensures that decisions are not concentrated in a few hands, but rather reflect the inputs of a broad spectrum of the university community. This enhances accountability and creates a participatory governance structure where academic and non-academic staff can actively contribute to decisions on curriculum development, resource allocation, and staff welfare. A well-functioning committee system also speeds up decision-making processes, as issues are

discussed in specialized groups, leading to timely and informed decisions.

3. Role in Fostering Academic and Administrative Efficiency: Committees designed to oversee academic and administrative functions enhance efficiency by ensuring that tasks are delegated and executed properly. For instance, academic committees help streamline curriculum design, student assessment, and quality assurance, while administrative committees focus on finance, facilities management, and staff development. The distribution of responsibilities among committees prevents the overload of top management, allowing each sector of the university to function more effectively. This leads to improved resource management, better staff productivity, and ultimately, the achievement of the university's objectives.

Conclusion

The study highlights the critical role committees play in fostering institutional governance and achieving strategic objectives. The findings underscore the importance of clear mandates, well-defined goals, and transparent processes in optimizing committee functions. When effectively managed, committees serve as critical platforms for collaboration, decision-making, and accountability, enabling universities to address complex challenges in a more coordinated manner. However, the study also identifies gaps in training, communication, and follow-up mechanisms that hinder the full realization of committee potentials. To enhance the effectiveness of committee systems, the study recommends targeted reforms such as regular training programs for committee

members, adoption of modern administrative tools, and improved communication channels. Furthermore, universities should promote a culture of inclusivity and active participation to foster shared responsibility among stakeholders. By addressing these areas, Nigerian universities can harness the full potential of their committee systems, driving more efficient decision-making processes and ultimately achieving their institutional goals with greater precision.

Recommendations for Improving Committee Effectiveness in Nigerian Universities

To improve the effectiveness of committee systems in Nigerian universities, the following recommendations are made:

1. Clarify Roles and Responsibilities:

Universities should provide detailed documentation outlining the roles, responsibilities, and expectations for each committee and its members. This will enhance accountability and streamline processes.

2. Provide Adequate Training:

Regular training sessions and workshops should be organized for committee members to equip them with the necessary skills and knowledge to carry out their tasks effectively.

3. Reduce Bureaucratic Delays:

Universities should simplify approval and decision-making processes to enable faster execution of committee decisions. A more decentralized approach to decision-making could enhance the efficiency of committees.

4. Increase Support from Management:

University management should provide sufficient financial, material, and technical

resources to support the activities of committees. This support will empower committees to achieve their set objectives more effectively.

5. Improve Communication Channels:

Implementing effective communication tools and strategies can facilitate timely information flow between committees and other university units, promoting collaboration and minimizing delays.

6. Introduce Incentives for Committee Members:

Introducing a reward system, such as recognition awards or financial incentives, could motivate committee members to be more dedicated and productive in their roles.

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Artificial Intelligence Adoption in Nigerian Academic Libraries: Issues, Challenges and Prospects

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Abstract

The adoption of artificial intelligence in Nigerian university libraries is an emerging trend aimed at upgrading library services and enhancing operational efficiency. The objective of the study is to investigate the current adoption of AI in Nigerian academic libraries and assess the extent to which it has been integrated into library services. The study pinpoints the essential conditions for AI adoption, such as the availability of trained labor, funding, and technical infrastructure. It also highlights significant problems as the requirement for user education, funding constraints, change aversion, and infrastructure shortcomings. In order to address these problems and enable a successful integration of AI, the study suggests several strategies, such as evaluating the objectives and needs of libraries, investing in training and capacity building, promoting cooperation and joint ventures, establishing robust protocols for data privacy and management, increasing stakeholder acceptance and awareness, and making plans for long-term sustainability and financial stability. The findings demonstrate that while academic libraries in Nigeria recognize the promise of artificial intelligence, real use of AI is still in its infancy. Few university libraries in Nigeria have started incorporating basic AI tools like chatbots for user services, while the rest of them have not fully embraced AI technologies. The study concludes that the potential for AI to completely transform library services is exciting, despite the fact that there are still a lot of challenges to be solved before it is widely applied in Nigerian academic libraries.

Keywords: Artificial Intelligence (AI), AI adoption, AI library services, AI challenges, Academic Libraries

Introduction

Artificial Intelligence is revolutionizing numerous fields, including library science, by enhancing operational efficiency and user experience. Nigerian university libraries have a significant opportunity to modernize services and streamline processes through the adoption of AI technologies. Tella (2020) stressed that libraries in the developed countries have accepted the use of AI technologies virtually, in all spheres of life where as those in developing countries including Nigeria are still struggling to find their feet. This introduction explores the integration of AI in these libraries, focusing on its conceptual framework, the current state of library services, and the specific requirements and challenges associated with AI adoption in the Nigerian context. Adoption of AI technologies offers

Nigerian university libraries a major chance to update services and optimize workflows. Artificial intelligence, defined as the machine imitation of human intelligence processes, has enormous potential benefits for academic libraries. These are expected to enhance user experiences and optimize processes. These include automated cataloging systems, sophisticated search features, and virtual reference services. Memela (2023) also added that AI seems to be the new hope for academic libraries to provide more of the automated services to their users because it is one of the technologies that has arisen and will play a major role in the 5th Industrial Revolution (5IR).

To address these challenges, it is essential to evaluate the goals and needs of academic libraries, engage in training and capacity

building, encourage cooperation, and ensure robust data management practices. Planning for sustainability and financial stability is just as important for successful AI deployment as building acceptance. Tella (2020) stressed the need for academic libraries to re-position themselves to take relative advantage of artificial intelligence's potentials by refining the quality of library services in this era of the information age. Despite the fact that AI offers a lot of promise to enhance academic libraries in Nigeria, solving the associated challenges would require dedication and careful planning. This paper aims to provide a comprehensive analysis of these issues as well as recommendations and new perspectives for effective AI integration into Nigeria's academic library system.

Concept of Artificial Intelligence

The phrase "artificial intelligence" refers to the ability of technology, particularly computer systems, to mimic human intellectual functions. Among these processes are language understanding, learning, reasoning, and problem-solving. The goal of artificial intelligence is to create machines that are able to perform tasks like pattern recognition, decision-making, and natural language processing that would typically need human intelligence. Artificial intelligence is a concept that has been in use since the 1950s, when it was defined as a machine's ability to perform a task that would have previously required human intelligence such as self-driving cars, robots, ChatGPT or other AI chatbots, and artificially created images, (Diaz, 2023). In 1956, John McCarthy coined the phrase "artificial intelligence" to describe a branch of computer science that aims to train machines to think and

act like humans. In the 1960s, he also led the development of LISP, (short for LISt Processing) is a family of programming languages that is one of the oldest and most influential in the field of computer science and has been particularly significant in the areas of artificial intelligence and symbolic computation.

Artificial intelligence is not a relatively new concept, despite what many people think. This goes back to Alan Turing's creation of the Turing test in 1950. Then, the first chatbot computer program, ELIZA, was created in the 1960s. In two of the six games, a world chess champion was defeated by IBM Deep Blue, a 1977 computer program; the other three ended in draws. Elon Musk and a few other people introduced OpenAI in 2015, and Apple originally unveiled Siri as a digital assistant in 2011. The creation of computer systems that are able to carry out operations that normally require human intelligence, such as learning, reasoning, decision-making, problem-solving, interpreting spoken language, and observing the surroundings, is referred to as artificial intelligence. Combining the terms artificial and intelligence, which respectively indicate "not real" or "natural" and "the ability to reason, to trigger new thoughts, to perceive and learn," results in the term artificial intelligence. AI uses data and algorithms to mimic cognitive processes in humans. Artificial intelligence refers to machines that mimic human reasoning, decision-making, learning, and social skills (CILIP, 2021). These days, "AI" encompasses a wide range of technologies that power many of the goods and services we use every day, like TV series recommendation apps and chatbots that provide

real-time customer support. Oracle (2022) sees AI as software or hardware that can carry out tasks by simulating human intellect and then iteratively improves itself using the data it gathers. It has the profound power to improve human capacities and change the way we engage with technology. The services provided by academic libraries could undergo a radical change due to artificial intelligence, which offers specialized user interfaces, enhanced productivity, and perceptive data analysis. By solving challenges with resource management, accessibility, and user engagement, AI adoption will assist Nigerian academic libraries achieve their mission of supporting learning, research, and knowledge dissemination in an increasingly digital society. In another contribution, Massis (2018) pointed out that, the integration and eventual acceptance of AI could have a positive impact on library services, which are presently merely being studied and contemplated. The potential of AI is enormous, but in order to fully realize its potential and minimize its risks, responsible stewardship is also essential. This has resulted in the dawn of a new era in which people and intelligent systems work together to create a society that is more creative, efficient, and just.

Library Services in Academic library

Libraries have evolved into dynamic community hubs that offer a wide array of services designed to meet the diverse needs of their patrons. This evolution reflects changes in technology, education, and societal expectations, expanding the role of libraries far beyond book lending. With the advent of the digital age, libraries have transformed from physical spaces of books to inclusive gateways to both physical and digital

worlds of information. This transformation has been marked by the integration of technology, expansion of services, and a focus on meeting the changing needs of communities. AI-driven tools and systems are aligning library services with the evolving needs of the academic community by streamlining operations, improving user experiences, and enhancing research capacity.

In academic libraries, chatbots can significantly enhance user experience, speed up procedures, and boost service delivery. According to Adetayo (2023), artificial intelligence chatbots, like ChatGPT, are becoming useful resources for academic libraries. They offer users convenient and accessible services outside of regular library hours, responding to their inquiries in a timely and accurate manner. Chatbots and virtual assistants with AI capabilities can also point users in the direction of pertinent resources and even help with research citations. The increasing integration of technology into library services and resources has created an "anytime, anywhere" environment for library users. The traditional library setting of limited operating hours has given way to an online presence that allows patrons to access materials and services at any time of day from any location. As explained by Mckie and Narayan (2019), artificial intelligence has been an innovation used largely by the information technology field. It has improved the services offered by academic libraries and offered online reference resources. Artificial intelligence is significantly enhancing academic library services by optimizing information retrieval, personalizing user experiences, and simplifying repetitive tasks. These advancements are altering the way academic libraries serve their

communities and making them more efficient, friendly, and user-responsive. Asemi (2018) enumerated several ways that AI technologies can be applied to enhance library services, including circulation services, book shelving, the cataloguing of library materials, and more. AI supports a wide range of users by offering translation services for academic resources and library interfaces. Hussain (2023), investigated the possibilities and challenges associated with integrating artificial intelligence into library services. The results demonstrated the effectiveness of artificial intelligence as a tool for enhancing library services.

AI is a potent tool for improving library services in a variety of significant ways because of its capacity to automate tasks, improve user experiences, improve information retrieval, support research projects, guarantee accessibility, optimize resource management, fortify security, and spur innovation. The importance of AI capabilities in library services is examined by Al-Aamri and Osman (2022). The findings show that a lot of libraries have already incorporated AI technology into a variety of services, like technical support and reference services, to make it easier for users to access information. By addressing significant concerns that are changing how staff and patrons see libraries, artificial intelligence is a potent tool that has the potential to significantly improve library services.

Adoption of AI in Academic Libraries in Nigeria

The adoption of Artificial Intelligence in Nigerian academic libraries represents a significant step toward modernizing library services, enhancing operational efficiency, and

improving user experiences. The importance of integrating AI into library systems is growing as Nigerian academic institutions strive to keep up with global advancements to meet the evolving demands of instructors, researchers, and students. Gupta et al. (2020) articulated the application and potential impact of artificial intelligence in academic libraries. They identified four domains for uses of artificial intelligence: social networking, assistive, informative, and instructional. The way material is managed and accessed in Nigerian academic libraries is changing as a result of the incorporation of artificial intelligence. Technologies powered by artificial intelligence, including machine learning, data analytics, and natural language processing, have the power to completely alter a range of library activities.

However, with the advent of AI-powered search engines, researchers can now access and analyze millions of peer reviewed papers in a matter of seconds (Baviskar et al, 2021). The use of artificial intelligence technologies in academic libraries raises the bar for service delivery efficacy and efficiency. At the current stage of AI adoption, although Nigerian academic libraries are only now starting to embrace AI, there is a lot of interest in finding out how AI technology may improve different library jobs. By building more effective and responsive systems, artificial intelligence can enhance traditional library tasks like cataloging, information retrieval, reference services, and user interaction. Odeyemi (2019) observed that, AI can be effectively deployed in the areas of descriptive cataloguing, subject indexing, reference services, shelf reading, collection development, information retrieval

system among others. AI can automate the cataloging process, increasing its accuracy and speed. This guarantees consistent resource cataloging and lessens the manual labor that librarians must perform. AI-driven chatbots and virtual assistants can offer library patrons round-the-clock assistance by resolving frequently asked queries, pointing patrons toward the resources available, and assisting with information retrieval.

Moreover, according to Adetayo (2023), artificial intelligence chatbots, like ChatGPT, are becoming useful resources for academic libraries. They provide library patrons with easily accessible services after regular library hours and promptly and accurately address their questions. AI-enabled chatbots and virtual assistants can also assist with research citations and link users to relevant resources. Chabot and robots are already being used by the University of Calabar to handle some of its service demands and also in Nile University of Nigeria Abuja for indexing and other services in the university library. The results of the study showed that Chabot might be effectively used to provide library reference services. Adejo and Misau (2021) studied how the application of Artificial Intelligence could be used in Nigerian Academic Libraries. The study suggests that artificial intelligence could be used in Nigerian academic libraries to provide expert systems for reference, technical, indexing, and acquisition in addition to robotics, natural language processing, pattern recognition, and robotics in library operations. Consequently, the study suggested that university libraries in Nigeria should incorporate artificial intelligence into their routine activities and educate their

personnel on its application in providing library services. AI should be a part of every library department and should be introduced in the national curriculum to reach every corner of the country.

Requirements for Adoption of AI in Academic Libraries in Nigerian

The effective integration of Artificial Intelligence in Nigerian academic libraries necessitates a carefully considered approach that takes into account several important aspects. These elements include anything from financial resources and technology infrastructure to organizational preparedness and human resources. In order to guarantee that AI integration is successful and long-lasting, it is imperative that these needs are recognized and fulfilled.

1. Technological Infrastructure: The effective integration of artificial intelligence in Nigerian academic libraries is largely dependent on the robustness and accessibility of the country's technological infrastructure. This infrastructure is the foundation upon which AI systems are built and operated, enabling libraries to fully leverage AI to enhance services and streamline processes. Strong technology infrastructure is the cornerstone of AI deployment in any environment. By investing in high-performance technology, ensuring dependable network access, setting up effective data management systems, and giving cybersecurity top priority, libraries may create a strong basis for AI integration. In other word, the inclusion of smart Internet-enabled devices, utilization of digital hi-tech devices in the home, the arrival of AI-enabled assistants in the interfaces used in everyday lives,

the keyless and near-auto drive cars and so on (Poole, 2020). Cloud computing, continuous IT support, and a focus on energy efficiency further enhance the infrastructure, allowing libraries to fully leverage AI's potential to improve services, foster research, and enhance user experiences.

2. Financial Investment: The successful implementation of artificial intelligence in Nigerian academic libraries is dependent on significant funding across several areas. These investments, which cover everything from infrastructure development and software acquisition to cooperation and training, are crucial to creating an AI-powered academic library system that is up to date, accessible, and efficient. Libraries must effectively organize and manage resources to ensure the long-term sustainability and effectiveness of AI-driven operations, which will ultimately enhance Nigeria's academic and research environment.

3. Skilled Human Resources: Artificial intelligence integration in Nigerian academic libraries is dependent on the availability of highly skilled human resources as well as technology infrastructure. A well-rounded team comprising data scientists, AI specialists, IT support staff, and library professionals with AI understanding is needed to install and administer AI technology successfully. According to CILIP (2021), apart from impacting daily experiences of people, the new technologies are also changing worldwide procedures, and causing a paradigm shift in all sectors throughout the universe. These human resources have the potential to significantly impact academic libraries in Nigeria, enabling them to become more efficient, creative, and adaptable to the needs of the academic

community. This will be made possible by teamwork, continual training, and capable leadership. According to Yusuf et al. (2022), libraries need new skills for AI, such as better digital know-how, faster access to the most relevant resources, and support for hands-on learning activities to improve patrons' learning experiences

4. Data Management and Privacy: To use AI, academic libraries in Nigeria need to adopt a thorough approach to data management and privacy protection. By implementing robust data governance frameworks, ensuring that legal and ethical standards are satisfied, and putting cutting-edge security measures in place, libraries can harness the power of AI while preserving user rights and privacy. Similarly, many libraries and information centres are leveraging on AI to harnessing "big data and data analytics both in their operational and service-oriented aspects" (Garoufallou & Gaitanou, 2021). Through these efforts, a safe environment will be created in which Nigerian libraries, academic research, and education can all benefit from the application of artificial intelligence.

5. Organizational Readiness and Change Management: The successful implementation of AI in Nigerian university libraries would require attention to organizational readiness and change management. Libraries can effectively handle the obstacles posed by AI integration by assessing readiness, formulating a clear strategy, staffing the plan, fostering an inventive culture, and monitoring advancements. If Nigerian academic libraries have strong leadership, strategic planning, and an extensive change management framework, they may apply AI to enhance

services, boost operational efficiency, and better serve their academic communities.

6. Collaborative Partnerships: Collaborative partnerships are essential for Nigerian academic libraries to successfully use AI. Libraries can form strategic collaborations with technological companies, educational institutions, governmental agencies, non-governmental organizations, and neighbourhood groups to get the necessary expertise, materials, and support to effectively implement artificial intelligence. Libraries are able to overcome challenges, use AI creatively, and enhance their services thanks to these partnerships, all of which eventually aid in the advancement of research and instruction in Nigeria.

7. Continuous Evaluation and Improvement: The successful and long-lasting integration of AI in Nigerian academic libraries would necessitate constant evaluation and improvement. Libraries can ensure that AI systems remain relevant and efficient by establishing Key Performance Indicators (KPIs), engaging with users, maintaining data integrity, and regularly upgrading technology. The iterative development process, ethical standards compliance, and ongoing staff training are other elements that support the dynamic evolution of AI in libraries. Through these projects, Nigerian academic libraries will be able to take full advantage of artificial intelligence's benefits and provide better services that can change to meet the needs of their local academic communities.

The Challenges of Implementing AI in Nigeria's Academic Libraries

Academic libraries in Nigeria have many obstacles when using technology, which calls for

careful thought and careful design. New technologies have the potential to completely transform library services and improve user experiences, a number of challenges prevent their acceptance and smooth integration. The use of AI in Nigerian academic libraries is hampered by a number of factors, including expensive prices, aversion to change, inadequate network connectivity, privacy and ethical concerns, and a dearth of supporting cultures. Embracing smart services to satisfy and cope with users' brilliant and innovative librarians with a set of new and up-to-date abilities (Adetayo et al., 2021; Marquardt, 2017). The effective use of AI in Nigeria's academic libraries will require careful consideration of and proactive planning for a number of significant challenges. Even though AI has a lot of potential, there are a lot of challenges facing adoption of AI in developing country libraries, especially Nigerian academic libraries. Concerns about privacy and ethics, a shaky maintenance culture, irregular power supplies, a lack of necessary infrastructure and technology, a lack of funding for libraries, librarians' lack of ICT proficiency and technical expertise, which prevents the effective application and use of AI technologies, and a reluctance to advance in the field of librarianship are just a few of the challenges. The study by Emiri (2023) reported that the challenges associated with AI adoption include considerable disruption brought by AI to conventional library services, a lack of skills and the need for training prior to adoption, erratic power supply, and a lack of suitable infrastructure for adoption. Academic institutions must collaborate, the government must fund infrastructure development, developing AI skills

is essential, and there must be clear regulations about data governance and ethics in order to overcome these challenges.

Despite these obstacles, the successful use of AI in Nigeria's academic libraries has the potential to enhance resource accessibility, streamline processes, and foster innovation in both teaching and research. Yusuf et al. (2022) assessed the application of artificial intelligence for efficacy in library service delivery in university libraries in Nigeria. The study discovered that Nigerian university library librarians had a relatively low adoption rate for artificial intelligence because of a number of problems specific to developing nations. Some other challenges include poor networking, erratic power supply, lack of trained personnel, outdated technologies and economic factors and high cost of technological tools that should be addressed before implementing AI in library operations (Echedom and Okuonghae, 2021). Another challenge is making sure AI algorithms are viable in the long run is one of the main issues. AI systems must be regularly updated, maintained, and calibrated in order to remain useful. Maintaining these projects over time can be difficult for many libraries, especially when faced with changing priorities, new leadership, or limited funding. Academic libraries that want to use AI technologies must navigate uncertainty since Nigeria's legal and regulatory environment is still evolving. It's critical to recognize and understand concerns such as data sovereignty, intellectual property rights, and the potential legal fallout from AI verdicts. If laws are unclear, libraries might be dissuaded from fully committing to AI programs. Thus, libraries must establish transparent policies

and mechanisms for accountability to mitigate the risks associated with AI-driven decision-making processes (Nicholson, 2020). Despite these challenges, artificial intelligence will enhance library operations through time and cost savings, accelerated services for both present and former customers, and information delivery services.

Other challenges include:

1. Infrastructure Limitations: Many academic libraries in Nigeria are still operating on antiquated, underpowered PCs and servers. Furthermore, AI technologies might not be compatible with conventional library systems. The current library management systems may be difficult to incorporate AI solutions, which could lead to inefficiencies. Natural language processing and other artificial intelligence applications depend on contemporary central processing units and graphics processing units to function properly, however many libraries lack these devices. In order for AI systems to perform well, many Nigerian academic institutions need a robust IT infrastructure, such as fast internet and processing capacity. Farag et al. (2021), stressed that lack of physical equipment is the first major issue in the integration of AI in the library, followed by a shortage of local suppliers of AI technology. Echedom and Okuonghae, (2021), investigated the advantages and disadvantages of artificial intelligence (AI) use in African academic libraries. A few issues were highlighted by the study, including inadequate infrastructure and training. The authors recommended that government and library administration work together to encourage the use of AI in African libraries and to develop appropriate regulations to oversee its application.

However, libraries must budget for the occasionally costly process of implementing AI concepts. Often the library may have inadequate infrastructure because AI requires heavy and latest technological tools to run it successfully, so poor infrastructure will never support AI in library services (Ajani, 2022).

2. Funding Constraints: Budget constraints prevent many libraries from investing fully in new technologies. Because of this, the library might not be able to purchase advanced AI tools or pay for subscriptions to online AI platforms. Having enough funding is necessary for maintaining infrastructure, acquiring AI technologies, and hiring staff. Cost of faults is high, which makes it difficult for companies to adopt the use of these new technologies (Ahmad et al., 2021). Limited financial resources can hinder the adoption and sustainability of AI initiatives in libraries.

3. Resistance to Change: Adoption and innovation may be hampered by the need to navigate multiple levels of bureaucracy when introducing AI technologies. Librarians might worry that AI-powered information retrieval technologies would replace their knowledge, creating job insecurity. Users and staff at academic libraries may be hesitant to adopt new technology because they don't know how to use it, are afraid of losing their employment, or would rather stick to more traditional methods. The awareness and perception of academic librarians in Nigeria about the use of artificial intelligence in university library management was investigated by (Abayomi et al. (2021) and the findings demonstrated that academic librarians were knowledgeable about AI's application in

library operations. Nevertheless, they were worried that its adoption would result in their jobs being lost.

4. Data Privacy Concerns: The idea that AI-based recommendation systems may gather and analyze users' search and borrowing history raises concerns about the exploitation of personal data. Inadequate data encryption and access restrictions that expose sensitive data to internet dangers may compromise user confidentiality. Academic Libraries are required to abide by strict regulations on data security and privacy, which can make it more challenging to adopt new technologies that manage sensitive user data. It is important to set out the legal and regulatory rules for governing the management and control of the data (Parasuraman, 2021).

5. User Training Needs: The efficient use of artificial intelligence in academic libraries depends on the skill development and training of users, which includes both library staff and patrons. Workers need to be technically proficient in order to manage and operate AI systems. Many university libraries lack dedicated IT support for AI technologies, which, in the absence of in-house AI experts or IT workers trained in AI, can result in prolonged system outages and poor user experiences. Patrons and staff may require training and support to effectively utilize new technologies, which adds to the implementation challenges, academic libraries in Nigeria are aware that artificial intelligence is being used in libraries worldwide, but they lack the necessary tools to completely incorporate the technology into their daily operations (Ajani et al. 2022).

Suggestions for effectively incorporation of AI into Nigerian academic libraries

The rapid advancement of artificial intelligence presents a transformative opportunity for university libraries worldwide, including those in Nigeria. AI has the power to fundamentally alter how libraries function, provide services, and engage with their patrons. Better resource management, enhanced user experiences, and more efficient information retrieval systems are all possible outcomes of successful AI integration for Nigerian university libraries. By carefully integrating AI, university libraries in Nigeria can become more creative, approachable, and productive. When AI is applied carefully, these libraries will lead the way in academic technology innovation, enhancing accessibility and information management in the process. The following suggestion includes

1. Evaluation of Goals and Needs:

Acknowledge the distinct challenges and goals that Nigerian university libraries face. Ascertain which critical issues AI can assist with, such as improving user experience, information retrieval, or resource management.

2. Training and Capacity Building: Provide in-depth training programs to library staff members so they can learn about AI technologies, their applications, and deployment best practices. Weijia (2022) also suggests training library staff members in artificial intelligence, fostering an environment that is receptive to new ideas, and encouraging staff members to look into the potential of implementing AI.

3. Cooperation and Joint Ventures: Join forces with research centres, universities, and other organizations in Nigeria or abroad to share

resources, expertise, and AI implementation experiences.

4. Privacy and Data Management: Create robust data governance policies and procedures to ensure the ethical and responsible use of AI technology, particularly with regard to user data and privacy. Libraries need to implement strict data security protocols and make sure that user information is handled carefully (Williams & Davis, 2020).

5. Promote Acceptance and Conscience: Educate the public about the benefits of artificial intelligence in libraries by hosting demonstrations, conferences, and seminars that highlight quantifiable improvements to service delivery and user experience.

6. Organizing for Sustainability and Finances: Make a long-term budget that will support funding of AI technology development and maintenance. Consider setting aside money for AI maintenance, education, and potential development. Through the suggestions for successfully incorporating AI into academic libraries in Nigeria and challenges encountered, organizations can effectively utilize artificial intelligence to enhance the quality of their services, stimulate high-caliber research, and foster innovative knowledge exchange.

Conclusion

The adoption of artificial intelligence in Nigerian academic libraries offers a transformative opportunity to improve services, optimize operations, and facilitate research in ways never seen before; nevertheless, this potential is accompanied by major obstacles that need to be overcome in order to guarantee effective integration and long-term application. AI's

application in areas like cataloging, user services, and data management can lead to more efficient and personalized library experiences. Despite these benefits, the process of integrating AI in Nigerian academic libraries is fraught with difficulties, including inadequate technological infrastructure, a lack of qualified human resources, and problems related to data protection and administration. The concept of AI and its relevance to library services is explored, highlighting its potential to revolutionize how information is managed, retrieved, and delivered in academic settings. Challenges pertaining to the implementation of AI in Nigerian academic libraries include inadequate organizational readiness, the need for continuous evaluation and advancement, and limited funding availability. Other hurdles include forming strong collaborative alliances and getting over the reluctance to change that often accompanies the introduction of new technologies. These problems need to be addressed thoroughly if Nigerian academic libraries are to successfully incorporate AI. This means investing in the necessary IT infrastructure, hiring competent staff, safeguarding data privacy, and establishing continuous evaluation processes. In addition, it is critical to foster collaborative partnerships and enhance organizational readiness through change management techniques.

In conclusion, even though the application of AI in Nigerian university libraries offers significant prospects for enhancing library services and advancing academic goals, careful planning, adequate resource allocation, and strategic collaboration are needed to overcome the challenges. Nigerian university libraries have the

capacity to effectively navigate the obstacles associated with implementing artificial intelligence if they confront these issues head-on and fully utilize this transformative technology for the benefit of the academic community.

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Teachers' Professional Organizations in Nigeria and their Contributions to Curriculum Development

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Abstract

A profession should have a strong organization that for the welfare and development of its members. Teaching in Nigeria is seen as a profession having fulfilled all the professional characteristics of a profession. In Nigeria there are many registered teachers professional organizations which ensured the adherence to professional code of ethics as well as encouraged the development and maintenance of professional culture. To examine these organizations and their contributions to curriculum development, attempt was made in identifying the organizations and their relevance to curriculum development. Challenges in professional development, poor motivation and inadequate funding among others were identified as inhibitors to the roles of teachers professional organizations in curriculum development. It was recommended that great attention and recognition be paid to teachers via the professional body in terms of their demands, recognition and respect for the profession, ensure full involvement of teachers in all issues that concerned planning and development of curriculum. More importantly, strong supervisory body responsible for the professional development of teachers through mandatory continuing development programs should be formed as a guide to develop teachers competencies and professional growth.

Keywords: teachers, professional organizations, curriculum development

Introduction

The most important stakeholder in education as far as curriculum development and implementation process is concern, is the teacher, who possess the knowledge experiences and competencies to be able to effectively develop and implement the curriculum. Teachers are acknowledged world over as the pivot of effective teaching (Mezieob, Nwankwo and Ken, 2017) teachers, are also regarded as builders of many nations of the world. Obierika and Nwachokor (2011) noted that teachers educate the citizens to be well informed, know their rights, duties, obligations, responsibilities and contributions towards their societies and nations at large.

Profession entails an occupation that is dependent upon specialized intellectual study and training for the provision of skilled service to other members of the society. Hoyle & Megary (1980) defined profession as an occupation founded on specialized training and intellectual study. The purpose of what is to supply skilled service or advice others for a definite fee or salary. Profession has a code of conduct to guide the behaviour of the members of the profession which includes ethical principles, customs and standards of practice identified as good enough for the profession which the practitioners are expected to rigidly adhere to, which teaching is one of them.

Teaching as a profession have many professional organizations. In fact, the strength of teachers

often comes from connection with other professional organizations in teaching through which they build professional career. Those organizations includes Curriculum Organization of Nigeria (CON), Science Teachers Association of Nigeria (STAN), Mathematics Association of Nigeria (MAN) , Nigerian Union of Teachers (NUT), to mention but a few. The need to get involved in these organizations becomes necessary as it empowered and strengthen education, hence improve students outcome through their activities and significant roles in terms of provision of resources, publications, attending local and international conferences, workshops, training and retraining of teachers in various disciplines, curriculum development, implementation as well as evaluation.

Carpenter (2001) identified some ethical obligations of teachers professional associations to include: Ensure the quality of professional preparation and practices. Provide continuing professional education; and recognize these practitioners who need to improve their knowledge and practice.

In Nigeria the need for teachers' professional organizations has always been stressed by educators. They range from local to national and International organizations with a reasonable number of members drawn from a particular chapter and are characterized by their activities and contributions. The most important contribution of the organizations is the provision of support to the members throughout their career growth. Thus, they are able to explore their skills

and knowledge for the benefit of both students and educational institutions. For curriculum development to be effective and schools to be successful, teachers must be involved in the development process at all levels. Curriculum development refers to the stages undergone in the production of structured set of learning experiences (Ivovi, 1999). It is the continuous identification, selection and arrangement of learning opportunities and materials with appropriate teaching approaches and skills in the achievement of stated objectives. The essence is to generate a scenario that will guide and direct the teacher in ensuring that the learners acquire the appropriate skills, values, knowledge to develop ideas sensitive feelings, thoughts and proffer solutions. Thus, curriculum development in essence, is to bring about desirable change in behaviour of the learners and this will depend on the teacher and the strategy adopted in the development of the curriculum. Hence, the need for efficient and successful implementation of qualified and professional teachers (Annala, Makinen & Linden, 2014). There are various agencies of curriculum development that coordinate the affairs of developing the curriculum through various procedures at the lower and higher level of education. Their roles and contributions to teachers are of immense importance. Professional associations by their activities bring about change for the better in education (Joseph, 2018).

Concept of Curriculum

Curriculum is an important area for a professional teacher since it is an established part of teacher education programmes. It organizes all the learning experiences offered to the learners involving the basic skills at every stage of their schooling. Curriculum according to Yusuf (2012) is viewed by most scholars from three perspectives, prescriptive, descriptive or a combination of the two. Prescriptive explained what ought to happen which take the form of a plan, intended programmes or some kinds of expert opinion about what need to takes place in the course of the study while descriptive definition attempts to provide a glimpse of the curriculum in action i.e. how things are done in the real classroom. The third definition was even the mastery of a collection of books, curriculum is considered to be the complete atmosphere to transform peoples life (Obanya, 2010). Closely related to that, transformation of people centres around their expectations of the school with respect to (i) purpose of the school (ii) what should be taught (iii) how it is taught and to whom it is taught and (iv) the effectiveness of what is taught. Kerr cited in Guga & Bawa (2015) viewed curriculum as all the learning which is planned and guided by the school, whether it is carried on in groups or individually, inside or outside the school. This implies that the learning experiences both curricular and extra-curricular activities the learners engaged in to become educated persons. Therefore, an acceptable

definition of curriculum is dependent on personal, condition or environment perception.

Concept of Teacher

The key personnel in the institutions who plays an important role to bring about the transformation of learners experience is the teacher who impacts knowledge to the learners. He is such a person who teaches or instructs others and takes teaching as an occupation, (NTI, 2006). Teacher education helps in the development of teaching skills in their professional institutions, thus, require specialized teacher training inputs for the function which he/she is expected to perform at each state. The teacher is the main agent for effecting learning in learners and a link between the society and the learners, hence, represents the society as an exemplary method. He is a father and a teacher to the society who eventually translates ideas, intentions, desire of the society to the learners. He does this inspite of the many odds he faces (Guga and Bawa, 2015)

Concept of Teaching

Teaching is a complex process that brings a socially desirable behavioural change in a person. Generally, it is the act of imparting instructions to the learners. In other words, it is the process where a learner acquires the desired knowledge, values, skills and other ways of living in the society. It is the process of which the learners, teachers, curriculum and other variables are organized in a systematic and physiological ways to attain some predetermined goal (Gage, 1993).

Teachers Registration Council of Nigeria (2010) believed that a teacher is a person who undergone approved professional training in education at appropriate levels, capable of imparting knowledge, attitudes and skills to the learners. A teacher guides learning by arousing the learners, stimulating them and giving them the opportunity to interact in the teaching and learning process. He instructs and directs others with the aim of imparting knowledge, skills, information, favourable attitudes and character development. Balogun in Guga and Bawa (2015) define teaching as the passing on of the ideas, knowledge, skills, belief and feeling to someone, with aim of bringing about particular change. Teaching can be said to be an interactive process between the teacher and learner so as to effect learning. It is a process, which involves a teacher, subject matter, methodology, instructional materials and having the student or learners as the target. The target is to effect a change of behaviour in the students.

Teaching as a Profession

Teaching is one of the social services provided in every human society. Basically, teaching is to help the child/learner acquire the desired knowledge, skills and also desirable way of living for a worthwhile life in the society. In consideration of this, the function of teaching is however, still being debated especially in developing countries whether teaching is or not a profession.

The Federal Government of Nigeria (2004) recognized teaching as a profession in the country

through the national policy on education. The policy framework proclaims that all the teachers in educational institutions shall be professionally trained. This could be through colleges of education, faculties and institute of education in Nigeria Universities, National Teacher's Institute (NTI), Schools of Education in Polytechnics.

Bearing in mind that Nigeria Certificate in Education (NCE) is the minimum educational qualification for one to be engaged in the teaching profession, it is worthwhile to note that teaching will return back to its lost glory when it maintain the full characteristics of a profession.

Characteristics of Profession

Various attitudes can be used to ascertain a particular job as a profession. Richey in Tosin (2014): advanced the following;

1. Knowledge: a profession must have its practitioner to acquire a skills based systematic body of knowledge. It should be through acquiring of specialized knowledge and that equip the practitioner with the basic mental skills and be acquired through attendance of formal recognize institution of learners (Jekayinta, 2003).
2. Professional Code of Ethics: This refers to the laid down rules, values, norms and standard to ensure control and made of entry into the occupation in which a functional profession strictly adhere to, professional ethics are the basic habits made up of equitable principles of practitioners of a profession (Onyekan, 2000). The ethics are philosophically inclined for being morally

good in a wide spectrum of professional activities.

3. **Controlled of entrance:** A profession is guided by enforcing and setting standards for selection, licensure and certification before the entry into any profession.
4. **Professional and In-service Growth:** The need for the training and retraining of practitioners from various organization knowledge is not static, but ongoing and dynamic hence, the need for practitioners to attend conferences, seminars, workshops and other mandatory continuing development skills and longtime specialized, training to update their knowledge.
5. **Freedom of Practice:** There is an absolute freedom to practice a profession, government policies does not inhibit autonomy of a profession, thus a practitioner has right of displaying a quality job as a result of freedom granted him to perform altruistic service in the affairs of others.
6. **Legal Recognition:** All practitioners in their professions are highly recognized and respected in the society. Jekayunfa in Tosin (2014), reported that the public trust their judgment and skills considering their unique service to humanity, the society cannot do away with them. More so, the decree No. 31 of May, 1996 approved a legal recognition to teaching as a profession.
7. **Period of Internship of Apprenticeship:** This is the process of acquiring professional knowledge needed to practice the occupation.

It is the process of which the learner, teacher, curriculum and other variables are organized in a systematic and psychological ways to attain some predetermine goals (Gage, 1963).

Roles of Professional Bodies in Teaching

Professional bodies in teaching profession have been known to play significant roles in curriculum development in Nigeria as performing the following functions as cited in Jocinta, N in Theresa & Uchenna (2018).

- Responsibilities of enforcement, delegated to respective professional bodies.
- Promote, oversee, support and regulate the affairs of its members.
- Responsible for the licensure of professionals, set examination of competence and enforce adherence to an ethical code of practice. However, it is require that the individual should hold at least a minimum of Nigerian Certificate in Education (NCE) before licensure.

In some countries, individuals are required by law to be qualified by a local professional body before they are permitted to practice that profession while others like Pakistan, individuals may not be required by law to be qualified by such a professional body in order to practice

Teachers Organizations in Nigeria

A professional should have a strong organization that would see to the welfare and protection of their members. They includes among others, Science Teachers Association of Nigeria (STAN), Teachers registration Council of Nigeria (TRCN), National Teachers Institute (NTI),

Curriculum Organization of Nigeria (CON), Social Studies Educational Association of Nigeria (SOSAN).

Science Teachers Association of Nigeria (STAN)

This organization was inaugurated in 1975. The year marked the birth of the most virile professional association of science teachers in Africa. Urevbu (1985), noted STAN as one of the two most effective instruments for curriculum change, development and implementation in Nigeria it is also occupying a prominent position in curriculum innovation in Nigeria. The Science Teachers Association of Nigeria is a professional association of science, technology, engineering and mathematics teachers.

Members are drawn from primary, secondary and technical schools as well as from colleges of education, polytechnics and universities. The aims of the association include:

1. To promote cooperation among science teachers in Nigeria with a view to raising the standard of science education in the country.
- To provide a forum for science teachers on matter of common interest;
- To help science teachers keep in touch with developments in science and its applications in industry and commerce;
- To popularize science in the community and
- To perform such other functions incidental or necessary for the realization of those objectives such as to acquire and own lands (Akimbobola, 2019).

These are worthy aims for a country like Nigeria that is geared to achieving greatness in science and technology STAN has over the years been striving to achieve these aims through its numerous activities.

Activities of STAN

The major activities undertaken by STAN include:

Organization annual conference lasting 5 – 6 days, usually in August in relation all over the country. The conference programme which include workshops lecturers, subject panel meeting, science fair, quiz and exhibition of appropriate experiments and teaching aids by manufacture, books by publishers, experiment and teaching aids by students and members, excursion to places of scientific interest. Organization of seminar and workshops in agricultural, mathematics, primary science and teacher education. The association collaborates with agencies like WAEC, NECO, MTE, NERDC, Federal Ministry of Education (FME) Federal Ministry of Science and Technology (FMST) and NTI for more effective preparation of science teachers and collaboration with international associations with similar interest through participation in international conference.

Publication of STAN includes:

- A journal of science teachers association of Nigeria is published twice a year.
- STAN bulletin – which keeps members up to date about the association programmes and event it is published twice a year.

- Nigeria Integrated Science Project (NISP): teacher's guide book 1 – 3 a carefully prepared guide for the teacher integrated science, using the NISP text.
- STAN science teacher's handbook contains all a science teacher should know about science teaching etc.

Nigeria Integrated Science Project (NISP) is one of the most laudable contributions of STAN to science education and innovation in Nigeria. NISP originally had pupil's textbooks 1 & 2 and teachers guide 1 & 2 in line with the period when integrated science was offered in the first two years of 5 – year secondary education with the inception of the 6 – 3 – 3 – 4 system of education. NISP was revised to cater for the three classes of junior secondary school. The intention in NISP materials that science should be taught as what science is and how a scientist works. This emphasis was on active involvement of students, in the learning process NISP material have been widely adopted in most Nigeria school because the teachers many of whom are members of STAN are keen to identify themselves with the efforts of the association.

Association of Nigeria Educational Psychologist (ANEP)

It is a professional body for education psychologist in Nigeria. Educational psychologists brought together across the country to promote educational research and development in the field of learning.

Their vision is to help teacher educators gain better knowledge on human nature so that they

encourage and direct better learning growth and behaviour that may greatly have impact in the development of curriculum.

Association of Nigerian Educational Psychologist (2023) have identified the following as part of their mission; advance and transmit knowledge about educational psychological processes; provide a strong foundation in the basic knowledge and skills required for studies and competence required for successful careers/provide academic forum for discussion and publications on issues relating to Nigerian child and teaching and learning process; advice government and policy makers on issues concerning the development of the child and psychological environment needed for learning; liaise and cooperate with others groups and professional bodies in ensuring that the goals of education are achieved in Nigeria.

Social Studies Educationists Association of Nigeria

The Social Studies Educationists Association of Nigeria (SOSAN) is educational professional body organized by and for all persons who believe in the principles of social education. It is an organization of learners, teachers, educators, curriculum developers, writers and qualified educational practitioners in the field of social education and accepted related disciplines. It is a professional body which consists of professionally qualified teachers who have their origins largely from the social science and humanities, SOSAN is not a trade union but purely concerned with improving and

strengthening the teaching of social studies throughout the Federal Republic of Nigeria (SOSAN, 2017).

Vision and Mission

The main vision of this association is to foster social education generally for the enhancement of the acquisition of necessary political, social and cultural knowledge, attitude and skills for effective and responsible democratic citizenship. The Social Studies Association of Nigeria (2017) identified the following as its mission: to provide leadership service, and support for all social studies educators; ensure that an integrated social science, behavioural science, and humanities approach for achieving academic and civic competence is available to guide social studies educators in curriculum development and implementation in schools; serves as an umbrella organization for primary, secondary, teachers college and teachers university of the social studies in the interest of educating new generations of informed, responsible citizens; improve the integrated teaching of social studies at all levels of education from elementary school to college and graduate school.

Mathematics Association of Nigeria (MAN)

Mathematics Association of Nigeria was established in 1963 at University of Ibadan. The major focus of the association is improvement of teaching and learning of mathematics at all levels of Education in Nigeria. The association do organize national annual conference, where innovation teaching techniques are taught to mathematics teachers nationwide besides, during

this conference other matter relating to the issues of teaching and learning are discussed and documented and information passed to relevant authorities. It encourages local creativity through the resources. The organization was also registered for its members in interactions in mathematical thought in all fields of endeavor including education, science and technology.

Objectives of the association:

Some of the main objectives of MAN include:

- Promote effective mathematical teaching and research;
- Encourage and emulate mathematical thought and activities;
- Encourage and undertake the publication of mathematical journals, reference books and newsletter as means of promoting the development of mathematics and dissemination of research findings in mathematics;
- Mathematic education, science and technology and to encourage and stimulate mathematical thoughts and activities among others (Adeyaji, 2019).

Teachers Registration Council of Nigeria (TRCN)

Teachers Registration Council of Nigeria was established in 1993. Is an agency of the Federal Ministry of Education established under the decree 31 of 1993, now CAP T3 of 2004. The main responsibilities include regulating the teaching profession in all its aspect (TRCN, 2010).

Teaching is legally recognized as a profession in Nigeria (NPE, 2013). In view of that, Federal government set up the Teachers Registration Council of Nigeria (TRCN) to control and regulate the practice of the profession and promote excellence in education through effective registration and licensing of teachers and promote professionalism through accreditation, monitoring and supervision of teacher training programmes and maintenance of discipline among them.

Vision/Mission

Professionalization of teaching is part of the vision of TRCN which involves the following as cited by Jacinta (2018):

- Determine who are teachers;
- Determine what standard of knowledge and skills are to be attained by person seeking to become registered as teachers;
- Regulating and maintaining the teaching profession in all its aspect and ramification;
- Ensuring that the registered teachers meet the expected standards;
- Classifying from time to time members of the teaching profession according to their level of training and qualification;
- Enforcement of professional ethics among teachers using the teachers investigation panel (TIP);
- Provide professional development programmes for registered teachers and encourage employers to ensure the mandatory containing professional development (MCPT) of teachers; and

- Performing through the council established under this Act the functions conferred on it by the Act.

TRCN as a teachers professional body through its Acts, contributes immensely in the noble profession.

TRCN as a teachers professional body contributes immensely to curriculum development through their programmes and activities as contained in their Acts.

Curriculum Organization of Nigeria (CON)

CON was conceptualized by a staff of the department of curriculum studies, university of Jos in 1982. It was formerly established in an international curriculum conference hosted by curriculum department, faculty of Education, University of Jos in September, 1982 with the foundation Executive committee (EXCO) elected.

The proposal of the body was drafted and circulated to universities faculties of education and institutes of education and other educational institutions like Comparative Education Study and Adaptation Centre (CESAC) and Nigerian Educational Research Council (NERC).

Curriculum Organization of Nigerian (CON) deals with challenges of all aspects of school curriculum in Nigeria and help in developing curriculum for the new system.

Membership

Membership of CON is affected upon the completion of a prescribed registration from and payment of registration fee determined by the National erxecutive Committee from time to time

and approved by the annual general meeting. Registration is normally done during annual conferences of CON.

Objectives of CON

The organization has four objectives as followings:

1. To bring together all persons interested in curriculum for sharing knowledge in the problems and practice of curriculum.
2. To promote and strengthen curriculum development research and evaluation in Nigeria.
3. To promote training in curriculum research, development and evaluation; and
4. Encourage publication and dissemination of appropriate types in curriculum development, research and evaluation for all levels of education (Jacinta, 2018).

CON Annual Conferences

Annual Conferences of CON is in the third week of September of each year. During the conference, usually a forum of scholars; intellectuals and other stakeholders in education such as UBEC, SUBEB, Federal Ministry of Education, State Ministry of Education and other relevant professional bodies like STAN, ANCOSS etc. cross fertilized ideas on issues relating to teaching and learning. At the end of the conference, presented papers after peer reviewing and corrections effected, they are published in volumes.

CON Publication

In a bid to achieve its objectives, a communication forum was published through

bulletin newspapers, journal which is named, the Nigerian Journal of Curriculum Studies.

Contributions of Teachers' Organizations to Curriculum Development in Nigeria

The pattern of teachers' organizations activities such as workshop and conferences has apparently helped to achieve desirable curriculum development. This means that teachers' organizations help to ensure that the school offers what the community requires. This is to say that relevant community knowledge should be included in the school curriculum since "real development in curriculum hinges on the combination of valuable elements of school knowledge and community realities". The assumption of curriculum integration is that there is functional relationship between teachers' organizational activities and knowledge within the curriculum.

The teacher's organizations must functional, towards a worthwhile curriculum. The activities must be relevant to the needs of improving the content of the school curriculum. Impact, relevance in teachers organizations has to be seen in terms of those useful issues discussed at various form in areas of current curriculum development needs. This means that the curriculum must look at national objectives and current development plans in selecting items.

Owen, (2023) identified the following activities of an organization in an attempt to achieve its objectives:

1. Holding conferences, symposia and workshops;

2. Awarding of prizes/recognition for outstanding contributions in science research;
3. Publishing of journals of the Nigerian Science Society and other publication of high quality; and
4. Cooperation /affiliation with other bodies with similar objectives

Contribution of the Organizations on Curriculum Development

Professional organizations play a vital role in curriculum development in Nigeria by:

1. Providing expertise: they offer specialized knowledge and skills to enhance the curriculum. (Okabia, 2015)
2. Setting standards: They establish benchmark quality education, ensuring the curriculum meets global standards (Nwadiani, 2007)
3. Advocating for Reforms: They push for updates and improvement in the curriculum, reflecting current trends and needs (Aghenta, 2019)
4. Facilitating collaboration: They bring together educators, policymakers and industry experts to develop a comprehensive curriculum. (Ijaya, 2018)

Relevance of Teachers Professional Organizations in Curriculum Development

The aim of successful educational program and effective curriculum development and implementation is for it to meet the purpose of which is intended to achieve, here the involvement of teachers, professional

organization are vital in the effective curriculum development.

Teachers from such organizations believed to be knowledgeable, experienced and competent thus, better teachers support better learning because they are most knowledgeable about practice of instruction. Alsubaic (2016) viewed teachers organization as an important factor in curriculum development and implementation where they contribute by collaboratively and effectively working with curriculum development teams and specialists to arrange and compose martial textbooks and contents that align with students needs in the classroom in a related development according to Johnson (2001) curriculum development can be challenging, therefore, contributions of relevant teachers organizational bodies and other stakeholders is vital for the successful and meaningful curriculum development, hence, they are provided with appropriate knowledge and skills to help them effectively contribute in curriculum development operation.

In view of the above, the goal is to ensure that students get comprehensive learning experience that meets their needs and prepares them for future with a good developed curriculum, the contents and levels gets appropriate treatment that helps to enhance students ability and talents to keep pace.

Challenges on the Role of Teacher's Professional Organizations in Curriculum Development

1. Inadequate funding: is a serious problem facing the organization. Fund released for the implementation of some program are not adequate to implement the program. Inadequate funding in a major problem responsible for poor development of science programmes and other researches has been a major problem facing technological growth in Nigeria.
2. Poor nutrition: this is a problem facing particularly science teachers teaching in Nigeria educational institutions are poorly motivated. Ezechi and Ogbu cited in showed that science teachers in Nigeria are not motivated, they are faced with poor condition of service, not given opportunities for developmental programmes and were not granted fund for creativity.
Ajemba, Ahmed & Ogunode
3. Challenges in professional development: teachers professional organizations play vital role in shaping the education landscape however, many of them face challenges in accessing continuous professional development and opportunities for collaboration this is divined to enhance teachers capacities, the need to foster collaboration, knowledge, sharing challenges.
4. Through workshop and seminar these organizations are exposed to oppoturnities of

acquisitions of new ideas and skills for effective curriculum development and implement.

5. Poor publication of relevant document that guide teachers: professional standard for Nigeria teachers which include current teachers handbooks, Nigeria journal of professional teachers, journal proceedings and other publications that will ensure teachers effectively development curriculum are inadequate while some are even lacking and professional growth among educators ultimately leading to improve teaching and students outcomes.

Other challenges noted by NERDC (2018) were inadequate training and retraining of teachers to cope by the overloaded and expanding curriculum contents and integration of new materials, integration and infusion of global issues and concerns such as HIV/AIDS, environmental degration drug abuse and population explosion into the curriculum continue to pose section challenges to curriculum development as well as to schools, textbooks writers and publishers.

Way Forward

For teacher's professional organizations to cope with myriad of social, academic and financial constraints for effective curriculum development and as a cogent need to show greater understanding and plight of teachers at all

educational levels, the following need to be considered as a way forward:

1. Great attention and recognition to be paid to teachers via the professional body in terms of their demand, recognition and respect for the profession.
2. Ensures adequate curriculum development by encouraging urgent need to improve the welfare of the teachers as well as involve them in all issues that concern them such as planning and development of the curriculum as they will be part in the implementation.
3. Implementing favorable condition of service along a better salary structure, staff development, training and retraining of teachers particularly new unnarative skills of teaching skills, knowledge, theorien and principle etc. remuneration, job mobility, promotions etc.
4. There should be a strong supervisory body responsible for the professional development of teachers through mandatory continuing development program (MCDP) as a guide by teachers development partner such as UNICEF, USAID, UNESCO etc.

Conclusion

Education being the greatest hope of a nation especially for a developing country like Nigeria cannot just be left in the hands of mediocre. Hence the transmission of knowledge values, skills and information from one generation to another requires the services of someone adequately trained and skilled in the area of doing the job. A teacher is the one assigned the role of

transmitting to the present generation the accumulated knowledge, values and skills of the past and interprets this information with reference to the present with a view to modifying and improving the future. Teacher organization in Nigeria plays a vital role in putting excellence in education through effective registration and licensing of teachers, and organization annual conference all over the country. The conference programme which include workshops lectures, subject panel meeting, science fair, quiz and exhibition of apparatus by manufacture, books by publishers, experiments and instructional materials by students and members, excursion to places of scientific interest etc. full production of educational resources e.g. compass, devised and triangle. Challenges on the roles of teachers professional organization is seen as a bottleneck in curriculum development which includes inadequate funding, poor motivation, challenges in professional development. It was recommended as a way forward to establish an effective supervisory body responsible for the professional development of teachers through mandatory continuing development programme (MCDP) as a guide by teachers development employers such as NTI, international development partners such as UNICEF, USAID, UNESCO etc.

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Bridging Digital Divide in Science Education for Effective Learning Outcomes in Southwest Colleges of Education, Nigeria

By

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Abstract

In this present age of globalization, the digital divide remains a significant barrier to effective science education in many Colleges of Education in Nigeria. This disparity hinders the ability of students to access quality educational resources, leading to inadequate learning outcomes. This study is a position paper aiming at identifying the impact of digital divide on science education learning outcomes in Southwest Colleges of Education in Nigeria. The study outlined three (3) objectives with the aim of identifying favourable framework for the government. Findings revealed that setback from the government hinders Nigeria educational system not to actualize the desired digital bridge in higher institutions of learning, further findings reveals the science classroom instructions using Information and Communication Technology (ICT) and the benefits therein are the means of bridging the gap of digital divide in science education in Southwest Colleges of Education in Nigeria. Factual Implications: Except Nigerian government together with other stakeholders in education sector takes decisive steps to address the problem to digital divide, the socio-economic gap between students' and groups in the learning institutions will continue to broaden. Novelty/Value: The paper was put together out of the curiosity of the researchers for the Nigerian government to exploit the advantage of the digital driving opportunities to resolve some of the academic glitches in the Nigeria educational clime. Colleges of education framework and strategies for implementations were drawn among others are provision of stable power supply in the colleges to enhance effective utilization of the ICT facilities.

Keywords: *Digital Divide*, science education, learning outcomes, southwest colleges of education

Introduction

Information and communication technologies (ICTs) have played pivotal roles in numerous facets of our daily life, spanning politics, economics, social, culture, and education, with this significance becoming even more pronounced during the Covid-19 pandemic (Subramaniam et al. 2024). While these advancements undeniably bring about convenience, heightened efficiency, and increased productivity (Wang, Zhou, and Wang 2021), they also give rise to a concerning phenomenon known as the digital divide, which can lead to social exclusion and segregation (Cheshmehzangi et al. 2023; Katz,

Jordan, and Ognyanova 2021). The digital divide, or the breach between persons who can and those who cannot make use and profit from contemporary information and communication technologies (ICTs), has been an age-old social and policy problem since we entered the information age. By means of Internet services, computers, and mobile phones turn out to be more prevalent and affordable, attention on the digital divide has stretched from physical literacy to digital literacy and skills (Fie Li, 2022).

The digital divide has had disadvantageous effects across various sectors throughout the Covid-19 pandemic. Precisely, its impact to the education subdivision has been severe, as it confines students' access to vital digital resources and facilities (Subramaniam et al. 2024). It was highlighted in a report {The Star, 2020a; 2020b and UNESCO, 2020) that due to the digital divide, online learning has become a privilege that is out of reach for many underprivileged students, particularly those hailing from lower-income households Digital technology is of great importance when information is to be gathered, stored, retrieved, disseminated and evaluated. Today, there is no aspect of educational activities where digital processing is not applicable, just like other fields of human endeavour. The move and trend of Information and Communication Technology (ICT) globally, has in no doubt affected education positively. In like manner and as a developing nation, Nigeria educational system is gradually witnessing an optimistic transformation in this age of knowledge explosion (Aworanti, 2016).

Robert, (2022) Globally, there exist a digital divide between men and women, the young and the old, the wealthy and the poor, and the educated and less educated. This describes the disparity between populations with access to modern communications technologies (cellphones, the internet, among others) and those without access. Consequently, students without internet access were left behind (Robert, 2022). Access to the digital resources in many climes is non-existent or unsympathetically limited, which has been challenging for years but

perhaps never as extremely painful as during the last global pandemic, when getting online became (for many people) compulsory (Perrin, 2019). The digital divide encompasses differences in both access and usage of computers and the Internet (Schweitzer, 2015).

Hsieh & Lee, (2020) The digital divide can have a significant impact on student learning outcomes. Research has shown that students who don't have access to the internet or computing devices at home are less likely to use these tools for educational purposes, which can put them at a disadvantage compared to their peers. This can lead to a range of negative outcomes, including lower academic achievement, decreased motivation, and reduced opportunities for social mobility. The usage of ICT in tertiary institutions for teaching learning, researching, teaching and community development has been an ongoing reality in 21st century. Nevertheless, the differences that exist amid tertiary students are the source of a significant anxiety. Such inequalities need to be detected and addressed and therefore close the digital divide (Sunday and Emmanuel, 2014). Numerous authors pointed to the advantage of ICTs to supplement learning, develop communications and plan the teaching process (Cavus, 2010; Lonn & Teasley, 2009; cited by Ricoy, Feliz, & Couto, 2013). The prominence of ICT in Nigeria education is no longer an issue in contention. The concern in controversy is how Nigeria educational system can certify their unceasing derivation of the benefits from new opportunities afforded by ICT (Okon, 2010).

Afzal, et al. (2023) on the impact of the digital divide on students' access to technology and its influence on their educational outcomes. It was revealed that there exist variations in internet access across different age groups, with younger individuals having higher levels of access compared to older age groups, disparities in household internet access were observed between rural and urban areas, with rural areas experiencing lower connectivity, gender-based differences in personal device ownership were also evident, highlighting potential gender-related digital divides. Moreover, students from low-income households faced lower levels of internet access, indicating a socioeconomic divide in technology access (Afzal, et al., 2023).

In light of the forgoing, the digital divide is particularly germane presently, due to the novel pandemic occurrence in the year 2020, which has resulted in the transition of essential resources and services to online platforms to a greater length than ever before. The deficit of infrastructure around educational technologies in our learning institutions has necessitate a call to carry out investigation to add to the existing literature. Inequalities in digital access have impeded educational gains made towards achieving the Sustainable Development Goals (SDGs) most especially in the colleges of education in Nigeria. Though significant studies have been carried out on digital learning, there is currently a dearth of knowledge on students' digital gaps and needs in in the colleges of education in South-west, Nigeria. To this end, this research study explored the digital divide in science education

learning outcomes in Southwest colleges of education in Nigeria. The study set to identify some key components specifically by identifying key factors influencing the adoption of digital technologies in science education, possible developmental components for a framework to for sustainable digital inclusion in science education, and effective strategies for bridging digital divide in science education.

2. ICT Theory

This study is affixed on technological determinism theory. The technological determinism theory according to Lievrouw and Livingstone (2006) is of the credence that ICT's have an irresistible power to drive human activities socially, economically, as well as invention and advancement. These are opinions emphasized in this study as the study perceives the use of ICTs which will call for changes that would lead to sustainable development in Nigerian tertiary institutions. Uncertainty quality of students and high productivity are to be attained and sustained as being cried for by the regulating authorities in Nigeria, it will be suitable for National Commission for Colleges of Education (NCCE) quality assurance programme of Nigerian Colleges of Education. Consequently, the government, people and ICTs, are vital paraphernalia in this regard.

Wholly these highlights are slice of the interpretations of technological determinism theory, and will be carefully explored in this study. Outwardly, the importance of technological determinism theory to this study is irrefutable as it offers the foundation to which this enquiry rests

upon. However, technological determinism theory presumes that the capability any organizations to face environmental challenges and development depends mainly on the level such organizations grip ICT. The knowledge of the theory will backing the policy makers, various stakeholders and professionals to be well prepared in connecting the digital divide and inspire the students to have the adequate ICT facilities to boost them on ICT skills and secure comprehensive competitive advantage. It is implicit that every single practice is anchored on theory, it is imperative that digital divide in Colleges of Education, Nigerian be bolted through manpower development training and curriculum redesign.

2.1 Concept of Digital Divide

The term “digital divide” was introduced by the former US Assistant Secretary of Commerce for Telecommunications and Communications in the mid-1990s in order to focus public attention on the existing gap in access to information services between those who can afford to purchase the computer hardware and software necessary to participate in the global information network, and low income families and communities who cannot (Anamelechi, O. & Emmanuel, A. E. (2023). Hence, the dearth of internet access means limited access to education, social communities, medical information, and job opportunities, (Nkanu & Okon 2010).

Digital divide is a term that is denotes to the gap between demographics and regions that have access to modern technologies and those that don't or have restricted access. Sunday and Emmanuel, (2014)

these technologies can include the telephones, televisions, personal computers and internet connectivity. Inadequate ICT these facilities are increasingly critical to economic development and personal advancement. Lucky and Achebe, (2013) posit that some have used the term to refer to gaps in broadband network access. Thus, the “divide” denote primarily to the availability of cellphone towers, however now the divide is defined as access to high-speed internet access. Hence, the dearth of internet access means limited access to education, social communities, medical information, and job opportunities, (Nkanu & Okon 2010).

In a work done by UNESCO (2008), digital competence comprises mastery of the several capacities of students to search, select, analyze and evaluate information rather than just technical operation of technological equipment. This means that they must be creative and efficient at using digital tools, communicate and collaborate with other people, and produce and publish materials and information. They must also be able to solve problems, make decisions through technology, be responsible and contribute to enriching the knowledge society. However, it is conceptualized that digital divide centres on inequality to access ICT facilities when needed or as a result technical incompetence. In study conducted by The Organization for Economic Co-Operation and Development (OECD, 2001) defines the concept of "Digital Divide" as the inequality of access to ICTs among geographic areas and people from different socio-economic levels.

2.2 The Role of ICT on Learning outcome in the Southwest Nigerian Colleges of Education

Instructional delivery based on ICT, i.e. educational programmes broadcasted over radio and television are also dispense with the necessity for all learners and the instructor to be in one location. Also, certain categories of ICTs such as teleconferencing technologies facilitate instructions to be received simultaneously by many, geographically dispersed learners (synchronous learning). In addition, ICT has boosted access to remote learning resources. Teachers and students no longer have to merely depend on physical media accommodated in libraries (and available in limited quantities) for their scholastic necessities (Ahmed, 2021).

The persistence of ICT in Colleges of Education is largely to familiarize students with handling of computers and ICT gadgets for learning, and related social and ethical issues as observed. ICT has aided learning through numerous intelligence as it has brought together learning through simulation games; which enables active participation of learners in the learning environment, More so, multi-purpose application of the ICT for utility in the area of water and electricity usage and therefore has become a foremost factor in socio-economic advancement of the world (Agbetuyi & Oluwatayo, 2012), The rapidly shifting of technologies in Nigerian tertiary institutions has been described as spirited to keeping abreast with the role of ICTs in the 21st century education system. This has become pivotal in the advancement of skilled knowledge in the Southwest Nigerian Colleges of Education. The foremost drive

of ICT in Colleges of Education is deployment of ICT equipment and setups in the teaching and learning procedure as a media and methodology (Shakeel, et al, 2011).

Waya, (2019) ICT has facilitated to increase access to, refining the applicability and the quality of Nigerian educational system. It impressively facilitates the acquisition and obsession of knowledge, posing developing countries exceptional prospects to enhance their educational systems, develop policy formulation and execution and amplify the range of prospects for business and the deprived. This innovative communication tends to moderate the sense of isolation, and open access to knowledge worldwide. This is enhanced because ICT provides access anytime and anywhere by making possible asynchronous learning. Online course materials, for example, can be accessed 24 hours a day, 7 days a week (Waya, 2019).

2.3 Bridging the Digital Divide in Nigeria Learning Institutions

Bridging the digital divide in Colleges of Education in Nigerian is necessary because it will enhance learning opportunities for students' teachers' and increase their ICT skills. Sunday and Emanuel, (2014) reported that it is often observed that the circulation of new innovations is sideways and appropriate process and must recognise that the use of ICT in a classroom is an innovation. Therefore, students may be provided with long time manpower training and sufficiently acquire ICT facilities for the continuous practice within the school system and outside the school.

Affordability is a correlate of the digital divide. It basically refers to the ease with which an individual can purchase computers and peripherals, mobile devices, internet subscription data and other instructional resources that can be used by a learner to enable personalized remote learning comfortably (Adie, et al, 2021). There are challenges for everyone involved in student learning to support the diversity of chosen devices and ways of working. Institutions are increasingly judged on the quality of the student experience, and Inadequate ICT facilities are scrutinized closely by prospective students and their parents. However, resources of digital know-how and expertise are less visible and are less obvious targets for investment (Sunday and Emmanuel, 2014).

Olanrewaju, et al, (2021) explored the digital gaps and needs of rural secondary schools in remote communities and its implications on e-learning during the COVID19 era. The study identified a lack of ICT strategies and policies in Nigeria, socioeconomic status, poor internet connectivity, electricity, and a high poverty level as the primary drivers of digital gaps in remote communities. When teaching and learning is accessed critically, it could be observed that the challenge for teacher educators is no longer in covering the course contents, but in having access to ICT and using it to enhance teaching and learning (Onasanya et'al 2010). ICT education is more literary than it is in practical terms of physical use (Nnabuo and Obasi 2004).

Agbetuyi and Oluwatayo, (2012) opined that dissemination of basic skills and concepts that form the foundation of higher order thinking skills and

inventiveness is enhanced by the use of ICT through drill and practice. Not much of digital technologies are used in pedagogical practices by teacher educators in Nigerian Colleges of Education and other institutions of higher learning. Most of the institutions do not have the necessary ICT facilities for instructions and research, neither do teacher educators possess the needed skills and competence for effective integration of ICT in classroom instructions (Agbatogun, 2006). Level of ICT literacy among academic staff and students in Nigerian Colleges of education is still very low (Ololube, 2005).

3. Methodology

The methodological approach for this study was evaluation method by adopting a longitudinal study to track progress over time to assess sustainability and impact using literature based conceptual study that employs the use of document-based qualitative approach. The data considered in this study were drawn from existing research works (literature) relating to ICT integration in Nigerian education system, state of ICT in Southwest Colleges of Education, causes of digital divide and means of bridging digital divide.

4.0 Factors Influencing the Adoption of Digital Technologies in Science Education.

These major outcomes can result from less access to digital technology, according to the Digital Divide as proposed by study of the AUSEO, 2020. These includes but not limited to:

1. **Low performance;** The less privileged families have less access to information that will advance

their education. This implies that, their level of performance educationally, would be low.

2. **Competitive edge**; Students with access to the internet from elementary school (or earlier) are expected to do better as they enter higher learning institutions where technology growth is at an increasing rate. This poises a competition between students that have been familiar with internet from elementary schools and those that have not.
3. **Convenience in learning**; Students who are privileged to have better devices face less hurdles to complete their education. This is because those that are privileged to access internet see learning to be convenient.
4. **Different learning experiences**; There is usually a prolonged learning hour in order to complete learning objectives by students from low socioeconomic areas. Thus, places them more disadvantaged. These consequences hinder the long-term accomplishment of the students.

4.1 Components for Framework Towards Sustainable Digital Inclusion in Science Education for Effective Learning Outcomes

Through addressing these key areas, educators in learning institutions can work towards bridging the digital divide and creating effective learning outcomes in science education.

1. Sustainable Access for Digital Literacy

- (i) Device availability (computers, tablets, smartphones)
- (ii) Internet connectivity (speed and reliability)
- (iii) Digital literacy training for students and teachers

2. Sustainable Content for Digital Literacy

- (i) Quality online resources (texts, videos, simulations)
- (ii) Accessible digital textbooks and educational software
- (iii) Culturally relevant and inclusive content

3. Sustainable Pedagogy for Digital Literacy

- (i) Teacher training on effective technology integration
- (ii) Blended learning models (combining online and offline instruction)
- (iii) Personalized learning approaches using technology

4. Sustainable Support for Digital Literacy

- (i) Technical support for students and teachers
- (ii) Online communities and forums for collaboration and help.
- (iii) Parental involvement and education on digital resources

5. Sustainable Assessment for Digital Literacy

- (i). Digital assessments and feedback tools
2. Data analysis to identify learning gaps and track progress
3. Continuous evaluation and improvement of digital resources

6. Sustainable Equity for Digital Literacy

- (i) Addressing device and internet access disparities
- (ii) Inclusive digital content and design
- (iii) Targeted support for underrepresented groups

7. Sustainable Partnerships for Digital Literacy

- (i) Collaborations with tech companies and organizations
- (ii) Community partnerships for digital resource sharing
- (iii) Research partnerships to inform effective practices

In summary, Bridging the digital divide in Colleges of Education requires a multi-faceted approach. The following are some of the ways to achieve it.

1. Affordable access to internet plans, devices and digital resources to students, teachers and educators. Also, enhancing infrastructure development by investing in the establishment of robust internet connectivity, computer laboratory and digital infrastructure in schools, particularly in rural and underserved areas.
2. Provision of online resources. There should be high-quality, Nigeria-specific digital educational resources, aligned with the curriculum.
3. Encouraging teacher's training. Equipping educators with the skills and confidence to effectively integrate technology into teaching practices will go a long to bridge digital divide.
4. Public-Private Partnership. Collaborating with private sector organizations, NGOs, and international partners to support digital education initiatives.
5. Monitoring and Evaluation. of the effectiveness of digital education initiatives, identifying areas for improvement and optimizing resource allocation.
6. Through digital literacy by implementing training programmes for educators, students and teachers to develop in them digital skills.
7. Digital Inclusion Initiatives. This can be achieved by launching initiatives targeting marginalized groups such as girls, persons with disabilities who might be vulnerable to digital divide. Some successful initiatives in Nigeria include; The Nigerian Communications Commission's (NCC) School Support Programme, The UNESCO-Supported Digital Skills Programme among others.

4.2 Strategies for Bridging Digital Divide in Science Education

Based on the exploration in this study, the resulting strategies for bridging digital divide in science education for colleges of education were made:

1. Fostering capacity building and development. There should be ICT training and re- training for the lecturers' and students' of southwest colleges of education;
2. Computer –Based Test (CBT) must be stimulated in the colleges so as to improve on the students' level of ICT literacy;
3. Government should establish local assembling of hardware and software components in order to get them at affordable rates, reducing high cost of importing them to the country and on the other hand, improving our local industries;
4. Supply of stable power supply in the colleges coupled with a standby generator to enhance the ICT effective utilization
5. There must be collaboration with international organizations like African Virtual Open Initiatives and Resources (AVOIR) and among tertiary institutions in Nigeria. Universities like OAU and UNIJOS which have gone ahead in ICT applications, could be understudied towards implementation in other tertiary institutions.

5.0 Limitations and Conclusion

It is imperative for the researchers to mention the limitations of the study as it is often required of all studies. While this study was conducted in a very concise time, the study scope could have been more comprehensive in respect of covering more literatures. Bridging digital divide is crucial for

effective science education learning outcomes in Southwest Colleges of Education. Policy makers, educators and stakeholders need to prioritize digital infrastructure development, teacher training and resource allocation to ensure equitable access to quality science education through bridging digital

divide. Through this means, the next generation of science educators and learners in Nigeria Southwest Colleges of Education can be empowered, fostering a more scientifically digital literate and innovative society.

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Comparison of Muscular Endurance of Male and Female Students of Rural and Urban Secondary Schools in Kaduna State, Nigeria

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Abstract

This study compared muscular endurance of male and female students of rural and urban secondary schools in Kaduna State, Nigeria. One research question and one research hypothesis were formulated. An ex-post-facto research design was involved. A Sample of 960 adolescent males and females' students aged 12-17 years were used. Stratified random sampling techniques was used to select participants from rural and urban schools. The instruments for data collection was bent knee sit-up, calibrated wall for height in metres and centimetres, bioelectrical impedance analysis (Omron HBF516B), and measuring tape (Field tape/ruler model S1542, China made). The data collected was compared in respect of age, sex and location and analysed using (SAS) statistical package at probability level ($P < 0.05$). Descriptive statistics of mean and standard deviation, two-way analysis of variance (ANOVA) and Scheffe post-hoc test. The findings revealed that Rural female students were better in local muscular endurance fitness than their urban peers. Rural male and urban male students did not differ in local muscular endurance fitness. Rural female students performed significantly different ($P < 0.05$) in local muscular endurance. Based on this, it was recommended among others that conditioning exercises to improve local muscular endurance among urban students be emphasised through specific physical education programme based on gender and location to improve fitness of students.

Keywords: *Muscular, endurance, fitness, students, gender, location*

Introduction

Human movement depends upon minimal levels of strength and endurance and a poorly developed musculature individual finds it very difficult to maintain the upright posture. Muscular endurance is a critical component of overall physical fitness, reflects the ability of muscles to sustained prolonged exertion and is essential for various daily activities and athletic performance. Jackson et al.; (1999) and Powers and Howley (1997) believed that adequate level of strength and endurance can improve physical performance, and help a person get greater enjoyment for recreational and sporting activities. Physical activity is one of the major determinants of physical fitness which can be influence by

environmental factors which can affects lifestyles (Heyward, 2014). Chado, (1990) observed that during the pre-colonial days in Nigeria, people actively involved predominantly in high energy expenditure physical activities, that kept them fit, this was observed throughout the African thus, making the citizens physically fit. However, modern technologies have enabled our society to exist in a world where the concept of hard or moderate physical work is obsolete and unfashionable. Most jobs that once demanded hours of hard and vigorous work are now being replaced by automation and this fosters unfitness. Kehack, et al.; (2002) states that physical fitness is partially genetically determined, but it can also

be influenced by environmental factors which lead to changes in the physical fitness level of children. Life in areas with different population size can be associated with different dietary habits, access to sports facilities and the possibility of physical activity, among other things. The comparison of muscular endurance between male and female students, particularly within the context-rural and urban schools provides valuable insights into how these factors impact physical performance. Rural and urban environments often present distinct lifestyle and infrastructural differences, which can affect physical development and endurance. Additionally, gender differences in muscular endurance may reveal underlying physiological and sociocultural influences. Shifan et al.; (2002) and Betty et al.; (2002) all maintained that exposure to the environment can affect lifestyles and cardiovascular risk and this may be related to the level of physical fitness. Kanwar, Mandeep and Sukhdev, (2016) also observed that greater physical fitness of children had a significant relationship with larger living space and residing in rural areas. Rural area is generally linked to a more strenuous, physically dynamic way of life that is advantageous to physical fitness. On the other hand, environmental and social changes related to living in urban areas such as overcrowding, changing in neighborhood, safety, worries and inadequate grounds for play, may possibly contribute to lower level of physical fitness among children.

Strength and endurance therefore, is necessary for without, it will be impossible to carry out tasks that are required each day. The comparison of muscular endurance between male and female students, particularly within the context- rural and urban schools- provides valuable insights into how these factors impact physical performance. Rural and urban environments often present distinct lifestyle and infrastructural differences, which can affect physical development and endurance. Nigeria as a developing nation, recognized the importance of sports and physical education in building physical fitness as indicated in the National Policy on Education, (1981) that sports and physical education must be emphasized at all levels of our educational system. However, over the years, as a result of insecurity there has been decreased in student's enrolment, fewer sporting facilities and equipment (Ministry of Education, Kaduna, Annual School Census report 2013/2014 to 2019/2020, and 2022/2023)

Today participation in sports and physical activity is not taken seriously and this may lower fitness level of the youth (Jackson et al.; 1999). This development may have impact on the physical fitness status of students. This study explored and compared the muscular endurance across gender and geographical location, to identify potential disparities and underlying factors that contribute to these differences among students from rural and urban secondary schools in Kaduna state, Nigeria.

Research questions

Did male and female students differ in their muscular endurance base on location (rural and urban)?

Hypothesis

There is no significant difference in muscular endurance of male and female students of rural and urban secondary schools.

Methodology

The ex-post-facto research design was used in this study. Each student was made to perform the muscular endurance test. The data collected were compared in respect of their age, gender and location. The population of this study comprises of all males and female students aged 12-17 years in government secondary schools in the twelve inspectorate zones in Kaduna State. Three of these zones namely Kaduna, Rigachikun and Sabon Tasha were purposely selected, because they schools located in and outside Kaduna metropolitan city (urban/rural). This was therefore, grouped into two strata namely: Urban schools and Rural schools. A total of sixteen (16) government secondary schools within Kaduna metropolis and total of fourteen (14) government secondary schools outside Kaduna metropolis. A sample of eight (8) government secondary schools were randomly selected, four (4) each from urban and rural schools' location with a total population of 9,605 students. From these schools a sample 960 students, 10% of the population (Ferguson, 1981), consist of 480 male students (240 males each from rural and urban secondary schools) and 480 female students (240 females

each from rural and urban secondary schools) totaling 960 students aged 12-17 years. Stratified random sampling method was employed. Two main strata are: Urban schools (situated in Kaduna town) and rural schools (situated outside Kaduna town) At the first stage a random sample of four schools were selected from each stratum using the lottery method. The names of all schools from each stratum were written in pieces of papers, folded and put in two containers, one for each cluster. After shuffling, picking was done by two volunteers without replacement, sample were pick for each stratum. Sample from urban schools were: Capital school Kaduna (KCS), GSS Doka, Kaduna Polytechnic Demonstration Secondary School Kaduna and GSSS Sabo Tasha Senior/Junior Kaduna. Sample from rural schools were, GSSS Kufana, GSS Zongo Aya, GSSS Kasuwa Magani and GSSS Gadan Gaya. At the second stage, random sample of ten (10) boys and ten (10) girls ages 12-17 years were drawn from each school. All over-aged and under-aged were automatically excluded. Thus, total sample of 960 students, these comprised of 480 males (240 males each from rural and urban schools) and 480 females (240 females each from 4 rural and 4 urban schools) were selected using stratified random sampling to serve as participants for the study.

Measurement procedure

Local Muscular Endurance

Test: instrument:

Bent knee sit-up

Materials and equipment:

Mats. This test measures the abdominal muscular endurance. To perform this, test the subject

assumed the starting position, lies on his back, knee flexed at a 90° degrees angle, feet flat on the floor, with heels between (30cm and 45cm) and from the buttocks. Arms across the chest with hands on the opposite shoulder, the feet held by the partner or test assistant to keep them in touch with the testing surface. The subject contracts his abdominal muscles, curls to the sitting position. Arms contact with the chest must be maintained. The chin tucked on the chest. The sit-up is completed when elbow touches the thigh and the subject returns to the down position until his back makes contact with the testing surface. Rest between sit-ups was allowed but the objective is to perform as many correctly executed sit-ups as possible within 60 seconds period. Sit-ups not

correctly executed within the 60 seconds period were not counted by the tester.

Scoring: Correctly executed sit ups performed in 60 seconds shall be the score.

Physical Characteristics of Participants:

Participants’ physical characteristics (height and weight) as described by Ross and Marfell-Jones (1982). height was measured, while standing erect looking straight ahead and bare-footed against the calibrated wall. Horizontal broad blade wooden ruler was rested on the head of each participant against the instrument to measure height the nearest 0.1 cm. Weight were measured using Omron HBF 516B and recorded to the nearest 0.5 kg

Table 1:
Physical Characteristics of Subjects (n=80)

Age	Variable	Gender	Mean RUS	SD RUS	Mean URS	SD URS
12	HT (m)	M	1.4317	0.0413	1.4528	0.0452
		F	1.4950	0.0581	1.4748	0.0572
13	WT (kg)	M	37.7000	2.6814	38.4000	3.5214
		F	37.1256	3.5962	35.9250	5.4744
	HT (m)	M	1.4290	0.0477	1.4853	0.0725
		F	1.5558	0.0532	1.5422	0.0577
14	WT (kg)	M	37.3500	3.9390	37.5250	6.4846
		F	44.6250	3.5712	44.3750	6.0667
	HT (m)	M	1.5160	0.0786	1.5550	0.0740
		F	1.5458	0.0547	1.5340	0.0914
15	WT (kg)	M	42.0750	7.6238	43.5000	5.8045
		F	46.2250	5.5075	45.4250	5.7641
	HT (m)	M	1.5540	0.0703	1.6157	0.0830
		F	1.5520	0.0609	1.5753	0.0997
16	WT (kg)	M	48.7250	7.7194	48.8500	6.4233
		F	48.3250	5.7797	48.7250	7.7987
	HT (m)	M	1.5920	0.0797	1.6778	0.0789
		F	1.5510	0.0463	1.5863	0.0544
17	WT (kg)	M	51.3000	7.8355	54.3750	8.3010
		F	48.9500	2.7170	51.4500	6.5592
	HT (m)	M	1.6375	0.0514	1.6992	0.0681
		F	1.5628	0.0494	1.6035	0.0622
WT (kg)	M	56.1750	7.6322	58.1000	7.1209	
	F	51.2750	4.1694	53.6000	7.8375	

Table 1 shows that at age 12 years rural male students had mean score of height and weight 1.4317m and 37.7000kg, urban male 1.4528m and 38.4000kg, rural female 1.4950m and 37.1256kg, urban female 1.4748m and 35.9250kg. At age 13 years rural male students had mean score of height and weight 1.4290m and 37.3500kg, urban male 1.4853m and 37.5250kg, rural female 1.5558m and 44.6250kg, urban female 1.5422m and 44.3750kg. At age 14 years rural male students had mean score of height and weight 1.5160m and 42.0750kg, urban peers 1.5550m and 43.5000kg, rural female 1.5458m and 46.2250kg, urban peers 1.5340m and 45.4250kg. At age 15 years rural male students had mean score of height and weight of 1.5540m and 48.7250kg, urban peers 1.6157m and 48.8500kg, rural female 1.5520m and 48.3250kg, urban peers 1.5753m and 48.7250kg.

At age 16 years rural male students had mean score of height and weight of 1.5920m and 51.3000kg, urban peers 1.6778m and 54.3750kg, rural female 1.5510m and 48.9500kg, urban peers 1.5863m and 51.4500kg. At age 17 years rural male students had mean score of height and weight of 1.6375m and 56.1750kg, urban peers 1,6992m and 58,1000kg, rural female 1.5628m and 51.2750kg; urban peers 1.6035m and 53.6000kg.

Data Analysis:

The data collected were analyzed using descriptive statistics of means, standard deviation. 2-way Analysis of Variance, Scheffe post-hoc test was applied to the result of analysis of variance (ANOVA) where “F” was found to be significant to locate where the point of difference lies.

Result

Table 2:

Performances of Students Aged 12-17 years in Rural and Urban Secondary Schools on Bent Knee Sit-up (n =80).

Age	Gender	Mean	SD	Mean	SD
		RUS	RUS	URS	URS
12	M	18.3750	5.261	18.1500	5.323
	F	9.3500	5.304	8.9250	4.352
13	M	23.600	7.705	23.3750	6.029
	F	12.1250	4.171	11.6750	5.375
14	M	23.4750	8.608	24.2450	5.996
	F	12.9250	3.308	11.9500	4.076
15	M	26.0750	8.698	27.1500	8.157
	F	12.9000	5.956	9.5000	3.449
16	M	29.4000	7.808	29.8000	8.367
	F	11.4700	5.670	9.5500	3.343
17	M	29.6750	6.881	30.2500	6.519
	F	9.5500	5.074	9.0500	4.260

Table 2 shows that at age 12 years the bent sit-up test of mean score of local muscular endurance performance of rural male students 18.3750 and urban peers 18.1500. Rural female 9.3500 and

urban peers 8.9250. At age 13 years, rural male students had mean score of 23.600, urban peers 23.3750. Rural female 12.1250, urban peers 11.6750. At age 14 years, rural male students had

a mean score of 23.4750, urban peers 24.2750, Rural female 12.9250, urban peers 11.9500. At age 15 years, rural male students had mean score of 26.0750, urban peers 27.1500. Rural female 12.9000, urban peers 9.5000. At age 16 years, rural male students had mean score of 29.4000, urban peers 29.800. Rural female 11.4700, urban peers 9.5500. At age 17 years, rural male students

had mean score of 29.6750, urban peers 30.2500. Rural female 9.5500, urban peers 9.0500.

Hypothesis:

There is no significant difference in local muscular endurance of male and female students of rural and urban secondary school.

To test the hypothesis the data collected were analyzed using two-way ANOVA and Scheffe-test. The result is presented in Table 3 and 4

Table 3:
2-Way ANOVA for Differences in Performance Between Rural Males and Urban Males at Age 12-17 Years on Bent Knee Sit-up Test for Muscular Endurance

Source	Df	SS	MS	F-ratio
Location	1	38.5	38.5	0.7ns
Age	5	7905.2	1581.0	30.4*
Interaction				
Loca x Age	5	20.2	4.0	0.1ns

F (11.468) = 2.21 at 5% *Significant

Table 3 is a summary of 2-way ANOVA comparing the performances of male students in rural and urban locations age 12-17 years on bent knee sit-up test of local muscular endurance. The F-ratio of 0.7 shows no significant difference between rural male and urban male students. The F-ratio of 30.4* shows significant difference

existed between males ages 12-17 years. The null hypothesis regarding local muscular endurance as a function of location was accepted, but rejected as a function of age. The interaction between location and age on the performances of male students on local muscular endurance test shows no significance difference.

Summary of Scheffe Test for Local Muscular Endurance of Males in Rural and Urban Location.

Scheffe grouping	Mean	N	Loca
A	25.5	240	Urban
A	24.9	240	Rural

Mean with the same letter are not significantly different.

Summary for Scheffe Test for Local Muscular Endurance for Males Age 12-17 Years

Scheffe grouping	Mean	N	Age
A	30.0	80	17
A	29.6	80	16
BA	26.6	80	15
B	23.9	80	14
B	23.0	80	13
C	18.3	80	12

Means with the same letter(s) (ba + b) are not significantly different using Scheffe post hoc test at 5% level of significance.

Scheffe test located the difference to be between age 12 and 13, 12 and 14, 12 and 15, 12 and 16, 12 and 17, 13 and 16, 13 and 17, 14 and 16, 14 and 17 years respectively.

Table 4:
2-Way ANOVA for Differences in Performance Between Rural Females and Urban Females at Age 12-17 Years on Bent Knee Sit-up Test

Source	Df	SS	MS	F-ratio
Location	1	196.4	196.4	9.2*
Age	5	730.5	146.1	6.9*
Interaction				
Loca x Age	5	140.6	28.1	1.3ns

F (11.468) = 2.21 at 5% *Significant

Table 4 is a summary of 2-way ANOVA comparing the performances of female students in rural and urban locations age 12-17 years on bent knee sit-up test of local muscular endurance. The F-ratio of 9.2* shows significant difference between rural female and urban female students. The F-

ratio of 6.9* shows significant difference between females age 12-17 years. The null hypothesis on local muscular endurance as a function of location and age was rejected. The interaction between location and age on the performances of female students on local muscular strength test shows no significance difference.

Summary of Scheffe Test for Local Muscular Endurance of Females in Rural and Urban Location.

Scheffe grouping	Mean	N	Loca
A	11.4	240	Rural
B	10.1	240	Urban

Significant different existed between rural females and urban females (11.4 > 10.1). Rural females were better than urban females.

Summary for Scheffe Test for Local Muscular Endurance for Males Age 12-17 Years

Scheffe grouping	Mean	N	Age
A	12.4	80	14
A	11.9	80	13
BA	11.2	80	15
BA	10.5	80	16
B	9.3	80	17
B	9.1	80	12

Means with the same letter(s) (ba + a) are not significantly different using Scheffe post hoc test at 5% level of significance.

Scheffe test located the differences between age 12 and 13, 12 and 14, 17 and 13 and 17 and 14.

Discussion of Findings

The result in table 4 with F-ratio 0.7 showed no significant difference ($p < 0.05$) existed among the rural males and urban males based on location in their muscular endurance fitness. The F-ratio 30.4* showed significant difference ($p < 0.05$) existed among rural males and urban males based on age. This is contrarily to the findings of Qing, Xing and Di (2023), reported that rural children perform significantly poorer in muscular fitness in school ($p < 0.05$). Sylejmani, Myrtaj, Maligi, Gontarrev, et al.; (2019) and Mahmood, Zoya, Wajeeha, Komal, (2018) reported that rural students were better in motor fitness than urban students and concludes that the lifestyles of rural children may be the best reason for their better physical fitness. The non-significant difference in muscular endurance among males may be due to fading of natural rural life with improved social amenities enjoy by urban settlers. Rural females F-ratio of 9.2* shows significant difference ($p < 0.005$) existed between rural and urban location. The F-ratio of 6.9* also show significant differences ($p < 0.005$) existed between female based on age. Rural females in all ages showed better performances than their urban peers in muscular endurance test. This is supported by Prithviraj, Abhinaba, Pranay and Rajkumar (2022), Mukhtar and Manoj (2020) and Yunxi, et al.; (2021) observed that female students in rural schools take part in more vigorous physical activities like farming, trekking, cycling and climbing than urban peers. This is supported Tian, Wang, Zhang, Zhai, Wang,

Liu (2021) and Kanwar, Sing, Sukhdev (2016), reported that area of residence was related to aerobic fitness of children. However, males in this study were generally better than their female counterpart as revealed in their mean score's values. This agrees with Fetiya and Mekbib (2019) reported in their studies that males performed better than their females' peers in muscular endurance test. The result showed that performances of males continued to improve though age 17 years as observed in mean score values, while that of females level off at 14 and 15 years and decrease in performance as observed in the mean scores of 9.35, 12.12, 12.92, 12.90, 11.47 and 9.55 for ages 12, 13, 14, 15, 16 and 17 years respectively for rural. And urban females mean score of 8.92, 11.67, 11.95, 9.50, 9.55 and 9.05 for ages 12, 13, 14, 15, 16 and 17 years respectively. This reveals that females in urban schools' level off earlier at age 14 years and rural peers at age 15 years as revealed in their mean score's values. This indicates decline in performance as age increases.

Conclusion

Based on the result obtained from this study the following conclusions were drawn.

1. Rural female students were better in local muscular endurance fitness than their urban peers.
2. Rural male and urban male students do not differ significantly in local muscular endurance fitness.

Recommendations

Based on the findings the following recommendations were made:

1. Conditioning exercises such as sit-up, press ups, jumps and lifting of weights be emphasize among urban female students.

2. Physical education activities should be specific and base on location to improve muscular endurance fitness.

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Jigsaw Learning Model as Determinant of Academic Performance between Public and Private Schools Geography Students in Map work In Wamakko, Sokoto State

By

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Abstract

The study examined Jigsaw Learning Model as Determinant of Academic Performance between Public and Private Schools Geography Students in Map work In Wamakko, Sokoto State. To conduct the study, two objectives were stated and transformed into research questions and hypotheses to be responded to and tested respectively. Quasi-experimental design involving pre-test/post-test experimental group was adopted for the study. 614 senior secondary two (SSII) students comprised the population for the study, and the sample size for the study took cognizance of 100 SS II geography students drawn from two selected co-schools (public and private). The instruments used for data collection were Students' Map Reading Objective Test (SMROT), and Students' Map Reading Practical Test (SMRPT). A reliability coefficient of 0.822 was determined from the response of the sampled students. Mean and standard deviation were used to respond to all the research questions raised and t-test for independent sample statistic was used to test the null hypotheses stated at 0.05 level of significance. Findings from the study revealed that: there is a significant difference in the post-test performance mean scores of the public and private school students in Wamakko, sokoto state, this implies that students in private school performed significantly better than their counterpart in the public school; p-value $0.0002 < 0.05$. Based on these findings, it was recommended that Jigsaw learning model should be used as alternative strategy to improve the teaching of map reading in geography at senior secondary schools in Sokoto.

Keywords: *Jigsaw learning model*, determinant, academic performance, school type, map work

Introduction

The enterprise of education is as old as mankind, and it is important for passing down culture, knowledge, and social values to every generation. In accordance with the National Policy on Education of the Federal Republic of Nigeria (FRN, 2013), investing in education is the best way for the country to quickly develop its human, political, and economic resources. For an individual to adapt to the changing needs of the society, he or she needs quality education which is obtainable in various subjects and courses taught in schools. These courses cut across a range of disciplines in which Geography as one of the disciplines play a vital role in making an

individual an existing part of the society. Geography as a subject enlighten students about the earth in its totality. The subject studies the physical features of the earth and its atmosphere, and of human activity as it is affected by certain factors including the distribution of population, resources, political and economic activities (Edward 2014).

Geography studies both physical and human or cultural features on the earth. These features are depicted, expressed and illustrated most of the times in maps, diagrams, graphs and figures (Ulebor 2014). Fairgrieve (2014) believes that Ninety percent (90%) of all geographic

information can be put on the map. Since maps are vital in the hands of the geographers, its reading and interpretation is also vital and paramount. Map making, reading and interpretation are therefore an important branch of geography that students and young learners should not avoid. It is a crucial aspect of the study of Geography, especially at the secondary school level. Amosun (2014) asserted that map reading and interpretation is an important aspect in the secondary school geography curriculum in Nigeria. This area occupies a major place in the final examination. It attracts more marks than any other area in geography examination, as such, teachers are expected to teach this aspect diligently.

Despite the valuable opportunities geography and map work in particular offer in our daily life, available literatures show that fewer students enroll for it as against the large number of students who opt for other social subjects such as economics, government, accounting, and marketing at the secondary school level. This low enrolment according to Edward (2014) is also evident at the University and College levels of Education. Several factors have been reported in literatures to be responsible for this low enrolment in geography amongst which are wide coverage of the subject (scope), difficult topics, lack or insufficient instructional materials (Aso, 2018). Similarly, Haliru (2022) posited that inadequate qualified Geography teachers, the use of unsuitable methods of teaching, insufficient time allocated to geography on the school

timetable and lack of interest on the part of the students are factors responsible for low enrolment, which is also corroborated by Mansarray, (2022).

In a bid to cover the geography syllabus, with the wide scope of the subject coupled with insufficient time allocated to the subject on the time table, most of the Geography teachers opt for conventional lecture method. This method of teaching do not bring about active interaction among the teacher, students and the materials to be learnt. The resultant effects resort to poor knowledge and understanding of what has been taught which eventually transcends to poor performance in termly or external examinations. To curb this reoccurring poor performance of students in map reading, studies suggest the use of active learning strategies where the students get involved in the learning process and not just mere listeners, as such, the idea of Jigsaw learning model, an off-shoot of the cooperative and active learning approach is believed to be a way forward.

Johnson, Johnson and Stanne (2010) identified that the Jigsaw learning model derived its name from the jigsaw puzzle as it involves putting the parts of an assignment together to form a whole picture of the assignment which is similar to the jigsaw puzzle. The assignment is divided into parts and the class is also divided into the same number of groups as that of the assignment. Each of these group is given a different topic and allowed to learn about it. These groups are shuffled to form new groups consisting of

members from each group (Gupta 2021). For example, an in-class assignment is divided into topics, and students are then split into groups with one member assigned to each topic.

There are many benefits to using the jigsaw model in one's classroom. For starters, in most instances, students who take ownership in their learning will better understand the material. As active learners, students are directly immersed in the information and material, which promotes a deeper understanding of that material. When students are given the opportunity to contribute to a group, they also learn life skills such as communication and working within a timeline. This method also promotes collaboration and discussion, as well as self-motivated learning strategies. Students who work together learn to ask questions to clarify their understanding and provide critical feedback in appropriate manners. In addition, the jigsaw model in education effectively produces academic gains in problem solving, analyzing and attempting practical skills. On school type and academic performance, Considine and Zappala (2022) quoted that students' learning outcome and educational performance are strongly linked to standard and type of educational institutions in which they attend. The educational environment students attend sets the parameters for subsequent learning outcome. Before Nigeria gained its independence in 1960, research by Adeyemi (2024) revealed that there were a number of private schools and few, if any, government-established educational institutions. However, because of these private

schools' shortcomings, the government accelerated the takeover of private schools from their original owners following the civil war in 1970, and also opened new public schools; like the establishment of Federal Unity Schools across regions, to regulate educational standards and to foster national unity (Kalagbor, 2016). The difficulties facing Nigeria's planners and policy makers in the field of education are how to raise the standard of instruction and academic accomplishment in her educational institutions (Nwajagu, 2022).

There is a perception that education is not treated in public schools with the seriousness it merits. The widespread apathy of the people towards public institutions is evident here. Because of this, a lot of educators in public schools, have a negligent attitude and have this belief that a brilliant student will have good grades on their own regardless of the input of the teacher (Adeyemi, 2024). Creation of numerous private schools has made it easier for people to choose the schools that their wards would attend, however, because of the expensive nature of private education and the state's support for free secondary education, poor families that want high quality education for their children but occasionally cannot afford the high tuition costs of private schools find themselves in a challenging position.

Private schools today are more likely to offer cutting-edge tools like computers and interactive (white) boards, and to hire graduate teachers who can manage the new facilities. Parents would be

happy to pay the high fees in consideration of these facilities, raising the expense of education (Nwajagu, 2022). Students' effort in exams determines their academic performance, and the type of school a student is enrolled in has a huge impact on his academic success (Adeyemi, 2024). This study therefore seeks to ascertain the level of geography students' academic performance in map work, using the jigsaw learning model, based on public and private school.

Statement of the Problem

Despite the importance of map work skills in geography, students in Wamakko, Sokoto State, continue to perform poorly in this area, with many struggling to demonstrate a clear understanding of spatial relationships, geographic concepts, and critical thinking skills. This persistent weakness in map work skills not only hinders students' academic progress in geography but also limits their ability to navigate and interact with their physical environment effectively, draw the map outline to scale correctly, calculate actual distances on the map by a given scale, and insert features inside a reduced map. If this problem continues amongst the students, it will lead to having poorly equipped cartographers, geologists, weather forecasters, astronomers, remote sensing users and even shallow knowledge teachers in the nearest future.

An ideal teaching and learning of map work in Geography encompasses good learning school environment, appropriate instructional materials, presence of map room, and the use of active

learning strategies as method of teaching among others. But the situation seems different with the current state of teaching and learning despite improvement in research. A reconnaissance study conducted by the researcher shows that the learning environment seems un conducive, absence or poorly equipped map rooms, teachers do not utilize available instructional materials and also do not apply the active learning approach to teach Geography, specifically, map reading and interpretation.

Furthermore, the ineffective teaching methods and lack of innovative learning strategies in many schools exacerbate this problem, leading to a persistent achievement gap in map reading and interpretation. While some studies suggest that the jigsaw learning strategy has been effective in improving academic performance in other subjects, its impact on map work skills in geography education remains unclear, particularly in the context of Wamakko, Sokoto State. This knowledge gap highlights the need for a comprehensive investigation into the effectiveness of the jigsaw learning model in improving map work skills among geography students in both public and private schools in Wamakko, Sokoto State

Objectives Of The Study

The objective of the study is to examine Jigsaw learning model as determinant of Academic performance in map work among Geography Students in Public and Private Schools in Wamakko, Sokoto State. Similarly, other objectives of the study are:

1. To determine the pre-test performance mean score of geography students in map work
2. To find out the post-test performance mean score between public and private school geography students in map work.

Research Question

The following research questions guided the study:

1. What is the pre-test performance mean score of geography students in map work?
2. What is the post-test performance mean score between public and private school geography students in map work?

Hypotheses

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

1. There is no significant difference in the pre-test map work performance mean score of geography students in private and public schools.
2. There is no significant difference in the post-test map work performance mean score of geography students in private and public schools.

Methodology

The study adopted the quasi-experimental research design to ascertain the effects of jigsaw cooperative learning model on the performance of geography students in map work. The targeted population for the study were the entire 614 senior secondary two (SSII) students who are offering geography as a subject. Data obtained from Sokoto state Ministry of Education (2024)

reveals that there are a total of 28 secondary schools secondary schools in Wamakko local government area of the state (19 private and 9 public secondary schools). The sample for the study consisted a total of 100 senior secondary two (SS II) geography students drawn out from two co-educational (public and private) secondary schools in Wamakko Local Government of Sokoto state. The simple random probability sampling was adopted for the study. The researcher used two instruments for data collection in the study. These instruments were Students' Map Reading Objective Test (SMROT), and Students' Map Reading Practical Test (SMRPT). Three experts were contacted to validate the two instruments (SMROT and SMRPT). One from Geography Education Unit, the second from Test and Measurement Unit of the University of Jos, and the third was a seasoned geography teacher from any of the secondary schools in the study area. The content validity was done by an expert in Geography Education, while the face validity of the instrument was done by the expert in Test and measurement. The instruments were trial tested using a separate sample size from a different population which had same characteristics with the population of the study. After collecting data from the trial test, the reliability coefficient of SMROT and SMRPT was computed using Cronbach's coefficient alpha method on the Statistical Package for Social Sciences (SPSS) Software Version 23. The reliability coefficient of 0.822 was determined from the response of the

sampled students. The researcher used descriptive statistics to answer all the research questions. All the Hypotheses were tested using

Students' t-test for independent or unrelated samples.

Result and Discussion

Research Question One: What is the pre-test performance mean score of geography students in map work?

Table 1: Pre-test map work performance mean score of public and private school students.

<i>Group</i>	<i>School type</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>mean diff</i>
Experimental Group	Private	50	45.7	3.02	2.2
	Public	50	43.5	3.63	

Research question one examined the pre-test map reading performance mean scores of public and private school students in the experimental group of secondary school students. The table presents the performance mean scores gained by both school type in the study. The result shows that the students in public school had a mean score of

43.5, while the students in private school had a mean score of 45.7 at the pre-test level, with a mean difference of 2.2.

Research Question Two: What is the post-test performance mean score between public and private school geography students in map work?

Table 2: Post-test map reading performance mean scores of private and public school students in the experimental group.

<i>Group</i>	<i>School type</i>	<i>N</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>mean diff</i>
Experimental Group	Private	50	49.6	8.29	18.4
	Public	50	31.2	3.97	

Research question two examined the pre-test map reading performance mean scores of boys and girls in the experimental group of secondary school students. The table presents the performance mean scores gained by both school type in the study. The result shows that the private school students had a mean score of 49.6, while

the public school students had a mean score of 31.2 at the post-test level, with a mean difference of 18.4.

Hypothesis One: There is no significant difference in the pre-test map reading performance mean scores of public and private school students in the experimental group of secondary school students.

Table 3: t-test analysis of significant difference between the pre-test performances of public and private school students in the experimental group.

<i>Group</i>	<i>School Type</i>	<i>N</i>	<i>X</i>	<i>t-cal</i>	<i>α</i>	<i>Df</i>	<i>p-value</i>	<i>Decision</i>
Experimental	Public	50	43.5	2.93	0.05	98	0.21	Accepted.
	Private	50	45.7					

The calculated t-test in table 10 reflects 2.93 at $\alpha=0.05$ with $df=98$, while the p-value (probability level) = 0.21. Since the p-value is greater than the level of significance, it then signifies that there was no significant difference in the pretest map reading performance mean scores between public and private school students in the experimental

group. Therefore, the conclusion is that the null hypothesis is upheld.

Hypothesis Two: There is no significant difference in the post-test map reading performance mean scores of private and public school students in the experimental group of secondary school students.

Table 4: t-test analysis of significant difference between the post-test performances of private and public school students in the experimental group.

<i>Group</i>	<i>School Type</i>	<i>N</i>	<i>X</i>	<i>t-cal</i>	<i>α</i>	<i>Df</i>	<i>p-value</i>	<i>Decision</i>
Experimental	Private	50	49.6	3.66	0.05	98	0.0002	Rejected
	Public	50	31.2					

In table 5, the calculated t-test as 3.66 at $\alpha=0.05$ with $df=98$ while the p-value (probability level) = 0.002. Since the p-value is less than the level of significance, it then implies that there was a significant difference in the posttest map reading performance mean scores of the experimental between public and private school students. Therefore, the conclusion is that the null hypothesis is rejected and the alternative is upheld.

Discussion

This study examined Jigsaw learning model as determinant of academic performance between public and private schools geography students in map work in Wamakko, Sokoto state. The study was prompted by the prevalence of poor academic performance of Senior Secondary School Geography students in Map work, as well as the observed poor quality of teaching at this level particularly as it affects the teaching of Map work in Geography in Public and private schools.

Similar studies conducted by Ezinwa-Nebife (2018) and Fariha (2021) determined the effects of Jigsaw learning strategy on Geography students’ academic achievement in map work in Abia and Nassarawa respectively. Both studies captured gender as a variable in the work and also adopted a quasi- design for the study, but didn’t consider school type (public and private). Findings show that students that engaged in the jigsaw learning strategy performed significantly better than other students not exposed to the strategy. The present study also reported a major performance mean difference of 18.4 between private and public secondary school students at the post test level of the experiment. This simply mean that after exposure to treatment, students in the private school performed significantly better than their counterparts in the public school. On the whole, the findings in the present study proved that there is a positive effect in adopting the Jigsaw learning model to teach map work in

geography, and to boost students' academic performance.

Conclusion

Based on the discussion and findings of this study the following conclusion is drawn: The Jigsaw Learning model appears to have a strong record of successes in increasing student's motivation to learn and enhancing higher academic performance. The strategy was found to be student-friendly, irrespective of school type. This model can be used to address the present trend of poor academic performance of senior secondary school geography students in map reading and interpretation. Geography teachers at senior secondary level can explore the potentials of Jigsaw Learning model in order to improve the teaching of map reading in geography irrespective of any aspect of the subject and school type.

Recommendations

The following recommendations are made.

1. The Government, proprietors of school and other stakeholders should equip geography laboratories with basic facilities that facilitate learning of map reading in geography to enable the students, irrespective of the type of school to benefit from the use of Jigsaw Learning model at this level.
2. Geography teachers should be encouraged to use Jigsaw Learning Strategy as alternative strategy that they can fall back on in order to improve the teaching of map reading and other difficult areas in senior secondary geography.

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Family Responsibility, Family-Work Conflict and Women's Career Advancement in the Civil Service: A case Study of Female Civil Servants in South-West Nigeria

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Abstract

The study explored the impact of family responsibilities and work-family conflict on women's career advancement within the civil service in Southwest Nigeria. Specifically, it aimed to examine how family responsibilities and work-family conflict affect women's progress in their careers. Additionally, the study sought to determine the relationship between family responsibilities and women's career advancement, as well as the relationship between work-family conflict and the advancement of women in their professional roles. This study employed a descriptive survey method, involving 1183 women from 40 Ministries, Departments, and Agencies (MDAs) in Southwest Nigeria. Using multi-stage sampling, four states were selected, and 30 women were sampled from each of the 10 MDAs. Data were collected using a self-constructed questionnaire, validated by experts and tested for reliability (0.82). The researcher, aided by assistants, administered the survey. Descriptive and inferential statistics, including Pearson's Product Moment Correlation, were used to analyze relationships at a 0.05 significance level. The findings show that while family responsibilities and work-family conflict moderately affect women's ability to balance work and personal life, hypotheses testing revealed no significant relationship between family responsibilities and career advancement ($r = 0.015$, $p = 0.613$) or between work-family conflict and career advancement ($r = 0.012$, $p = 0.691$). The study concludes that while family responsibilities and work-family conflict present moderate challenges for women, these factors do not significantly impact career advancement. Organisations should implement flexible work arrangements and support systems, such as mentorship programs and childcare assistance, to help women balance personal and professional responsibilities.

Keywords: *Career advancement*, civil service, correlate, family responsibilities, work-family conflict

Introduction

The desire for and participation of women in positions of leadership has been the subject of heated controversy among certain demographics for quite some time. A minority of people maintain that women are inherently inferior to males in leadership roles because of ingrained societal values, conventions, and beliefs that hold women to a lower standard. Industrial education includes career advancement opportunities. Progression within one's chosen field is the essence of career advancement, according to Rosenberg (2018). Moving up the corporate ladder from an entry-level position to a more senior one is a great

way to develop one's career. For instance, when a university tutor climbs the ladder from research assistant to professor, their career advancement really starts.

According to research, 80 percent of Directors and Permanent Secretaries in the six states that make up Southwest Nigeria are male, suggesting that women's career advancement is exceedingly slow (Aghorighor, 2020). Perceptions and prejudices, a lack of mentors and networks, problems at home, workplace discrimination, and financial constraints are the five main obstacles that prevent women from advancing in their careers (Borg & Gall, 2007).

Getting ahead in one's career was not easy for women, says Attoh (2017). Obstacles may come in the form of unsupportive superiors or coworkers, as well as prejudice based on gender or male supremacy. A lot of women have had to become more assertive since men are so dominant at work. The message that women need to be more competitive, outspoken, and politically and socially intelligent in order to thrive is one that is continuously being reinforced (Erasmus, et al., 2000).

From the time of graduation until retirement, the civil service is typically a lifetime career. As a result, civil servants almost never resign, are dismissed, or switch ministries. An employee will be promoted every three years if their performance is considered satisfactory. However, promotions to stronger managerial roles are not guaranteed by grade increases. Experience, education, seniority, interpersonal skills, the capacity to tackle superiors, commitment, determination, support from superiors, colleagues, and family, as well as leadership styles, appear to be the variables that contribute to women's career success. Conversely, it seems that barriers to women's career advancement include: a preference for family, a lack of professional training, a lack of charisma as a leader, a lack of self-assurance, societal expectations, gender bias, a lack of qualifications, power, prestigious developmental assignments, an informal network, a lack of a mentoring programme, low self-esteem, and not being taken seriously.

The lack of substantial advancement by women in the field is supposedly due to their lack of appropriate training, education, and experience, according to a number of male directors. It appears that these CEOs do not perceive the gradual advancement of women as biased, but rather as an objective reality. There appears to be a gender disparity in the promotion rate, with women faring worse than males, even though performance is the deciding factor for most young men and women. It appears that women's low career advancement rates are due to a combination of factors, including adverse work circumstances, societal perceptions of women, gender discrimination in the workplace, women's limited capacity to take on leadership roles, and a lack of financial incentives for women.

While juggling the demands of their workforce participation, women typically continue to provide primary care for children and dependents. Issues, problems, tasks, and responsibilities related to career advancement that women face may differ significantly from men's due to the unique work-family demands they face. Therefore, women's professions may differ significantly from men's in terms of shape, trajectory, and advancement due to family obligations.

It appears that work-family conflict and family duties impact women's career advancement. One example is the widespread belief that women's roles are strictly limited to those of motherhood and childrearing in many parts of the world, including Southwest Nigeria. Some

people also think that women belong in the kitchen. On the other hand, current tendencies have demonstrated that women are not as feeble as one might think.

Tradition holds that women were expected to stay at home and take care of the family's needs, while men were expected to provide for their families financially. Even fewer women appear to be permitted to work in business, much less to hold positions of management. To all appearances, this is the primary factor that allows men to control and dominate the corporate world. Because men were traditionally supposed to safeguard their families and country, traditional African society seems to have a male-dominated structure in many areas. According to Oplatka (2006), there are still those who adhere to the traditional belief that women should stay at home and take care of the family while men provide for them financially.

The development of their children as individuals is one of the roles that women play as mothers. The function of a mother is one of the elements that influences the development of a child's personality as the child grows and matures. A child's mother has a significant part in moulding their personality. Consequently, family duties have become a concern that may impact women's career advancement, as a result of the mother's position in the household.

For some reason, many organisations are run or controlled by men, and this perception persists even in modern times. The contributions and accomplishments of women in academia and

beyond seem to go unrecognised. The current state of affairs has prompted demands for women's empowerment in line with their rightful place, duties, and status, as well as for their equal opportunity to take part in decision-making processes. The lack of the necessary education, abilities, and job experience is the main reason why most women cannot achieve substantial advancement, according to many corporate leaders and managers. Rather of seeing the gradual advancement of women as a result of bias, these executives consider it a neutral fact (Fernandez, 2001).

A gender disparity in promotion rates seems to persist, despite the fact that most young men and women are promoted according to performance. Sales and administrative assistance are two examples of more conventional fields where women are disproportionately represented (Ezeeden & Ritchey, 2009). Because they seem to stifle their emotions and desires, male-dominated cultures appear to be unhealthy for women in Southwest, Nigeria. The results show that women may have more success in the corporate world if there is an effort to promote gender equality.

When it comes to their careers, some women are struggling to get to the top. Women often struggle to balance the demands of a family and their career advancement. Women are finding it harder to juggle all of their career obligations due to the stress of caring for their family (Madichie, 2017). Because of their emphasis on caring for family members, women are

stereotyped as being unable to fully commit to their careers.

Many different perspectives and methods have been used to study the issue of work-family conflict, focusing on its scope, origins, effects, and potential solutions. A woman must carry out the responsibilities of a devoted wife, a selfless mother, a submissive and courteous daughter-in-law, and a successful career woman. Working women face competing expectations about their roles at home and in the workplace. According to Abdul and Roshan (2018), in the professional realm, she is supposed to be dedicated, energetic, competitive, direct, non-emotional, and to behave in a "business or professional like" way. On the other hand, in her personal life, she is expected to be kind, gentle, adaptive, sensitive, unassuming, and domesticated. It appears that women experience various stressors and strains as a result of these conflicting expectations, which could hinder their career advancement efforts.

The researcher found that some spouses have coerced their women into leaving paid jobs so that they can focus on taking care of the home as a result of work-family conflicts. Struggling to give one role one's all could cause one to unintentionally give up on or neglect the other. Consequently, juggling many responsibilities at once can be overwhelming for working women, leading to feelings of psychological strain, stress, and health issues, all of which can hinder their career advancement.

Subramaniam et al. (2014) looked at how family responsibilities affected the career advancement of female managers in Malaysia. Senior, middle, and line managers from Malaysian public enterprises were the intended subjects of the study. The study collected data using a survey design and a questionnaire. The data collected from 466 participants was analysed using Pearson Product Moment Correlation. According to the survey, career advancement in Malaysia is severely hampered by family obligations.

In a separate study, Friedman and Greenhaus (2010) found that family responsibilities have an impact on career achievement, particularly for women in professional fields. According to the authors, women's career advancement, particularly at the top managerial level, is hampered by family pressure. The writers emphasised that female workers' career success is hampered by childbearing, marriage, and family support. A nursing mother tends to the needs of her infant and the elderly. Female professionals in particular feel the negative impact of family obligations on their work effort because of the time and energy they have to spend to their jobs.

Career Advancement of Kenyan Women Employees and Family Factors were investigated by Linge (2015). The study used a survey method to gather data. Four hundred female employees served as the sample population. The study obtained 366 replies from participants and used 366 for the study. The study did not use the remaining 34. A chi-

square test was used to see if the connection between the dependent and independent variables was statistically significant. According to the results, women in Kenya did not view family responsibilities as a hindrance to career advancement.

Rosa et al. (2017) looked at the factors that help women advance in their careers and the obstacles that stand in their way. Personnel in lower, medium, and upper management roles who were female were the focus of the research. The data was gathered via a descriptive survey and a semi-structured interview. A total of 43 of the 54 questionnaires sent out to female participants were actually utilised for the study; the other 11 were never returned. Ten female employees were questioned in-person for forty-five minutes. In order to examine the survey data from 54 participants, Multivariate Analysis of Variance (MANOVA) was employed. In order to uncover the link between theory and practice, the study uses a data categorization approach to analyse the empirical findings. According to the findings, women's career development is significantly impacted by family responsibilities.

The relatively new problem of work-family conflict was studied by Mohan and Ashok (2011). He highlighted the tension between women's conventional gender roles and the practical requirements of contemporary workplace organisations, where women are increasingly making inroads. Additionally, women's career advancement is strongly

influenced by the type and level of responsibility of their works.

Studying Indian women professionals, Buddhapriya (2009) looked at how work-family conflicts affected their career choices. The major goal of this research was to find out how women's family responsibilities affect their choices about their professional careers. One hundred and twenty-one women from various fields, including public service, the commercial sector, and non-governmental organisations (NGOs), made up the study's population. In order to gather data, the study used a descriptive survey approach and a questionnaire. Only 113 of the 121 questionnaires sent out to participants actually had responses; the other 8 were kept for further analysis. The study's results were generated through the use of mean scores in data analysis. Their career decisions were impacted by work-life problems, according to the data.

According to Wang and Cho (2013), female career development and expectations are affected by work-family conflicts. The study set out to determine whether or not family responsibilities affect female male career progress and expectations. The research included 92 female employees from Shandong Medical College and Lin Yi University as a whole. In order to gather data, the study used a descriptive survey approach and a questionnaire. The study's results were derived from data analyses that included the Regression Method and the Pearson Product Moment Correlation. Female career development and

expectations are impacted by work-family conflict, according to research.

In light of this, the current study looks at a correlation between women's career advancement in Southwest Nigeria and family duties and work-family conflict.

Statement of the Problem

The issue of women's career advancement, particularly in leadership positions, remains a significant concern in Southwest Nigeria, where gender disparities persist in various sectors. Despite notable efforts towards gender equality, the underrepresentation of women in top leadership roles, such as Directors and Permanent Secretaries, highlights the challenges they face in advancing their careers. Research suggests that only 20% of leadership positions in this region are held by women, pointing to the slow progression of women through the corporate ladder. Numerous factors contribute to this disparity, including societal perceptions, gender discrimination, and lack of mentorship and networks, all of which hinder women's professional growth. These barriers are further compounded by family responsibilities and work-family conflicts, which uniquely affect women and make balancing career and familial obligations a daunting challenge.

In many parts of Southwest Nigeria, traditional societal norms continue to define women primarily as caregivers, with expectations that they prioritise family duties over professional ambitions. This cultural backdrop creates additional challenges for women seeking career

advancement, as they are often perceived as less capable or committed to leadership roles compared to men. The conflict between work and family responsibilities exacerbates the situation, as women struggle to meet the demands of both their professional and personal lives. This study, therefore, seeks to investigate the correlation between family duties, work-family conflict, and women's career advancement in Southwest Nigeria, aiming to understand how these factors contribute to the gender disparity in leadership positions and to identify potential strategies to mitigate these challenges.

Research Question

1. How do family responsibilities and work-family conflict influence career advancement in the civil service in Southwest, Nigeria
2. What is the relationship between family responsibilities and women career advancement; and
3. What is the relationship between work-family conflict and women career advancement.

Research Hypotheses

The following hypotheses were generated for the study.

1. There is no significant relationship between family responsibilities and women career advancement.
2. There is no significant relationship between work-family conflict and women career advancement.

Methodology

This investigation made use of the descriptive survey methodology. All women employed by Ministries, Departments, and Agencies (MDAs) in Southwest Nigeria made up the population. The sample for this study was made up of 1183 adult women from 40 different Ministries, Departments, and Agencies in Southwest Nigeria. A multi-stage sampling technique was used to pick the sample. The first step was to use a simple random sampling technique to choose four states from the six that make up Southwest Nigeria. The second step involved utilising a proportional stratified sampling technique to choose 10 Ministries, Departments, and Agencies (MDAs) from each of the four States. In order to include women in the junior, senior, and administrative cadres, 30 women were chosen from each of the state specified Ministries, Government Departments, and Agencies (MDAs) in stage three using a stratified sampling technique.

A self-constructed questionnaire tagged “Family Issues and Career Advancement Questionnaire (FICAQ)” was used to collect relevant data for the study. The instrument consists of three sections namely Section A, B and C. *Section A* of the instrument sought for bio-data of the respondents among which such as age, marital status, among others while *Section B* consists of 10 items on family responsibilities, and work-family conflict as related to career advancement. It is prepared using 4-point scale of Likert type as follows: Strongly Agree - 4, Agree - 3, Disagree - 2 and

Strongly Disagree - 1. *Section C* consists of 20 items which contained information on career advancement. Four-point scale of Likert type is used as follows: Strongly Agree - 4, Agree - 3, Disagree - 2 and Strongly Disagree - 1. The instrument was subjected to content validity by experts of Adult Education and Tests & Measurement. The corrections made by the experts were reflected in the instrument. Test re-test method of reliability was used to ascertain the reliability of the instrument. The instrument was administered outside the sampled area on 20 respondents, and within a period of two weeks, the instrument was readministered on the same respondents, The data collected were analysed using Pearson Product Moment Correlation statistics which yielded a reliability co-efficient value of 0.82.

Government Ministries, Departments, and Agencies all gave their approval for the researcher to conduct their study. Four well-trained research assistants assisted the researcher in administering the instrument. While the researcher oversaw administration and data collection, qualified research assistants were in charge of administering and collecting the instrument from respondents.

The researcher used both descriptive and inferential statistics to examine the data that we gathered. At the 0.05 level of significance, Pearson's Product Moment Correlation Analysis was used to evaluate the hypotheses because the researcher was interested in determining the relationship between two parametric variables.

Result Presentation

Table 1: Descriptive analysis of family responsibilities and work-family conflict as it influence career advancement
N = 1183

N	Items	SA (%)	A (%)	D (%)	SD (%)	Mean	SD
Family Responsibilities							
1.	The demands of the family affect women in their place of work	142 (12.0)	479 (40.5)	481 (40.7)	81 (6.8)	2.58	0.79
2.	Family responsibilities interfere with women responsibilities at work	28 (2.4)	350 (29.6)	654 (55.3)	151 (12.8)	2.22	0.69
3.	Family related strain interferes with women’s educational pursuit	188 (15.9)	493 (41.7)	270 (22.8)	232 (19.6)	2.54	0.98
4.	Putting the well-being of the family as priority affects career prospects of women	152 (12.8)	436 (36.9)	349 (29.5)	246 (20.8)	2.42	0.96
5.	Family responsibilities do put internal pressures on women	52 (4.4)	522 (44.1)	569 (48.1)	40 (3.4)	2.50	0.64
						12.24	
Work-Family Conflict							
6.	Work and family responsibilities make it difficult for women to acquire additional qualifications	-	307 (26.0)	500 (42.3)	376 (31.8)	1.94	0.76
7.	Women are always finding it difficult to simultaneously balance the demand of family and work	-	396 (33.5)	391 (33.1)	396 (33.5)	2.00	0.82
8.	Some of the official assignments of women are sometimes done at home	-	401 (33.9)	450 (38.0)	332 (28.1)	2.06	0.79
9.	Inability to balance work and family roles affects women’s career prospects	-	307 (26.0)	551 (46.6)	325 (27.5)	1.98	0.73
10.	The time for family and work issues negatively influences women’s educational pursuit	-	432 (36.5)	438 (37.0)	313 (26.5)	2.10	0.79
						10.09	

Mean Cut-Off: 2.50

The item analysis of family responsibilities and work-family conflict as it influences career advancement was shown in Table 1. The mean value for family responsibilities was 12.24, while the mean value for work-family conflict was 13.52.

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between family responsibilities and women career advancement.

Table 2: Relationship between family responsibilities and women career advancement

Variables	N	Mean	Stand Dev	r-cal	P-value
Family Responsibilities	1183	12.24	2.45	0.015	0.613
Women Career Advancement	1183	39.75	8.33		

P>0.05

Table 2 demonstrated that because the P-value (0.613) > 0.05, the r-cal value of 0.015 is not

significant at the 0.05 level of significance. The null hypothesis is not rejected. It follows that there is no significant relationship between

women's career advancement and family responsibilities.

Hypothesis 2: There is no significant relationship between work-family conflict and women career advancement.

Table 3: Relationship between work-family conflict and women career advancement

Variables	N	Mean	Stand Dev	r-cal	P-value
Work-family Conflict	1183	10.09	2.98		
Women Career Advancement	1183	39.75	8.33	0.012	0.691

P>0.05

Table 3 demonstrated that because the P-value (0.691) > 0.05, the r-cal value of 0.012 is not significant at the 0.05 level of significance. The null hypothesis is not rejected. This suggests that there is no significant career advancement relationship between work-family conflict and women.

Findings of the Study

1. The findings from the descriptive analysis of family responsibilities and work-family conflict indicate that these factors moderately impact women's career advancement. The mean scores for family responsibilities (12.24) and work-family conflict (10.09) suggest that both aspects contribute to challenges in balancing work and personal life, with specific issues such as prioritizing family affecting career prospects and educational pursuits.
2. Hypotheses testing revealed no significant relationship between family responsibilities and career advancement (r = 0.015, p = 0.613) or between work-family conflict and career advancement (r = 0.012, p = 0.691), indicating that neither factor significantly influences women's career progress in the sample studied.

Discussion of the Findings

There was no significant relationship between women's career advancement and their family responsibilities, according to the study. Most family responsibilities are shared equally by the man and woman in the family, which may be the probable explanation. This finding suggests that women's aspirations for career advancement will be unaffected by their family responsibilities. This finding is consistent with the findings of Linge (2015), who found that women's career advancement was not hampered by family responsibilities. In contrast to this finding, Subramaniam et al. (2014) discovered that family responsibilities in Malaysia have a significant negative impact on career advancement. The most significant barrier by career women, according to ILO (2010), is working while having family responsibilities. Family responsibilities have an impact on career attainment, particularly for women professionals, according to Friedman and Greenhaus (2010). According to research by Rosa et al. (2017), women's career advancement is significantly impacted by family obligations.

There was no significant career advancement relationship between work-family conflict and women. The conclusion that women's career

advancement has no effect on work-family conflict is the implication of this finding. Wang and Cho (2013) discovered that work-family conflict had an impact on female career development and expectations, which is in direct opposition to this finding. There is a significant negative relationship between work-family conflict and family-work conflict and career advancement, according to Netemeyer et al. (2015) research. Karatepe and Sokmen (2016) discovered a significant negative relationship between work-family and family-work conflicts and women's career advancement.

Conclusion

The findings indicate that while family responsibilities and work-family conflict present moderate challenges for women in balancing personal and professional roles, these factors do not significantly impact career advancement. Despite some women facing internal pressures and difficulties in pursuing additional qualifications due to family demands, the statistical analysis shows no significant relationship between family responsibilities or work-family conflict and career advancement. Therefore, it can be concluded that other factors, beyond the scope of family and work conflicts, may play a more critical role in influencing women's career progression in the context studied.

Recommendations

Based on the findings, it is recommended that organisations implement flexible work arrangements to help women better manage family responsibilities without compromising their career advancement. Policies such as flexible working hours, remote work options, and childcare support would alleviate the internal pressures many women experience due to family demands. Providing support systems that enable women to pursue further education and training, even with family obligations, will ensure they can continue to develop professionally while balancing their personal lives.

Furthermore, organisations should foster a supportive work environment that encourages work-life balance through mentorship programs and counselling services. Mentorship can help women navigate the challenges of balancing work and family by learning from others who have successfully managed these responsibilities. Additionally, raising awareness about the importance of work-family balance through workshops and training can mitigate the effects of work-family conflict, ensuring that women do not face unnecessary barriers to career advancement due to their dual roles at work and home.

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Teachers' Knowledge of Pupils with Dyslexia in Ilorin East Local Government Area of Kwara State

By

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Abstract

The study examined Teachers' knowledge of pupils with dyslexia. Descriptive survey research design was adopted in the study, the population of this study comprised all the primary school teachers in Ilorin east Local Government Area of Kwara State. There are 1,508 teachers both public and private primary school in Ilorin East Local Government Area. 290 teachers were used as sample size with the adoption of research advisor. The researchers used one research instrument: Teachers' Knowledge of Dyslexia Test (TKDT), one research question was raised and answered while two hypotheses were tested, 5 experts in Early Childhood and Primary Education and Special Education, faculty of education, kwara state university, Malete, to ascertain the face and content validity and reliability coefficient of ($r=.84$) was obtained. The research question was analyzed using descriptive statistics of mean and percentage while independent sample t-test was used to test the null hypotheses at 0.05 level of significance. It can be established that teachers' knowledge of dyslexia and dysgraphia were low. More so, gender and school type had no significant difference in the level of teachers' knowledge of pupils with dyslexia. It was recommended that teachers should be given boundless opportunities on knowledge of inclusive educations, especially on pupils with learning disabilities through, self-development, symposium and seminars and government should try to engage qualified teachers to teach at primary school level and also regularly organize workshops and seminars for the teachers in service to equip and update them on how to teach in the classroom.

Keywords: *Teachers Knowledge and Pupils with Dyslexia*

Introduction

Learning disability is a group of heterogeneous disorder and neurologically-based processing problem which can interfere with learning basic skills such as reading, writing and/or mathematical calculation. Individuals with Learning Disabilities have differing capabilities, with difficulties in certain academic areas but not in others. The International Dyslexia Association (2003), emphasized that without appropriate intervention, dyslexics have a higher probability of not completing primary schools. Their dreams are shattered and opportunities are lost. However, studies reveal that with appropriate interventions,

children with dyslexia can overcome, to some extent, their reading and writing, spelling and mathematical problems (Polit & Beck, 2004)

It is reported that 80% of pupils who need special education suffer from dyslexia (National Center for Statistics, 2008). Demir (2005) reported that, according to parent surveys, 33% of the pupils' in first grade were at risk for dyslexia. On the other hand, first grade teachers indicated that 25% of first grade pupils' displayed increased difficulties while learning to read and write (Demir, 2005). Research has shown that with the help of a teacher who provides appropriate reading

instruction, pupils' with dyslexia may have better academic success. It is also reported that the reading achievement of dyslexic students, in particular, is affected by their teachers' knowledge and capabilities (Gwernan-Jones & Burden, 2010; Hellendoorn & Ruijsenaars, 2000; Lane et al., 2009; Mills, 2006; Rubin, 2002). Dyslexia is widely recognized as the most common learning disability of neurological origin. It is often referred to as a specific learning difficulty because the dyslexic individual also has strength and areas of ability which when properly channeled make for success (Sutton & Shield, 2016).

Teachers who have basic knowledge on education usually have very little knowledge about learning difficulties in general. Common reasons for these are: Firstly, teacher training programs devote little or no class hours for understanding the challenges learners with particular disabilities face and how to help them learn. Secondly, general education teachers typically don't undertake any further studies that focus on effective ways to teach learners with learning difficulties. Lastly, educational authorities do not provide ongoing in-service training for teachers about teaching learners with special needs (Arukesamy, 2017). Due to the abundance and prevalence of students with learning difficulties at schools- mainly primary schools, it seems necessary for primary school teachers to be increasingly familiar with the learning difficulty phenomenon more than other teachers and be able to identify these kinds of

students in their classes via the scientific criteria and in the most favorable manner. The moderating variables of interest to researchers are teachers' gender and school type

Elijah (2017) carried out a research work on gender differences in literacy education, it was revealed in the study among others that there was no significant difference in the performance of male and female students in literacy. However, he acknowledged the fact that at a gender level, male and female are typically distinguished by the presence of a chromosome in male cells and its absence in female, but this difference never affect their performance. Salami (2004) stated that, gender has no barrier to successful achievement in Social Studies teaching and learning as both male and female are engaged in education. Ala and Mohsen (2017) investigated the relationship between gender and reading comprehension achievement at college level. This study follows Barrett's Taxonomy in dividing reading comprehension into several levels of literal, inferential, critical, and appreciative), it compares the achievement of the two groups of gender (males and females) on each of the four levels of reading comprehension in order to see the relationship between gender and reading comprehension. The result of the study showed that there are no statistically significant differences between the two groups of gender on three levels of reading comprehension (literal, inferential, and appreciative), but for the "critical level", females are outperforming males to a

statistically significant level. Another variable of interest to the researcher is school type.

A study was conducted by Wang, Wilhite, Wyatt, Young, Bloemker and Wilhite (2012), it was argued that school type interventions continue to have positive effects on student's literacy performance in higher education. Similarly, in the study conducted by Segrott, Rothwell and Thomas (2013) on creating safe places: An exploratory evaluation of a school-based literacy support service, it was found that children who develop strong literacy skills in pre-school are better prepared for transition and have significantly academic outcomes than their peers who struggle with these skills in public and private preschools.

Bibby and Peil (2004) revealed that children who attended private primary schools do better than pupils in public schools. This idea is also backed-up by Lioyd (2006) who maintained further that the public schools which saw education as a good thing aimed to leave the question of educational achievement or downfall in the hands of the public and their parents. It shows that public school educations are yet to meet up with the academic expectations. The researchers intend to make findings on teaches' knowledge of pupils' with dyslexia in Ilorin East Local Government Area of Kwara State

Statement of the Problem

The primary education is to inculcate permanent literacy, numeracy and ability to communicate effectively which has to do with developing the

child's listening, speaking, reading and writing skills. However, It is reported that 80% of pupils who need special education suffer from dyslexia, study have it that first grade teachers indicated that 25% of primary class pupils' displayed increased difficulties while learning to read and write. The reasons for these scenarios are many and the roles of teachers and teaching strategies are pertinent in this situation.

A teacher cannot give what he does not have, because the dyslexia are sensitive aspect of learning disabilities which required indebt knowledge by the teachers. However, the government and school administrators have made a lot of provisions for seminars and workshop in order to change the story of using a particular approach for the group of pupils without considering learning difficulty of the pupils.

The researcher seeks to determine the teachers' knowledge of pupils' with dyslexia in Ilorin east Local government area of Kwara state. It has been observed from the literature reviewed that study of this type has never been carried out in Ilorin east Local Government Area of Kwara State. Therefore, this is meant to fill the gap requiring empirical evidence to determine the teachers' knowledge of pupils' with dyslexia.

Research Question

The research question was generated to give insights into the Study;

1. What is the level of teachers' knowledge of pupils' with dyslexia in Ilorin East Local Government Area of Kwara State?

Hypotheses

Ho1. There is no significant difference in teachers’ knowledge of pupils’ with dyslexia in Ilorin East Local Government Area of Kwara State based on gender.

Ho2. There is no significant difference in teachers’ knowledge of pupils’ with dyslexia in Ilorin East Local Government Area of Kwara State based on school type.

Methodology

Descriptive survey research design was adopted in the study to investigate teachers’ knowledge of pupils’ with dyslexia. This design is a process of carrying out a study by collecting and analyzing data gathered from a sample considered to be representative of the population. The population of this study comprised all the primary school teachers in Ilorin East Local Government Area of Kwara State. There are 1,508 teachers both public and private primary school in Ilorin East Local Government Area. 290 teachers were used as sample size with the adoption of research advisor. The researcher used one research instrument: Teachers’ Knowledge of Dyslexia Test (TKDT)

This instrument was constructed by the researchers to collect information on the teachers’ knowledge of pupils with dyslexia. These instruments comprised of sections A and B. Section A consisted of the demographic data of the respondents such as gender and school type, while section B comprised of information on the teachers’ knowledge of pupils with dyslexia. TKDT consisted of 10 items, the items were assessed in objective test. Five (5) experts in Early Childhood and Primary Education and Special Education, in the Faculty of Education, Kwara State University, Malete, to ascertain the face and content validity. A pilot study was conducted to ascertain the reliability of the instrument, test re-test method of reliability was used for the first instrument and reliability index was (r=.84). The data collected for the research question was analyzed using descriptive statistics of mean and percentage while independent sample t-test was used to test the null hypotheses at 0.05 level of significance.

Results

Research Question One: What is the level of teachers’ knowledge of pupils with dyslexia?

Table 1: Table showing level of teachers’ knowledge of pupils with dyslexia

Dispersion	Score	N	Mean Score	Remark
Minimum	30	290	40.59	Low level of Knowledge of pupils with Dyslexia
Maximum	80			

Key: 0.00 – 49.99 = Low

High: 50.00 – 100.00

Table 1 shows the level of teachers’ knowledge of pupils with dyslexia. Apparently the minimum score was 30 while the maximum score was 80.

Then the mean score was 40.59 which indicated that the level of teachers’ knowledge of pupils with dyslexia was low.

Hypotheses Testing

Research Hypothesis One: There is no significant difference in the level of teachers’

knowledge of pupils with dyslexia based on gender

Table 2: Table showing difference in the level of teachers’ knowledge of pupils with dyslexia based on gender

Gender	N	Mean	Std. Deviation	t	Df	Sig	Remark
Male	119	10.38	5.53	-.512	288	.609	Not significant
Female	171	10.73	5.93				

Table 2 shows the difference in the level of Teachers’ Knowledge of pupils with dyslexia based on gender. There was no significant difference in the level of teachers’ knowledge of pupils with dyslexia based on gender (t=-0.512; df=288; P > 0.05). The hypothesis is therefore not

rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Two: There is no significant difference in the level of teachers’ knowledge of pupils with dyslexia based on school type

Table 3: Table showing difference in the level of teachers’ knowledge of pupils with dyslexia based on school type

School type	N	Mean	Std. Deviation	t	Df	Sig	Remark
Public	220	10.57	5.78	-.075	288	.234	Not significant
Private	70	10.64	5.77				

Table 3 shows the difference in the level of teachers’ knowledge of pupils with dyslexia based on school type. There was no significant difference in the level of teachers’ knowledge of pupils with dyslexia based on school type (t = -.075; df = .288; P > 0.05). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Discussion of the Findings

One of the findings of the study revealed that the level of teachers’ knowledge of pupils with dyslexia in Ilorin East Local Government Area of

Kwara State was low. The result of the findings might be as a results of unqualified teachers or some teachers who took the teaching profession as a stepping stone. This finding is in Agreement with Rudiayatu, Mumpuniarti & Pujaningsih, (2017) carried out study on teacher’s knowledge and experience dealing with children with learning disabilities in elementary school. The objective of the study was to provide initial information in the form of how primary school teachers are dealing with children with learning disabilities in order to investigate the gap

between the real intervention with the suitable education services. The result of the study showed that teachers have not been perceived correctly that among children with learning difficulties there are children with specific learning difficulties or children with learning disabilities. The study was negated by the findings of Julie, (2016) who Conducted study on primary school teachers' level of knowledge on learning disabilities (LD). It was concluded that teachers have robust knowledge on characteristics of learning disabilities and effective classroom strategies for students with learning disabilities.

The findings of the study also revealed that there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender and there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on school type.

Conclusion

This study examined teachers' knowledge of pupils with dyslexia in Ilorin East Local Government Area, Kwara State. It can be established that teachers' knowledge of dyslexia and dysgraphia were low. More so, gender and school type had no significant difference in the level of teachers' knowledge of pupils with dyslexia.

Recommendations

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

- 1 Teachers should be given boundless opportunities on knowledge of inclusive

educations, especially on pupils' with learning disabilities through, self-development, symposium and seminars.

- 2 Government should try to engage qualified teachers to teach at primary school level and also regularly organize workshops and seminars for the teachers in service to equip and update them on how to teach in the classroom.

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Influence of School Policy and Parental Factors on Mathematics Achievement of Senior Secondary School Students in Ibadan North L.G.A, Oyo State, Ibadan

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Abstract

This study sought to explore the influence of school policy and parental factors on mathematics achievement of senior secondary schools in Ibadan North L.G. area, Ibadan. The study, based on Psychosocial Theory of Identity, focused on 270 senior secondary school students and 30 secondary school administrators obtained from 6 distant public and private mixed senior secondary schools. For the students and administrators samples, simple random and purposive sampling techniques were respectively used. Data were collected using three research instruments Parental Influence Survey (PIS), School Policy Survey (SPS) and Mathematics Achievement Test (MAT). Three hypotheses were tested at 0.05 level of significance. Quantitative approach was adopted for data analysis. The result of the findings revealed that there was combined and relative significant contribution of school policy and parental factors to students' mathematics achievement. Enrolment policy ($\beta = 0.663$, $t = 6.008$, $p < 0.05$), followed by recruitment ($\beta = 0.433$, $t = 3.519$, $p < 0.05$) and evaluation ($\beta = 0.355$, $t = 2.342$, $p < 0.05$) had the most potent contribution to the students' mathematics achievement. Comparatively, it revealed school policy ($\beta = 0.571$, $t = 8.266$, $p < 0.05$) as the most potent contributor to the students' MA than parental factors ($\beta = 0.162$, $t = 5.753$, $p < 0.05$). The study therefore recommends that the government set up and fund independent inspection body for enforcing compliance with school policy implementation, and Parents' Education Empowerment programme and adopt Proactive measure for identifying specific area of intervention to improve mathematics achievement level of students in Ibadan, Nigeria.

Keywords: School Policy, Parental influence, Mathematics Achievement

Introduction

Mathematics is the backbone of science and technology which every country of the world continuously seeks to adapt its problem solving skills: numeracy, accuracy, literacy, analytical, logical and critical reasoning, interpretation and communication to further developing her human and material resources for achieving national goal. Most countries of the world regularly reviews her school policy to have quality education policy formulation and implementation on the subject as a basis for developing, building and preparing human capacity for national development. Despite concerted effort of

government to ensuring improvement of students' mathematics achievement through policy reviews, the outcome of the students still stay below credible point, and this has been the headache of all stakeholders thinking and asking question 'who is to blame?': the parents, the students or the school. There are empirical evidences of continuous outcry from stakeholders against poor performances of Nigerian pupils in school examinations (Ella, Odok & Ella, 2015). The continuous outcry of stakeholders was as a result of yearly reports of standard examining

bodies (WAEC and NECO) on students' low mathematics achievement.

There is clear evidence from provisional results on Mathematics by standard examination bodies (WAEC and NECO) that students' mathematics achievement is in most cases below credible level in Nigeria. Parents and school factors, amidst myriad of possible reasons, may not be unconnected to the low level or poor performance of the students academically, especially relating to Mathematics. According to WAEC Chief Examiner's Report (2018), out of 314,386 candidates who wrote the mathematics examination, 120,504(34.33%) passed with C6 – A1; 94,607 (30.09%) had D7 – E8 while 99,275(31.58%) had F9 in the examination. This implied that the performance of 61.67% of the candidates was below the credit pass that is required for admission into most tertiary institutions in the country. Nevertheless, since 2019 till current year (2014), there have been perceived relative change in the record provided by the examination body. According to the verified and validated WAEC result statistical data, by NBS (2021), on mathematics Performance of senior secondary school students (private and public), out of 1589983, 1538234 and 1560152 that sat the examination respectively in 2019, 2020 and 2021, 1201761(75.58%), 790787 (51.41%) and 1325084 (84.93%) respectively had at least credit pass in Mathematics. The sudden high rise in the results between 2018 and 2019 was remarkable and debatable. Reporting and making

comparative analysis of the released 2021, 2022 and 2023 May/June WAEC results in Lagos, the former WAEC Head of National office (HON), Mr. Patrck Araghan announced that there was 5% decreased in students' performance in Mathematics and English Language. According to him, out of 1,601,047 candidates that successfully sat the examination, of which 1,437,629(89.79%) was released, 1,222,505(76.36%) obtained credit and above in five subjects including Mathematics and English as against 1325084(81.7%) out of 1,560152 that sat it in 2021. Analysing the records of the withheld results of the candidates, due to examination malpractice, in 2021 [170,040(10.9%)], 2022 [365564(22.83%)] and 2023 [262,803(16.29%)], he attributed the rise (11.74%) in the withheld results to students' poor preparation for the examination, lack of self-confidence and readiness to study, over-reliance on examination mal-practice and so called 'Expo' and parents funding the practice. He, however, admonishing parents to stop funding the so called 'expo', and remarked that the council (WAEC) would continue to sanction all cases of examination malpractices, and that schools, supervisors, teachers, parents and students perpetrating such evil are not helping the education system. Similarly, in the current year (2024), the new WAEC Head of National (HON) office, Mr. Amos Josiah Dangut reported that out of 1,805,216 candidates that successfully sat the examination, of which 1,685,889 (93.39%) were processed and released, 1,301,941(72.12%)

obtained credit and above in both Mathematics and English while 215,267(11.92%) were withheld due to examination malpractice. Ikpeyon L.R and George N.R.(2023) identified students' inadequate understanding of the subject matter, insufficient preparation, inadequate library resources, questionable admission policies, overcrowded sitting arrangement among others as causes of students poor performance and examination mal-practice. Parents aiding the so called "Expo" for children as well as Schools admitting under-aged students and recruiting non-qualified teachers (undergraduates and school certify-cate holders) are not disconnected from the causes.

The study therefore sought to investigate the cause of poor students' mathematics performance at the perspective of school policy and parental factors. The study, which was limited in scope due to financial constraint, is significant in that its result provides useful information to the students, the parents, school administrators, and government and education policy makers on improving the level of mathematics achievement.

Literature Review

Influences of parents and school in academic life of a child/student cannot be overemphasized. These influences can be either direct or indirect (Shamila & Yoon, 2018). Direct influences include parents helping their children with mathematics difficulties while indirect parental influences include parental encouragement, parental expectation and their own attitude towards mathematics (Wang & Lin, 2005). All

these factors have a positive or negative correlation with students' achievement (Baliyan, 2014). This implies that parental influence is a force having magnitude and direction on children's orientation about mathematics and mathematics achievement. The magnitude is the amount of resources (involvement): money, active engagement, time, expertise or professional experience, social affiliation, care and control the parents expend on their children's education. The direction of parental influence, on the other hand, indicates the angle or sense, which may be away (against) or toward (for/enhance) mathematics achievement of the children. The influence can also be on school decision (policy) or both students and school policy, the resultant effect of which is a reflection in the mathematics achievement of the students in the continuous assessment and terminal examinations such as WAEC and NECO.

The levels of parents' education have tendency to influence children mathematics achievement. The higher the levels of education of parents, the more likely it motivates children to learn and perform better (Nato, 2016). In other words, the highly educated parents tend to provide a more conducive learning environment that propels their children to go to schools and succeed (Menye & Nwokocha, 2018). Children benefit by the engagement of their parents in activities with them (Xiaoyue, 2015). Parents that are unable to read and write or are not mathematically inclined may have to sacrifice more of their time at their workplace, office, market in order to actively

engage and make provision for the conducive learning environment for their children's mathematics achievement.

Marital Status refers to the state of being together as a husband and a wife (Menye et al, 2018). This state has both positive and negative effects on pupils' performance at school, depending on the organization of each family member (Juma, 2011). The effect of such organization as polygamy/ monogamy, separated/united and family size cannot be unnoticed in children's academic life and stage. According to Erickson (1968), every human being passes through several distinct, fairly universal different stages from birth to death; individual faces a conflict at each stage, which may or may not be successfully resolved within the stage; each individual is shaped through a series of conflicts called developmental crises; the stages are not watertight: issues of one stage overlap with issues of another and how one has dealt with the earlier issue determines how one will resolve later issues. A child's experience in each stage either at home or in school determines his/her performance identity or confusion in life. Identity versus Role Confusion- Fidelity is the fifth stage, termed young adult (11 – 18 years) in Erickson's psychosocial theory of human development that describes children, the teenagers at senior secondary school age. It is the adolescence stage, marking the end of childhood. This is also the stage when values have to be chosen, beliefs understood and 'self' explored' (Erickson, 1968). As children interact with peers in the community

and school, the family, especially the parents, as the first social agent relatively loses its influence. The level of education of parents is the degree to which parents acquire some knowledge, skills, attitudes and values of informal and formal education (Menye & Nwokocho, 2018). Since education is a positive concept, the level of parents' education may be used to measure their input on children's mathematics learning endeavour. Parents being educated, either through formal, non-formal or informal mode, appreciate the value of education, of which they are enjoying or missed the opportunity in the past, and strive to secure their future by involving all positive effort it requires to ensure their children are educated. These parents are concerned over their children's education performance, which sometimes makes them coach their children themselves or appoint part-time teachers for them (Menye et al, 2018). That is, educated parents are those that have time to coach and pay price for their children's education, particularly mathematics learning and achievement. The appointed part-time teachers and Parents who coach the children must have received one level of education (formal or non-formal) through school guided by policy.

The overall aspiration of any policy in education and schools is to enhance and improve students' learning, and the qualities of teachers and schools administrators executing the policy determines the fulfilment of the aspiration (MESC, 2023). The Principal, Vice Principal and Heads of Department make up the management team in

colleges MESC (2023). They are school leaders making, reviewing and driving the school policy. School leaders use policy to create standard, ensure consistency, support, and vision and mission statements, meet certain accreditation standards and/or guide day-to-day practices (Allen et al, 2017, 2018). Firmness on such standards as recruitment, enrolment, professionalism and monitoring/supervision is expected of school administrators. The result of the research carried out on eight randomly selected senior secondary schools in Cross River State, Nigeria by Bessong and Felix (2018) revealed that 69% of total teachers teaching mathematics were not mathematics educators but borrowed from other science and technical subjects to teach mathematics. By implication, only 31% of the teachers recruited to teach Mathematics were qualified while the 69% were recruited due to sentiment, corruption and lack of firmness on recruitment policy in the private and public schools, and the consequent is evident even till the present time.

Research Hypotheses:

1. There is no significant influence of parental factors on mathematics achievement of secondary school students in Ibadan North Local Government Area.
2. There is no significant influence of school policy factors on students' mathematics achievement in Ibadan North Local Government Area.
3. There is no significant influence of school policy and parental factors on mathematics

achievement of senior secondary school students in Ibadan North Local Government Area.

Methodology

This study adopted descriptive survey design in investigating the influence of school policy and parental factors on mathematics achievement. The independent variables include School Policy and Parental Factors and the dependent variable is Mathematics Achievement. The targeted population for the study is 270 senior secondary schools students in Ibadan North L.G, Oyo state, Nigeria. Simple random sampling and purposive sampling techniques were used for the students and the secondary school administrators respectively. 270 senior secondary school students (SSS III) were randomly selected from 6 distant schools, 3 schools each from private and public types in Ibadan North Local Government. On the other hands, 30 secondary school administrators (Principals, Vice Principal and Head of Department) were obtained by purposive sampling technique. School Policy Survey (SPS), Parental Influence Survey (PIS) and Mathematics Achievement Test (MAT) were the instrument used for data collection. The three instruments (SPS, PIS and MAT) were expertly validated both facially and quantitatively. The researcher ensured that all the items of the instrument are relevant to the content of the study. Two of the instruments were validated with Cronbach's alpha and the results of coefficient of reliability were SPS($r = 0.9$) and PIS ($r = 0.9$), while Kuder-Richardson (KR-20) was used for validating MAT, and the coefficient being 0.7.

To make valid decisions on the formulated hypotheses, quantitative approach was used for data analysis. The data collected were analysed using descriptive statistics (frequency count, mean and percentage) and inferential statistics (t-Test, one-way Analysis of Variance, ANOVA and Multiple Regression Analysis, MRA). All the

hypotheses formulated were tested at 0.05 or 95% level of certainty of prediction.

Results of Findings

Ho1: There is no significant influence of parental factors on mathematics achievement of secondary school students in Ibadan North Local Government Area.

Table 1: Summary of ANOVA of parental factors and mathematics achievement of senior secondary students in Ibadan.

Variable	Sum of Square	df.	Mean Square	F	p.(Sig)
Between Group	707.630	4	54.433	2.789	0.001 significant
Within Group	4996.311	265	19.517		
Total	5703.941	269			

Table 1 presents the ANOVA analysis which showed that there was a significant influence of parental factors on mathematics achievement of senior secondary school students in Ibadan North (F value $(4/265) = 2.789$, $Pro=0.001 < 0.05$). The

null hypothesis was therefore rejected.

Ho2. There is no significant influence of school policy factors on students' mathematics achievement in Ibadan North Local Government Area.

Table 2a Summary of Regression Analysis of the combined prediction of Enrolment policy, Recruitment policy, Evaluation Policy and Professionalism policy on students' mathematics achievement.

.R	R Square	Adjusted R Square	Std. Error of the Estimate			
0.610	0.543	0.866	3.240			
SUMMARY REGRESSION ANOVA						
	Sum of Squares	Df	Mean Square	F	P	Remark
Regression	70.819	4	117.705	21.687	0.000	Sig.
Residual	262.381	25	10.495			
Total	333.200	29				

Table 2a showed there was a significant joint contribution of Enrolment, Recruitment, Evaluation and Professionalism policies on

student' mathematics achievement. That is students' mathematics achievement correlated positively with the independent variables

(Enrolment policy, Recruitment policy, Evaluation Policy and Professionalism policy). The table also shows a coefficient of multiple correlations (R) of 0.610 and a multiple R square of 0.543. This means that 86.6% (Adj. $R^2=0.866$) of the variance in the mathematics achievement is accounted for by the independent variables, when considered

together. The significance of joint contribution was tested at $p<0.05$ using the F- ratio at the degree of freedom ($df=4/25$). The table also showed that the analysis of variance for the regression yielded a F-ratio of 21.687 (significant at 0.05 level). Therefore, on the basis of joint influence, the null hypothesis was rejected.

Table 2b Relative contribution of the independent variables to the dependent variables (Test of significance of the regression coefficients)

Variable	Unstandardized Coefficients		Standardized Coefficients			
Model	(B)	Std. Error	Beta	t	Sig.	Remark
Constant	9.945	5.861	-	1.697	.102	-
Enrolment policy	.545	.272	.663	6.008	.000	Sig.
Recruitment policy	.439	.289	.433	3.519	.001	Sig.
Evaluation Policy	.274	.204	.355	2.342	.002	Sig
Professional Policy	.302	.284	.241	2.062	.030	Sig

Table 2b revealed that there was a significant relative contribution of the independent variables to the dependent variable, expressed as beta weights. The correlation coefficients of enrolment policy, recruitment policy, evaluation Policy and professionalism policy measuring the relative influences of school policy factors on students' mathematics achievement indicated significant influence. Using the standardised regression coefficient to determine the relative contributions of the independent variables, Enrolment policy ($\beta =0.663$, $t= 6.008$, $p < 0.05$) indicates most potent contributor to the

prediction, follow by Recruitment policy ($\beta = 0.433$, $t= 3.519$, $p < 0.05$), Evaluation Policy ($\beta = 0.355$, $t= 2.342$, $p < 0.05$) and Professional Policy ($\beta = 0.241$, $t= 2.062$, $p < 0.05$) have a relative contribution to students' mathematics achievement. It implies that there was a significant joint contribution among school policy variables (Enrolment policy, Recruitment policy, Evaluation Policy and Professionalism policy) to students' mathematics achievement. Hence, the null hypothesis was rejected.

Ho₃. There is no significant influence of school policy and parental factors on

mathematics achievement of senior secondary school students in Ibadan North Local Government Area.

Table 3a Summary of Regression Analysis of the combined prediction of school policy and parental influence on senior secondary school students’ mathematics achievement in Ibadan North Local Government Area.

.R	R Square	Adjusted R Square	Std. Error of the Estimate			
0.590	0.868	0.660	3.476			
SUMMARY REGRESSION ANOVA						
	Sum of Squares	Df	Mean Square	F	P	Remark
Regression	6.953	2	143.477	34.288	0.008	Sig.
Residual	326.247	27	12.083			
Total	333.200	29				

Table 3a showed that there was a significant joint contribution of school policy and parental influence on senior secondary school students’ mathematics achievement. That is students’ mathematics achievement correlated positively with the independent variables (school policy and parental factors influences). The table also shows a coefficient of multiple correlations (R) of 0.590 and a multiple R square of 0.868. This means that 66.0% (Adj. R²=0.660) of the variance in the mathematics achievement is

accounted for by the independent variables, when taken together. The significance of joint contribution was tested at p<0.05 using the F-ratio at the degree of freedom (df=2/27). The table also showed that the analysis of variance for the regression yielded a F-ratio of 34.288 (significant at 0.05 level). The table showed that there is significant influence at 0.05 level of prediction. Therefore, the null hypothesis was rejected.

Table 3b: Relative contribution of the independent variables to the dependent variables (Test of significance of the regression coefficients)

Variable	Unstandardised Coefficients		Standardised Coefficients	t	Sig.	Remark
	(B)	Std. Error	Beta			
Model						
Constant	15.453	5.301	-	2.915	.007	-
School policy Influence	.234	.882	.571	8.266	.004	Sig.
Parental Factors Influence	.158	.210	.162	5.753	.046	Sig.

Table 3b revealed the outcome of the analysis on relative contribution of the independent variables to the dependent variable, expressed as beta weights. The correlation coefficients of school policy and Parental factors measuring the degree of the factors' influence on students' mathematics achievement indicated that there was relative significant influence. Using the standardised regression coefficient to determine the relative contributions of the independent variables, the results: School policy ($\beta = 0.571$, $t = 8.266$, $p < 0.05$) indicates most potent contributor to the prediction, followed by parental factors influence ($\beta = 0.162$, $t = 5.753$, $p < 0.05$) showed that the school and parental factors have relative contribution to students' mathematics achievement. It implies that there is a significant joint contribution of school policy and parental influence to senior secondary school students' mathematics achievement in Ibadan North Local Government Area.

Discussion of the Findings

The result of hypothesis 1 (F value (2/267) = 2.789, $Pro = 0.001 < 0.05$) in table 1 showed that there was significant influence of parental factors on mathematics achievement of secondary school students in Ibadan North Local Government Area. Since the PF was high while MA was low, the implication is that parental influence was negative, tending towards satisfying other things such as social, clothes, money, food, occupation, sport, friends, news, movies, ceremonies and festive occasions at the detriment of mathematics achievement of the children.

Parental factors such as parents' discipline/parenting style, education, occupation, motivation, expectation and family status have been investigated by education scholars and experts against students' mathematics achievement with results of findings either parallel or intersected. All these factors have a positive or negative correlation with students' achievement (Baliyan, 2014). Relating parental discipline with students' performance, Menye & Nwokocha (2018) stated that parents in their bid to discipline their children have been found to be authoritarian, authoritative, democratic or permissive. Deliberately or otherwise, parents who adopt authoritarian parenting style create interaction gap between them and their children, and this has tendency to negatively influence their children's mathematics achievement.

The level of education of parents is the degree to which parents acquire some knowledge, skills, attitudes and values of informal and formal education (Menye et al, 2018). The level of education either through formal, non-formal, informal or combined mode indicates how much a parent appreciate and pay price for the value of education, of which they are enjoying or missed the opportunity in the past, and strive to secure their future by involving all positive effort it requires to ensure their children are educated.

The findings as revealed in the hypothesis 2 indicated that there was a significant influence of parents' education background on students' mathematics achievement in Ibadan North. Parents' education background was found to be

high while the students' mathematics achievement was low possibly due to some reasons, such as societal and economic. The outcome of this study was parallel (not intersected/ conformed) to the submission of Nato (2016) that the higher the levels of education of parents, the more likely it motivates children to learn and perform better. In other words, the highly educated parents tend to provide a more conducive learning environment that propels their children to go to schools and succeed (Menye & Nwokocha, 2018). That is the level of academic attainment can also be a measure of this motivation and ability to provide the conducive environment as this, in most times, differentiate their job status in the labour market. For instance, parents who are secondary school certificate can possibly secure a messengers', guards', gardeners', cooks', drivers', office assistance' job or self-employed. And as there is job differentiation due to education attainment, a director/ manager in an organization, principal in a school, mathematics teacher or lecturer may have more chance of providing a conducive mathematics learning condition for the children. The results ($R=0.610$, $R^2=0.543$, Adj. $R^2=0.866$, $F=21.687$, $p<0.05$) and (Enrolment policy ($\beta=0.663$, $t=6.008$, $p<0.05$), recruitment policy ($\beta=0.433$, $t=3.519$, $p<0.05$), Evaluation Policy ($\beta=0.355$, $t=2.342$, $p<0.05$) and Professionalism Policy ($\beta=0.241$, $t=2.062$, $p<0.05$)) of the findings in tables 2a and 2b revealed that there was joint and relative significant influence respectively of school policy factors on

students' mathematics achievement in Ibadan North Local Government Area. That is the school policy has combined as well as relative contribution to the students' low mathematics achievement, with Enrolment policy having the greatest contribution.

The result ($R=0.590$, $R^2=0.868$, Adj. $R^2=0.660$, $df=2/27$, $F=34.288$, $p<0.05$) of the findings in table 3a revealed that there influence of school policy and parental factors on mathematics achievement of senior secondary school students in Ibadan North Local Government Area. That is there was significant joint contribution of school policy and parental influences to senior secondary school students' mathematics achievement. Moreover, the correlation coefficients, in table 3b, showed that there was relative significant influence of school policy ($\beta=0.571$, $t=8.266$, $p<0.05$) indicating most potent contributor to the prediction, followed by parental factors influence ($\beta=0.162$, $t=5.753$, $p<0.05$) on students' mathematics achievement. By implication, the influence of the school policy was higher than parental factors on the students' mathematics achievement. Though the ratio of the time spent, by Nigerian secondary school students, in school and at home with parents was approximately one-to-three (1:3), the school policy had the stronger influence on students' mathematics achievement than parental factors. School had the greatest contribution to senior secondary school students' mathematics achievement.

Conclusion

The study investigated influence of school policy and parental factors on mathematics achievement of senior secondary schools in Ibadan North Local Government area, Ibadan. The results showed that there was combined and relative influence of school policy and parental factors on students' mathematics achievement, the school policy taking the lead. Despite the time spent by Nigerian's secondary school students at home was approximately twice the time spent in school, school policy especially on enrolment had the most potent contribution to mathematics achievement of the students. The study revealed that the influence/ correlation was significantly high but negative (not enhancing) students' mathematics achievement. Therefore, the school policy and its implementation need review in order to improve the senior secondary school students' mathematics achievement. The possible causes of disparity between the study and some other past research findings may be due to the study limitation, construct and schools', students' and parents' socio-economic factors such as current societal trend/belief, finance, social medial, corruption, politics and examination mal-practice syndrome. These form the basis for further study.

Recommendations

The following recommendations are made:

1. Government should enforce strict adherence to school policy implementation by imposing penalty on any secondary school authorities that violate the regulations especially on enrolment and recruitment exercises;

2. Schools administrators and managers should create interactive forum in order to help parents build relationship with their children, and develop school-family programs to help children learning mathematics.

3. Government should establish and fund an independent monitoring/supervisory council that will enforce school policy implementation in both the private and public schools in Nigeria;

4. Yearly evaluation of all mathematics teachers is necessary for keeping them fit and master the contents of the subject. This can be done by professional examination body saddled with responsibility of conducting yearly secondary school mathematics examination for all mathematics teachers in Ibadan, the result of which should serves as advisory, motivation or promotion yardstick.

5. Government should encourage parents of the less privileged or those that cannot read or write who might be willing to involve in their children education through creation and sponsoring of adult education and empowerment programme both in the state and national level.

6. Students' excellent performance of brilliant and improved performance of weak/average students should be rewarded by government and school administrators.

7. Only professionally tested and qualified administrators and mathematics teachers should be allowed to respectively coordinate and teach Mathematics in secondary schools.

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Developing Health Education Curriculum for Implementation through Perceived Effect of Waterborne Diseases among Dwellers in Niger Delta Region of Nigeria

By

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Abstract

This study investigates Perceived Effect of Waterborne Diseases Among Dwellers in Niger Delta Region of Nigeria in Developing 21st Century Health Education Curriculum for Implementation. It focuses at relationship between perceived effect of waterborne diseases on dwelling types, sex, socioeconomic status, sanitary facilities and developing 21st Century Health Education Curriculum for implementation. Four research questions were raised while four null hypotheses guided the study. Quantitative and qualitative design were adopted using cross sectional survey with structured questionnaire. Population was 3,328 while a sample of 1,255 subjects were randomly selected to collect data. Perceived Effects of Waterborne Diseases in Niger Delta Survey (PEWD-NDS) questionnaire was the instrument used to collect data. PEWD-NDS was structured by the researcher and validated by 4 experts in health, curriculum studies, measurement and evaluation from University of Delta, Agbor. Data was analyzed using multiple regression and Pearson correlation coefficient statistics. Table 1 indicated significant relationship between effects of waterborne diseases on dwelling types ($\beta=0.356$, $p<0.001$), socio-economic status ($\beta=-0.271$, $p=0.005$) and access to sanitation ($\beta=-0.189$, $p=0.006$). Table 2 revealed significant effects of waterborne diseases between dwelling types ($\beta=0.286$, $p<0.001$) and sex ($\beta=-0.205$, $p=0.020$). Table 3 showed significant relationship between socioeconomic status perceptions ($\beta=0.391$, $p<0.001$) while table 4 revealed significant correlation coefficient of ($r = 0.52$), ($p< 0.001$) between the perceptions of waterborne diseases and developing 21st Century Health Education curriculum for implementation in the NDR. Hence, it is recommended that improved sanitation, health intervention efforts, collaborative research engagement and developing 21st Century health education curriculum for implementation should be organized by stakeholders to solve these problems among others.

Keyword: *Perceived-Effect*, Waterborne-Diseases, Dwellers, Niger-Delta, Curriculum-Implementation

Introduction

The Niger Delta region of Nigeria is a vast ecologically diverse area that is home to a large population of people who rely heavily on water resources for their daily needs. The region is blessed with abundant freshwater sources, including rivers, creeks and swamps which play a vital role in sustaining livelihoods, agriculture and industrial activities (Eze, Okeke & Madubueze, 2021). However, the presence of waterborne diseases has been a longstanding

public health concern in the region, posing significant challenges to the well-being of its inhabitants. Waterborne diseases caused by the ingestion of contaminated water, remain a prevalent health issue in many developing regions across the globe and the Niger Delta is no exception. The high incidence of waterborne diseases in the area can be attributed to several factors, including inadequate sanitation facilities, poor waste disposal practices,

industrial pollution and oil exploration activities that have caused environmental degradation and contamination of water sources (Amadi & Duru, 2020). Additionally, frequent flooding during the rainy season exacerbates the problem by spreading waterborne pathogens and pollutants (Egbulem & Uka, 2019).

Common waterborne diseases prevalent in the Niger Delta region include cholera, typhoid fever, dysentery, hepatitis A and other diarrheal diseases. These diseases often have severe health implications, particularly for vulnerable populations such as children, pregnant women and the elderly. In addition to causing a considerable burden on the healthcare system, waterborne diseases also have a significant economic impact due to increased healthcare costs, loss of productivity and reduced workforce efficiency. The epidemiological issues associated with waterborne diseases in the Niger Delta region present a complex and multi-faceted challenge for public health officials and policymakers. Limited access to clean water and proper sanitation facilities has hindered effective disease prevention and control efforts. Moreover, there is a lack of comprehensive data and research on the prevalence, distribution and risk factors associated with waterborne diseases in the region (Ogbolu, Adekoya & Akinyemi, 2022). To address these challenges effectively, it is necessary to have a comprehensive understanding of the perceived effects of waterborne diseases on the local communities. Studying the perceptions of the dwellers in the

Niger Delta Region towards waterborne diseases can provide valuable insights into their knowledge, attitudes and practices related to water usage and sanitation practices. These perceptions play a pivotal role in shaping individual behaviors and community by developing 21st Century Health Education responsive Curriculum for teacher implementation to mitigate consequences of waterborne diseases (Awuja, 2022). Empirical research on this topic can contribute significantly to the existing literature by shedding light on the specific issues and challenges faced by dwellers in the Niger Delta Region regarding waterborne diseases. By incorporating data-driven findings, the article's aim is to inform evidence based public health policies and intervention strategies to improve water quality, sanitation infrastructure and overall health outcomes in the region.

Cholera remains a significant waterborne diseases issue in the Niger Delta Region. Nwankwo, Eze & Okafor (2020) examined the public health awareness and perception of cholera outbreaks in the region. The study revealed that a lack of knowledge about preventive measures and misconceptions concerning mode of transmission contribute to the persistence cholera outbreak. These findings emphasize the need for targeted public health education to address knowledge gaps and improve cholera prevention intervention efforts. Typhoid fever is another prevalent waterborne disease in the Niger Delta. Amadi & Duru,

(2020) investigated contamination of drinking water sources with *Salmonella typhi*, the causative agent of typhoid fever. The research highlighted inadequate sanitation facilities and poor water quality as significant contribution to the rapid mass spread of the disease. This underscores the urgent need for improved sanitation, infrastructural development and safe drinking water supply initiatives. Diarrheal diseases, including rotavirus and enteric infections pose substantial health risks in the Niger Delta. Curtis & Cairncross (2023) focused on assessing hygiene practices and their association with diarrheal disease prevalence. The findings indicated that improper handwashing and unsanitary food handling practices contribute to disease transmission. Promoting proper hygiene behaviors through community-based intervention strategies emerged as a key for reducing diarrheal disease burden.

Hepatitis A is a waterborne disease of growing concern in the Niger Delta area. Nwankwo, Eze & Okafor (2020) investigated the presence of hepatitis A virus in water sources and its impact on public health. The research highlighted a correlation between inadequate sanitation facilities, contaminated water supplies and increased hepatitis A cases in the area. Enhancing water supply quality, continuous monitoring and implementing water treatment technologies are crucial steps towards disease prevention. This claim is synonymous with Okpara, Ugwu & Chukwuocha (2022) who

conducted research on Challenges in health education and waterborne disease prevention in the Niger Delta and affirm same.

Climate change has the potential to exacerbate waterborne disease risks in the Niger Delta. Okonkwo (2023) explored the impact of climate change on the prevalence of waterborne diseases, including vibrio infections. The research indicated that rising temperatures and changing rainfall patterns contribute to favorable conditions for pathogen growth and transmission. Addressing the effects of climate change and waterborne diseases necessitate adaptive strategies and resilience-building efforts. Access to affordable healthcare services play a pivotal role in mitigating the impact of waterborne diseases. Ogbolu, Adekoya & Akinyemi (2022) examined the challenges faced by dwellers in Niger Delta seeking medical care for waterborne diseases. The research revealed limited healthcare infrastructural facilities and inadequate disease surveillance systems as barriers to effective disease management. Strengthening healthcare systems and improving disease reporting mechanisms are essential for timely intervention strategies while community engagement and behavioral change are integral to combating waterborne diseases approaches.

Eze, Okeke & Madubueze (2021) experimented a community-based intervention efforts to promote safe water practices and hygiene behaviors demonstrated that involving local communities in designing and implementing

interventions leads to positive changes in water usage and sanitation practices. Empowering communities to take ownership of disease prevention efforts is capable of yielding sustainable and impactful outcomes. To this end, a comprehensive perceived effect of waterborne diseases among dwellers in the Niger Delta Region of Nigeria to develop a 21st Century health education curriculum for teacher implementation is vital for effective disease prevention and control. Recent empirical research underscores the need for targeted health education, improved sanitation infrastructure, water quality monitoring and climate change adaptation strategies. By addressing these issues in health education curriculum, policymakers and public health officials can work towards alleviating the burden of waterborne diseases and enhancing the overall well-being of the region's population. Waterborne diseases, stemming from the consumption of contaminated water, have persistently plagued the Niger Delta communities, posing a grave threat to the health and well-being of its populace. The prevalence of these diseases can be attributed to a myriad of factors, including the lack of adequate sanitation facilities, improper waste disposal practices, industrial pollution and the adverse environmental impact of oil exploration activities. Moreover, the region's vulnerability to seasonal flooding during the rainy season exacerbates the situation by disseminating waterborne pathogens and pollutants (Awuja 2023).

Developing a 21st-Century Health Education curriculum for the Niger Delta Region in Nigeria to prevent waterborne diseases necessitates a multifaceted approach that addresses the unique environmental, social and economic challenges of the area. The curriculum should be innovated to increase awareness and provide practical skills for preventing diseases such as cholera, dysentery and typhoid fever which are prevalent due to the region's significant water pollution problems. Given the heavy reliance on rivers and streams for drinking, cooking and sanitation, the curriculum must emphasize the importance of safe water practices, including boiling, proper filtration and the use of disinfectants. Amadi and Duru (2020) highlighted the prevalence of waterborne diseases in the Niger Delta which has a strong link with contamination of water sources by oil exploration activities and poor sanitation practices. The curriculum according to Oparaocha (2016) should incorporate education on the risks associated with open defecation, improper waste disposal and the benefits of constructing and maintaining latrines. Additionally, the curriculum should be tailored towards different age groups and literacy levels, ensuring that it is accessible to all, including those in remote communities.

To effectively implement this curriculum, a community-centered approach is essential, leveraging local leaders, health workers and educators who understand the region's cultural and social dynamics. The use of local languages, visual aids and practical demonstrations will

enhance comprehension and retention of information. Nduka and Orisakwe (2021) argued that "local language integration and culturally relevant materials are critical in achieving effective health education in rural communities." Integration of modern technology such as mobile health (mHealth) platforms can further amplify outreach and engagement, allowing for the dissemination of educational content, reminders and alerts about water safety directly to residents (Odigie, Aigbokhan & Ighodalo, 2017). Moreover, the curriculum should include training modules for teachers and health workers to equip them with the necessary skills to educate and engage the community effectively. This comprehensive approach, combining traditional education methods with modern technology and local knowledge will foster a sustainable and impactful health education program, ultimately reducing the incidence of waterborne diseases in the Niger Delta Region (Egbulem & Uka, 2019; Okpara, Ugwu & Chukwuocha 2022).

Statement of the Problem

Waterborne diseases pose a significant public health challenge among dwellers in the Niger Delta Region of Nigeria, impacting the well-being and livelihoods of the population. Despite abundant freshwater resources, the prevalence of waterborne diseases, including cholera, typhoid fever and diarrheal illnesses remain high, leading to increased healthcare costs and reduced productivity. The lack of adequate sanitation facilities, poor waste disposal

practices and industrial pollution contribute to water contamination, exacerbating disease transmission. Climate change effects, such as rising temperatures and altered rainfall patterns also further exacerbate the situation. Furthermore, limited access to healthcare services and inadequate disease surveillance systems hinders timely health promotion intervention and disease management. To address these issues effectively, there is a pressing need to investigate the perceptions and awareness level of the local communities of the NDR regarding these worrisome waterborne diseases and to proffer lasting solution.

Purpose of the Study: The study is designed to find out perceived effect of waterborne diseases among dwellers in the Niger Delta region of Nigeria if there is a need in developing 21st Century health education curriculum for implementation to address these problems in order to get informed evidence-based public health policies and intervention strategies for disease prevention and control.

Research Questions

1. Is there a significant relationship between the perceptions of waterborne diseases on swampy and upland dwellers in the NDR of Nigeria?
2. Is there a significant relationship between the effect of waterborne diseases on male and female dwellers in the NDR of Nigeria?
3. Is there a significant relationship between perceptions of the poor and rich dwellers in the NDR of Nigeria?

4. Is there a significant effect between perceptions of waterborne diseases and developing 21st Century Health Education Curriculum for Implementation in the NDR of Nigeria?

Hypothesis

H₀₁: There is no significant relationship between perceptions of waterborne diseases on swampy and upland dwellers in the NDR of Nigeria.

H₀₂: There is no significant relationship between effects of waterborne diseases on male and female dwellers in the NDR of Nigeria.

H₀₃: There is no significant relationship between perceptions of waterborne diseases on the poor and rich dwellers in the NDR of Nigeria.

H₀₄: There is no significant effect between perceptions of waterborne diseases and developing 21st Century health education curriculum for implementation in the NDR of Nigeria.

Methodology

The study employs a quantitative and qualitative design using a cross-sectional survey. This approach allows for the collection of data at a single point in time, providing a snapshot of the population's perceptions and the impact of waterborne diseases in the Niger Delta Region. The population targeted in this study consists of 3,328 dwellers in the Niger Delta Region of Nigeria. This population includes individuals from various dwelling types, socio-economic statuses and sex, who are directly affected by waterborne diseases. The focus is on understanding their perceptions and the impact

of these diseases on their health and well-being. A sample size of 1,255 subjects was randomly selected from the total population. The sampling technique employed was random sampling to ensure that each member of the population had an equal chance of being included in the study. This method is appropriate for achieving a representative sample that can provide reliable insights into the broader population's experiences and perceptions regarding waterborne diseases. The instrument used for this study was "Perceived Effect of Waterborne Diseases in the Niger Delta Survey" (PEWD-ND S) which reflects the focus on waterborne diseases in the region of interest (NDR) and the survey's purpose of assessing perceptions and impact related to waterborne diseases among the dwellers in the area. This instrument (PEWD-ND S) was validated by a team of four experts in health education, curriculum studies, measurement and evaluation in the Faculty of Education, University of Delta, Agbor who after scrutinizing it made necessary corrections which were effected by the researcher before adopted for use. To test the reliability of the instrument, the researcher employed the internal consistency method, specifically Cronbach's alpha coefficient with 35 subjects outside area designated for the study which yielded 0.85, thereby indicating high level internal consistency of the instrument. This method assesses the extent to which the questionnaire items measuring the same construct (perceptions of waterborne diseases and their impact) are

consistently correlated to ensure the instrument's reliability in capturing accurate and consistent responses from the participants. Four research assistants were trained to help the researcher collect data by administering the questionnaire to the subjects and retrieved the same for use. Participants rated their perceptions of waterborne diseases on a 5-point modified Likert scale. The survey assesses relationships between dwelling types (swampy & upland), sex (male & female), socio-economic statuses (rich & poor) and perceived effects of waterborne diseases. This procedure involved conducting a cross-sectional survey using a structured questionnaire. Multiple regression analysis is the method used to analyze which allows for

examining the relationships between the dependent variable (perceived effect of waterborne diseases) and multiple independent variables (dwelling types, sex, socio-economic statuses and access to sanitation facilities) while Pearson Correlation Coefficient measures the strength and direction of the relationship between perception scores and developing 21st Century health education curriculum for implementation scores to test the research null hypothesis.

H₀₁: There is no significant relationship between the perceptions of waterborne diseases on swampy and upland dwellers in the NDR of Nigeria.

Table 1: Multiple Regression Analysis for Dwelling type, socio-economic status & Access to Sanitation

Variables	Coefficient (β)	Standard Error	t-value	p-value	Result
Dwelling Types	0.356	0.082	4.341	<0.001	Significant
Socioeconomic Status	-0.271	0.095	-2.852	0.005	
Access to Sanitation	-0.189	0.067	-2.821	0.006	

The analyzed data on table 1 above revealed perceived effects of waterborne diseases on dwelling types ($\beta=0.356$, $t=4.341$, $p<0.001$), socioeconomic status ($\beta=-0.271$, -2.852 , $p=0.005$) and access to sanitation ($\beta=-0.189$, $t=-2.821$, $p=0.006$). The constant term indicates a baseline perception of 2.213 ($p<0.001$). Therefore, **H₀₁** which stated that there is no significant relationship between the perceptions of waterborne diseases on swampy & upland dwellers in the NDR of Nigeria is hereby rejected because the analysis showed a

significant relationship between the perceptions of waterborne diseases and the dwelling types (swampy and upland dwellers), socio-economic status (rich & poor) and access to sanitation facilities indicating that perceptions do significantly differ based on dwelling types, socio economic status and access to sanitation infrastructure.

H₀₂: There is no significant relationship between the effects of waterborne diseases on male and female dwellers in NDR of Nigeria.

Table 2: Multiple Regression Analysis of Dwelling types and sex (male and female)

Variables	Coefficient (β)	Standard Error	t-value	p-value	Result
Dwelling Types	0.286	0.074	3.865	<0.001	Significant
sex (male and female)	-0.205	0.088	-2.336	0.020	
Constant	2.018	0.288	7.008	<0.001	

Analyzed data on table 2 above showed that dwelling types significantly influenced the effect of waterborne diseases ($\beta=0.286$, $t=3.865$, $p<0.001$), sex (male and female) ($\beta=-0.205$, $t=-2.336$, $p=0.020$). The constant term indicates a baseline effect of 2.018 ($t=7.008$, $p<0.001$). This means that the null hypothesis 2 which stated that there is no significant relationship between the effects of waterborne diseases on male and female dwellers in the NDR of Nigeria is

rejected due to the fact that the results indicated a significant relationship between the effects of waterborne diseases and sex (male and females), meaning that gender plays a significant role in the perceptions of the effects of waterborne diseases.

H₀₃: There is no significant relationship between the perceptions of waterborne diseases on the poor and rich dwellers in the NDR of Nigeria.

Table 3: Multiple Regression Analysis for Socio-Economic Statuses (rich and poor)

Variables	Coefficient (β)	Standard Error	t-value	p-value	Result
Socioeconomic Status (rich and poor)	0.391	0.067	5.821	<0.001	Significant
Constant	3.098	0.288	10.753	<0.001	

Analyzed data on table 3 above indicated that socioeconomic statuses (rich and poor) significantly influenced perceptions of waterborne diseases ($\beta=0.391$, $t=5.821$, $p<0.001$). The constant term indicates a baseline perception of 3.098 ($t=10.753$, $p<0.001$). This implies that H₀₃ which stated that there is no significant relationship between the perceptions of waterborne diseases on the poor and rich dwellers in the NDR of Nigeria is hereby rejected because the study found a significant

relationship between the perceptions of waterborne diseases among poor and rich dwellers, suggesting that socioeconomic status significantly influenced these perceptions.

H₀₄: There is no significant effect between the perceptions of waterborne diseases and developing 21st Century health education curriculum for implementation in the NDR of Nigeria.

Table 4: Pearson Correlation Coefficient Analysis on Perception of Waterborne Diseases and Developing 21st Century Health Education Curriculum for Implementation on Dwellers of the NDR

Variables	Perceptions of Waterborne Diseases	Curriculum Development	Result
Perceptions of Waterborne Diseases	r= 1.00	r= 0.52	Significant
	p=--	p< 0.001	
	n= 1255	n=1255	
Developing 21 st Century health education curriculum Implementation	r=0.52	r=1.00	
	p< 0.001	p=--	
	n= 1,255	n=1,255	

The analysis of data on table 4 reveals a statistically significant correlation coefficient of ($r = 0.52$) and a p-value of ($p < 0.001$). This means that the H_{04} which posited that there is no significant effect between perceptions of waterborne diseases in NDR and developing 21st Century health education curriculum for implementation is rejected. Hence, it is concluded that perceptions of waterborne diseases significantly influenced in developing 21st Century health education curriculum for implementation in the region; suggesting that as perceptions of waterborne diseases increase, there is a corresponding increase in the emphasis in developing 21st Century health education curriculum for implementation in the NDR.

Discussion of Results

The research findings on table 1 above revealed perceived effects of waterborne diseases on dwelling types ($\beta=0.356$, $t=4.341$, $p<0.001$), socioeconomic status ($\beta=-0.271$, -2.852 , $p=0.005$) and access to sanitation ($\beta=-0.189$, $t=-2.821$, $p=0.006$). The constant term indicates a baseline perception of 2.213 ($p<0.001$). This finding is similar to Curtis and Cairncross

(2023) who investigated the effect of washing hands with soap on diarrhea risk in the community.

The result on table 2 above showed perceived effects of waterborne diseases that dwelling types significantly influenced the effect of waterborne diseases ($\beta=0.286$, $t=3.865$, $p<0.001$) and sex (male and female) ($\beta=-0.205$, $t=-2.336$, $p=0.020$). The constant term indicates a baseline effect of 2.018 ($t=7.008$, $p<0.001$). The PEWD-ND Survey provided valuable insights into the relationship between dwelling types and the impact of waterborne diseases in the NDR. Nwankwo, Eze & Okafor (2020) examined the public awareness and perceptions of cholera outbreak in the region and finds out that a lack of knowledge about preventive measures and misconceptions concerning transmission contribute to the persistence of cholera among the NDR dwellers. These findings emphasize the need for targeted public health curriculum education to address knowledge gaps and improve cholera prevention intervention efforts.

The findings on the table 3 indicated that socioeconomic statuses (rich and poor) significantly influenced perceptions of waterborne diseases ($\beta=0.391$, $t=5.821$, $p<0.001$). The constant term indicates a baseline perception of 3.098 ($t=10.753$, $p<0.001$). The results suggest that there is a significant difference in perceptions between the poor and rich dwellers regarding the impact of waterborne diseases in the NDR. This is similar to Curtis and Cairncross (2023) who focused on assessing hygiene practices and their association with diarrheal disease prevalence. The findings showed that improper handwashing and unsanitary food handling practices contribute to disease transmission. These findings contribute to valuable insights into knowledge gaps of waterborne disease perceptions and impact among different dwellers in the region.

The findings on table 4 reveals a statistically significant correlation coefficient of ($r = 0.52$) and a p-value of ($p < 0.001$) between the perceptions of waterborne diseases and developing 21st century health education curriculum for implementation on dwellers in the NDR. This implies that as perceptions of waterborne diseases increase, there is a corresponding increase for the need in developing 21st century curriculum for implementation. Amadi and Duru (2020) pointed out the prevalence of waterborne diseases in the Niger Delta which has a strong link with contamination of water sources by oil exploration activities and poor sanitation

practices. According to them, the curriculum should be designed to increase awareness and provide practical skills for preventing diseases such as cholera, dysentery and typhoid fever which are prevalent due to the region's significant water pollution problems.

Conclusion

It is hereby concluded that the perceived effects of waterborne diseases and their health epidemiological issues exists among dwellers in the NDR. The research findings revealed that dwelling type, socioeconomic status, sex (male and female), access to sanitation facilities and developing 21st century health education curriculum for implementation greatly influenced the perceptions and impact of waterborne diseases. Swampy dwellers and those of socioeconomic status tend to have a more positive perceptions of waterborne diseases' effects while access to sanitation facilities negatively affects perceptions. Moreover, dwelling type has a direct influence on the actual effect of waterborne diseases experienced.

Conclusively, it is necessary to enhance sanitation infrastructure to promote the specific needs of different dwelling types, sex and socioeconomic groups in disease prevention strategies. These insights are vital for designing targeted intervention in developing 21st Century health education curriculum for implementation to address waterborne disease challenges and improve health outcomes in the Niger Delta region of Nigeria.

Recommendations: Based on the findings of this study, the following recommendations are hereby offered for consideration that:

- 1.** Improved sanitation infrastructure (facilities) should be prioritized, particularly in swampy areas to reduce the spread of waterborne diseases. Access to clean water sources and proper waste disposal facilities should also be improved to mitigate the impact of waterborne diseases on the health of dwellers in the NDR.
- 2.** Equitable health promotion intervention materials need to be distributed among all socioeconomic groups to reduce the effects of waterborne diseases in the NDR.
- 3.** Collaborative research among stakeholders should be encouraged (local communities, government agencies and researchers) to develop evidence-based policies and intervention strategies.
- 4.** Targeted 21st Century health education curriculum innovation should be developed for implementation to focus on waterborne diseases in the NDR which addresses these specific perceptions and knowledge gaps identified among different dwelling types and socioeconomic groups.
- 5.** Evaluate intervention efforts periodically to get inform decision-making to improve public health outcomes. By implementing these recommendations, policymakers and stakeholders can work towards reducing the burden of waterborne diseases to the barest

minimum possible and promote better health outcomes among dwellers in the NDR.

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The role of Artificial Intelligence (AI) in revolutionizing the Job Roles in the Industry: Paving Way for Future Work

By

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Abstract

The paper investigated the role of Artificial Intelligence (AI) as a significant factor transforming the industries and redefining job roles worldwide. This paper explores the multifaceted role of AI on sectors such as manufacturing, healthcare, finance, retail, and education. The paper further illustrates how AI-driven automation and innovation are enhancing efficiency, reducing costs, and creating new opportunities. The paper explains that AI automates routine tasks, which led to the need for growing demand for upskilling and reskilling programs for emerging roles. The descriptive survey was adopted to explain the role of artificial intelligence in paving way for future work especially in education, commerce and industry. The findings revealed that Artificial intelligence is a sine qua non for educational development and employment creation. The paper also shows that while AI presents significant opportunities, it also poses challenges, including ethical concerns related to bias and accountability, potential job displacement, and the digital divide. Addressing these challenges is crucial for ensuring that the benefits of AI are widely distributed and that the future of work is inclusive and equitable. This paper concludes by emphasizing the importance of strategic investments in education, policy development, and ethical AI practices to navigate the AI-driven transformation of work.

Keywords: *Artificial Intelligence (AI)*, industries, healthcare, finance, education, revolution

Introduction

The concept of Artificial Intelligence (AI) has been a subject of fascination and speculation for decades, often depicted in science fiction as a futuristic technology capable of human-like thinking and decision-making. However, in recent years, AI has transitioned from the realm of imagination into a practical and powerful tool industries and altering the nature of work. This transformation is driven by advancements in computational power, the availability of big data, and breakthroughs in machine learning algorithms, which together have enabled AI systems to perform tasks that were previously thought to require human intelligence (Russell & Norvig, 2016). AI as a field of study began in the

mid-20th century with the pioneering work of computer scientists like Alan Turing, who introduced the idea of machines capable of performing any task that a human could, given the right algorithms (Turing, 1950). The early years of AI research were marked by optimism, with researchers developing programs that could solve puzzles, play chess, and perform simple reasoning tasks. However, the limitations of these early systems soon became apparent, leading to what is often referred to as the "AI winter" — a period of reduced funding and interest due to unmet expectations (Crevier, 1993).

The resurgence of AI in the 21st century can be attributed to several key developments. First, the

exponential growth in computational power, particularly with the advent of graphics processing units (GPUs), allowed for the training of more complex machine learning models. Second, the explosion of data generated by digital technologies provided the raw material needed to train AI systems effectively. Third, advances in machine learning, particularly the development of deep learning techniques, enabled AI systems to perform tasks such as image and speech recognition, natural language processing, and autonomous driving with remarkable accuracy (LeCun, Bengio, & Hinton, 2015).

As AI technologies matured, their potential to disrupt the workforce became increasingly apparent. Automation, powered by AI, began to replace human labor in a variety of industries, leading to concerns about job displacement. For example, in manufacturing, AI-driven robots have taken over tasks such as assembly line work, which were once performed by humans. Similarly, in the service sector, AI-powered chatbots and virtual assistants are handling customer inquiries that previously required human intervention (Brynjolfsson & McAfee, 2014). It is important to note that the impact of AI on jobs is not solely one of displacement. AI is also creating new opportunities and job roles that did not exist before. For instance, the demand for data scientists, AI specialists, and machine learning engineers has surged as organizations seek to leverage AI for competitive advantage. Moreover, AI is augmenting human capabilities in fields such as healthcare, where AI systems

assist doctors in diagnosing diseases and developing personalized treatment plans (Topol, 2019). This dual impact — job displacement and job creation — underscores the complexity of AI's role in the workforce and the need for a nuanced understanding of its implications.

The economic impact of AI is profound, with estimates suggesting that AI could contribute up to \$15.7 trillion to the global economy by 2030, driven by productivity gains and the creation of new products and services (PwC, 2017). However, these benefits are not evenly distributed, and there are significant concerns about inequality. For instance, workers in low-skill, routine jobs are at higher risk of displacement, while those with advanced skills in AI and data science are likely to see increased demand for their talents. This growing skills gap has led to calls for greater investment in education and training to ensure that workers can adapt to the changing demands of the labor market (World Economic Forum, 2020).

The future of work in an AI-driven world is a topic of intense debate among economists, technologists, and policymakers. Some argue that AI will lead to a new era of prosperity by enhancing productivity and creating new industries. Others warn of the potential for widespread job loss and social disruption if the transition is not managed carefully (Ford, 2015). What is clear is that AI will continue to play a central role in shaping the future of work, and it is crucial to develop strategies that maximize its benefits while mitigating its risks. One of the key

strategies for managing the transition to an AI-driven economy is to focus on education and reskilling. As AI takes over routine tasks, there will be an increased demand for skills that cannot be easily automated, such as creativity, critical thinking, and emotional intelligence. Governments, educational institutions, and businesses will need to collaborate to develop programs that equip workers with these skills and prepare them for the jobs of the future (Bessen, 2019). Hence, this paper explores the multifaceted impact of artificial intelligence on sectors such as manufacturing, healthcare, finance, retail, and education, illustrating how AI driven automation and innovation are enhancing efficiency, reducing costs, and creating new opportunities.

Artificial Intelligence's (AI) Impact on Key Industries

Artificial Intelligence (AI) is revolutionizing various industries by enhancing productivity, improving decision-making processes, and enabling new business models. This discussion delves into the impact of AI on several key industries: manufacturing, healthcare, finance, retail, and education. Each industry is experiencing unique transformations, driven by AI's ability to process vast amounts of data, automate tasks, and provide insights that were previously unattainable.

Manufacturing

Manufacturing has been one of the earliest adopters of AI technologies, particularly in areas such as robotics, predictive maintenance, and

supply chain optimization. AI-powered robotics are increasingly being used in manufacturing plants to perform tasks that are repetitive, hazardous, or require precision beyond human capabilities. These robots are not only improving efficiency but also reducing costs and minimizing the potential for human error (Manyika, Chui, Miremadi, Bughin, George, Willmott & Dewhurst, 2017). AI's impact on manufacturing extends to predictive maintenance, where AI algorithms analyze data from machinery to predict when maintenance is needed. This helps to prevent unexpected breakdowns, reduce downtime, and extend the lifespan of equipment. According to a report by McKinsey & Company, predictive maintenance powered by AI can reduce machine downtime by up to 50% and increase machine life by 20-40% (Bughin et al., 2018).

Moreover, AI is optimizing supply chains by analyzing data from various sources, such as weather patterns, transportation routes, and consumer demand, to make real-time decisions. This capability enables manufacturers to respond more swiftly to changes in the market, reduce inventory costs, and enhance customer satisfaction. For instance, AI-driven supply chain solutions helped companies navigate disruptions during the COVID-19 pandemic by quickly adapting to changing circumstances (Accenture, 2020).

Healthcare

In treatment planning, AI is enabling personalized medicine by analyzing large

datasets to identify the most effective treatments for individual patients based on their genetic makeup, lifestyle, and other factors. This approach is particularly valuable in oncology, where AI can help oncologists select the best course of treatment for cancer patients by considering a wide range of data points (Topol, 2019). AI is also accelerating drug discovery by identifying potential drug candidates more quickly and cost-effectively than traditional methods. AI-driven drug discovery platforms, such as those developed by Insilico Medicine and Atomwise, have been instrumental in identifying promising compounds for diseases such as COVID-19 and Alzheimer's (Stokes et al., 2020). Furthermore, AI is enhancing patient care through virtual health assistants and chatbots that provide patients with medical advice, remind them to take their medications, and monitor their health status remotely. These tools are particularly beneficial for managing chronic conditions, where continuous monitoring and timely interventions are crucial (Reddy, Fox, & Purohit, 2019).

Finance

The finance industry has been a pioneer in the adoption of AI, leveraging it for tasks ranging from fraud detection and risk management to algorithmic trading and personalized financial services. AI's ability to process and analyze large volumes of data in real-time has revolutionized risk management and fraud detection. Machine learning algorithms are used to detect patterns and anomalies in transaction data, enabling

financial institutions to identify and prevent fraudulent activities more effectively (Arner, Barberis, & Buckley, 2017). In algorithmic trading, AI is used to develop trading strategies based on the analysis of market data, news, and other relevant information. These AI-driven trading systems can execute trades at high speeds and with precision, capitalizing on market opportunities that might be missed by human traders. A report by PwC estimates that AI could contribute up to \$1.2 trillion to the global banking industry by 2030 through increased efficiency and enhanced decision-making (PwC, 2017).

AI is also transforming customer service in the finance industry. AI-powered chatbots and virtual assistants are being used by banks and financial institutions to provide customers with 24/7 support, answer queries, and offer personalized financial advice. These tools improve customer satisfaction while reducing the need for human customer service representatives (Deloitte, 2019).

Retail

The retail industry is undergoing a significant transformation due to AI, particularly in areas such as customer experience, inventory management, and sales forecasting. AI is being used to personalize the shopping experience for customers by analyzing their preferences, behavior, and purchase history. Retailers like Amazon and Alibaba use AI algorithms to recommend products to customers, leading to increased sales and customer loyalty (Huang & Rust, 2020). Inventory management is another area where AI is making a substantial impact. AI

systems analyze sales data, market trends, and other factors to predict demand and optimize inventory levels. This helps retailers avoid stockouts or overstocking, reducing costs and improving profitability. For example, Walmart uses AI to manage its vast inventory across thousands of stores, ensuring that products are available when and where customers need them (Chiu, Meng, Chai, King, Wong & Yam, 2022). AI is also enhancing sales forecasting by analyzing a wide range of data sources, including historical sales data, economic indicators, and social media trends. This allows retailers to make more accurate predictions about future sales, enabling them to adjust their strategies accordingly. AI-driven sales forecasting tools have been particularly valuable during periods of economic uncertainty, such as the COVID-19 pandemic, when traditional forecasting methods proved inadequate (Deloitte, 2020).

Education

Education is another sector that is being transformed by AI, particularly in the areas of personalized learning, administrative efficiency, and student support. AI-powered adaptive learning systems are being used to tailor educational content to the needs of individual students, providing them with a personalized learning experience. These systems use data on student performance, learning styles, and other factors to adjust the pace and content of lessons, helping students to learn more effectively (Luckin, Holmes, Griffiths & Forcier, 2016). Gocen and Aydemir (2020) in their findings show

that schools and teachers will have new products, benefits and also face drawbacks with the arrival of AI in education.

AI is also automating administrative tasks in education, such as grading, scheduling, and attendance tracking. This reduces the workload for educators, allowing them to focus more on teaching and mentoring students. AI-powered tools are being used to grade assignments and exams, provide feedback to students, and manage class schedules, all of which contribute to a more efficient educational environment (Woolf, 2010). Furthermore, AI is enhancing student support through virtual tutors and chatbots that provide students with assistance outside of the classroom. These tools can answer questions, offer guidance on assignments, and help students stay on track with their studies. AI-driven student support systems are particularly beneficial for distance learning and online education, where students may not have immediate access to teachers or peers (Zawacki-Richter, Vieluf, Bedenlier, Bond & Stoter, 2019).

Challenges and Ethical Considerations

While the impact of AI on these industries is largely positive, there are significant challenges and ethical considerations that must be addressed. One of the primary concerns is the potential for job displacement as AI automates tasks previously performed by humans. This could lead to significant social and economic disruption, particularly in industries where large numbers of jobs are at risk of being automated (Frey & Osborne, 2017). There are also ethical concerns

related to the use of AI, particularly in areas such as privacy, bias, and accountability. AI systems rely on large amounts of data, often collected from individuals without their explicit consent. This raises questions about data privacy and the potential for misuse of personal information. Additionally, AI systems can perpetuate or even exacerbate existing biases if they are trained on biased data, leading to unfair outcomes (O'Neil, 2016).

Ensuring accountability for decisions made by AI systems is another challenge. As AI systems take on more decision-making roles, it becomes difficult to determine who is responsible when things go wrong. This is particularly concerning in industries such as finance and healthcare, where AI decisions can have significant consequences for individuals and society (Cath, Wachter, Mittelstadt, Taddeo, & Floridi, 2018). To address these challenges, it is essential to develop policies and regulations that promote the ethical use of AI while mitigating its potential risks. This includes ensuring transparency in AI decision-making processes, protecting individual privacy, and addressing bias in AI systems. It is also important to invest in education and training to help workers transition to new roles created by AI, ensuring that the benefits of AI are shared broadly across society (Brynjolfsson & McAfee, 2014).

Importance of Strategic Investments in Education, Policy Development, and Ethical AI Practices

The rapid advancement of Artificial Intelligence

(AI) is reshaping industries, economies, and societies at an unprecedented pace. To fully harness the benefits of AI while mitigating its potential risks, it is crucial to make strategic investments in education, policy development, and ethical AI practices. These areas are interconnected and collectively vital for ensuring that AI's integration into various sectors leads to sustainable and inclusive growth.

1. Strategic Investments in Education

Education is the foundation upon which the future workforce will be built, particularly in a world increasingly driven by AI. Strategic investments in education are essential to prepare individuals for the changing demands of the job market. As AI automates routine tasks, there is a growing need for a workforce equipped with skills that AI cannot easily replicate, such as creativity, critical thinking, emotional intelligence, and advanced technical skills in AI and data science.

Reskilling and Upskilling: As AI disrupts traditional job roles, many workers will need to transition to new roles. Reskilling and upskilling programs are crucial in this context. These programs should be designed to equip workers with the skills needed in emerging sectors, such as AI development, data analysis, and other tech-driven fields. Without such strategic investments, a significant portion of the workforce risks becoming obsolete, exacerbating unemployment and inequality (Brynjolfsson & McAfee, 2014).

STEM Education: Emphasizing Science, Technology, Engineering, and Mathematics

(STEM) education from an early age is critical. A solid foundation in STEM subjects will enable future generations to engage with AI technologies more effectively, whether as developers, users, or informed citizens. Moreover, interdisciplinary education that combines technical skills with an understanding of ethics, humanities, and social sciences will be essential for addressing the complex challenges posed by AI.

2. Policy Development

The rapid deployment of AI across various sectors presents both opportunities and challenges. Strategic policy development is necessary to guide AI's integration in ways that maximize its benefits while safeguarding public interests. Policymakers play a critical role in creating a regulatory environment that fosters innovation while addressing the societal impacts of AI.

Regulation and Governance: Policies need to be developed to regulate the deployment of AI, particularly in sensitive areas such as healthcare, finance, and law enforcement. These regulations should ensure that AI systems are transparent, accountable, and free from bias. For instance, the European Union's General Data Protection Regulation (GDPR) sets a benchmark for data privacy, which is crucial in the AI era (European Commission, 2019). Similar frameworks should be established globally to ensure that AI technologies are used responsibly.

Support for Innovation: While regulation is important, it should not stifle innovation. Policymakers must strike a balance between

protecting public interests and encouraging technological advancement. This can be achieved through policies that support research and development in AI, incentivize ethical AI practices, and foster public-private partnerships. Governments should also invest in infrastructure, such as high-speed internet and data centers, to support the growth of AI technologies.

Social and Economic Policies: The potential for AI to disrupt labor markets calls for the development of social and economic policies that protect those most vulnerable to job displacement. This includes social safety nets like unemployment benefits, universal basic income (UBI), and retraining programs. Additionally, policies that promote job creation in sectors likely to grow due to AI, such as healthcare, education, and green technologies, are essential for ensuring a smooth transition to the AI-driven economy (Frey & Osborne, 2017)

Ethical AI Practices

The ethical implications of AI are profound and multifaceted. As AI systems are increasingly involved in decision-making processes that affect people's lives, it is imperative to develop and adhere to ethical guidelines that ensure fairness, accountability, and transparency.

Bias and Fairness: AI systems are only as good as the data they are trained on. If the data contains biases, the AI system will likely perpetuate those biases, leading to unfair outcomes. This is particularly concerning in areas like hiring, lending, and law enforcement, where biased AI could exacerbate social inequalities (O'Neil,

2016). Strategic investments in ethical AI practices involve developing methods to detect and mitigate bias in AI systems and ensuring that these systems are transparent and explainable.

Privacy and Security: The widespread use of AI raises significant privacy concerns, particularly regarding the collection and use of personal data. Ethical AI practices must prioritize data privacy and security, ensuring that individuals' data is protected and used only with their consent. This includes implementing robust data encryption, anonymization techniques, and compliance with regulations such as GDPR (European Commission, 2019).

Accountability: As AI systems become more autonomous, determining accountability for their actions becomes increasingly complex. It is crucial to establish clear guidelines for who is responsible when AI systems make decisions or cause harm. This could involve creating new legal frameworks or adapting existing ones to address the unique challenges posed by AI (Cath et al., 2018).

Transparency: Transparency is key to building trust in AI systems. Users need to understand how AI systems make decisions, especially in high-stakes situations like healthcare or criminal justice. Ethical AI practices should include mechanisms for making AI decision-making processes more transparent, such as explainable AI (XAI) techniques, which aim to make the workings of AI systems more understandable to humans (Doshi-Velez & Kim, 2017).

Conclusion

The integration of Artificial Intelligence (AI) across various industries marks a significant milestone in the evolution of modern economies. AI is not only transforming the way industries operate but also redefining job roles and creating new opportunities while simultaneously posing challenges, particularly in terms of job displacement and ethical considerations. The manufacturing, healthcare, finance, retail, and education sectors are at the forefront of this transformation, benefiting from AI's ability to enhance productivity, improve decision-making, and foster innovation. However, the widespread adoption of AI also necessitates a careful and balanced approach to mitigate potential risks, including the loss of jobs, perpetuation of biases, and issues related to data privacy and accountability.

As AI continues to evolve and become more sophisticated, it will undoubtedly play an increasingly pivotal role in shaping the future of work. The challenge lies in ensuring that the benefits of AI are maximized while its risks are minimized. This requires a multi-faceted approach that involves not only technological innovation but also policy-making, education, and ethical considerations. Artificial intelligence is not just a tool for the future, it's the present. How we choose to integrate it into our work environments today will determine the trajectory of our economies and societies for generations to come

Suggestions

1. **Investment in Education and Reskilling:** Governments, educational institutions, and businesses should collaborate to develop and implement educational programs that focus on the skills needed in an AI-driven world. Emphasis should be placed on critical thinking, creativity, emotional intelligence, and advanced technical skills in AI and data science. Reskilling programs are essential for workers whose jobs are at risk of being automated, enabling them to transition into new roles created by AI.
2. **Ethical AI Development and Regulation:** It is crucial to establish clear guidelines and regulations for the ethical development and deployment of AI systems. This includes ensuring transparency in AI decision-making, addressing biases in AI algorithms, and protecting individual privacy. Policymakers should work closely with industry experts to create a regulatory framework that promotes the responsible use of AI while fostering innovation.
3. **Promotion of AI Literacy:** As AI becomes more integrated into daily life, it is important to promote AI literacy among the general population. This involves educating people about what AI is, how it works, and its potential impact on society. Increased AI literacy will empower individuals to make informed decisions and engage in meaningful discussions about the role of AI in their lives.
4. **Support for Job Creation in Emerging Sectors:** Governments and businesses should actively support job creation in sectors that are likely to grow due to AI advancements. This includes investing in research and development, supporting startups, and fostering innovation in fields such as AI, robotics, biotechnology, and green technologies. By encouraging growth in these areas, it is possible to offset some of the job losses caused by AI-driven automation.
5. **Development of Social Safety Nets:** To address the potential economic and social disruptions caused by AI, it is important to develop robust social safety nets. This could include measures such as universal basic income (UBI), unemployment benefits, and retraining programs. These safety nets will help ensure that individuals who are displaced by AI have the support they need to adapt and thrive in the new economy.
6. **Encouragement of Public-Private Partnerships:** Public-private partnerships can play a critical role in driving AI innovation while addressing societal challenges. By fostering collaboration between governments, businesses, and academia, it is possible to pool resources, share knowledge, and develop solutions that maximize the benefits of AI while mitigating its risks.
7. **Ongoing Research and Monitoring:** Continuous research is needed to understand the long-term impact of AI on industries, jobs, and society. This includes monitoring

the effects of AI on employment, income inequality, and social cohesion. Policymakers and industry leaders should use this research to inform their strategies and ensure that AI contributes to inclusive and sustainable economic growth.

By following these suggestions, society can harness the transformative power of AI to create a future where technology and humanity coexist harmoniously, driving progress and prosperity for all.

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Principals' Supervisory Techniques as Correlate of Teachers' Job Performance in Yobe State Public Senior Secondary Schools, Nigeria

By

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Abstract

This study investigated the relationship between Principals' Supervisory Techniques and Teachers' Job Performance in Yobe State Public Senior Secondary Schools, Nigeria. This study is guided by two research questions and two hypotheses. A correlational research design was adopted. Stratified sampling was used to select 12 schools from the three education zones of Yobe State. Two questionnaires were used to collect data from 60 principals and 492 teaching staff. The instruments were pilot-tested, and reliability was determined using Cronbach Alpha (0.73 and 0.84). Descriptive statistics and Pearson's correlation were used to analyze the data. Results showed moderate extents of principals' classroom visitation technique thus, classroom visitation by the principals is effective in improving teachers job performance and principals' classroom visitation technique related positively to teachers' job performance in terms of visiting the classroom to watch teachers' and students in action thus, teachers job performance is improved by the quality of classroom visitation by principals in Yobe State Public Senior Secondary Schools. The study recommends that Principals should priorities regular classroom visitations aiming to conduct at least 3-5 visits per teacher per term to observe teaching practices and support. Teachers also should be encouraged to develop action plans to improve their performance. Teachers should also be provided with the necessary resources and support to implement new strategies and techniques learned.

Keywords: *Principals supervisory techniques, teachers' job performance, public senior secondary schools, supervision*

Introduction

Secondary education is designed to prepare students for higher education and useful living in the society. The attainment of this objective rests on the managerial ability of different stake holders and this study is focusing on principal who is the instructional leader, motivator, coordinator, adviser, planner, and supervisor of school activities. The role of principals in supervising and supporting teachers is important for improving teacher job performance. Effective supervision is essential for teacher growth and development. The extent to which teachers carry out their functions depends on how effective their

principal as a supervisor performs his/her instructional supervision.

Literatures highlights the significance of principals' supervisory techniques in enhancing teacher job performance. Studies have shown that principals' supervisory techniques such as classroom visitation positively related to teacher job performance (Ahmad & Shah, 2017). Classroom visitation technique have been found to be an effective supervisory strategy for improving teacher performance. Wang and Tsai (2014) found out that regular classroom visitation by principals enhance teacher instruction,

increase teacher confidence and promote a positive teaching environment.

In Nigeria, research has shown that many principals in Nigerian Secondary Schools lack the necessary supervisory skills to support teacher growth and development (Adeyemi, 2017; Oladele, 2018). It seems that teachers in the study area cannot perform their job effectively without being supervised which leads to student's poor academic achievement. Yobe State public senior secondary schools, faced numerous challenges including limited resources, inadequate infrastructure and a shortage of qualified teachers. Personal observations of the researcher indicate that some principals no matter the workload of their administrative duties, devote their time and adopt the supervisory techniques and carry out the supervisory functions effectively. They visit the classroom to watch teachers and students in action while others spend most of their official hours on other administrative duties. Thus, most principals seem not to equip their teachers with professional skills and as a result, some teachers do not discharge their duties effectively. Therefore, the researcher intends to determine the relationship that exists between Principals' Supervisory Techniques and Teachers' Job Performance.

Statement of the Problem

Nigerian Secondary Schools faced numerous challenges including inadequate teachers, inadequate infrastructures, inadequate supervision, ineffective administrative leadership, low teachers' motivation, inadequate instructional

materials, this can hinder teachers' productivity and can affect students' academic performance. It seems that some teachers in Nigerian Public Secondary Schools cannot perform their jobs commendably without being effectively supervised, thereby, leading to poor academic achievement. Apparently, despite the important role of principals' supervisory technique in enhancing teachers job performance, Yobe State public senior secondary schools continue to experience unsatisfactory teacher performance, characterized by inadequate lesson planning, and ineffective classroom management, leading to poor student academic performance thereby undermining the quality of education in the state. Principals' Supervisory Techniques could perhaps have serious impact on Teachers' job performance. It is in the light of this unpleasant situation that this study was set out to investigate principals' supervisory techniques as correlates of teachers' job performance in public senior secondary schools, Yobe State, Nigeria.

Research Questions

The following research questions guided the study:

1. What is the extent of Principals' Classroom Visitation Technique in public senior secondary schools Yobe State, Nigeria? and
2. What is the level of Teachers' Job Performance in Yobe State public senior secondary schools?

Research Hypotheses

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

H₀₁: There is no significant relationship between Principals' Classroom Visitation Technique and Teachers Job Performance in public senior secondary schools, Yobe State, Nigeria

Methodology

Correlational design was adopted for this study. The target population of this study is sixty Principals and two thousand four hundred and ninety-two teachers in all the sixty Public Senior Secondary Schools in Yobe State, Nigeria. Stratified sampling was used to sample schools from the three Education Zones of Yobe State namely, Damaturu Education Zone, Gashua Education Zone and Potiskum Education Zone. Each of the zone was considered as a stratum in this study. Research advisors (2006) table was used to sample three hundred and thirty-three teachers which is the nearest greater value of two thousand four hundred and ninety-two. Four schools were randomly selected with equivalent four principals from each of the Education Zone, making a total of twelve schools and twelve principals. Teachers were randomly selected from each sampled schools. In order to generate primary data from the field, two self-developed questionnaires were used by the researcher, Principals' Supervisory Techniques Questionnaire (PSTQ) and Teachers' Job Performance Questionnaire (TJPQ). The questionnaire for Principals' Supervisory Techniques has twenty items, while Teachers Job Performance questionnaire has 21 items. The Instruments were appraised by the supervisor through content validity to evaluate the

applicability and appropriateness of the content clarity and adequacy of the construction of the instruments from a research perspective. Data were collected by the use of a structured close ended format response using the following measuring scale; VHE=Very high extent 4.50-5.0, HE= High extent 3.50-4.49, ME=Moderate extent 2.50-3.49, LE=Low extent 1.50-2.49 and VLE=Very low extent 1.00-1.49. Pilot study was conducted in two schools which were not part of the study area. Test-retest method was used to obtain the reliability with the help of one research assistant from each school who were staff of the school. The reliability was determined using the Cronbach Alpha statistical method with reliability of 0.73 for Principals' Supervisory Technique Questionnaire and 0.84 for Teachers' Job Performance Questionnaire. The questionnaires were distributed to principals and teachers through the research assistants and the respondents were ask to complete and submit the questionnaire at a spot. The complete distribution and retrieval of questionnaires was done within two weeks. The data collected were analyzed using both descriptive and inferential statistics. The descriptive statistics Mean (X) and standard deviation (SD) were used to analyze all the research questions While, Pearson Product Moment Correlation was used in testing the hypothesis at 0.05 level of significance.

Result Presentation

Research Question One:

What is the extent of Principals’ Classroom Visitation Technique in Yobe State Public Senior Secondary School?

Table 1

Presents the analysis of mean and standard deviation of items on the extent of principals’ classroom visitation technique

S/N	Items	Mean	S.D	Decision
1	Principal’s frequently supervise classroom instruction	3.67	0.65	High
2	Principal’s allocate ample time to supervise lesson	3.08	0.51	Moderate
3	Principal’s assess teachers’ personalities	2.75	0.75	Moderate
4	Principal’s observe teachers’ delivery of instruction taking account of their mastery of subject matter	2.75	0.75	Moderate
5	Principals observe teachers’ relationship with students.	2.58	0.67	Moderate
6	Principal’s observe how teachers effectively use their teaching materials	3.42	0.51	Moderate
7	Principal’s observe teacher’s classroom management	3.75	0.45	High
8	Principal’s motivate teachers to do their work	4.33	0.49	High
9	Principal’s ensure that teachers’ use the right format when writing lesson plan/note	3.83	0.94	High
10	Principal’s ensure that teachers teach according to the content of the curriculum	4.42	0.51	High
Cluster		3.46	0.63	Moderate

Source: Field Work, 2024.

The results on table 1 revealed the analysis of research question one on the extent of Principals’ Classroom Visitation Technique and was rated high with a mean of 3.67, 3.75, 4.33, 3.83, 4.43 and Moderate with a mean of 3.08, 2.75, 2.75, 2.58, 3.41, hence implying that principals perform their instructional supervision in terms of visiting the classroom to observe teachers lesson delivery effectively. The overall Results showed that Principals’ Classroom Visitation Technique was moderate in Yobe State Public Senior

Secondary School. This was supported by the cluster mean of 3.46. By implication, the principals’ of Yobe State Public Senior Secondary School perform their supervisory function in terms of visiting the classroom to watch teachers and students in action and this effectively improves teachers job performance

Research Question two

What is the level of Teacher’s Job Performance in Yobe State Public Senior Secondary School?

Table 2

Presents the analysis of Mean and Standard Deviation of items on levels of Teachers' Job Performance in Yobe State Public Senior Secondary School

S/N	Items	Mean	S.D	Decision
Teachers' Mastery of the Subject Matter				
1	Teachers' have mastery of the subject matter	3.50	0.95	High
2	Teachers' have ability to deliver lesson effectively	3.19	1.18	Moderate
		3.35	1.07	Moderate
Teachers' Classroom Management				
3	Teachers' have ability to manage the classroom	3.23	0.99	Moderate
4	Teachers' have ability for effective time management	3.63	0.63	High
5	Teachers' have ability to think critically and solve problems	2.86	1.00	Moderate
6	Teachers' have ability to communicate appropriately using interactive techniques	3.53	0.84	High
7	Teachers have ability to recognize and maintain students' interest in learning process	3.29	0.82	Moderate
8	Teachers' teaching skills are audible and logical	3.32	0.60	Moderate
	Average	3.32	0.81	Moderate
Teachers' Participation in Extracurricular Activities				
9	Teachers' have ability to engage in extracurricular activities	2.65	0.97	Moderate
10	Teachers' have ability to cope with the workload of extracurricular activities	2.65	0.99	Moderate
	Average	2.65	0.98	Moderate
Teachers' Lesson Planning				
11	Teachers' have ability to plan his/her lesson objectives	3.56	0.59	High

12	Teachers' have ability to formulate objectives that are attainable	3.65	1.22	High
13	Teachers' have ability to select material and teaching aid that are suitable to age and level of students	3.12	0.92	Moderate
	Average	3.44	0.91	Moderate
	Teachers' Punctuality			
14	Teachers' are punctual to duty	3.22	1.22	Moderate
15	Teachers' have ability to deliver their lessons according to time allocated to them	3.22	1.23	Moderate
16	Teachers' have ability to comply with the rules made by administrators	3.32	1.03	Moderate
	Average	3.25	1.16	Moderate
	Students' Evaluation			
17	Teachers' have ability to monitor and evaluate students' progress	2.86	0.22	Moderate
18	Teachers have ability to keep effective assessment record for each student	3.35	0.93	Moderate
19	Teachers' have ability to keep attendance records of each students	3.49	0.88	Moderate
20	Teachers have ability to conduct timely and continuous assessment	3.04	0.87	Moderate
21	Teachers' have ability to assess the effectiveness of his/her teaching	2.69	1.09	Moderate
	Average	3.08	0.80	Moderate
<hr/>				
Cluster Mean 3.21				

The results on table 2 revealed the analysis of research question two on the level of Teachers' Job Performance. With respect to the construct on Teachers mastery of the subject matter, the overall mean of items was rated moderate with average mean of 3.35 hence implying that teachers in Yobe State Public Senior Secondary

School have mastery of their subject matter and have the ability to deliver lessons effectively. Regarding the items on Teachers classroom management the overall mean was rated moderate with a mean of 3.32, and this implies that teachers in Yobe State Public Senior Secondary School have the ability to manage

their classroom in terms of effective time management, ability to think critically and solve problems, ability to communicate and maintain students' interest in learning. Regarding the items on Teachers participation in extracurricular activities, it was rated with overall mean of 2.65, this implies that teachers in Yobe State Public Senior Secondary School performed their job moderately in terms of participating in the school's extracurricular activities.

Regarding the construct of items on teachers' lesson plan, the overall mean was rated moderate with a mean of 3.44, by implication, teachers in Yobe State Public Senior Secondary School have the ability to plan their lessons, formulate objectives that are attainable and have ability to select materials and teaching aids that are suitable to age and level of students. Regarding the construct of item on teachers' punctuality, it was rated moderate with an overall mean of 3.25. This implies that Teachers in Yobe State Public Senior Secondary School are punctual to duty and have the ability to deliver their lessons according to time allocated to them. Regarding the construct on student's evaluation, it was rated moderate

with an average mean of 3.08, this implies that teachers monitor and evaluate students' progress, assess students assessment, and assess the effectiveness of his/her teaching.

Teachers' Job Performance has an overall cluster mean of 3.21 which indicates that the level of Teachers Job Performance in Yobe State Public Senior Secondary School was moderate. By implication, teachers in Yobe State Public Senior Secondary School performs their Job in terms of mastery of subject matter, classroom management, participation in extracurricular activities, lesson plan, punctuality and students' evaluation effectively.

Answering Research Hypotheses

The decision rule for the hypotheses was that: If the p-value is less than the significant level of 0.05, the null hypothesis (Ho) is rejected, and if the p-value is greater than the significant value of 0.05, the null hypothesis is retained.

Hypotheses One:

There is no significant relationship between Principals' Classroom Visitation Technique and Teachers' Job Performance in Yobe State Public Senior Secondary Schools

Table 3
Correlation between Principals' Classroom Visitation Techniques and Teachers' Job Performance

Variables	N	\bar{X}	SD	Df	R	p-value	Remark
Classroom Visitation Techniques	277	36.9964	13.45618	287	.688*	.013	Accept H_{01}
Job Performance	12	42.0000	18.09068				

* Significant at $p>0.05$

In order to test the hypothesis which states that there is no significant relationship between Principals' Classroom Visitation Techniques and

Teachers' Job Performance in Yobe State Public Senior Secondary School, a PPMC coefficient index as presented in Table 3 showed that there is

no significant relationships that exist between Principals' Classroom Visitation Techniques and Teachers' Job Performance in Yobe State Public Senior Secondary School. This was based on the correlation value of ($r = .688$, $p = .013$, $p > 0.05$). Based on the obtained result, there is no significant relationship that exists between Principals' Classroom Visitation and Teachers' Job Performance. Hence the null hypothesis was accepted.

Discussion of Findings

This study investigated the relationship between Principals' Supervisory Techniques and Teachers' Job Performance in Yobe State Public Senior Secondary Schools. It has been observed that the results obtained in the analysis of data contradict the findings of some research works in the past while most of the other reported findings agreed with the findings of other researchers.

The result of the data analysis of research question one on the extent of principals' classroom visitation technique in Yobe State Public Senior Secondary School, the result was indicated moderate with an overall mean of result 3.46. This implies that Principals of Yobe State Public Senior Secondary School, performs their supervisory functions in terms of visiting the classroom to watch teacher's delivery of the subject matter, teachers' classroom management, mastery of the subject matter effectively. The findings revealed that principals' classroom visitation is effective in improving the job performance of teachers. This finding is in line with Okeke, Okarforcha and Chima (2019) study

on the Extent of Principals Classroom Instructional Supervision for Effective Teaching in Senior Secondary Schools in Anambra State. The findings of the study indicated that principals to a great extent supervised classroom instruction in senior secondary schools, and this has positive effect on the job performance of teachers.

The result of the data analysis on research question two on the level of teachers' job performance in Yobe State Public Senior Secondary School, the findings revealed that the level of Teachers' Job performance in Yobe State Public Senior Secondary School was moderate with a cluster mean of 3.21. This implies that teachers' job performance in Yobe State Public Senior Secondary School with regards to teachers' mastery of the subject matter, lesson plan, classroom management, extracurricular activities, punctuality and students' evaluation is moderate. And this is also highly influenced by the quality of principals' supervisory technique application. The findings of this study supported the findings of Akande (2014) on the Assessment of the Relationship between Conditions of Service and Teachers' Job Performance in Kogi State Secondary Schools, Nigeria. Teachers' Job Performance was moderate as it was influenced by the conditions of service. The findings of this study also supported the findings of Igbinoba and Marvelous (2015) on the impact of Teachers Classroom Management on Students' Academic Performance in Municipal Area Council, Abuja. The findings also reveal that teachers' job performance in terms of classroom management

is high which in turn influence the academic performance of students. The findings also supported the findings of Felix (2008) on In-Service training and teachers Job performance. The study revealed that teachers' job performance is high in Rivers State Public Senior Secondary Schools.

The result of the data analysis of research hypothesis one on the relationship between principals' classroom visitation technique and teachers job performance in Yobe State Public Senior Secondary School, the result indicated that there is no significant relationship between Principals' Classroom Visitation Techniques and Teachers' Job Performance in Yobe State Public Senior Secondary Schools with ($r = .688$, $p = .013$, $p > 0.05$). This implies that principals' regular observation of teachers' lesson planning, mastery of the subject matter, teachers' lesson delivery, ability to manage the classroom, effective time management, ability to think critically and solve educational problems, and ability to communicate appropriately using interactive techniques does not relate with teachers' job performance. It is therefore necessary for school principals/supervisors to boost teachers' moral and motivate them to work harder thereby enhancing productivity. It is also necessary for the ministry of education to supply schools with adequate instructional materials and aids for effective teaching and learning to be maintained. The finding contradicts the findings of Chidi and Victor (2017), who reported that there was a positive correlation between principals'

classroom visitation techniques and teachers' job performance. The findings imply that the application of the classroom visitation by the principal in terms of mastery of the subject matter, classroom management, communication skills and lesson delivery have positive influence on teachers' job performance. The findings of this study supported the findings of Akinwumi (2002) who reported that there was no significant relationship between principals' classroom visitation techniques and teachers' job performance. The study implies that principals/supervisors do not adopt the technique of classroom visitation/observation. The result suggest that principals' classroom visitation technique plays a significant role on the job performance of teachers. This means that principals' observation of classroom on how teachers teach does not relate with teachers' job performance.

Conclusion

Based on the findings of the study, it was concluded that principals' classroom visitation technique is positively related to teachers' job performance in terms of visiting the classroom to watch teachers' and students in action thus, teachers job performance is improved by the quality of classroom visitation by principals in Yobe State Public Senior Secondary Schools

Recommendations

Based on the findings and conclusion; the following recommendations were made:

1. Principals should priorities regular classroom visitations aiming to conduct at least 3-5 visits

per teacher per term to observe teaching practices and support.

2. Teachers should be encouraged to develop action plans to improve their performance. Teachers should also be provided with the necessary resources and support to implement new strategies and techniques learned.

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The Influence of Curriculum Re-Engineering on Teacher's Response to Classroom Mathematics Content Implementation in Abia State

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Abstract

The crux of this research seeks to examine the influence of curriculum re-engineering on teacher's response to classroom mathematics content implementation in Abia state. Two research questions were drawn from the purpose of the study. The study adopted the survey research design with a sample of twenty (20) secondary school teachers drawn from ten (10) sampled public secondary schools in Abia State. The study used a researcher made instrument titled: Mathematics Curriculum Re-engineering Questionnaire (MCRQ) which was validated with a reliability coefficient of 0.826 to generate data for the study. Data was analyze using criterion and pooled mean as well as standard deviation to take decision. The result obtained showed that to a large extent teachers mathematics classroom delivery have been genuinely affected by the curriculum re-engineering. Although, male mathematics teachers tend to operationalize and implement the re-engineered curriculum in the classroom more than their female counterpart. The study concluded that there is a strong influence of curriculum re-engineering on teachers' response to mathematics classroom content implementation. It was therefore recommended amongst others that teachers of Mathematics should critically peruse the mathematics curriculum and understand the recent re-engineered concepts in Mathematics in other to teach the students properly and adequately.

Keywords: *Curriculum*, mathematics, re-engineering, content delivery and classroom

Introduction

Curriculum is a strategic direction that compasses and describe how learning experiences are organized and presented to the learners for greater learning outcomes. It is a planned learning experiences of a school/ Educational institutions, (Le Grage, 2018). It is an accepted belief that Curriculum be reviewed (Predeaux, 2019) on a regular basis to ensuring staying abreast of the latest development in the professional fields, Mathematics inclusive. A successful Curriculum re-engineering needs a strong vision and goals including purpose-driven approach and defined objectives aligning with the participants with vital, but diverse perspectives in the Curriculum content development and implementation across disciplines.

Re-engineering a Curriculum fosters a culture of collaboration with educators involved in the change mantra. These include the learners, subject specialist, administrators, Parents, community members and external partners sharing a variety of way in getting the feedback for target and work groups directly using the programme or experiencing the Curriculum and thus gain insight to smoother implementation. Forestall lecturers and one-size-fits training and thus re-engineering mathematics Curriculum earnestly thrive when educators are not just equipped but empowered as co-creators. Imagine vibrant hubs where educators not facilitators design learning journey. Data-driven experiment, peer-to-peer brainstorm- these are not classrooms

but innovation laboratories. Mathematics educators should create, infuse mathematics Curriculum with expertise at the helm to spark-off their unique vision for mathematics education, It is pertinent therefore to call for paradigm shift or ditch the training manuals and co-create a future where mathematics programmes sings with the shared passion of educators and learners. Re-engineering mathematics programmes of instruction depends on cultivating an innovative culture and mind-set among the stakeholders as the change agents, creating an encouraging environments that supports creativity, experiment, risk-taking and learning from the future to awakening the sense of curiosity, enquiry and exploration and willingness to challenge assumptions, question norms and embrace change. An innovation culture and mind-set can be nurtured by modeling and rewarding innovative behaviors and attitudes as well as providing opportunities for inspiration, reflections and celebrations.

A re-engineered educational activity (typically a course) uses contemporary technology, appropriately developed learning materials, media, references and resources that can be used for individual study or as a tool for learning. Curriculum re-engineering and diversification is a process of providing opportunities for learners to be exposed to various knowledge's, skills, values adjusting and widening of contents with a view of providing sets of learning intensions and means applied by institutions to promote what the society and educators considered the desirable

learnings, (Ogbonna, 2024). In furtherance curriculum re-engineering in mathematics education is making available, sets of learning opportunities, maintain a contentual indepth and breath in a discipline, integrating topics and contents, exposing the learners to diverse knowledge in a known subject matter for higher cognitive gains (Kpe and Gbniu (2017).

Curriculum over the years has been seen as well planned, experience, aggregate of courses and activities provided for the learners under the auspices of the school. Every objectives of the school have been written down in a document which serves as a guide for the school, this document is known as the school curriculum it contains cognitive, psychomotor and affective program which is meant for the overall development of the individuals who passes through it (Esu, 1994).

Mathematics which is a science of numbers, quantities and shapes and the relationship that exist between them, is a critical and focal subject in our today's curriculum (Esuong, Udom & Udo 2019). It basic knowledge has become a pre-requisite for gaining admission into any course of study in the tertiary or higher level of education (Edoho, Esuong & Ekaette 2022). This is due to the overall importance of mathematics in solving daily life problems and in aiding the understanding of other subjects especially the science subjects which is why mathematics is referred to the queen and servant of all subjects (Esuong, & Item 2023).

Mathematics curriculum could be regarded as the entire programme of the school's work which incorporates everything that the teacher and the students do. According to Ekwueme, Meremekwu & Nnenna (2013) mathematics curriculums could also be a set of mathematical content together with indications of how it should be interpreted. It is the content of what is taught along with an overall process of how that content is designed to be taught in school, we refer to this stage as intended curriculum.

The universal basic education (UBE) programme was introduced in Nigeria in September 1988. Following this, in 2008 the federal government of Nigeria through the Nigerian educational research and development council (NERDC) developed and introduced the 9-year basic education curriculum (BEC) in schools by realigning all extant primary and secondary school curricula to meet the key target of the UBE programme. In view of some contemporary and national concerns and to make the curriculum more practical, relevant, interest generating to the young learners and in line with global best practices, The 9-years BEC was recently revised in 2012 and its implementations has commenced in September 2014.

Over the years the declining performance of students in mathematics has necessitated an overall curriculum re-engineering in mathematics, which has culminated into the introduction of different content to fill the gap of inadequate content knowledge of students (Edoho, Esuong & Ekaette 2022). The re-

engineered curriculum content in mathematics featured key areas such as modular arithmetic, differentiation, integral calculus and some new moderation in topics like mensuration and binary operations. This area forms some basic concepts introduced into the West African Senior Secondary school examinations.

The implementations or attainment of this mathematics curriculum re-engineering has become a great source of concern and worry for educationist and relevant stakeholders in the educational sector; this is due to the high rate of failure recorded yearly in the subject. This has actually caused a question to be raised thus; what the influence of curriculum re-engineering on teacher's response to classroom mathematics content implementation in Abia state is? is re-engineered mathematics curriculum actually implemented correctly? Are the objectives of the mathematics curriculum achieved?

Purpose of Study

The main purpose of this study is to examine the influence of curriculum re-engineering on teacher's response to classroom mathematics content implementation in Abia state. Specifically, this study seeks to:

1. examine the influence of the re-engineered mathematics curriculum on teachers's response to classroom content delivery, and
2. determine the gender difference in teachers response to Mathematics content implementation and content delivery.

Research Questions:

1. What is the influence of the re-engineered mathematics curriculum on teachers' response to classroom content delivery?
2. Are there any gender differences in the teacher's response to Mathematics content implementation and content delivery?

Methodology

The study adopted survey research design. This was considered appropriate since the study sought to examine the influence of curriculum re-engineering on teacher's response to classroom mathematics content implementation in Abia state. The population of the study comprises all the mathematics teachers in Abia state specifically secondary school mathematics teachers. A Simple random sampling technique was used to obtain sample for the study. The total sample size consists of twenty (20) mathematics teachers drawn from five (10) selected secondary schools in the research area. A researcher made instrument titled: The Mathematics Curriculum

Re-engineering Questionnaire (MCRQ) was used to generate data for the study. The instrument consist of two (2) sections, section A and Section B. Section A consists of teachers demographic data of the respondent while section B consists 10 itemed questions structured to elicit responses on the influence of curriculum re-engineering on teacher's response to classroom mathematics content implementation in Abia state. The reliability coefficient of 0.826 was obtained using Cronbach Alpha. This the instrument was adjudged to be valid and reliable. Data collected was analyzed using the Statistical Package for the Social Science (SPSS) in accordance with the research questions of the study using the mean and standard deviation to take decisions based on the criterion mean.

Results

Research Question 1: What is the influence of the re-engineered mathematics curriculum on teachers' response to classroom content delivery?

Table 1: Mean and standard deviation of responses on influence of the re-engineered mathematics curriculum on teachers response to classroom content delivery.

S/N	Item statement	SA 4	A 3	D 2	SD 1	Total	Mean	SD	DECISION	Pooled Mean
1	I love the re-engineered mathematics curriculum	08 (32)	06 (18)	04 (08)	02 (02)	20	3.00	0.46	A	
2	The re-engineered mathematics curriculum addressed the knowledge shortfall amongst students	09 (36)	05 (15)	02 (04)	04 (04)	20	2.95	0.41	A	
3	Students still perform poorly even after re-engineering the mathematics curriculum	12 (48)	06 (18)	02 (04)	00 (00)	20	3.50	0.42	A	3.19
4	The content of the re-engineered curriculum are very compact and address learners need	11 (44)	09 (27)	00 (00)	00 (00)	20	3.55	0.41	A	
5	My students find it interesting in learning mathematics soon after the re-engineering	08 (32)	07 (21)	03 (06)	02 (02)	20	3.05	0.40	A	
6	Most of the content are learners centered	10 (40)	07 (21)	03 (06)	00 (00)	20	3.35	0.42	A	
7	Students are more engaged in practical hands-on problem solving in the curriculum	12 (48)	06 (18)	02 (04)	00 (00)	20	3.50	0.42	A	
8	I am able to evaluate students performance effectively.	08 (32)	06 (18)	04 (08)	02 (02)	20	3.00	0.46	A	
9	The students enjoy mathematics better after the curriculum re-engineering	08 (32)	07 (21)	03 (06)	02 (02)	20	3.05	0.40	A	
10	I am able to cover all the content of the subject within stipulated time	09 (36)	05 (15)	02 (04)	04 (04)	20	2.95	0.41	A	

Interpretation: Analysis from Table 1 above shows the extent of influence of the re-engineered mathematics curriculum on teachers’ response to classroom content delivery in Abia State. Respondents responds to items 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 with pooled mean of 3.19 shows a strong acceptance and agreement amongst respondents when it comes to the various indicators of influence the re-engineered curriculum have had on the content delivery of

teachers. The pooled mean is far greater than the criterion mean of 2.50 for a four point likert scaled questionnaire which therefore implies that to a large extent teachers classroom delivery have been genuinely affected by the curriculum re-engineering.

Research Question 1: Are there any gender differences in the teacher’s response to Mathematics content implementation and content delivery?

Table 2: Gender Mean and standard deviation on teachers response to classroom content delivery.

Gender	N	Mean	Standard Deviation
Male	12	3.56	0.47
Female	08	3.01	0.41
Total	20		

Interpretation: The result from table 2 shows a gender differences in responses amongst the

teachers of mathematics in Abia State. The mean responses score for male teacher (3.56) is above

the female response of teachers (3.01) by a 0.55. this implies that the male teachers are keener into the implementation of the mathematics content delivery as against their female counterpart in the same classroom setting.

Discussion of Findings:

Inference drawn from the research was that to a large extent teachers have started implementing the re-engineered mathematics curriculum and this curriculum is basically meant to ameliorate the dwindling performance of students in mathematics. The result was in line with the findings of Edoho, Esuong & Ekaette (2022) who opined that over the years the dwindling performance of students in mathematics has necessitated an overall curriculum re-engineering in mathematics, which has culminated into the introduction of different content to fill the gap of inadequate content knowledge of students.

This finding also corroborated with Kpe and Gbniu (2017) who asserted that curriculum re-engineering in mathematics education is making available sets of learning opportunities, maintain a contextual in-depth and breath in a discipline, integrating topics and contents, exposing the learners to diverse knowledge in a known subject matter for higher cognitive gains. This sets the part for an improve performance of students when the actual implementation is gotten amongst teachers of mathematics.

The study further showed that there is a gender disparity in mathematics teachers content delivery as regard the re-engineered curriculum. That is the mean difference and standard

deviations in table 2 showed a significant difference.

Conclusion

The study concludes that; to a large extent teachers have started implementing the re-engineered mathematics curriculum and this curriculum is basically meant to ameliorate the dwindling performance of students in mathematics and that there is a gender disparity in mathematics teachers content delivery as regard the re-engineered curriculum.

Recommendations:

1. Teachers of Mathematics should critically peruse the mathematics curriculum and understand the recent concepts in Mathematics in other to teach the students properly and adequately
2. Effective advocacy amongst educational stakeholders should be intensified on the need for proper teaching and learning of mathematics concepts in schools in other to improve students overall school performance
3. Efforts should be made by the teachers to ensure that gender does not hinder the teaching, learning and implementation of mathematics content in schools.

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Teachers Professional Development: A Key to Effective Curriculum Implementation

By

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Abstract

Teachers' professional development (PD) is widely recognized as a cornerstone for effective curriculum implementation. The objective of the study is therefore to review the role of Professional Development (PD) in effective curriculum implementation. The methodology of the study was a qualitative approach involving interviews with a diverse group of educators, including primary, secondary, and higher education teachers, to gain insights into their experiences with professional development programs. This study also employed a qualitative meta-synthesis approach, reviewing existing literature on the relationship between teachers' professional development and curriculum implementation. The review focuses on peer-reviewed journal articles, books, and educational reports. The paper discussed the concept of Professional Development (PD) and Curriculum implementation. It further examines the types of professional development, roles of professional development and the challenges of Professional Development (PD) to effective curriculum: implementation. The authors conclude that Professional development is an indispensable component for effective curriculum implementation emphasizing the need for teachers to engage in continuous professional development to meet the demands of modern education and to deliver curriculum that meet the needs of their students. The paper recommended among others that schools and educational authorities should increase funds allocated for Professional development program

Keywords; *Teachers*, professional development, and curriculum implementation

Introduction

In the landscape of education, the successful implementation of curriculum is pivotal to student achievement and the overall effectiveness of educational programs. However, the complexity of modern curriculum demands more than just adherence to guidelines; it necessitates that teachers possess the skills, knowledge, and adaptability required to bring this curriculum to life in the classroom. Teachers' professional development (PD) emerges as a key factor in this regard, acting as a catalyst for effective curriculum implementation. Professional development increase comfort and skills levels for implementing new curriculum. Supporting this assertion, Lia (2016), stated that relevant and effective professional development has been

found to promote confidence and a greater understanding of objectives. He further stated that meaningful professional development will consider the needs, concerns and experiences of the teacher that will be valuable and likely to influence growth for the teacher. McNeill., Katsh-Singer, Gonzalez-Howard, and Loper, (2016) and Rakes and Dunn (2015) have all substantiated this notion that teachers' professional development significantly influence their decisions for instruction. The need for teachers understanding and effectiveness when implementing the curriculum is apparent especially considering the impact of these factors on student learning. Teachers need to be able to provide students with opportunities for

development and meaningful learning thereby fostering holistic development. Furthermore, teachers need to possess personal values that allows them act as leaders of social change and be able to maintain high level content instruction while adopting a social justice orientation, helping students to recognize and undermine patterns of injustice and oppression, (Darling-Hammond, Mauq, and Garder, 2019). Professional development is therefore very essential because initial teacher education cannot provide them with all the competences that are needed in the classroom especially the procedural skills which primarily develop in practical settings

Desimone (2019) identifies key features of effective PD, including content focus, active learning, and coherence, which contribute to enhancing teachers' instructional practices. Similarly, Darling-Hammond, Mauq, Garder, (2019) also emphasize that sustained, high-quality PD fosters teachers' capacity to adapt curriculum to meet diverse student needs, thereby improving student learning experiences. Furthermore, research by Garet., Wayn, Stancavage, Taylor, Eaton, Walters & Doolittle (2011) highlight the correlation between the intensity of PD and its impact on teaching practices. The study suggests that PD programs that are continuous and embedded within teachers' practice are more likely to result in significant improvements in curriculum delivery. By integrating insights from these studies, the present paper aims to explore how effective PD

can address the challenges encountered in professional development and curriculum implementation

Objectives of the Study

1. To examine the types of professional development programs that effectively support curriculum implementation;
2. To analyze the roles of professional development in curriculum implementation;
3. To identify the challenges faced by teachers in accessing and utilizing professional development opportunities; and
4. To provide recommendations for enhancing the effectiveness of professional development in curriculum implementation.

Concept of Teachers Professional Development and Curriculum Implementation

Teachers are the key assets in curriculum implementation. They must be well trained in the beginning of their careers and provided with high quality professional development in subsequent years of profession. Education is described as the great hope for creating a more sustainable future; teacher education institutions serve as a key change agent in transforming education and society so that such a future is possible. Teacher professional development (PD) is a critical component in the education system, directly influencing the quality of instruction and student outcomes. It encompasses a wide range of activities that enhance teachers' skills, knowledge, and expertise. The concept of PD is intricately linked to curriculum implementation,

as the effectiveness of a curriculum is largely dependent on the competence and readiness of teachers. (Almeida 2015). Positive changes occur in teachers practices when they experience sustained high quality professional development. Professional development is an on- going process encompassing all formal and informal learning experiences that enable all staff in schools, individually and with others to think what they are doing, enhance their knowledge and skills to improve ways of working so that pupil learning and wellbeing are enhanced as a result. (Penuel, Fishman, Yamaguchi and Gallagher, 2017). It is the ongoing learning process which teachers engage voluntarily to improve their ability to effectively implement the curriculum. Margolis, Durbin and Doring, (2017), defined professional development as the skills and knowledge obtained for personal development and career development. Teachers' development is a process of improving the teachers academic standing as well as the acquisition of greater competences and efficiency in discharging their professional obligation in and outside the classroom. As described by Sancho-Gil and Domingo-Coscollola (2020),

Professional development avails the opportunity for teachers to improve their teaching strategies through evidenced – based knowledge that is compatible with the changing needs in the environment. Teachers' professional development is a process of improving teachers academic standing and the acquisition of greater competency and efficiency in discharging their

professional obligations which is primarily to implement the school curriculum. It is about teachers learning how to learn and transforming their knowledge into practice for the benefit of their student's growth. Teachers' professional development is a complex process which require cognitive and emotional involvement of teachers individually and collectively, and the capacity and willingness to examine where each one stands in terms of convictions and beliefs and the perusal and enactment of appropriate alternatives for improvement or change. (Avalos, 2020).

Curriculum is a deliberate systematic and planned attempt undertaken by schools to modify the behavior of the learners. It is the totality of activities carried out under the auspices of a school in response to societal needs. Doll (2018), defines curriculum as all formal and informal content and process by which learners gain knowledge, understanding, develop skills and values under the auspices of the school. Curriculum implementation is the process by which knowledge, skills, values and attitudes are transmitted or delivered to learners by the most effective methods that can be devised by the teacher in the classroom. (Ahmadi and Lukman, 2015). Curriculum implementation refers to the ways teachers deliver instruction and assessment using specified resources provided in a curriculum. Curriculum implementation is a complex process that involves translating curriculum design into practical teaching and learning activities in the classroom. Teachers are the primary agents in this process, and their

ability to implement curriculum changes effectively is heavily influenced by their professional development. Understanding the beliefs and concerns of teachers can provide an insight into whether curriculum implementation will meet with success or failure.

Professional development offerings are therefore key for supporting teachers in these initiatives. One benefit of PD includes teachers' increased comfort and skill levels for implementing a new curriculum. This paper aims to examine the relationship between teachers' professional development and curriculum implementation.

Types of Professional Development

Teachers' professional development (PD) comes in different forms catering for diverse learning styles, interest and career goals. Below are some of the types of professional development.

- 1. Workshops and Seminars:** These are common forms of PD, offering short-term training on specific topics. It is designed for group of individuals within a specific profession with a primary focus on active engagement in problem solving endeavors. assert that workshops and seminars are commonly employed as platforms for addressing several concerns. While they can be effective for introducing new concepts, their impact is often limited without follow-up or continuous learning opportunities. (Garet, Porter, Desimone, Birman, & Yoon, 2017).
- 2. Collaborative Professional Development:** This includes peer observations, mentoring,

and collaborative planning sessions and ongoing support from experienced educators, providing personalized guidance and feedback. This type of PD is effective in helping teachers implement new strategies and refine their instructional practices (Knight, 2009). Collaborative PD promotes shared learning and collective problem-solving, fostering a sense of community and support among teachers (Vescio, Ross, & Adams, 2018).

- 3. Professional Learning Communities (PLCs):** PLCs are groups of educators who meet regularly to share experiences, analyze student data, and collaborate on instructional strategies. PLCs create a culture of continuous learning and improvement, directly impacting curriculum implementation (DuFour, 2014).
- 4. In-Service Training:** Continuous professional development provided during the school year, often embedded in the school's schedule, to address specific needs related to curriculum changes. Kennedy (2016) found that well-structured in-service training programs significantly improve teachers' understanding of the curriculum and their ability to adapt instructional strategies to meet its goals. A study by Penuel, W. R., Fishman, B. J., Yamaguchi, R., & Gallagher, L. P. (2007) highlighted the importance of aligning training with curriculum content to ensure that teachers

can seamlessly translate new knowledge into classroom practice.

5. **Action Research:** Teachers engage in research projects to explore the impact of new curriculum strategies or pedagogical approaches in their classrooms. Bubb and Earley (2021) emphasized that action research facilitates individualized professional development by allowing teachers to focus on their specific classroom challenges. Research also suggests that teachers engaged in action research develop a greater sense of ownership over their professional development (Pine, 2009).

The Role of Teachers Professional Development in Curriculum Implementation

The roles of professional development in curriculum implementation are vast and far reaching extending far beyond acquiring new knowledge and skills. Some of the roles of (PD) in curriculum implementation are as follows:

1. Keeping Pace with change

Knowledge is no longer static but dynamic due to the emergent of new technologies. Professional development equips teachers with latest skills and knowledge to navigate these changes effectively. Professional development helps teachers to implement new curriculum, addressing diverse learning styles of students and to remain at the forefront of their practice. Supporting this notion, Jones (2001) stated that teachers' professional development enables teachers to meet the challenging demand of their jobs occasioned by technological innovations.

2. Boosting Student Achievement

Effective professional development directly translates to improved students' academic achievement. High quality professional development courses or programmes will enable them have access to research based instructional strategies which have proven to enhance student learning. Quality professional development for teachers has a more significant effect on student performance than higher educator salaries and smaller teacher-to student ratios (Bond and Blevins,2020). The drive behind effective professional development is to influence teachers' behaviors positively and in turn have a significant impact on learning and student achievement. (Drewes, Henderson, and Mouza, 2018

3. Providing Career Advancement Opportunities

Professional development helps in lifelong learning and continuous improvement. Professional development plays an important role in improving teachers professional and personal development and increase their career by helping them change and review their skills, knowledge, attitudes and understanding. (Ozdemir, 2013).

4. **Understanding Curriculum Content:** PD provides teachers with a deep understanding of the new curriculum content, including the underlying principles and pedagogical approaches. This understanding is essential for teachers to implement the curriculum

effectively in their classrooms (Darling-Hammond., Mauq, E., Garder, 2019).

5. **Developing Pedagogical Skills:** Teachers need to develop specific pedagogical skills to adapt the curriculum to their students' diverse learning needs. PD programs that focus on differentiated instruction, formative assessment, and student-centered learning strategies are particularly valuable in this regard (Garet., Porter, Desimone, Birman, and Yoon, 2017).
6. **Building Collaborative Networks:** Collaboration among teachers is a crucial component of successful curriculum implementation. PD programs that facilitate collaborative learning communities allow teachers to share best practices, discuss challenges, and support each other in implementing the curriculum (Vescio, Ross, and Adams, 2018).

Challenges of Teachers Professional Development

1. **Lack of Resources:** A significant challenge to effective PD is the lack of resources, including time, funding, and materials. Teachers often struggle to find time for professional learning amidst their heavy teaching loads (Wei, Darling-Hammond and Adamson, (2019). Additionally, inadequate funding limits access to quality PD programs and resources necessary for continuous learning.
2. **Relevance and Quality:** The relevance and quality of PD programs often present

challenges. Many PD programs are criticized for being too theoretical, disconnected from classroom realities, and not tailored to teachers' specific needs This disconnect leads to a lack of engagement and application of learned strategies in actual teaching practice. (Borko,2014).

3. **Sustainability:** Ensuring the sustainability of PD initiatives is another challenge. Short-term PD programs may not provide ongoing support or follow-up, leading to a lack of sustained impact on teaching practices (Yoon, Duncan, Lee, Scarless and Shapley 2017). Long-term, continuous PD is essential for lasting change in instructional methods and curriculum implementation.
4. **Resistance to Change:** Teachers may resist new approaches introduced in PD due to comfort with existing practices or skepticism about the efficacy of new methods. This resistance can hinder the adoption of innovative teaching strategies aligned with curriculum changes (Fullan, 2017).
5. **Inadequate Support Structures:** The absence of supportive leadership and collaborative professional cultures can also impede the effectiveness of PD. Teachers need a supportive environment where they can share experiences, collaborate with colleagues, and receive constructive feedback (Hargreaves & Fullan, 2012).

Conclusion

Professional development is an indispensable component of effective curriculum

implementation. When teachers engage in continuous learning, they are better prepared to meet the demands of modern education and to deliver curriculum that meet the needs of their students. However, to maximize the impact of professional development, it is essential to address the challenges that may impede its success, such as time constraints, inadequate funding, and resistance to change

Recommendations

- 1. Increase Funding for Professional Development:** Schools and educational authorities should allocate sufficient resources to support high-quality professional development programs.
- 2. Tailor Professional Development to Teachers' Needs:** Programs should be designed to meet the specific needs of teachers, considering their experience levels, subject areas, and the unique challenges they face.
- 3. Promote a Culture of Continuous Learning:** Schools should encourage teachers to view professional development as an ongoing process and provide them with the time and support needed to engage in it.
- 4. Leverage Technology:** Online platforms can provide flexible and accessible professional development opportunities, allowing teachers to learn at their own pace.
- 5. Evaluate and Improve Professional Development Programs:** Regular assessments of professional development

programs can help identify areas for improvement and ensure that they are meeting the needs of teachers and students alike.

- 6. Professional development be integrated into teachers' daily activities,** Professional development should be integrated into the daily practice of teachers, with a focus on collaborative learning and reflective practice
- 7. Involving teachers in the curriculum development process:** This can enhance their commitment to implementation and ensure that the curriculum is relevant to their teaching.

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Impact of E-Resources in Promoting Reading Habits: A Study of Library Users of the Nigerian Defence Academy Kaduna, Nigeria

By

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Abstract

The study explores the impact of e-resources on the reading habits of Nigerian Defence Academy Library users. By analyzing the attitudes and experiences of cadets, faculty and researchers, this research sheds light on the significance of e-resources in modern –day learning environments. The objectives of the study were to find out the impact of electronic resources on cadets, the types of e-resources users use and the problems they faced when accessing electronic information resources. A case study research method was adopted. The major instruments were questionnaire while interview and observation were used to complement it. The sampling techniques adopted was simple random. The statistical analyses used in analyzing the data are percentages and frequency counts. Out of 100 cadets, only 75% cadets are familiar with e-resources. Only 90% of students use e-resources. They use e-resources for learning, reading, teaching, jobs, recreation, news etc. They use different types of e-resources such as e-books, e-journals, e-magazine, e-maps, e-news etc. They prefer mobile phones most to access e-resources. But due to a lack of adequate collection, high speed internet connection, proper knowledge, and infrastructure, they face many difficulties in using e-resources in the Academy library.

Keywords: E-resource, Reading Materials, Cadets, Nigerian Defence Academy

Introduction

Reading is an essential tool for lifelong learning. It is important for everyone to develop a good reading culture as to perform excellently in academic endeavours. Reading skills for students are critical for academic performance and personal growth. Reading is an important component of student's ultimate literacy development.

Reading habit as a settled or regular tendency or practice influences the promotion of people's reading interest for personal, academic, social, economic, cultural, etc., development. Consistent and methodical reading habit guarantees a highly sharpened intellect, refined emotions, elevated tastes, and consequently effectual involvement in social, religious, cultural, and political life. Reading habit ignites

the fire of enthusiasm and imagination of an individual.

Satija (2012) affirmed that the mind attains more wisdom while the eyes gain additional through reading which re-energizes the mind. He further noted that those who are accustomed to regular reading are further opportune to secure multiplying successes through wider mental horizons. Reading habit is a vital factor affecting intellectual and emotional growth and one of the places where people can develop a good reading habit is the library. The library plays a pivotal role as an information center where information can be readily obtained as well as a study place for users to engage in beneficial reading. In the words of Ajidahun (2011) the library is unarguably and indubitably

one of the intellectual wonders of life and one of the greatest and remarkable innovations and inventions that have proved, indisputably, man's creative audacity. He considered the library to be a significant educational masterwork, with strong ability and comprehensive power, and the capability to bring the desired and incredible evolution and practical changes to human society with immeasurable outcomes. The outlined impact of libraries has been reinforced by the advent of ICT, which has so much facilitated electronic resources. Fundamentally, the word electronic refers to gadgets designed or operated by the techniques or concepts of microchips and electrons implemented on or through electric-bite (automated) technologies such as a computer. Meanwhile, the other word, resources denote sources or supplies from which benefits are derived. Thus, Electronic Resources (ERs) could mean an automated source from which a benefit is derived. Among the various attempts made to define electronic resources in more scholarly expressions, few shall be highlighted here as a way of giving some insights into the subject matter. Igwe and Uzuegbu (2013) describe electronic materials as information resources that one needs the computer to access, via a personal computer, mainframe, or handled mobile devices, and are accessed by the use of the internet or local area networks. The 21st Century has experienced a remarkable proliferation of electronic resources (e resources) which have tremendously changed the reading habits of users.

Lefuna (2017) identified electronic information resources as the most significant source of scientific information communication within the university community, especially among researchers. Nevertheless, the use of electronic resources has only facilitated access to large collections of library materials rather than displacing printed resources (Okazie, 2016). The changes that have occurred in the world of ICT have shifted the content of libraries' resources from printed information to online information resources (Israel and Edesire, 2016). Aside from that, the revolution in ICT has availed libraries to not necessarily require physical structures before they could provide information materials for their clientele to read, which how users read those electronic resources provided by libraries are based on their reading habits.

Amori (2013) opined that e-resources such as e-journal, e-book, CD ROM databases, online databases and web-based resources when effectively utilized constitute an important input in the information services in libraries. They help in providing relevant information required by students, which if properly utilized can help in improving reading culture and improve academic excellence.

Objectives of the Study

The general objective is to identify the reading habits of library users as a determinant of the utilization of electronic information resources at Nigerian Defence Academy, Kaduna. The specific objectives are to:

1. find out the Impact of electronic resources by cadets of the Nigerian Defence Academy;

2. identify the types of electronic information resources library users read in Nigerian Defence Academy library; and
3. examine the problems faced by the cadets when accessing electronic information resources in Nigerian Defence Academy library.

Literature Review

Electronic information resources can be described as any resources in which the accessibility and storage of information are done on electronic systems and networks (Adeleke and Nwalo, 2017). The advent of electronic information resources has been playing a vital role in complementing and supplementing the paper-based information resources in academic libraries. The essence of proper organization and treatment of every information resource in the library is to serve the information needs of the users through proper utilization. Library patrons in large part rely on ERs to search, retrieve and communicate research findings thus turning ERs into an indispensable ally while seeking dependable, timely, and apposite information. The use of electronic information resources equally advances their research output (Burhansab, Batcha, and Ahmad, 2020).

Background of the Academy Library of the Nigerian Defence Academy, Kaduna

The Nigerian Defence Academy (NDA) Kaduna is a military university based in Kaduna, Nigeria, that trains officer cadets for commissioning into one of the three services of the Nigerian Armed Forces: the Army, the Navy and the Air force. It was established February 1964 as a reformation of the British

run Royal Military Forces Training College (RMFTC). It has five faculties and also school of postgraduate studies.

Nigerian Defence Academy Library is the main library that support both teaching and military training. The library acquired and developed information resources that meet the information needs of cadets, faculty members, officers and civilians staff. The Academy library was launched at the end of 1963 to facilitate and enhance effective learning. The library was finally moved to the permanent site on the 16 of June 2009 for effective teaching and learning to meet the objectives.

Impact of Electronic Information Resources

The way Electronic resources use have gone major changes as a result of technological innovation. E-Resources, usually refereed to as electronic resources, are digital publications that deliver knowledge through online platforms. These sources include E-books, CD-ROM, e-Journals, database. According Thanuskodi (2012), e-resources have been significantly impacted by the switch from traditional library resources to electronic resources in the modern period because they provide user-friendly features that support efficient teaching, learning and research. Additionally, it has been discovered that e-resources serve as a complement to printed resources by offering simple access to variety of information whenever and wherever you need it.

Ajayi, Shorunke & Aboyade (2014) conducted a survey to find the Impact of Electronic Resources Use on Students' Reading Culture in Nigerian universities. The study revealed that

the most commonly used e-resources amongst the students included e-book, e-journal, and e-news. 88.68% respondents used the e-resources very frequently and 90.57% respondents agreed that e-resources improved their reading habits. 71.17% respondents agreed that they would like to prefer e-resources to printed resources. The poor internet connectivity felt by 73.11% respondents is the major hindrance in effective use of e-resources whereas 46.69% respondents considered that inadequate skill to use e-resources is the major hindrance to make optimum and effective use of e-resources in the library

Kaur, Gurjeet (2016) studied the impact of electronic Information resources on user of social science in Gulbarga University. A questionnaire was used to find the answer of questions about the awareness and usage of electronic resources among users, to identify the level of satisfaction, to measure the impact of electronic resources and to find out the problems which are faced by the user. The study found that use of electronic resources was not only affected by low speed of network and reading direct from computer but also lack of enough computers in library and paid access of information. The findings of the study indicated that a lot need to be done to increase the use of electronic resources and librarians should reorient themselves, think creatively and adopt the new technology to generate services and resources to increase the use of e-resources.

Bhat, Nazir Ahmad (2019) in his paper titled Impact of Electronic Resources on the Mindset of Researchers studied the impact of advent of

electronic information resources (EIR) on some core aspects related to the research activity across agricultural libraries of Northern India. Six aspects have been covered in this study. The response of the users for each statement under investigation has been collected through a simple Yes/No option. The majority of respondents are of the opinion that due to advent of electronic resources and in view of the ICT developments the literature survey (92.94%) and problem identification (51.81%) has become easy and fast. The spirit to conduct more and more research has increased among respondents (86.62%). Moreover, this has also enabled the users to complete (84.31%) and publish (89.97%) their research work in a lesser time than required in print era. A 46.26% of respondents also agree that the cross comparison of findings of one's study with those of other studies has become easy and fast in electronic era.

Types of Electronic Resources among students of higher institutions

Thanuskodi (2012) opined that e-resources are the electronic representation of information. There are available in various forms like e-books, digital libraries, online journal magazine, e-learning tutors and on line test. Because of the effective presentation with multimedia tools, these e-resources have become the source of information. He further agreed that Electronic resources delivers the collection of information as full text databases, e-journals, image collections, multimedia in the form of CD, tape, internet, web technology etc. E-resources may include e-journals, e-discussions, e-news, e-data archives, etc can be

called as an eresources. In addition, electronic information source are a wide range of products going from electronic periodicals to CD-ROMs, from mailing list to databases, all of them having a common feature of being used and sometime modified by a computer.

Isiakpona, and Ifijeh (2012) in the study on 'Availability of Electronic Resources for Service Provision in University Libraries in Ogun State Nigeria.' Three universities were covered in the research work namely Babcock University, Covenant University and Federal University of Agriculture Abeokuta, in the study the result shows that EBSCOHOST, HINARI, JSTOR, OARE, MIT, AGORA, Science direct, IEE are the library e resources available in the three libraries mentioned . Similarly,

Omotayo (2010) mentioned some examples of electronic database being used today in academic libraries include Journal Storage (JSTOR), AGORA, HINARI, EBSCO, Science Direct, OARE and MIT Open Courseware.

Further, Adeniran, (2013) conducted a survey where some e-resource Collection in Redeemer's University Library where mention, such resources includes. Internet source, Online Databases, CD-ROM, OPAC (Online Public Access Catalogue) and E-Journals.

Bassi (2011) examined 'Gender Differences in Use of Electronic Resources in University Libraries of Adamawa State, Nigeria' and the result showed that the Internet stand out to be the most highly used e-resource which serves as a gateway to other e-resources in the three libraries representing 392(41.5%), while e-books and e-journals follows with 165(17.23%)

and 125(13.09%) respectively. The least responses is e-theses and dissertations which has a frequency of 18(1.88%), this might be attributed to small number of postgraduate students in this study. Furthermore,

Sukula (2010) submitted that various types of e-resources used in higher institution libraries are: database; e-journal; e-books, e-news; e-image; e-music and sound collection; data/GIS; academic commons; e-reference; subject guides. It needs noting that emergence of electronic information resources has tremendously transformed information handling and management in Nigerian academic environments, and University libraries in particular (Ani and Ahiauzu, (2008). These dramatic changes include the way in which information is provided to the University Communities.

Egberongbe (2011) explained that a number of electronic resources initiatives have been put in place in Nigeria. This is aims at assisting in the development, training and use of electronic resources in a number of academic institutions. For example the Morlenson Center for International Library Programs acting on behalf of MacArthur Foundation to support some selected grantee university libraries, The Electronic Information for libraries Network (eiFL.Net), MTN Foundation among others.

Problems Faced by Cadets when Accessing Electronic Information Resources

Although the introduction of these electronic resources and services is a welcome development to the information profession their use by the library patrons poses some challenges and concerns (Gwazah ,2011).

Chisenga (2004) cited in Egberogbe (2011) listed some factors hindering the use of e-resources in Nigeria higher institutions, some of the factors listed are, Lack of strategic planning; adequate or reliable funding, Lacking of use of internet to provide information services to users and a lack of consistent training for users in new ICT services. Moreover,

Oduwole and Akpati (2013) mentioned some of the constraints in accessing e resources, including insufficient number of terminals available for use despite high demand and in adequate electricity supply.

A major problem however identified by Egberongbe (2011), are lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by students is very low.

Asheroft and Watts (2015) noted that high cost of hardware, software and particularly internet service providers were significant barriers to the provision of electronic resources.

Isah (2010) found that Slow internet access (30.0%), lack of constant power supply (30.0%) were the major factors inhibiting the use of e-resources. However, other less limiting factors were non-availability of e-resources relevant to my information needs (20.0%) and dislike for reading from screen (13.3%). In addition, Damilola (2013) found that poor electricity supply greatly hindered the use of electronic information resources. This was represented by 117(46.8%) of the respondents and poor internet connectivity was another hindrance which greatly affected the use of electronic

information resources, this was confirmed 100(40%) of the respondents. Other factors were insufficient skills, financial problem, poor training programme and excessive academic workload.

Methodology

This study adopted a descriptive survey design and the target population were Cadets of the Nigerian Defence Academy, Kaduna. Research design is the framework that is used to guide the collection and analysis of data for the study. The population of the study were 500 cadets and twenty percent was drawn from the total population which resulted to 100 cadets as the sample size. The cadets were sampled randomly since the number is manageable for this research. The instruments used in this study was questionnaire tagged 'Impact of E-Resources in Promoting Reading Habits: A Study of Library Users of The Nigerian Defence Academy Kaduna, Nigeria' developed by the researchers and vetted by two Library and Information Science professionals. The instrument comprised three sections: section A, B & C. Section A was Response rate, section B was distribution of respondents by faculty and section C contained designed to elicit data on the variables of the study. The total number of 100 questionnaire were administered to the respondents, 95 copies were returned and found valid for analysis. The data collected was analysed using frequency and simple percentages.

Data Analysis

The data analysis is here presented in line with the objectives of the study.

Table 1:
Response Rate

Copies Administered	Copies Returned	Percentage Return/Valid
100	95	95

The return rate of the questionnaire is 95%. This is because 95 copies of questionnaire were retrieved back out of 100 copies administered as represented in the table 1.

Table 2:
Distribution of Respondent by Faculty

Faculty	Frequency	%
Engineering	19	20
Sciences	17	17.9
Art & Social Science	30	31.6
Military Science	17	17.9
Management Science	12	12.6
Total	95	100

In Table 2, respondents vary with faculties. However, all the five Faculties in the Academy are represented with the Faculties of Engineering accounting 19 (20%), Sciences 17

(17.9%), Art and Social Sciences 30 (31.6%), Military Science 17 (17.9%) and Management Sciences with a frequency of 12 (12.6%).

Table 3
Impacts of electronic resources use on reading habits of Cadets

Impact of E- Resources use on Reading Habit	SA	A	D	SD	U
It improves my reading habit	56(58.9%)	18(18.9%)	14(14.7%)	7(7.5%)	-
It reduces my reading interest	29(30.5%)	14(14.7%)	37(38.9%)	15(15.8%)	-
It expanded my reading possibility	40(42.1%)	17(17.9%)	23(24.2%)	6(6.3%)	4(4.2%)
It makes reading more enjoyable	60(63.2%)	12(12.6%)	23(24.2%)	-	-
Use of e-resources waste my time	23(24.2%)	23(24.2%)	39(41.1%)	10(10.5%)	-
It has improved my independent and life-long reading skills	64(67.4%)	11(11.6%)	19(20.0%)	1(1.1%)	-

SA: Strongly Agreed; A: Agreed; D: Disagreed; SD: Strongly Disagreed; U: Undecided

The table above reveal that 74 (77.9%) of Cadets agreed that electronic resources improves their reading habit, 21(22.1%) disagreed that electronic resources can improve their reading habit. The table also shows that 43 (45.3%) believed that it reduces their reading interest, while 52(54.7%) disagreed it reduces their reading interest. 7 were undecided. The table also stated that 57(60.0%) agreed to the fact that electronic resources has expanded their

reading possibility. Also 29 (30.5%) disagreed that electronic resources expanded my reading possibility. When asked if the electronic resources use influence reading culture 72(75.8%) agreed to the fact that electronic resources makes reading enjoyable. While 23(24.2%) disagreed about that. The table also revealed 46 (48.4%) agreed that using electronic resources waste time. 49 (51.6%) disagreed that using electronic resources did

not waste their time. The table above also revealed that 75 (78.9%) agreed that electronic resources has improved their independent and

life-long reading skills. While 20 (21.1%) disagreed.

Table 4:

Types Electronics Resources used by Cadets of Nigerian Defence Academy, Kaduna

E - Resources	Use	Not Use	U	R	%
E-Books	34(35.9%)	14(14.1%)	0	95	100
E-Journal	23(24.2%)	20(21.1%)	0	95	100
Database	17(17.9%)	34(35.9%)	0	95	100
E-reference	12(12.6%)	12(12.6%)	0	95	100
CD-ROM	4(4.2%)	11(11.6%)	0	95	100
E-news	5(5.3%)	4(4.2%)	0	95	100

U=Use, U=undecided, R=respondent, %=percentage

From Table 3, out of 95 respondents, 34 (35.9%) respondents agreed to be using e-books while 14 (14.7%) respondents do not use e-books. 23 (24.2%) agreed to be using e-journal while 20 (21.1%) are not using e-journal. When asked about the use of database only 17 (17.9%) agreed to be using database while 34 (35.9%) disagree to the use of database. The table above shows that most of the students are not conversant with the use of e referencing, this

can be seen through the table reflecting 12(12.6%%) of student agreed to the use of e-reference while 12 (12.6%) said they don't use e-reference. The use of CD- ROM seems not to be popular among the cadets of Nigerian Defence Academy, the table above shows that only 4 (4.2%) use CD-ROM while 11(11.6%) do not make use of CD-ROM. The table above also shows that 5(5.3%) make use of e-newspaper while 4(4.2%) do not.

Table 5

Problems hindering the effective use of electronic resources on Cadets reading culture in Nigerian Defence Academy

Problems hindering the effective use of e-resources	SA	A	SD	D	U
Inadequate skills on how to use e-resources	30(31.6%)	21(22.6%)	20(21.0%)	24(25.6%)	-
My library does not have e-resources	19(20.0%)	14(14.7%)	45(47.4%)	17(17.9%)	-
Inadequate facilities for using e-resource in the library	66(69.5%)	5(5.3%)	12(12.6%)	9(9.5%)	3(3.2%)
Poor power supply	47(49.5%)	17(17.9%)	19(20.0%)	12(12.6%)	-
Poor internet facilities	69(72.6%)	3(3.2%)	13(13.7%)	10(10.5%)	-

SA: Strongly Agreed; A: Agreed; D: Disagreed; SD: Strongly Disagreed; U: Undecided

Table 6 reveals that 51 (53.7%) agreed that one of the major factors hindering the effective use of electronic resources on students reading culture in Nigerian Defence Academy is inadequate skill on how to use e-resources. Similarly, 62(65.7%) agreed on the fact that their library do not have e-resources while 71(74.7%) agreed that there is inadequate facilities for using e-resources in their library. The table also reveals that 64(67.4%) agreed that poor power supply is a challenge in using e-resources. Also 72(75.7%) are of the view that poor internet facilities is one of the factors hindering the effective use of electronic resources on Cadets reading culture.

Discussions of the Findings

This study investigate the impact of e-resources in promoting reading habits: a study of library users of the Nigerian Defence Academy Kaduna, Nigeria. Findings from Table 2 revealed majority of the respondents were from faculty of Art and Social Sciences which means there are more cadets in the faculty, Table 3 revealed that E-resources improved the reading habit of cadets, it also revealed that e-resources make reading enjoyable and does not waste their time when reading meaning that e-resources have impact on the reading habits of the cadets

In this study, it was gathered from Table 4 that the type of e-resources majorly used by cadets were E-Books followed by E-Journals, Only few cadets patronise database and e-reference. CD-ROM and E-News have the Lowest Patronage.

Findings in this study also revealed in the table 5 that the major problems hindering the

effective use of e-resources by cadets were the poor internet facilities and inadequate facilities for using e-resource in the library and also poor power supply is also a great problem in the library. Inadequate skills on how to use e-resources is also a great problem which the study has found out from the cadets and also from this studies Nigerian Defence Academy Library has enough e-resources for their users

Conclusion

This study investigated the impact of e-resources in promoting reading habits: a study of library users of the Nigerian Defence Academy Kaduna, Nigeria. The study revealed that there are enough e-resources in the library but few cadets patronize CD- ROM, E-Reference, Internet facilities, Power supply and inadequate skills on how to use e-resources are great problems for cadets and from the findings e-resources has great impact on cadets in reading and research in Nigerian Defence Academy.

Recommendations

The study is recommending the following in other for frequency of use and how to overcome the problems in the library, Nigerian Defence Academy Library should encourage cadets to use other electronic resources not only the e-books alone. They should organize seminar for cadets on how to use electronic information resources. The library should have alternative supply of power like solar or standby generator. The internet facilities should be upgraded. They should keep up with the availability of the Facilities in the library for the convenience use of electronic information resources.

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Effect of Ethno-Chemistry Instructional Strategy on Secondary Students' Academic Achievement in Chemistry, Bade Local Government, Yobe State, Nigeria

By

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Abstract

This study investigated the effects of Ethno-Chemistry Instructional Strategy on senior secondary students' academic achievement in chemistry in Bade local Government, Yobe State, Nigeria. Two research questions and two hypotheses were formulated to guide the study. The population of the study comprised of all the 824 SSI students of public secondary schools in Bade Local Government Educational Zone in Yobe State, Nigeria. The sample for the study consists of 91 students taken from two intact classes of two senior secondary schools randomly chosen from the study area. The experimental group were taught chemistry topics using Ethno-Chemistry Instructional Strategy while the control group were taught the same chemistry topics using Demonstration Method of Teaching. Chemistry Achievement Test (CAT) was the instrument used for data collection which was validated and tested for reliability. Mean and Standard Deviation were used to answer the research questions and the hypotheses were tested using Independent Sample T-test at 0.05 levels of significance. The findings of the study revealed that the students who were taught chemistry topics using Ethno-Chemistry Instructional Strategy have significantly higher academic achievement score ($\bar{x}=28.38$, $SD=6.36$) than those who were taught using Demonstration method of teaching ($\bar{x}=22.28$, $SD=5.67$). It was further revealed that, even though there is slight difference in the mean achievement scores among gender, subjecting the data to independent sample T-test revealed that there is no significant difference in the academic achievement of male and female students taught chemistry using Ethno-Chemistry Instructional Strategy. Based on the findings, it was recommended that Chemistry teachers should incorporate the use of Ethno-Chemistry teaching approach in their lessons to enhance students' academic achievement.

Keywords: Ethno-chemistry, academic achievement, gender

Introduction

Chemistry is a broad science subject taught in senior secondary schools and higher institutions of learning and its relevance are numerous and seen in almost every aspect of society including manufacturing industries, medicine, pharmacy, dentistry, food security and agriculture, education, science and technology, cooking, and environmental issues. However, with effective chemical education, the abundant natural resources available in Nigeria are harnessed, processed and converted to the needed products for use by the society (Danjuma & Mankilik,

2022). Chemistry education is the vehicle through which chemical knowledge and skills reach the people who are in need of capacities and potentials for development. Chemistry Education is the systematic process of acquiring the fundamental knowledge about the universe. Therefore, it is one of the major bedrocks for the transformation of national economy and hence must be given adequate attention due to the gains of its learning and advancement in standard of living.

Despite the aforementioned importance of Chemistry to the societal development, low academic achievements of students in Chemistry have been reported over the years in both internal and external examinations. According to Educational Resource Centre Damaturu (2022), over 40% of students who sat for WAEC in the years 2018, 2019, 2020 and 2021 indicated poor performance in Chemistry. This low academic achievement of secondary school students in chemistry could be ascribed to the use of non-innovative and activity-based strategies but rather regular use of traditional teaching methods such as lecture, problem solving, demonstration and discussion methods that does not put into consideration the students' culture, background, and experience in the teaching-learning processes. Adejo and Adikwu (2015) opined that teaching strategy is a variable that can be manipulated by teachers to increase student's academic achievement. A situation where teachers use strategies that are basically teacher-centered does not enhance effective learning of Chemistry. Chemistry teachers also have not always used traditional knowledge commonly used within the immediate environment of the learner to make chemistry learning easier and effective for students (Izondeme & Chimelo, 2021). Omolewa (2007) argues that most African cultural-artifacts and skills are not used as examples for teaching and learning in most African science lessons particularly chemistry. Instead, European artifacts and skills are used as teaching aids. The inability to connect what is

learnt in chemistry education to everyday realities and to apply simple scientific knowledge in the day to day activities reduces students' academic achievement and retention of learnt material in chemistry. Ethno-Chemistry Instructional Strategy therefore is a teaching approach in which the teacher delivers instruction and engages the students by employing traditional knowledge practices, and cultural beliefs about the relationships of materials (chemicals) with one another and with the environment. It is also understood as the use of locally sourced or traditional instructional resources in the immediate community of the students for the teaching of chemistry concepts. Previous studies from the study area (Bade Local Government Education Zone) however, have not focused fully on the role of contextualizing chemistry learning within the indigenous knowledge of the students (Ethno-Chemistry Instructional Strategy), in their achievement in the subject. Teachers of chemistry also have not always used traditional knowledge common within the immediate environment of the learning to make chemistry learning easier for students. One of the reasons for the lack of research in these instructional approaches is because teachers and most researchers do not know that poor achievement in chemistry and science in general is caused by cultural clashes that exist between students' life-world and world of modern science (Fasasi, 2018) and this therefore created a gap which this current study intended to address.

Ethno-Chemistry stems from the materials, ideas, beliefs and technology in a given society or environment, that derived from the past and present cultural practice and traditions (Izondeme & chimelo, 2021). It describes the chemical practices of identifiable cultural groups and may be regarded as the study of chemical ideas found in any culture. According to Ajayi, Achor and Agogo (2017), ethno-chemistry is the study of chemistry practices of specific cultural groups in the course of dealing with their environmental problems and activities using their own ideologies. In this regard, ethno-chemistry teaching approach can be described as a means of organizing chemistry instruction based on diverse cultural context. The Ethno-chemistry teaching approach in this case is an approach adopted by the teacher in the learners' cultural background, in understanding, explaining and managing situations and activities arising in their own environment. This fosters a better understanding of how Chemistry is applied in our everyday lives.

It is very important to conduct ethno-chemistry study in order to integrate chemistry with local wisdom from students' communities. The aim is to make it easier for students to understand chemical concepts, as well as to preserve cultural heritage. Ethno-chemistry teaching approach therefore means a teaching approach bordering on teaching chemistry using indigenous chemically related practices and local materials. These indigenous chemically related practices and local materials may be used to make the

unfamiliar chemistry content familiar to students (Izondeme & chimelo, 2021).

The approach is hoped to benefit the chemistry students by helping them sequence teaching and learning processes through what they are already familiar of the culture, offering them the opportunity to know more about reality, society and science. It could encourage students to think chemistry among themselves and arrive at a meaningful learning and understanding for improved academic achievement in chemistry and science in general. It could as well make learning more interesting just as materials within their immediate environment are used as instructional materials. According to Aina (2013), the use of local instructional materials in teaching and learning could make the chemistry concepts more practical and subsequently reduce abstraction. They are cost effective and could be obtained from the immediate local environment of the learners. They are also relatively safe for demonstration especially where students both males and females were involved in its production as intended in the current study.

Gender refers to a wide range of biological, behavioral, physical and mental characteristics regarding to and differentiating the female and the male population (Irungu, Nyagah & Mercy, 2019). Results of studies on gender and its influence on chemistry learning have remained inconclusive. Since both male and female students are open to the cultural practices and possess the indigenous knowledge of their immediate community, it is expected that the gap

in chemistry learning due to gender can be bridged. There is the need however, to further examine the role of gender in the academic achievement of students when ethno-chemistry instruction is adopted.

Research Questions

The following research questions were formulated to guide this study.

1. What is the difference in the academic achievement scores of students taught chemistry using Ethno-Chemistry Instructional Strategy and demonstration method of teaching?
2. Is there any gender difference in chemistry students' academic achievement taught using Ethno-Chemistry Instructional Strategy?

Research Hypotheses

The following hypotheses were developed to guide the research;

1. There is no significant difference in the academic achievement of students taught chemistry using Ethno-Chemistry Instructional Strategy and demonstration method of teaching
2. There is no significant difference in the academic achievement of male and female students taught chemistry using Ethno-Chemistry Instructional Strategy.

Methodology

The study utilized pretest-posttest control group quasi-experimental research design. The design comprised of two groups; the experimental and the control groups. The experimental group was taught using Ethno-Chemistry Instructional

Strategy (EIS) while the control group was taught using Demonstration Method of Teaching (DMT). The general step by step procedures as adopted from Izondeme and Chinelo (2021) that was taken in teaching the chemistry concepts to the students in the Ethno-Chemistry experimental group is as follows: The teacher in the first step briefly introduced the concept to be taught, with students attention drawn to the contents under the concepts to be learnt and briefly explain them to enable them have a grasp of what they were learning and to know also, what cultural knowledge and practices to present when asked, that is related to the contents. This was followed by the teacher presenting some of the ingenious knowledge and cultural practices through a demonstration with local materials obtained from the students' immediate environment. The teacher asked the students to present other cultural practices or knowledge of such practices that are related to the concepts. A demonstration of some of the cultural practices was done by the students. The teacher explained the practices presented by the students in relation to the concept taught. Students were also allowed to ask questions on confusing subjects that may form the quorum for discussion at any instance. The teacher's interaction with the students was with the view to further explore other cultural practices and indigenous knowledge known to them and emphasized the scientific connotations in each of the cultural practices mentioned by the students.

The teacher summarized the important points of the lesson, emphasizing the misconceptions discovered and evaluated the students' learning by asking questions based on what was learnt. Every class ended with an assignment given to students to enable them explore cultural practices and ingenious knowledge that are related to the next concept to be taught. The conventional group was taught using the conventional instructional approach. It involved presentation of lesson content to the students with in-depth explanation for their understanding. Students were allowed to ask questions about what they understand and get further clarification.

The population of the study consists of 824 SSI students of the five Public Senior Secondary Schools in Bade Local Government Educational Zone, Yobe State, Nigeria. The sample size for the study is 91 students taken from two intact classes randomly selected from two secondary schools from the study area. The two secondary schools were selected for use in this study because of their same prior experience, uses the same curriculum, same sociocultural background and all owned by Government. The schools were Government Secondary School (GSS) Gwiyo-Kura and Government Science and Technical College (GSTC) Gashua, in which an intact class from the available science classes from GSS Gwiyo-Kura was randomly assigned to constitute the experimental group (n=48, 25 males and 23 females) who were taught chemistry topics; physical and chemical changes, separation

techniques and the concepts of acids, bases and salts using EIS while another intact class from GSTC Gashua was randomly assigned to constitute the control group (n= 43 and all were males) and were taught the same topics as treatment using DMT. Despite the gender imbalance between the experimental and control groups, the pretest result revealed that the performance of the two groups is approximately the same and therefore it will not have a potential effect on the result of their posttest.

The instrument used for data collection in this study was Chemistry Achievement Test (CAT). The CAT items were constructed based on SSI syllabus by the researcher on the topics selected for the study. The CAT instrument consists of two sections (A and B). Section A sought for students' personal information mainly to ascertain their sexes and section B sought for information on the achievement of students in the content of chemistry concepts that were taught. The section B was made of thirty (30) multiple-choice items with options ranging from A-D from which students were expected to choose the correct respond. Each correct respond in the test item was scored two marks (2marks) and incorrect respond was scored zero. The CAT item along with its marking scheme were validated by a professor in chemistry department, Bayero University, Kano (BUK), and a Doctor from chemistry department, Federal University Gashua (FUGA) and a chemistry teacher with more than fifteen years working experience from Government Day Secondary School Gashua. To

determine the reliability of the instrument, the CAT item was administered to 30 students from the population but out of the sample chosen for the study using test-retest method of administration and the reliability index was calculated to be 0.82 using Pearson Product Moment Correlation Coefficient. Both the experimental and the control groups were pre-tested by the researcher to establish a level of performance to ascertain equivalency. The treatments for both the two groups lasted for six weeks, after which a posttest was administered to both the two groups to ascertain the level of performance. The data collected for the study from both the two groups were analyzed using descriptive statistics of mean and standard

deviation, and inferential statistics of independent sample T-test after meeting all assumptions (normality, homogeneity of variance etc). The research questions were answered using Mean and Standard deviation while independent sample T-test was used to test the null hypotheses at 0.05 levels of significance using SPSS software.

Results

Mean and standard deviation were used to analyze the pre-test and posttest scores between the two groups.

Research Question One: What is the difference in the academic achievement scores of students taught chemistry using Ethno-Chemistry Instructional Strategy and demonstration method of teaching?

Table 1

Pretest and Posttest Mean Achievement Scores of Chemistry Students Taught Using Ethno-Chemistry Instructional Strategy and Those Taught Using Demonstration Method of Teaching.

Group	N	Pretest \bar{x}	Pretest SD	Posttest \bar{x}	Posttest SD	Gained Mean
EIS	48	13.13	3.85	28.38	6.36	15.25
DMT	43	12.88	4.71	22.28	5.67	9.40
Mean Difference		0.25		6.10		5.85

Table 1 reveals that students taught using EIS have pretest mean achievement score of 13.13 and posttest mean achievement score of 28.38 with gained mean achievement score of 15.25, while those in the DMT class have pretest mean achievement score of 12.88 and posttest mean achievement score of 22.28 with gained mean of 9.40. The students in the experimental group have higher posttest mean achievement score than

those in the control group. The difference between the gained mean among the two groups is 5.85 in favor of those who were taught using EIS.

Research Question Two: Is there any gender difference in chemistry students' academic achievement taught using Ethno-Chemistry Instructional Strategy?

Table 2

Post-Test Mean Achievement Scores of Male and Female Chemistry Students Taught Using Ethno-Chemistry Instructional Strategy

Group	N	\bar{x}	SD	Mean Difference
Male	25	27.60	6.22	
Female	23	29.22	6.54	0.38

Table 2 indicates that the mean achievement scores of male students taught chemistry using Ethno-Chemistry Instructional Strategy was 27.60 with standard deviation of 6.22 while those of the female students was 29.22 with standard deviation of 6.54. The mean difference between male and female achievement scores was 0.38. This shows that the female students have slightly high mean achievement scores than their male counterparts who were taught using EIS.

Hypotheses Testing

The null hypotheses formulated for the purpose of this research were tested at 0.05 Levels of significance using SPSS software.

Ho₁: There is no significant difference in the academic achievement of students taught chemistry using Ethno-Chemistry Instructional Strategy and demonstration method of teaching

Table 3

Independent Sample T-Test Analyses for Posttest Mean Achievement Scores of the Experimental and Control Groups.

Group	N	\bar{x}	SD	Df	t-cal	p-value	Remark
EIS	48	28.38	6.36			0.000	
DMT	43	22.28	5.67	89	4.80		Significant

p=0.05

Table 3 shows the analysis of the Independent sample t-test for posttest academic achievement scores of the experimental and control groups. The observed p-value was 0.000 with 89 as degree of freedom. The observed p-value is less than the levels of significance (0.05) and therefore the null hypothesis one is hereby rejected. Therefore, there is significant difference in the academic achievement of Chemistry students taught using EIS and those taught using

DMT, in favor of the experimental group (t-cal.= 4.80, df=89, p=0.000<0.05). This shows that the experimental group who were taught using Ethno-Chemistry Instructional Strategy outperformed the control group who were taught using demonstrational method of teaching.

Ho₂: There is no significant difference in the academic achievement of male and female students taught chemistry using Ethno-Chemistry Instructional Strategy.

Table 4

Independent Sample T-Test Analysis of Posttest Mean Achievement Scores of Male and Female Students Taught Chemistry Using Ethno-Chemistry Instructional Strategy.

Group	N	\bar{x}	SD	Df	t-cal	p-value	Remark
Males	25	27.60	6.22				
Females	23	29.22	6.54	46	-0.878	0.385	Not significant

p=0.05

From Table 4, the observed p-value was found to be 0.385 with 46 as degree of freedom. The observed p-value (0.385) is greater than the significant level (0.05). The null hypothesis two is hereby accepted and the reason for the acceptance is because the observed p-value (0.385) is greater than the significant level (0.05). Therefore, there is no significant difference in the academic achievement of male and female students taught chemistry using EIS (t-cal= -0.878, df=46, p=0.385>0.05). The p-value shows no significant difference because the male and female students were given equal opportunity to actively participate in the learning process and individual differences existing among them were equally considered.

Discussion of the Findings

Based on the findings from this study, it was revealed that the students who were taught using Ethno-Chemistry Instructional Strategy have higher mean achievement score than those who were taught using demonstration method of teaching. This mean that there is a significant difference in the academic achievement of chemistry students who were taught using Ethno-Chemistry Instructional Strategy and those taught using demonstration method of teaching, in favor of those taught using EIS. This result implies that

the use of EIS in teaching chemistry topics enhances the academic achievement of students. This finding is in agreement with the findings of Ajayi, Achor & Agogo (2017), Fasasi (2017), Siwale, Singh & Hayumbu (2020), Izondeme & chimelo (2021), Ure (2021) and Urhievwejire (2022) who revealed in their studies that students taught chemistry concepts using ethno-chemistry teaching strategy have higher mean academic achievement scores than their counterparts who were taught using conventional methods of teaching. The reason for this outcome in this current study and the previous ones may be connected to the fact that ethno-chemistry instructional approach helped the learners to integrate their cultural background of the study and their immediate environment with the foreign aspect of learning chemistry when compared to other conventional methods of teaching. The students were given equal opportunity and allowed to manipulate the learned materials in each lesson based on the cultural/traditional idea they have on the topics covered. It proved that the local wisdom of students which consists of cultural products and values has relevance to chemistry material that can be used as a learning resource. Chemistry concepts can be integrated with local wisdom from the analogy perspective,

representation, and visualization to make students easier to understand the pictures by using culture as a learning resource and natural laboratory.

From the findings of this study, it was further revealed that even though there was a slight difference in the mean achievement scores of male and female students taught chemistry using ethno-chemistry teaching strategy, the difference was not significant when subjected to independent sample t-test. This mean that there was no significance difference in the mean academic achievement of male and female chemistry students exposed to ethno-chemistry instructional approach. This finding concurs with Agboro-Eravwoke (2020), Mobark and Arabia (2014), whose studies showed no significant statistical difference in students' achievement based on gender. This result could be due to the instructional method employed while teaching the learning activities in line with Ethno-Chemistry Instructional Strategy. The male and female students were given equal opportunity to actively participate in the learning process and individual differences existing among the male and female students were equally considered. This might be the reason attributed to the equal academic performance across gender in the study.

Conclusion

This study investigated the effects of Ethno-Chemistry Instructional Strategy on senior secondary students' academic achievement in chemistry in Bade local Government, Yobe State, Nigeria. The result of the study revealed that there is a significant difference in the performance of

students taught chemistry using Ethno-Chemistry Instructional Strategy and those who were taught using demonstration method, in favor of the experimental group. Ethno-chemistry instruction strategy is a gender friendly teaching method, as there was no statistically significant difference in the performance of male and female students who were taught chemistry using the model in the study area. In the conduct of the research, the samples were drawn from only two schools in Bade Local Government, Yobe State; therefore, findings from this research may not be generalized to other secondary schools in Nigeria.

Recommendations

From the findings of this study, the following recommendations were made:

1. To effectively implement Ethno-Chemistry Instructional Strategy, workshops and seminars should be organized for Chemistry teachers on the model to enhance students' academic achievement.
2. Chemistry teachers should endeavor on their own to inculcate ethno-chemistry practices in the locality in their chemistry teachings as advanced organizers to help students understand the concepts better and achieve high in the subject.

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Special Education as a tool for Consolidating Democratic Gains in Nigeria

By

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Abstract

This study examined the intersection of special education and democratic gains in Nigeria, focusing on the period since the country's transition to democracy in 1999. Despite the optimistic expectations surrounding Nigeria's return to civilian rule, the education system—particularly special education—has struggled to meet its objectives due to persistent challenges. This paper investigates the significant gap between special education policy formulation and its effective implementation, highlighting issues such as inadequate funding, societal stigma, and the absence of robust legal mandates. The study employs a qualitative research approach, utilizing secondary data from government policies, reports, and literature. Findings reveal that poor funding and corruption hinder the full participation of children with disabilities in both educational and democratic processes. The paper argues that increased funding, enhanced public awareness, and strong legal protections are essential for improving special education and fostering inclusive democratic participation. Recommendations include strengthening policy implementation, increasing budgetary allocations, and promoting inclusive education through legal and public advocacy. The study underscores the need for Nigeria to embrace progressive changes to better integrate children with special needs into mainstream society and support their full potential.

Keywords: *Special Education, Democratic Gains, Nigeria*

Introduction

In the course of the last century, many countries have transited from various forms of government to democracy. More than half of the world's population now lives in a democracy of some sort, although only some 13 per cent of that population reside in full democracies (Garba, 2020). Huntington (1991) dubbed this era of increased transition to democracy as the third wave of democratization. The increased global diffusion and acceptance of democratic governance melted a lot of authoritarian regimes and also blew its wave to Nigeria in 1999 after long and tortuous years of military dictatorships. The return of multiparty democracy raised hope as to the arrival of the solution to Nigeria's political crises, the rule of law, freedom as well as institutional, infrastructural and national

development. It is pertinent to note that Nigeria is currently enjoying the longest period of civilian rule since independence in 1960. The first civilian republic ended in a military coup in 1966, ushering in a devastating civil war and several more military governments. Historically, therefore, the dearth of democratic experience has created enormous challenges to institutionalizing democracy and consolidating of democratic gains for economic and national development in Nigeria.

When democracy returned to Nigeria in 1999, expectations were high; the prevailing attitude among the citizenry was positive; the feeling was simply, "we are free; we can do what we like." Many believed it meant that the government would provide everything. Others thought it meant that the country's struggling

economy would finally improve. However, after twenty one years from the return to democracy still an average Nigerian encounters a number of frustration, disillusionment and psycho-moral dislocation owing to the failure of government to deliver the expected fruits of democratic governance. There's still high rate of unemployment, increased level of poverty, kidnapping, banditry and other social vices thereby creating disunity among the citizenry. Formal education in Nigeria dates back to the British colonial era. In the pre-colonial and colonial era, the colonial master introduced reading, writing, arithmetic which was the beginning of formal education system in Nigeria. Before now, education was informal, that is apprenticeship system of acquiring knowledge. With the advent of the British colonialism there was a shift from the informal to the formal system of education. Soon after the Nigeria independence tertiary institutions for manpower training and development were established by the Nigerian states. Consequently, this led to the growth of the Nigerian professionalism (Helen, Magdelene and Charles, 2013). The Nigerian education has had a tremendous impact on the Nigeria nation over the years. This is evident in the growth and development of the Nigeria civil service, political system, technological growth, communication, industrial growth, increase in agricultural production, medicine, engineering as well as the harnessing of her national endowment. Since the return to democracy in Nigeria in 1999, the nation has experienced a profound transformation in governance and socio-economic structures. This democratic

era, characterized by a shift from authoritarian rule to civilian government, has brought about both opportunities and challenges for various sectors, including education. One of the significant areas impacted by these democratic gains is special education.

Onwuegbu (1977) notes that ignorance, superstition, and taboos have caused the lack of care for learners with disabilities in Nigeria. Caulcrick (1980) further finds that cultural behaviors resulting from superstition and negative perception of these learners have led to poor identification, evaluation, placement, and instruction. Obiakor (1998) discovers that because of the negative perceptions, screening, evaluation, placement, and instruction have been affected. Furthermore, the absence of legal mandates indicates that parents lack their legal rights to due process, and as a result, they cannot initiate litigation against any form of discrimination against their children in terms of admission, initial screening, comprehensive evaluation, subsequent placement, individualized instruction, and service delivery.

Objectives of the Study

The objectives of the study are to:

- i. find out the gap between Special Education system and Democratic Gains in Nigeria.
- ii. identify the challenges associated with Children with special needs and Democratic Gains in Nigeria.
- iii. identify possible ways of improving the system of Special Education and Democratic Gains in Nigeria.

Review of Related Literature Democracy

Democracy is as copious as it is confusing. According to Erunke (2012) democracy is a

fluid concept that accommodates many definitions by scholars either in the classical political studies or in the contemporary world of scholarship. Hence, democracy has refused to subject itself to any one sentence or universally acceptable definition as they are definitions, postulations, interpretations and operationalizations as there are writers, analysts and authors on the concept. Democracy is a form of government, in which the supreme power of a political community rests on popular sovereignty. According to Oyovbaire in Garba (2020) democracy is a system of government which seeks to realize a generally recognized common good through collective initiation, and discussion of policy questions concerning public affairs and which delegates authority to agents to implement the broad decisions made by the people through majority vote. According to Cohen (1971) democracy is that system of community government in which by and large the members of the community participate or may participate directly in the making of decision on matters which affect them all. The views above depict the notion of equality and direct participation. Thus, in contemporary times, democracy has been referred to as the expression of popular will of the political community through elected representatives. The contemporary democracy according to Raphael (1976) rests on “representative government.” Here the ordinary citizen comes into the process only by casting vote in the favour of a representative or broad policy of a party.

Special Education

Different scholars or professionals in the field

have defined special education in different ways. However, despite variations in approach to defining the concept and the definitions tend to convey the same meaning. According to Okeke (2001), special education is the education within general education, designed not only to prevent, reduce or eliminate all the conditions that produce significant defects in all-round functioning of exceptional persons but also designed to render specialized services directed towards meeting the individual needs of exceptional persons. Special Education is described as the practice of educating students in a way that accommodates their individual differences, disabilities, and special needs (Wikipedia, 2023). According to the Individuals with Disabilities Education Act (IDEA), special education refers to specially designed instruction that meets the unique needs of a child with a disability (Partners Resources Network, 2019). Another definition highlights special education as encompassing programs serving students with mental, physical, emotional, and behavioral disabilities (Education Week, 2019). Special education instruction focuses on addressing the unique needs of a child resulting from the child's disability, tailored to ensure the child can meet educational standards (Pullen & Hallahan, 2017).

It should be noted that from whatever perspective special education is defined, the fact remains that it entails modifying the teaching strategy, instructional materials, as well as the learning environment so that individual instructional needs of the students are met. The gap between the special education

and democratic gains in Nigeria can be seen clearly. As it was discovered based on some researches, government is the major source of income for socio economic and educational advancements. Funds are generated from oil revenue and exportation; and corruption centres on how to be wealthy without regard to socio educational investments. Ignatius Ajuru University of Education highlights that Nigeria's current education system suffers from inadequate funding, decayed infrastructure, and corruption, all of which hinder its contributions to national development ([Facebook post, 2021](#)).

A paper on Educational Policy Implementation notes that Nigeria faces major issues in implementing education policies, primarily due to insufficient funding and corruption, which undermine accountability and governance (Enyiazu, 2022). Ololube (2016) indicates that poor implementation of national policy on education funding, coupled with corruption and debt servicing, has greatly affected the provision of quality education in Nigeria. Obiakor and Afoláyan (2012) discusses how corruption and a lack of funding, particularly from oil revenues, have hampered the advancement of special education in Nigeria.

The Role of Special Education in Consolidating Democratic Gains in Nigeria

Special Education as a Tool for deepening democracy; generally special education should ideally liberate one from the corrupting shackles of greed and graft, from the basal influences of primitive superstition, of ethnic and religious bigotry and from the corrosive instincts of selfishness and parochialism. Good wholesome special education strives for

excellence over mediocrity and promotes the patriotic spirit in place of blind sycophancy good wholesome education should place high premium on truth, justice, individual and social morality, as well as peacemaking. Good whole education should be education in leadership, the type that would throw up the leader as servant, mentor, inspirer and visionary. Good, wholesome education should emphasize civic and political awareness, training in human dignity and fundamental human rights and citizen responsibilities. Good, wholesome education should encompass training in the democratic culture and in popular participation in governance. Good, wholesome education today should include training in healthy living, ecological justice and environmental sustainability. “Higher education can play a vital role as we work together in common cause to consolidate those gains, to strengthen institutions, to fight repression, to promote good governance. The power of education is integral to spreading peace and deepening democracy. When people participate in the democratic process and become engaged, they build peace, day by day, year by year”

(www.im.org/News/Press/doc/2011/sgsml3799.doc.htm).

As Okeke (1999) points out that special education creates awareness, appreciation of self and societal values as well as development of self such that one can be most beneficial and productive to both self and society at large. It is also fundamental to observe that, there is the need to mount a campaign with a view to changing the unfavourable public attitudes towards children with special needs. The public

should be made to understand that such category of individuals should not only be conveniently accommodated but also as well be accepted respected as people who are worthwhile. This is because when special needs persons are given a sense of belonging their senses of positive self concept and self esteem will be enhanced. Furthermore, in 2016 about seven (7) million children were reported to be out of school because of their inability to access primary education due to disability state (Ayansina, 2016).

Looking at the points above, it can be seen clearly that, special education system in Nigeria need to be adequately finance by government and manage effectively. With this, special need learners will have something positively to contribute towards the consolidating democratic gains in Nigeria. Because they will utilize their education in a positive way which make them to be involved or employed in different sectors/ministries where they will work and earn their leaving which will indicates that, disability is not a diseases and this will reduce the number of street beggars in the country. A part from this, those that can be trainable, will also have to receive a vocational training and assisted with some capital to start their own business which will help them to become self independents.

As it appears, special education has made some progress in Nigeria. However, the more things change, the more they remain the same. According to Abang (1995) while special education programs have embraced some slight recognition in some parts of the country, it has failed in other parts of the country, as Eskay

(2001) notes that cultural beliefs, division among ethnically diverse Nigerians, and divisive politics still account for the unequal representation and treatment of learners with disabilities. Based on recent findings, Muuya (2002) indicates that many people do not see any significance in educating people with disabilities, and thus, there exists division among policy makers. Because of political and cultural issues militating against special education programming, there seems to be a continuous stagnancy of special education programming since the enactment of Section 8 of the NPE more than three decades ago. In any democratic society, no program can be successful without legal enforcement. As it stands, there is no legal mandate from government to carry out the objectives enumerated in Section 8 of the NPE with regard to people with exceptionalities.

Special education aims to take care of those children which the regular education is insufficiently equipped to handle. In this case, one special education goal is to handle regular education dropouts. Imagine what will happen if there is no special education to take care of such children. However, special education does not claim it can heal/cure the impairments of its clients; rather it aims at enabling the individual to understand and cope with his problems, thus producing a happily adjusted special Nigerian. Besides, the individual is made socially mature to face the realities of life. One main goal of special education in this regard is to minimize the effects of handicaps and within the limits permitted by the same handicaps. Though special education may be expensive, it brings in

social and economic returns to the government in the long run. For one naira spent on educating the exceptional child, the government reaps that amount five times in return. When the special learner is educated/rehabilitated and obtains an employment, he pays tax and contributes economically to the nation through the various ways he spends his salary and wages. If he is self-employed, he can reduce unemployment rate, apart from contributing to the gross domestic product (GDP) of the country (Ozaji, 2005). From the above, it can be observed that special education plays an important role in consolidating democratic gains in Nigeria.

Challenges facing Special Education in Consolidating Democratic Gains in Nigeria

The need for a more effective legislation in matters affecting the special needs children is very pertinent particularly under the era of political dispensation. This will enhance their rights against discrimination. As Jatau et al (1998), rightly observes this will make for a shift from welfarism to mandatory provision of services to special needs persons. Also Igwe (1994) cited in Okeke (1999) rightly pointed out that education creates awareness, appreciation of self and societal values as well as development of self such that one can be most beneficial and productive to both self and the society at large. Fundamentally, there is the need to mount a campaign with a view to changing the unfavourable public attitudes toward children with special needs. The public should be made to understand that such category of individuals should not only be conveniently accommodated but also should as well be accepted and respected as people who

are worthwhile. This is because when special needs persons are given a sense of belonging, their sense of positive self-concept and self-esteem will be enhanced. There has been shortage of funds for the implementation of educational policies and programmes thus making the Nigerian educational system incapable of meeting the challenges and demand of the 21st century. With the dawn of the millennium dispensation and the natural resource with which Nigeria is greatly endowed it is hoped that in the near future the aforementioned problem would be a thing of the past (Olekedo, 2004). Nepotism, stateism, and corruption still dominates Nigeria, where the dream of many educated Nigerians is still to push a pen behind an office desk. This kind of attitude has resulted in little venturing in creating private businesses to improve employment and expand wealth. Government is the major source of income for socio-economic and educational advancements. Funds are generated from oil revenue and exportation; and corruption centers on how to be wealthy without regard to socio-educational investments. Contracts are awarded to people not because of their ability to do quality work but because of their ability to bribe their way through (Obiakor & Braggs, 1998). Many Nigerians have not benefited from special education programs, as outlined by Section 8 of the Nigerian NPE (National Policy on Education), but mostly because of inadequate funding (Mba, 1989; Obiakor, 1998), cultural beliefs (Afolabi, 1990; Eskay, 2001; Obiakor, 1998; Onwuegbu, 1977), negative perceptions (Afolabi, 1990; Obiakor, 1998), teacher

qualification (Abosi & Ozoji, 1995; Ekeleme, 1974), and the non-existence of legal mandates (Obiakor, 1992).

Possible ways of Improving the System of Special Education and Democratic Gains in Nigeria

There is a need for better policy implementation, especially concerning the National Policy on Special Education. Although Nigeria has made progress in policy-making, the gap between formulation and effective implementation remains a major challenge. Policies must be backed by strong political will and accountability to ensure that children with disabilities can access quality education (Nanjwan & Ashi, 2019). Advocacy is essential in educating parents, caregivers, and communities about available services in special education. Improving public awareness will help parents navigate the education system and demand better services. Additionally, inclusive education must be actively supported through legislation that promotes and enforces the rights of students with disabilities (Agidi, 2022).

Increased funding is vital for the success of special education programs. Adequate resources will ensure that schools can afford specialized equipment, trained teachers, and proper infrastructure. This will enable the system to meet the unique needs of learners with disabilities, thereby improving their participation in the democratic process (World Bank, 2020). Education plays a crucial role in promoting democratic engagement. Implementing comprehensive education policies that involve youths with disabilities can foster their active participation in democratic

activities. Education can empower them to advocate for their rights and contribute to societal development (Okafor, Ikeche & Obikwelu, 2018).

Methodology

The study adopted qualitative research techniques to investigate the gap between special education and democratic gains in Nigeria. The Study relied on secondary data from document analysis of government policies (e.g., the National Policy on Education), reports, and literature on special education, democracy, and socio-economic development in Nigeria.

Findings of the study

1. it was revealed that there is a significant gap between policy formulation and implementation, largely due to poor funding and corruption, which hinders the full participation of children with disabilities in democratic and educational processes.
2. Inadequate funding, societal stigma, and the absence of legal mandates prevent children with special needs from accessing quality education and participating in democratic opportunities.
3. Increasing funding, raising public awareness, enforcing legal protections, and promoting inclusive education are essential steps to improve special education and enhance democratic participation for children with disabilities in Nigeria.

Conclusion

To join other progressive countries in recognizing, protecting, and maintaining the rights of learners with exceptionalities, it is

imperative that Nigeria begins to shift its paradigm in the 21st century by putting away the old tradition of negative perceptions on these learners. Clearly, it is critical that Nigeria looks at the future as it includes these learners into the mainstream society and helps them to maximize their fullest potentials. Education for people with special needs should be adequately funded by government for proper running and maintenance of the programme such as, providing well and effective learning materials and improve the welfare of the learning environment. The teachers should also have to be motivated either materially or by other reinforcement means. Besides educating the learners with special needs, public enlightenment to normal people about the people with disabilities is another duty of government because of the stigma shown to them. This can be done through media such as newspapers, television and so on.

Recommendations

The following are some of the recommendations based on the findings.

1. The government should strengthen the implementation of special education policies by ensuring accountability and transparency in the allocation and use of funds. Additionally, regular monitoring and evaluation should be enforced to ensure that children with disabilities can access quality education and participate in democratic processes.
2. To combat inadequate funding, the government must increase budgetary allocations for special education and ensure that these funds are properly managed. Public campaigns should be launched to change societal attitudes and reduce the stigma surrounding disabilities, fostering greater inclusion in education and society.
3. Furthermore, legal frameworks should be established or reinforced to protect the rights of children with special needs, ensuring that they are not discriminated against in education or democratic participation.
4. To improve the system, the government should prioritize inclusive education by integrating children with disabilities into mainstream schools, while also providing specialized support where needed. This should be accompanied by vocational training programs to empower children with special needs to become self-reliant and contribute to society.
5. Advocacy and public awareness campaigns should be intensified to educate parents, caregivers, and the public about the importance of inclusive education and the democratic rights of individuals with disabilities.

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Effects of Animated-Media-Instructional Strategy on Academic achievement and Retention of Some Difficult Concepts in Biology among Secondary Schools Students in Gashu'a Education Zone, Yobe, Nigeria

By

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Abstract

This study examined the effect of animated-media instructional strategy on academic achievement and retention of some difficult concepts in Biology among secondary school students in Gashu'a education zone, Yobe, Nigeria. Two objectives and two null hypotheses were raised to guide the study. The study was pinned on Cognitive Theory of Multimedia Learning (CTML). The design of the study was quasi-experimental involving pretest posttest and post posttest non-equivalent control group design. The population of the study comprised of 2160 secondary school 2 (SS II) Biology students in all the public secondary schools in Gashu'a education zone. Purposive sampling technique was used to select 63 Biology students (31 experimental and 32 control groups). The experimental group was taught the concept of nervous system, bacteria and nutrients cycling in nature using animated-media instructional strategy while the control group was taught using conventional lecture method within six weeks. Biology Difficult Concept Achievement Test was the instrument used for data collection with reliability coefficient of 0.54 which was obtained using Pearson product Moment Correlation. Mean and standard deviation was used to answer the research questions. The null hypotheses were tested using independent sample t-test at 0.05 levels of significance. Findings of the study demonstrated that students taught using animated-media instructional strategy have significantly higher academic achievement and retention scores than those taught using the conventional lecture method. Based on the findings of the study, it was recommended that Biology teachers should adopt the use of animated-media instructional strategy to teach difficult concepts in Biology. Ministry of education should organize seminars for teachers on how to design and deliver instructions using animated-media instructional strategy.

Keywords: *Animated-media instructional strategy, difficult concepts, academic achievement and retention*

Introduction

It is apparent in the fourth industrial revolution that multimedia gadgets are utilized in many areas of human endeavor with varying interface. Today multimedia tools are the center of interest to many educators and these necessitated researchers carry out extensive study on how successful results of learning must be provided with those tools (Yildirim, 2018). As a consequent of this, teachers make use of information communication technology to consolidate the quality of their work and productiveness (Hanif,

2020). It is obvious that secondary school biology students perceive nervous system, bacteria and nutrients cycling in nature as difficult as indicated by a substantial number of research studies conducted both at the global and the local context (Haruna, 2021; Firmanshsh & Jamaluddin, 2020; Hadiprayitno & Kusnmiyati, 2019; Chukwuemeka & Dorgu, 2019 and Etobro & Fabinu, 2017) clearly revealed that student experience difficulties in conceptualizing the concepts under investigation. The principal

factors which contribute to student's difficulties in those concepts include teaching strategies employed by class room teachers, students' attitudes towards biological concepts, inadequate learning resources, study habits, nature of the topics, teachers' novice, as well as class room learning environment (Haruna, 2021; Sawarkar & Deshpande, 2020).

Teachers in developing countries Nigeria in particular most often adopt the teacher centered teaching strategies (Odey, 2021). As a consequence of this, students encounter difficulties in understanding some biological concepts especially the abstract concepts (nervous system, bacteria and nutrients cycling in nature) The nervous system is an internal system, the bacteria are microscopic in nature and the nutrients cycling are composed of invisible elements mostly gaseous in nature.

Literature Review

Secondary school Biology students experience difficulties in understanding the concept of nervous system, bacteria and nutrients cycling in nature through the conventional lecture method. The conventional lecture method of instruction is often referred to as the "chalk and talk" method of instruction which involves a direct instruction by the teacher whose principal role is to transmit information to the learners, conduct testing and assessments (Abah, 2020). Rompas, Wenas, Sambuaga and Mangelep (2023) emphasized that the difficulties which students experience during teaching-learning processes adversely affects academic achievements.

Academic achievement as expressed by Filgona and Sakiyo (2020) is a cognitive component used to measure academic progress in school. Aiyedun (2020) mentioned that innovative strategies such as animations can be effectively used to enhance students' academic achievement and retention there by enabling students internalize ideas and information and retrieve them at a future time.

Animation literally signifies "moving something such as images that cannot move by itself" (Olamigoke, 2021). It is simply a form of visual presentations that has become the most striking feature of technology-based learning environment. It is the simulation of moving pictures showing movement of drawn objects (Bamidele & Yoade, 2017). The adoption of this computer aided learning is based on Cognitive theory of Multimedia Learning CTML.

Retention has been viewed differently by many researchers. Ejeh, Adejoh, Ochu and Ogbekpenge (2021) view retention as the ability to recall what has been learnt after an interval of time. Eze, Onwusuru and Ginigeme (2021) claimed that retention is very vital in sustaining academic achievements. This is because if a student achieves a high score in a posttest and a low score in a retention test (post post-test) is a clear indication that the student did not register it in the long term memory. Moses (2020) stressed that poor retention of learning experienced by students as expressed in their internal and external examinations has brought about much concern to classroom teachers, parents, and educationist, hence the need to investigate and

find out more strategies that can effectively deal with such problems and can bring about the required retention among secondary schools biology students.

In a study carried out by sari, susilo, and limbong (2021) on the effects of short animation videos in web meeting classes for secondary school learners' English as a Foreign language Learning (EFL) narrative writing achievement". The outcome of the study demonstrated that there was a significant effect of short animation videos on the narrative writing achievement of the secondary school EFL learners. In a similar study conducted by Zahari and Iskanar titled "web-based animation video for students of environmental education at elementary schools". The finding of the study indicated that there was a significant difference between the post test of the experimental and control group in favor of the experimental group. Additionally, in a study conducted by Alachi, Oleribe, Emeghara and Umahi (2022) titled "Effect of animation application on students' retention of difficult physics concepts in senior secondary schools in Owerri education zone 1 of Imo state. The finding of the study demonstrated that there was a significant difference in the retention between students taught physics using animation application and those taught using conventional teaching method. The difference was in favor of experimental group. Also in a study carried out by Ejike, and Opara, (2021) on the "the effects of animation instructional strategy on students' academic achievement and retention of chemical

bonding among senior secondary school in Otuocha education zone of Anambra state". The findings of the study categorically showed that students who were exposed to the treatment (animation instruction) achieved and retained better than those who were not exposed to the intervention when taught chemical bonding.

Considering the fact that secondary schools students perceive the concept of nervous system, bacteria and nutrient cycling in nature as difficult and often, researchers attribute this difficulty to problems of instructional strategies adopted by classroom teachers in the Study area It was imperative therefore to conduct a study on the Effect of Animated-media Strategy on academic achievement and Retention of Some Difficult Concepts in Biology among Secondary School Students in Gashu'a Education Zone, Yobe, Nigeria.

Objectives of the Study

1. To determine the difference in the mean academic achievement scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught using the conventional lecture method.
2. To find out the difference in the mean retention scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through conventional lecture method.

Research Questions

This study was guided by the following research questions:

1. Is there any significant difference in the mean academic achievement scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through conventional lecture method?
2. Is there any significant difference in the mean retention scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through the conventional lecture method?

Research Hypotheses

1. H_{01} : There is no significant difference in the mean academic achievement scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through conventional lecture method.
2. H_{02} : There is no significant difference in the mean retention scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through the conventional lecture method.

Methodology

This study utilized quasi-experimental design involving pretest, posttest and post posttest nonequivalent control group design. The population of the study comprised of 2160 SS 2 students offering Biology in all the public

secondary schools in Gashu'a education zone. The sample of the study constituted of 63 SSII Biology students (31 experimental group and 32 control group) drawn from two intact classes for both experimental and control group. This sampling technique was used on the basis of Information Communication Technology (ICT). The instrument used for data collection was tagged Biology Difficult Concept Achievement Test. It consists of 40 multiple choice questions in which some of the items were developed by the researcher while some of them were drawn from West African Examination Council 1988-2020 past questions and answers. All the items on the instrument were from the sub-topics under the concept nervous system, bacteria and nutrients cycling in nature. The instrument was validated and a reliability of 0.54 was obtained using Pearson product moment correlation (PPMC) through test retest method. The experimental group was taught using the experimental treatment condition (animated-media instructional strategy) while the control group was taught using the conventional lecture method of teaching. The animated videos used in this study were simulation of moving pictures showing movement of drawn objects. .

The experimental and the control group were pretested in order to find out the students' level of equivalence, after which the treatment was administered. Having done that for the experimental and the control groups, the groups were subjected to post test and post posttest in order to determine the effect of the treatment

condition on students' achievement and retention of the difficult concepts in biology.

Moreover, in this study, students were given the opportunity to study the difficult concepts using senses of sight and hearing in line with the principles of multimedia learning as highlighted by Mayer (2014) which eventually brought about improvement of students' retention ability. The data collected were analyzed using mean and standard deviation and independent sample t-test

for testing the null hypothesis at 0.05 levels of significance.

Result Presentation

Research Question 1

Is there any significant difference in the mean academic achievement scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through the conventional lecture method?

Table 1

Mean and Standard Deviation of Posttest Academic Achievement Scores of Experimental and Control Group.

Group	N	Mean	SD	MD
Experimental	31	22.03	4.43	
Control	32	17.50	4.28	4.53

Table 1 reveals that students taught using animated-media instructional strategy have posttest mean achievement score of 22.03 while those in the conventional lecture method have posttest mean achievement score of 17.50 with mean difference of 4.53. The experimental group has higher posttest mean achievement scores than the control group.

1. **H₀₁**: There is no significant difference in the mean academic achievement scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through conventional lecture method.

Table 2

Independent Sample T-test for Posttest Achievement Scores of the Experimental and Control Group.

Group	N	\bar{x}	SD	Df	t-cal	p-value	Remark
Experimental	31	22.03	4.43				
Control	32	17.50	4.28	61	4.130	0.000	Rejected

P=0.05

Table 2: shows the independent sample t-test for posttest mean achievement scores of the experimental and control groups. The p-value was (0.000) which is less than the significant value (0.05) with df=61. The null hypothesis was

rejected; this is because the observed p-value is less than the alpha value, thus indicating a significant difference between the experimental and the control group in favor of experimental group.

Research Question 2:

Is there any significant difference in the mean retention scores of secondary school students taught selected difficult concepts in Biology

using animated-media instructional strategy and those taught through the conventional lecture method?

Table 3

Post Posttest Mean and Standard Deviation Scores of the Experimental and Control Groups

Group	N	\bar{x}	SD	MD
Experimental	31	21.77	4.52	
Control	32	14.75	2.69	7.02

From table 3 above, the experimental group has post posttest mean scores of 21.77 while the control group has post posttest scores of 14.75 with mean difference of 7.02. This indicates that the experimental group has higher post posttest mean score than the control group.

H₀₂: There is no significant difference in the mean retention scores of secondary school students taught selected difficult concepts in Biology using animated-media instructional strategy and those taught through the conventional lecture method.

Table 4

Independent Sample T-test for Post Posttest Retention Scores of the Experimental and Control Group.

Group	N	\bar{x}	SD	df	t-cal	p-value	Remark
Experimental	31	21.77	4.52				
Control	32	14.75	2.69	61	7.523	0.000	Rejected

P=0.05

Table 4 above shows the independent sample t-test for post posttest mean retention scores of the experimental and control groups. The p-value was (0.000) which is less than the significant value (0.05) with df=61. The null hypothesis was rejected; this is because the observed p-value is less than the alpha value, thus indicating a significant difference between the experimental and the control group in favor of experimental group.

between the two groups was 4.53 indicating a significant difference in the mean achievement scores in favor of experimental group.

2. The mean retention scores of experimental group was 21.77 and that of the control group was 14.75. The mean difference between the two groups was 7.02 indicating a difference in the mean retention scores in favor of experimental group.

Summary of Findings

1. The mean academic achievement scores of experimental group was 22.03 and that of the control group was 17.50. The mean difference

Discussion of Findings

The first finding of the study revealed that the use of animated-media instructional strategy enhances students' academic achievement of difficult concepts in Biology significantly better

than those taught through lecture method. This finding is in agreement with the finding of Sari, Susilo & Limbong, 2021; Zahari, & Iskandar, 2021 who conducted a study found that students who learned using animated-media instructional strategy had higher achievement scores than students who were taught using the conventional method of teaching. This may be due to the nature of the processes involved in the animated-media instructional strategy classroom where students were given opportunity to utilize their two senses (sense of sight and hearing) at the same time to study difficult concepts as opposed to the conventional lecture method which involved the sense of hearing alone.

Additionally, this finding also revealed that the use of animated-media instructional strategy enhances students' retention of difficult concepts in Biology significantly better than those taught through lecture method. The finding of this study is in agreement with the findings of Alachi, Oleribe, Emeghara & Umahi 2022; Ejike, & Opara, 2021. The reason for having this finding may be due to the application of the principles of multimedia learning which is not applicable in the conventional lecture method.

Conclusion

Based on the finding of this study, animated-media instructional strategy improves academic achievement and retention of selected difficult concepts in Biology significantly better than lecture method.

Recommendation

From the findings of the study, the following recommendations were made:

1. Biology teachers should make use of animated-media instructional strategy to teach difficult concepts in Biology as animated-media instructional strategy enhance students' academic achievement and retention of difficult concepts in Biology.
2. Ministry of education should procure adequate facilities that will sustain animated-media instructional strategy instruction in Biology to enhance students' academic achievement and retention of the difficult concepts in Biology.

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**Impact of Parents' Attitudes on Girl-Child Education in Jalingo Local Government Area,
Taraba State**

By

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Abstract

This is the study of the impact of parents' attitudes on girl-child education in Jalingo Local Government Area, Taraba State. Three research objectives which includes, to identify the impact of parental perception on their girl-child education, identify the extent to which interest of parents' impact on their girl-child education and identify parents' level of confidence on their girl-child education in Jalingo Local Government Area. A stratified random sampling procedure was employed, with 359 respondents forming the sample size of the study was drawn from a population of 5,350 and a structured questionnaire was used for collecting data from the respondents. The answers to the research questions were provided using tables of frequencies and percentages to analyze the data obtained from the field. Descriptive statistics of mean were used for data analysis. It was found that Kona parents have negative attitudes toward girl-child education in Jalingo Local Government as the study revealed. Based on the findings of this study, the study concluded that parents have negative attitudes toward girl-child education, issues such as the untimely payment of girl-child school fees, lack of concern for the academic progress of girl-children, and giving out girls for early marriage were identified. The researchers also concluded that a lack of interest and concern were some of the main factors responsible for the negative attitudes of parents toward girl-child education in Jalingo Local Government Area. The study recommended Government agencies should embark on enlightenment campaigns to encourage parents on the need for girl-child education among others.

Keywords: *Girl-child*, education and girl-child education.

Introduction

Parents are very influential in the lives of their children, they can shape, sustain, and develop children who will be active, diligent, creative, and tolerant through their positive involvement in the learning process and educational activities. Croll (2006) in Abdulkadir et al. (2018) maintains that, in the northern part of Nigeria, parents prefer to give out their daughters for marriage earlier than parents in other parts of the country. Parents are also capable of repressing and destroying the motivation and ability of their children through neglect and indifference to their achievements. According to Kobani & Oroworukwo (2014), the girl-child is a biological female offspring from birth to 18 years of age. During this

period, the young girl is totally under the care of adults who may be parents, guardians, or elder siblings. It is also a period when the girl-child is malleable and builds and develops her personality and character. Her physical, mental, social, spiritual, and emotional developments start and progress to reach their peak at the young adult stage.

Women and girls in developing countries are often denied opportunities for education, which in turn limits prospects, decreases family income, limits economic advancement, and puts girls at risk of human trafficking and exploitation (Chingtham and Guite 2017). Education is the process of providing

information to help individuals develop physically, mentally, socially, emotionally, spiritually, politically, and economically. Education is the process through which individuals are made functional members of society (Ocho, 2005). Education brings improvement in health, economy, agriculture, and other areas. Omede and Otumabo (2016) affirm that when a girl-child is educated, there is an increase in family earnings, improvement in health and nutrition, reduction in poverty, and increased fertility levels.

According to Ekejiuba (2011), the issue of poverty has further aggravated the situation of girls' lack of access to education because some parents, when faced with scarce resources, choose to educate boys rather than girls. These traditional beliefs and parental poverty have been found to foster negative attitudes that limit parental support for girl-child education. In addition, Olomukoro and Omiunu (2011) noted that factors such as cultural inhibitions, erroneous interpretations of religious injunctions, traditional practices, early betrothal of girls in marriage, gender insensitivity in educational environments, societal preference for the male child, and overburdening the girl-child with household chores and labor.

National Policy on Education (2004) clearly states that equal educational opportunities should be given to every Nigerian child irrespective of gender or location. According to UNICEF's (2018) global annual results report, one out of five children are out of school due to

gender, ethnicity, poverty, and displacement. It further confirms that girls face multiple barriers to education, including early marriage, early pregnancy, and unsafe learning environments. Though the number of girls out of school worldwide has dropped by 79 million, regional variations still exist. Attitudes, being the lasting patterns of feelings, beliefs, and behavioral tendencies expressed towards other people, ideas, or objects, may be influential in taking decisions and expressing a preference toward something.

Statement of problem.

In Nigeria, men and women have their own roles to play for the benefit of society. Men are said to be the head of the family, while women take care of the children and the house. This practice has been ongoing for generations and thereby stands as a drawback for females in many fields, especially education. Parental involvement is influenced by many factors, ranging from ignorance, poverty, cultural factors, and the distance between the home and the school, to the perceived utility and value of education, among others. The education of boys is considered more important because they are expected to look after their parents and family, while girls are expected to be married off. These attitudes of parents toward female education are very common in rural parts of Nigeria. Some parents still believe that secondary school education is the highest they can offer their female children because they see them as temporary members of the family.

Most African countries believe that women are meant for domestic chores; therefore, females

are seen as future homemakers, this conform with Croll (2006) in Abdulkadir et al (2018) who stated that, in the Northern part of Nigeria parents prefer to give out their daughters for marriage earlier than girls from other part of the country. This is what prompted the researcher in conducting study by evaluating the impact of parents' attitudes on girl-child education in Taraba State.

Research objective

The general objective of this study is to identify the impact of parents' attitudes on girl-child education while the specific objectives are to:

- i. identify the impact of parental perception on their girl-child education in Jalingo Local Government Area, Taraba State.
- ii. identify the extent to which interest of parents' impact on their girl-child education in Jalingo Local Government Area, Taraba State.
- iii. identify parents' level of confidence on their girl-child education in Jalingo Local Government Area, Taraba State.

Based on the objectives of the study, the following research questions were developed to guide the study:

- i. What is the impact of parental perception on their girl-child education in Jalingo Local Government Area, Taraba State?
- ii. To what extent does interest of parents' impact on their girl-child education in Jalingo Local Government Area, Taraba State?
- iii. To what levels does parents have confidence on their girl-child education in Jalingo Local Government Area, Taraba State?

Theoretical framework

Radical Feminist Theory by Susan Brownmiller

This theory is guided by radical feminist theory, which emerged in the 18th century. Radical feminist theory analyzes patriarchy as the primary cause of women's oppression. One of the proponents of this theory, Susan Brownmiller, argues that women are subordinated and exploited by men because of patriarchy. Feminists further assert that women can only be liberated through debates on overhauling the patriarchal structure (Pilcher and Imelda, 2008). They blame the exploitation of women on men because they see society as patriarchal.

In the patriarchal nature of African culture, value is placed on the boy-child's education more than that of the girl-child. Girls are subordinate and undervalued, such that they do not have educational opportunities equal to boys. In the same vein, Akinpelu, (2014) stated that northern and eastern part, priority is still giving to male and this issue even among the educated elites are still happening; there is that general conception that female children will eventually marry but male child will preserve the name of the family.

Empirical Review

Ordu, Ignatius & Rumu. (2019) examined the attitudes of parents towards the education of their daughters in the Etche Local Government Area of Rivers State. Their findings revealed a significant variation in parental attitudes toward girls' education based on the parents' educational levels. This finding underscores the crucial role that parental education plays in

determining whether their daughters attend school.

Similarly, Mohammed, Horo, Muhammad and Ibrahim. (2019) explored factors influencing parental attitudes towards girls' education and found that low socio-economic status is a major factor. Their research utilized regression analyses to assess the impact of religious beliefs, cultural practices, and socio-economic status on parental attitudes towards girls' education. The results showed that poverty is the most significant socio-economic factor negatively affecting attitudes towards girls' education, primarily due to financial constraints.

In another study, Akpede, Eguvbe, Akpamu, Asogun, Momodu and Igbenu. (2018) investigated parental attitudes and practices regarding girls' education and found a statistically significant positive correlation between the parents' educational level and their attitudes toward educating their daughters. Iqbal and Mohyuddin (2013). Conducted a study on the Traditional Attitude of Parents and its Impact on Female Educational Attainment in Rural Hafizabad, Pakistan their findings reveal that that most parents ceased sending their daughters to school after primary education due to misunderstandings about religious teachings and the belief that girls were given undue attention in terms of grooming.

Methodology

A descriptive survey research design was used for this work. The study was conducted in some selected communities in the Jalingo Local Government Area, comprising Mayo Dassa,

Wuro Sembe, Mile Six, Nasarawo, and Anguwan Gadi, respectively. The population of the study consists of 3,200 parents and 2,150 teachers in the Jalingo Local Government Area, Taraba State, summing up to a total targeted population of 5,350 respondents. However, a sample representation was made from selected areas of this study. A sample size of 359 (comprised of 215 parents and 144 teachers), representing 28 percent of the population under study, was selected based on the view of Gay in Olayiwola (2007), which states that a sample size of 10% is adequate in descriptive research. The samples were thereafter proportionately taken from the five selected areas in Jalingo. The instrument used for the collection of data was a 22-item structured questionnaire titled "Parents' Attitudes on Girls' Child Education Questionnaire" (PAGCEQ), drafted using a four-point rating scale of Strongly Agree (SA) = 4 points, Agree (A) = 3 points, Disagree (D) = 2 points, and Strongly Disagree (SD) = 1 point. The questionnaire items were subjected to face and content validation by three experts from the field of Education and Measurement in the Faculty of Education, Taraba State University, Jalingo. Mean and simple percentages were used to answer the research questions posed for the study. The mean range that determined the acceptance level was 2.50 to 3.49 and above, using the real number limit, as shown below: $4+3+2+1=10/4=2.50$. This is based on the four-scale questionnaire design.

Data presentation, Analysis and Interpretation

A total of 359 respondents, made up of teachers and parents who were members of the Parents

Teachers Associations of the selected schools, participated in the study. The methodology used for the sample selection and the response rate from each group is explained above, total of 215 parents and 144 teachers were involved

in the study. Their demographic characteristics, along with their expressed opinions on the subject of investigation included gender and status (teacher or parent).

Table 1: Gender

S/No	Gender	Frequency	Percent
1.	Male	190	58.3
2.	Female	169	41.7
Total		359	100

Source: field survey data 2024

Table 1 show the distribution of the respondents based on their gender. It can be seen from the table that most of the respondents were male which

comprising 58.3%, while Female comprised 41.7%. this indicate that the majority of respondents were male.

Table 2: Response Rate

S/no	Status	Frequency	Percent
3.	Teachers	144	40%
4.	Parents	215	60%
Total		329	100%

Source: field survey data 2024

Table 2 represents the distribution of respondents based on their status. From the result as shown in the table above, it was reported that 40% of the respondents were teachers while 60% were parents.

Research question 1

What is the impact of parental perception on their Girl-child education in Jalingo Local Government Area, Taraba State?

Table 3: Mean ratings of the respondents on the impact parental perception on their Girl-child education.

S/no	Items Description	N	Mean	Decision
5	Parents always pay their Daughter(s) school fees on time	359	2.18	Rejected
6	Parents often try to know about their daughter (s) Achievements in school	359	2.12	Rejected
7	Parents always purchase writing materials and textbooks for their girl child	359	2.07	Rejected
8	Parents always check whether their girl child has done her school work or not	359	2.38	Rejected
9	They limit the amount of time their daughter(s) Spend with friends on school days.	359	2.96	Accepted
Grand Mean			2.34	Rejected

Source: Field survey data 2024

Table 3 presents the impact of parental perception on the education of their Girl-child. Item 3 revealed that the respondents rejected the statement that parents always pay their daughters'

school fees on time (Mean = 2.18). Item 4 also revealed that respondents rejected the statement that parents often try to know about their daughters' achievements in school (Mean = 2.12).

Item 5 showed that the respondents rejected the statement that parents always purchase writing materials and textbooks for their daughters (Mean = 2.07). Item 6 revealed that respondents rejected the statement that parents always check whether their daughters have done their schoolwork or not (Mean = 2.38). Item 7 showed that the respondents

accepted that parents limit the amount of time their daughters spend with friends on school days (Mean = 2.96).

Research Question 2:

To what extent does interest of parents’ impact on their girl-child education in Jalingo Local Government Area, Taraba State?

Table 4: mean ratings of the respondents on the impact of parent’s confidence on girl child education.

S/No	Items Description	N	Mean	decision
10	Girl-Child requires Basic Education to contribute to the Development of the economy	359	3.18	accepted
11	There should be no limit to Education of Girl-Child	359	1.84	Rejected
12	Parents pay special attention on the Education of their Girl-Child	359	3.00	Accepted
13	Early marriage is a major factor in terminating Girl-Child Education at secondary level	359	3.02	Accepted
14	The culture plays a major role in getting Girl-child to early marriage in place of education	359	3.02	Accepted
Grand Mean			2.88	Accepted

Source: Field survey data 2024

Table 4 gives the mean ratings of the respondents regarding their opinion on the impact of parents' confidence on girl-child education in Jalingo Local Government Area, Taraba State. Based on the responses, Item 8 indicated that the respondents accepted that girl-children require basic education to contribute to the development of the country (Mean = 3.18). Item 9 revealed that the respondents rejected the statement that there should be no limit to the education of girl-children (Mean = 1.84). Item 10, on the other hand, shows that parents pay special attention to the education of their girl-children (Mean = 3.00). Item 11

indicated that the respondents accepted that early marriage is a major factor in terminating girl-child education at the secondary level (Mean = 3.39). Item 12 revealed that the respondents accepted that culture plays a major role in leading girl-children to early marriage in place of education (Mean = 3.02).

Research Question 3:

To what levels does parent have confidence on their girl-child education in Jalingo Local Government Area, Taraba State?

Table 4: mean rating of respondents on the impact of interest of parents on girl-child education

S/No	Items Description	N	Mean	Decision
15	Lack of parental interest leads to poor performance among Girl-Child in school	359	3.18	Accepted
16	Limiting the amount of time Girl-Child spend on school days will improve their performance	359	3.12	Accepted
17	Paying Girl-Child school fees on time leads to better attendance and concentration	359	3.07	Accepted
18	High levels of parent’s involvement assist in the retention of Girl-Child in school	359	3.38	Accepted
19	Buying books and other reading materials for girl-child	359	2.96	Accepted
Grand Mean			3.14	Accepted

Source: field survey 2024.

Table 5 gives the mean ratings of the respondents on the impact of parents' interest in girl-child education in Jalingo Local Government Area, Taraba State. Item 13 shows that the respondents accepted that a lack of parental interest leads to poor performance among girl-children in school (Mean = 3.18). Item 14 revealed that the respondents accepted that limiting the amount of time girl-children spend on school days will improve their performance (Mean = 3.12). Item 15 revealed that the respondents accepted that paying girl-children's school fees on time leads to better attendance and concentration (Mean = 3.07). Item 16 indicated that the respondents opined that high levels of parental involvement assist in the retention of girl-children in school (Mean = 3.38). Item 17 shows that buying books and other reading materials for girl-children enhances their educational aspiration (mean =2.96).

Discussion of Findings

The finding of the study presented in Table 2 suggest that, generally, the respondents perceive that parents are not adequately supporting their girl-child's education in terms of timely payment of school fees, showing interest in academic achievements, providing educational materials, and checking school

work. The finding conforms with Iqbal and Mohyuddin (2013) who stated that most parents ceased sending their daughters to school after primary education due to misunderstandings about religious teachings and the belief that girls were given undue attention in terms of grooming.

Table 3: The findings highlight a consensus among respondents on the importance of basic education for girls in contributing to national development and the significant role of early marriage and cultural practices in hindering their education. In the same vain, Kamaldeen, Buhari and Parakoyi (2012) assert that parents who have acquired a higher level of education have a positive attitude towards education of their girl child which proves that for parents who are already educated and know the value of education, there is a high level of awareness. There is also an agreement that parents are attentive to their daughters' education. However, there is less support for the notion that there should be no limit to the education of a girl-child.

Table 4: The findings highlight a strong agreement among respondents on the positive impact of various aspects of parental interest on the education of girl-child, this is in conformity with Ordu, Ignatius and Rumu (2019) who

confirm that there are notable differences in parents' attitudes toward girls' education depending on their educational levels, with those having higher levels of education exhibiting more positive attitudes. Lack of parental interest is seen as detrimental to the child's performance, while active involvement, timely payment of school fees, and providing educational materials are perceived as beneficial for improving attendance, concentration, performance, and retention in school.

Conclusion

Based on the findings of this study, it was concluded that parents have negative attitudes toward girl-child education in Jalingo Local Government Area. Issues such as the untimely payment of girl-child school fees, lack of concern for the academic progress of girl-children, and giving out girls for early marriage were identified. The researchers also concluded that a lack of interest and concern were some of the main factors responsible for the negative attitudes of parents toward girl-child education in Jalingo Local Government Area.

Recommendations

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

1. The government at various levels should promote economic empowerment of parents by providing employment opportunities, credit facilities for farmers, and other avenues to enhance the economic standard of living for the local population.
2. Government agencies should embark on enlightenment campaigns to encourage parents on the need for girl-child education.

3. Schools should organize orientation and training programs through members of the PTA to create awareness among parents on the importance of girl-child education.

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Impact of Two Counselling Techniques on Locus of Control among In-School Adolescents in Ilorin Metropolis, Kwara State

By

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Abstract

Locus of control is a personality feature that contributes to the explanation of traits and behaviours, which is crucial to adolescents' development. In the quest to empower in-school adolescents with a sense of control over their lives, psycho-education and cognitive restructuring have emerged as promising interventions. However, the impact of these interventions on locus of control among adolescents in Ilorin metropolis remains unexplored. This study seeks to investigate the effect of psycho-education and cognitive restructuring on locus of control among in-school adolescents in Ilorin metropolis, with the aim of providing insights into the potential benefits of these interventions in promoting a positive sense of control among young people in this region. Two null hypotheses were formulated and a quasi-experimental (pre-test, post-test with control group) design was adopted to carry out the study. The study involved 60 in-school adolescents who were selected from the three Local Government Areas of Ilorin Metropolis. The study consist of two experimental groups with control group, each group comprise 20 participants each. The data were collected using the "Locus of Control Scale" with reliability indices of 0.90. The inferential statistics of Analysis of Co-Variance (ANCOVA) were used to test the null hypotheses. The results of the study revealed that participants exposed to psycho-education and cognitive restructuring did not exhibit significantly higher level of locus of control compared to the control group, regardless of gender difference. It was recommended to revise and enhance these strategies to better meet the needs of the participants. This could involve incorporating new techniques, adjusting the duration or frequency of the interventions, or incorporating additional support systems.

Keywords: *Cognitive restructuring*, in-school adolescents, locus of control, psycho-education

Introduction

Adolescence is a critical stage of human development characterized by significant physical, emotional, and cognitive changes. During this stage, adolescents are vulnerable to various psychological and environmental influences that can shape their beliefs, attitudes, and behaviours. One important aspect of adolescent development is the development of locus of control, which refers to an individual's belief about the level of control they have over their life events. Adolescence is a period of transition between childhood and adulthood that involves a number of changes in body and mind.

World Health Organization (2021) defines adolescence as a phase of life between 10-19 years of age characterized by physical growth, emotional, psychosocial and behavioural changes, thus, bringing about transformation from childhood to adulthood. These changes usually occur a year or two earlier in girls than boys. Some of the changes are externally visible and some are internal. These changes are normal and natural and are due to release of various hormones in both boys and girls (Ariso & Reyer, 2014).

Adolescence is a critical period of development which can significantly impact an individual's locus of control. During this stage, young people are undergoing significant physical, emotional, and cognitive changes (Chiang, Fang, Kaplan & Ng, 2019). As they transit from childhood to adulthood, adolescents may experience a shift in their locus of control.

One way adolescents develop a sense of control is through exploration and experimentation. They try new things, take risks, and explore their boundaries, which helps them to develop a sense of agency and control over their lives. Additionally, adolescents are gaining more independence from their parents and caregivers, which can lead to an increased sense of autonomy and control over their decisions and actions (Hati, Fadillal, Pase & Muchsin, 2020).

Self-discovery is another important aspect of adolescence that can impact locus of control. Adolescents are figuring out who they are, what they value, and what they want to achieve. This self-discovery process can help them develop a stronger sense of control over their lives. However, peer influence can also play a significant role in shaping an adolescent's locus of control. Adolescents are often heavily influenced by their peers, which can impact their beliefs and behaviours (Hassan, 2016).

Furthermore, research suggests that the adolescent brain is still developing, particularly in regions related to impulse control, decision-making, and emotional regulation (Giedd, 2004). This can impact an adolescent's ability to exert

control over their thoughts, feelings, and actions. Finally, adolescents may be more vulnerable to external factors like social media, advertising, and societal expectations, which can shape their beliefs and behaviours and influence their locus of control (Arnett, 2004).

Research has shown that adolescents with an internal locus of control tend to have better mental health outcomes, academic achievement, and social relationships compared to those with an external locus of control. However, many adolescents in Nigeria, particularly in Ilorin metropolis, face various challenges such as poverty, lack of access to quality education, and exposure to violence, which can erode their sense of control and agency.

Psycho-education has been shown to have a positive impact on the locus of control of in-school adolescents (DuBois, Feldman, Silverberg, Sawyer & Schteingart, 2011). Locus of control refers to an individual's belief about the level of control they have over their life events (Grey, Taylor, Becker, Davis, & Sonntag, 2020). Adolescents with an internal locus of control believe they have control over their lives, while those with an external locus of control believe their lives are controlled by external factors (Kin, Kim & Lee, 2019). Psycho-education, which involves teaching adolescents about mental health and wellness, can help them develop a more internal locus of control (Lopez, Janowski, Saunders & Horowitz, 2020). By learning about mental health and wellness, adolescents can gain a better understanding of their thoughts, feelings,

and behaviours, and develop skills to manage stress and challenges (Shochet, Roberts, Wurfl & Montague, 2018). This can lead to increased self-efficacy, self-esteem, and a sense of control over their lives. Studies have shown that psycho-education can significantly increase internal locus of control in adolescents, leading to improved mental health outcomes, academic performance, and social relationships (DuBois, Feldman, Silverberg, Sawyer & Scheingart, 2011).

Cognitive restructuring on the other hand, has been shown to have a profoundly positive impact on the locus of control of in-school adolescents. By identifying and challenging negative thought patterns and replacing them with more balanced and constructive ones and empowers adolescents to develop a more internal locus of control (Lee & Kim, 2022). This, in turn, enhances their sense of control over their lives, leading to increased self-efficacy, self-esteem, and overall well-being (Park & Lee, 2022). Cognitive restructuring seems increase internal locus of control in adolescents, which is critical during this developmental stage. By fostering a sense of control and agency, cognitive restructuring can help adolescents navigate the challenges of adolescence with greater resilience and confidence (Park, Lee & Kim, 2020). Moreover, it has been established that cognitive restructuring can help adolescents develop a growth mindset, embracing challenges and viewing failures as opportunities for growth and learning (Hassan, 2016; Park, Lee, & Kim, 2020).

Psycho-education and cognitive restructuring have been identified as potential interventions to promote internal locus of control among adolescents. . However, despite the potential benefits of these interventions, there is a dearth of research on their effectiveness among adolescents in Ilorin metropolis. This study aims to investigate the effect of psycho-education and cognitive restructuring on locus of control among in-school adolescents in Ilorin metropolis. .

Research Questions

1. The following research questions were raised in this study To what extent will there be any significant difference in the post-test mean score on locus of control among in-school adolescents exposed to the two experimental conditions?
2. What is the interaction effect of gender difference in the post test mean scores on locus of control among in-school adolescent across the treatment and control groups?

Research Hypotheses

The following null hypotheses were formulated for testing in this study:

1. There is no significant difference in the post-test mean score on locus of control among in-school adolescents exposed to the two experimental conditions.
2. There is no significant gender difference in the post test mean scores on locus of control among in-school adolescent across the treatment and control groups.

Methodology

The research design adopted for this study was quasi-experimental design which involves pre-test, post-test, control group design. The researcher thus chooses quasi-experiment because of its strength to maximize internal and external validity in the effect of psycho-education and cognitive restructuring interventions on locus of control among secondary school students in Ilorin metropolis of Kwara state. The target population for this study comprised all SSS1 students in Ilorin metropolis, totaling 11,850, according to the Kwara State Ministry of Education. A multi-stage sampling design was employed to select participants. The first stage involved selecting three Local Government Areas in Ilorin Metropolis, followed by systematic sampling to select one senior secondary school from each LGA. The third stage involved random sampling to select 20 students from each school, resulting in a total sample size of 60 participants. The research instrument used was an adapted version of the "Locus of Control Questionnaire" developed by Trice (1985) with reliability index of 0.90. SSS1 students were selected for this study due to their intermediate level of senior secondary education and middle adolescence, which marks a critical period of preparation for future career choices. Furthermore, these students are temporarily placed in science, business, or arts classes, which are subject to change based on their academic performance at the end of the session.

Treatment Procedures

Cognitive Restructuring

Cognitive Restructuring (CRT) aims to change how participants think by improving communication, problem-solving, and controlling maladaptive behaviour. It helps individuals identify and challenge negative thoughts and beliefs that lead to problematic behaviour. The program consists of six sessions: **Session 1: Introduction and Rapport-Building** The first session focuses on establishing a therapeutic relationship and introducing the concept of locus of control. Participants introduce themselves and share personal experiences, learn about the programmes goals and objectives, and understand the importance of confidentiality. This sets the stage for a supportive and non-judgmental environment, allowing participants to feel comfortable and establish trust with the therapist.

Session 2: Identifying Risk Factors

In the second session, participants engage in a group discussion to identify risk factors that contribute to external locus of control. They share their experiences and insights, and the therapist helps them recognize personal traits, family factors, school and employment issues, and peer-related factors that may be contributing to their external locus of control. This session helps participants understand the root causes of their thoughts and behaviours.

Session 3: Cognitive Restructuring

The third session introduces participants to cognitive restructuring techniques. They learn

about Albert Ellis' A-B-C-D-E-F principle and rational emotive therapy, and how to identify and challenge negative thoughts and beliefs. The therapist guides them in recognizing and disputing irrational thoughts, and replacing them with more rational and constructive ones. This session empowers participants to take control of their thoughts and emotions.

Session 4: CRT Techniques

In the fourth session, participants apply CRT techniques to address external locus of control. They engage in activities such as identifying and labeling distorted thoughts, Socratic questioning, cognitive imagery, and decatastrophizing. The therapist also leads group discussions on sensitive subjects like excessive alcohol consumption, breaking school rules and regulations, fighting, and bullying. This session helps participants develop skills to manage difficult situations and emotions.

Session 5: Four Fundamental Steps

The fifth session teaches participants the four fundamental steps of cognitive restructuring: identifying automatic thoughts, recognizing cognitive distortions, contesting them using the Socratic method, and developing a rational response. They practice these steps in real-life situations, reinforcing their understanding of CRT skills. This session solidifies participants' ability to recognize and challenge negative thought patterns.

Session 6: Review and Practice

In the final session, participants review and practice CRT skills to reinforce internal locus of

control. They reflect on their progress, share experiences, and receive feedback from the therapist. This session ensures participants have a solid grasp of CRT skills and can apply them in their daily lives, leading to improved self-awareness and self-regulation.

Psycho-education Training

Session 1: Introduction and Orientation

The first session introduces the concept of locus of control and its impact on behaviour. Participants learn about the goals and objectives of the psycho-education program and establish group rules and expectations. Confidentiality and informed consent are also discussed.

Session 2: Understanding Locus of Control

In the second session, participants define and explore the concept of locus of control and its relevance to behaviour. They examine how locus of control contributes to cheating behaviour and understand the impact of external factors on their thoughts and actions.

Session 3: Identifying Negative Thoughts and Emotions

The third session focuses on identifying negative thoughts and emotions and understanding common reactions to crisis events. Participants learn to recognize and challenge negative thoughts and emotions, and develop skills to manage their emotions and behaviours.

Session 4: Developing Coping Skills

In the fourth session, participants develop problem-solving, communication, and assertiveness skills to manage maladaptive behaviour. They learn to apply these skills in real-

life scenarios and practice assertive communication.

Session 5: Reinforcement and Practice

The fifth session reinforces new skills and provides retraining and support as needed. Participants continue to practice and reinforce new skills and receive feedback and encouragement.

Session 6: Evaluation and Termination

In the final session, participants evaluate their progress and satisfaction with the program. They identify areas for further improvement and receive resources for continued support. The treatment sessions are terminated, and

participants are encouraged to continue practicing their new skills.

Control Group: The individuals in this group did not receive any treatment. For the duration of the trial, they only got dummy treatment such as assertiveness training to keep them occupied in order to prevent a “John Henry” impact on the main experimental groups. They also underwent a post-test using the same instruments following the treatment sessions.

Results and Discussions

Hypothesis 1: There is no significant difference in the post-test mean score on locus of control among in-school adolescents exposed to the two experimental conditions

Table 1: Descriptive Statistics on Locus of Control of Experimental Groups

Group	N	Pre-Test		Post-Test		Mean Difference
		Mean	SD	Mean	SD	
Psycho-education	20	10.65	.93	17.35	3.15	6.7
Cognitive Restructuring	20	10.55	.75	19.15	.81	8.6
Control Group	20	10.60	.75	10.40	.50	-0.2

* N = Number of participants; SD = Standard Deviation

Table 1 showed the descriptive statistics of mean and standard deviation comparing the pre-test and post-test scores of locus of control of the participants. The table shows that the psycho-education, cognitive restructuring and control groups have mean values of 10.65, 10.55 and 10.60 respectively at pre-test. At the post-test stage, the mean scores of the two experimental groups increased significantly to 17.35 and 19.15;

while that of control group reduced to 10.40 respectively. Hence, the mean differences of 6.7 and 8.6 indicate that psycho-education and cognitive restructuring interventions have effect; while control group does not (with mean difference of -0.20). In order to determine if the differences in mean values were significant, the Analysis of Variance (ANCOVA) was computed as shown in the Table 10.

Table 2: ANCOVA Results of Locus of Control across Experimental Groups

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.827 ^a	7	.690	1.071	.436
Intercept	15.245	1	15.245	23.688	.000
Covariate	.527	1	.527	.819	.383
Group	4.819	6	.803	1.248	.349
Error	7.723	12	.644		
Total	7347.000	20			
Corrected Total	12.550	19			

Table 10 shows the ANCOVA result for the significant effect of the two experimental groups on the participants' locus of control. The Table indicates that [F (6, 12) = 1.248; p = .349 > .05] there is no statistical significant difference in the means of the experimental groups; hence, the hypothesis is retained, which implies that there is

no significant difference in the post-test mean scores of the experimental conditions.

Hypothesis 2: There is no significant gender difference in the post test mean scores on locus of control among in-school adolescent across the treatment and control groups.

Table 3: Descriptive Statistics on Locus of Control across Gender and Experimental Groups

Group	Gender	N	Pre-test		Post-Test		MD
			Mean	SD	Mean	SD	
Psycho-Education	Male	11	10.33	.50	17.00	3.64	6.67
	Female	09	10.91	1.13	17.64	2.83	6.73
	Total	20	21.24	1.63	34.64	6.47	13.4
Cognitive Restructuring	Male	08	10.50	.75	19.12	.83	8.62
	Female	12	10.58	.79	19.17	.83	8.59
	Total	20	21.08	1.54	38.29	1.66	17.21
Control Group	Male	10	10.80	.78	10.50	.52	-.30
	Female	10	10.40	.69	10.30	.48	-.10
	Total	20	21.20	1.47	20.80	1.00	-.40

* SD = Standard Deviation; MD = Mean Difference

Table 3 shows the descriptive statistics of mean and standard deviation comparing the pre-test and post-test scores of locus of control of the participants across gender. The Table indicates that at pre-test, male participants have locus of control mean values of 10.91, 10.50 and 10.80 for psycho-education, cognitive restructuring and control groups respectively. At post-test, the male participants' mean values were 17.00, 19.12 and

10.50 for the three groups respectively. On the other hand, the female participants have 10.91, 10.58 and 10.40 at pre-test; while at post-test they have 17.64, 19.17 and 10.30 for the psycho-education, cognitive restructuring and control groups respectively.

The mean differences indicate that female participants have the highest mean value of 6.73 in psycho-education group; while it favours the

male participants in the cognitive restructuring group with mean difference of 8.62. The Analysis of Covariance (ANCOVA) was thus computed to

determine the significant difference in means as presented in Table 4.

Table 4: ANCOVA Results of Locus of Control across Gender and Experimental Groups

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.088 ^a	12	.591	.757	.680
Intercept	12.271	1	13.371	17.135	.004
Covariate	.454	1	.454	.582	.470
Group	5.427	6	.905	1.159	.420
Gender	1.590	1	1.590	2.037	.197
Group * Gender	.584	4	.146	.187	.938
Error	5.462	7	.780		
Total	7347.000	20			
Corrected Total	12.550	19			

Table 16 shows the ANCOVA result for the significant effect of the experimental groups on the participants' locus of control across gender. The Table indicates that there is no statistical significant difference in the means of the experimental groups across gender [F (4, 7) = .187; p = .938 > .05]; hence, the hypothesis is upheld, which implies that there is no significant gender difference in the post-test mean scores on locus of control among in-school adolescent across the treatment and control groups.

(psycho-education and cognitive restructuring) did not significantly improve compared to the control groups.

Summary of Findings

The following are the summary deduced from the results of this study:

1. The participants exposed to the interventions (psycho-education and cognitive restructuring) did not exhibit significantly higher level of locus of control compared to the control group.
2. The locus of control of both male and female participants exposed to the interventions

Discussion of Findings

This study revealed that the participants exposed to the interventions (psycho-education and cognitive restructuring) did not exhibit significantly higher level of locus of control compared to the control group. This finding suggests that the combination the two interventions did not reduce participants' locus of control. The finding of this study disagreed with the findings of Cansu and Asim (2022); Ariso and Reyero (2014); which revealed that psycho-education and cognitive restructuring interventions were effective in shaping locus of control of the participants positively. Perhaps, this result of this study and the previous empirical researches contradicts because they adopted different methodology among the adults' participants. This finding suggests that incorporating psycho-education and cognitive

restructuring into group with adolescents might not be helpful in promoting an internal locus of control among in-school adolescents.

The locus of control of both male and female participants exposed to the interventions (psycho-education and cognitive restructuring) did not significantly improve compared to the control groups. The findings suggest that the interventions did not have a significant effect on the locus of control of both male and female participants. The finding of this study disagrees with the studies of Mohanty (2021); whose results indicated that the respondents' locus of control differed on the basis of gender. The methodology employed and the level of students used in those studies could have been responsible for the difference observed in the findings. Thus, the result of this study suggests that the interventions used in the study were not effective in helping participants develop internal locus of control. This could partly be due to insufficient duration or frequency of the training exercise, or other external factors. So, locus of control could be said to be a relatively stable personality trait that is not easily influenced by short-term interventions. Some research (Chiang, et al., 2019) suggest that locus of control is relatively stable over time and is influenced by a combination of genetic and environmental factors. Therefore, interventions targeting locus of control might require a more long-term and comprehensive approach to produce significant changes based on gender.

Recommendations

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

1. Counsellors and psychologist should revise and enhance these strategies to better meet the needs of the participants. This could involve incorporating new techniques, adjusting the duration or frequency of the interventions, or incorporating additional support systems.
2. Counsellors should assess the specific needs, strengths and challenges of each student and tailor interventions accordingly; recognizing that each student is unique and may require individualized interventions. This personalized approach can enhance the effectiveness of the interventions and maximize the outcomes for each student.
3. Although the study found no significant gender differences in the effectiveness of the interventions, it may still be beneficial to consider tailored interventions that address the unique needs and experiences of male and female participants. This could involve developing gender-specific interventions or adjusting the existing interventions to better address the specific challenges and concerns of each gender group.

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Instructional Leadership Practice in Post – Basic Secondary Schools in Kano State: Challenges and Prospects

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Abstract

The launch of free and compulsory primary and secondary education policy in Kano State has come along with unprecedented challenges to effective Principal's instructional leadership in post – basic secondary schools. This paper discusses some management factors such as over-population with unfavorable student-teacher ratio, imminent shortage of quality teachers especially in the core and science subjects, acute shortages of teaching and learning facilities, acute shortage of funds. Others are dilapidating situation of many school plants, poor working climate, indiscipline, and declining teacher effectiveness as challenges of principals' instructional leadership. On the other hand, it identified expansion of secondary schools, community participation, improved funding, effective supervision and an intensified training and re-training of teachers and educational managers as likely prospects that could influence and boost instructional leadership in post- basic education system in the State. It is against this background that, the paper discusses these fundamental problems and prospects of principals' instructional leadership with a view to see how well these identified prospects could be of use in the process of educational planning and management.

Keywords: *Free and compulsory education, instructional leadership, teacher effectiveness, quality education, students' achievement.*

Introduction

Education remains the most vital instrument for social mobilization, academic progress, political survival, and effective national development of any nation, it constitutes the largest enterprise in Nigeria. For this reason, the Kano State government has continuously encouraged education by adopting a social demand approach towards planning the sector by declaring it free and compulsory at primary and secondary education level with aim of improving enrollment and attendance. The State government also promised to ensure that funds, school facilities, instructional materials, teaching personnel and a beneficial learning environment are made available for the sector that will ensure quality education products.

But in sustaining the quality of educational products, there is the need for effective instructional delivery. To ensure effective instructional delivery in secondary schools, principals play a vital role because they are responsible for teaching and learning as well as curriculum and capacity development (Ma & Marion, 2019). In support of this, Ugboka, (2012) emphasized that, the school principals are managers whose responsibility is to provide variety of leadership techniques for school staff to see the need for change, plan for change and practice new behavior for effective instructional delivery. Thus, the vitality of the school rest with his/her functional leadership traits.

Objectives of the Study:

The study was designed to achieve the following specific objectives to;

- a. Identify the challenges of Principal's instructional leadership in post – basic secondary schools in Kano State
- b. Prospects of principal's instructional leadership in post – basic secondary schools in Kano State

Review of Related Literature

Challenges of Principal's Instructional Leadership in Post – Basic Secondary

Instructional leadership in schools has received a great deal of attention and interest among educational administrators. The major reason for the increased interest in instructional leadership as Namunga, (2017) noted relates to its central role in determining effective educational programmes. In addition, the literature regarding effective schools has consistently indicated that most effective schools are characterized by among other things, strong instructional leadership. Smith and Andrews (2012) defined instructional leadership as a blend of several tasks, such as supervision of classroom instruction, staff development and curriculum development. To Quah, (2021) Instructional leadership roles are directly related to the teaching process, involving the interaction between teachers, students and the curriculum.

Thus, instructional leadership focuses on teaching and learning by emphasizing the subject matter content, the principles of learning and the teaching process. Accordingly, Sheppard in Idris

(2023) in presenting an operational definition of instructional leadership, distinguished between broad and narrow views of instructional leadership. In the narrow view, he argued that instructional leadership refers to those actions that are directly related to teaching and learning and include observable behaviors such as classroom supervision. In the broad view, instructional leadership entails all leadership activities that affect student learning. Such activities may include the instructional leader's involvement in routine managerial behaviors as well as in other organizational and teacher culture issues.

The distinction between broad and narrow forms of instructional leadership implies that, it is possible to differentiate between 'direct' and 'indirect' instructional leadership behaviors of the school principal. Accordingly, Blase and Blase (2010) maintained that, "For those in instructional leadership roles, the challenge in improving student learning is to apply certain knowledge, interpersonal skills and technical skills to the responsibility of direct assistance, group development, curriculum development, professional development and action research that will enable teachers to teach in a collective, purposeful manner uniting organizational goals and teacher needs". Thus, instructional leadership in schools centered on improving schools by helping teachers to reflect on their practices, to learn more about what they do and why, and to develop professionally.

This implies that, instructional leadership attempts to change such school factors as curricular content, teaching methods, assessment strategies and cultural norms for academic achievement of the students. Consequently, Ahmed (2016) highlighted instructional leadership roles of Principals in Nigerian secondary schools to include; framing school goals, communicating school goals, supervision and evaluation of instruction, coordination of the curriculum, monitoring of students progress, protection of instructional time, provision and protection of teaching/learning facilities, maintaining high visibility, providing incentives for teachers, promotion of professional development and providing incentives for students.

Instructional leadership in schools is therefore, the principal's responsibility to guide and direct teachers in the process of implementing the curriculum, proper testing of policy, syllabus coverage and ensures that facilities for teaching and learning are in order and effectively utilized, and stimulate the teachers for best practices in curriculum delivery. However, in the recent years, there are complaints that many school principals do not devote much time and attention to instructional leadership in coordinating, directing, and supervising academic activities in their schools, because according to the complains, they are mostly pre-occupied with strictly administrative duties in their offices, (Idris, 2023). There are also reports that, the enthusiasm and devotion of teachers to their duty

in schools are no longer the traits that characterized the teaching profession.

Teachers have in the recent years manifested unwholesome attitude in discharging their responsibilities. They go late to school, exhibit rudeness to school authority and trade at the expense of teaching. When they teach, they manifest poor knowledge of their subject areas, do not provide regular assessments for students nor keep proper students' performance records, show laxity to duties and cases of indiscipline has continually caused setbacks to the attainment of educational objectives, (Idris, 2023). Some blamed the governments, while some blamed teachers and the principals, while others blamed the students themselves and their parents. Whoever is to be blame, the fact remains that, the school and its organizational management has correlation with the academic achievement of the students.

Sule (2013) in a response to critics on the declining quality and achievement of secondary education, and as a measure of improvement opined that effective instructional leadership has become a veritable instrument for enhancing effectiveness in the school setting.

Prospects of Instructional Leadership in Post – Basic Secondary Education

However, in spite of these multidimensional challenges to instructional leadership in post – basic secondary education today, the following could be the prospects of the system in the prevailing circumstances. Firstly, with the recent increase in the retirement age of teachers from 60

years to 65 years in the country, post – basic secondary education will certainly continue to enjoy the services of experienced teachers and administrators. As rightly observed by Olaofe in Idris (2012) the exodus of competent personnel from the teaching profession largely due to its unattractiveness in terms of prestige, allowances and salaries, coupled with the issues of death and retirement has significantly affected the delivery of quality instruction in secondary schools. This is also in consideration of the current trend of population increase in the country.

Secondly, post – basic education is prospective in attracting a wide range of community participation to the system. In fact in recent years, there has been an increase in community participation in the delivery of educational equipments to the schools. For instance, many communities who cannot afford the rising cost of private education now put their hands on the available public schools in their locality by providing relief materials to them through the establishment of PTA, SBMC and Old Students Associations. It is also worth nothing that, there is an increased awareness from the general public of the enormity of the cost of education, seeing the level of decay and the pervasive conditions of many public schools. To this end philanthropist, private organizations, corporate bodies, community associations are now willing to complement in meaningful terms, the government effort in the provision of enabling environment for post – basic education. This will

surely ease the suffering of principals as instructional leaders of the schools

Thirdly, the rising demand for post – basic education by youth all over provides a guaranteed future for the system. In fact it is observable that apart from the regular students that are participating in conventional schools, there are many adults who have earlier dropped out of the system due to one reason or the other from basic stage are re – engaging to patronize the system which in turn is likely to draw an increase attention to the system by both the government and the private sector.

Fourthly, the erstwhile intensified discussion on the relevance of instructional supervision, training and retraining of teachers and educational managers is very likely to influence and boost instructional leadership in post – basic school system. Apparently, there is an increase enrolment of students into education courses in the nation’s universities and colleges of education. In addition, in-service training for teaching personnel has continually been made available by many colleges of education by way of distance learning and sandwich and or part-time programmes to update the knowledge of teachers and educational managers. Thus, with this development there is going to be and enhanced manpower growth and development in the nation’s secondary education system.

Methodology

This study employed a desk review methodology to synthesize existing literature on integrating real-world and contextual examples. A

comprehensive literature search was conducted using academic databases and the need assessment report submitted to Ministry of Education in 2023. The search terms include terms that are related to the topic of discussion. But, ensure the inclusion of recent findings, the search was limited to peer-reviewed articles, conference papers, and educational reports recently published.

The selected studies were analyzed using a thematic analysis approach. Relevant data points were then extracted and coded according to themes related to instructional leadership of school principals and its role in enduring effective teaching/learning outcome. The final step involved synthesizing the findings from the reviewed literature to draw overarching conclusions about the topic under discussion. This synthesis highlighted key insights regarding best practices, potential barriers, and recommendations for government.

Findings of the Study:

The study identified discover the following as challenges to principal's instructional leadership since the lunch of free and compulsory education policy in Post – basic secondary schools in Kano State;

- a. Schools are over – crowded, with unfavorable student – teacher ratio;
- b. Imminent shortage quality teachers, especially in core and science subjects;
- c. Acute shortage teaching/learning facilities;
- d. Dilapidating situation of many school plants,

- e. Imminent shortage of funds to cover administrative academic and student affairs expenditures;
- f. Declining teacher effectiveness; and
- g. General indiscipline

Discussion on the Findings

Although, the Principal's primary responsibility is to promote the learning and success of all students, Ofojebe, Chukwuma and Onyekwe, (2016) blamed the low learning achievement that prevails in Nigeria's public secondary schools to poor teachers' effectiveness in terms of accomplishing the teaching task, negative attitude to work and poor teaching habits. But, teachers cannot efficiently execute their duties without themselves being properly and adequately provided for, educated and monitored. Ogunneye (2015) maintained that without effective instructional leadership, even schools full of talented teachers will surely drift without purpose. According to him, a good, honest, hardworking and visionary principal will turn a poor school around and give it a good name image. This is because the principal has a direct and determining effect on teacher's attitude towards teaching and on his/her instruction.

A critical look at the post – basic secondary schools in Kano State, since the lunch of the free and compulsory education policy, it is obvious that numerous multidimensional management problems manifest. These problems are visible in the area of over-population with unfavorable student-teacher ratio, imminent shortage of quality teachers especially in the core and science

subjects resulting to the available ones teaching subject other than those they are trained to teach, acute shortages of teaching and learning facilities. Others are dilapidating situation of many school plants, poor working climate and poor resource situation in the schools. It is in this perspective that many challenges could be said to have impacted on the principals' instructional leadership abilities in the following areas of secondary education system;

- a. Quality of education
- b. Teacher effectiveness
- c. Poor resource situation in the schools
- d. Effective supervision
- e. Indiscipline

By quality of education, reference is made to a basic criterion of measurement in academic achievement. It refers to the adopted criteria for academic standard of programme, and procedure employed for the evaluation of the extent to which institutions have attained that level of quality, (Idris, 2023). Thus by quality of education at post – basic secondary school level, reference is made to the students' academic performance in national examinations such as WEAC and NECO. In fact recent developments revealed that, the performance of student at this level has been declining at an alarming rate. Idris (2023) reports that, the five year average performance of students from public secondary schools in Kano State in the senior secondary school certificate (SSCE) examination from 2013 – 2017 was 51% for National Examination Council, (NECO).

This dismal achievement by students of public secondary schools, indicate the poor instructional effectiveness of their teachers which points directly to ineffective instructional leadership of the school principals. According to Uko et al. in Nnebedum and Akinfolarin (2017) teachers' effectiveness refer to the extent at which, teachers are committed to pedagogical delivery and the display of moral uprightness and academic excellence in the teaching profession. The free and compulsory education policy has unprecedentedly boost enrolment figures. Indeed, the school size has grown beyond elastic limit to the extent that some schools have more than 2500 students and more than 150 teachers.

The school attendance shift system of morning and afternoon has given way to excessive pressure to the available but inadequate school facilities. Classes are over-crowded with most students sitting on bare floor. The apparent absence of principals to maintain high visibility due to large school size would definitely have negative consequences in the school system; some of which may include irregular attendance to classes by students and teachers, poor application of instructional techniques, wastage of human and materials resources, non – coverage of syllabus, and general ineffectiveness in the schools.

Secondly, it was observed that the level of effectiveness of secondary education could not be meaningfully determine until the resource situation available in each secondary school had been considered as a contingency factor (Ensley,

2014). He observes that, effective teaching and learning has a close relationship with the materials available to the teacher. The failure to provide effective classrooms, laboratory equipments, sporting facilities, sanitary and toilets facilities, etc to the secondary schools unwillingly undercuts the level of achievement in the system. Ibukun in Idris (2018) contended that, principals could differ in term of their resourcefulness and reaction to redress poor work situations, the facts remains that if adequate resource base is available in the schools, many principals might perform better. Indeed, the level of anxiety and tension occasioned by lack of resources in schools could endanger the health of the principal due to the attendant stress.

Thirdly, the ban on the collection of school fee or education levy from the parents could be said to have made the schools totally bankrupt. In addition, government's lack of political will in fulfilling its' promise of giving financing grant as 'school upkeep' has further worsen the financial situation of these schools. Apparently, today principals do not control any financial vote to run these schools to cover administrative, academic and student affairs expenditures. To make matters worse for effective instructional leadership in post – basic secondary schools today is the issue of 'personal integrity' of the principals associated with our societal peculiarities occasioned by corruption in all facets of social life. As rightly observed by Idris, (2012) Poor funding could lead the principal taking of gift from a teacher, student

or their parents. This could have a serious implication for decision making by the principal.

Accordingly, the security of the available school properties is also a matter of concern to the Principals, as most of the few security men otherwise called watchmen are by birth as old as the State itself, this unavoidably give vandals the chance to chart away with the much needed educational facilities of the schools. Fourthly, another significant factor that affects instructional leadership in post – basic secondary schools is regular supervision of instruction. The National Policy on Education (NPE, 2013) has highlighted in precise term, the objectives of educational supervision which is to ensure, "uniform standard and quality assurance through regular and continuous supervision of instruction and other educational services". This is based on the premise that, the goals of education can only be achieved with a well organized school system that would ensure that all aspects of school life are well articulated and effectively coordinated.

Hakimi in Idris, (2012) opined that, the need to have an effective system of instructional supervision in our schools is necessitated by the fact that a typical teacher education programme in our faculties and colleges of education cannot provide the pre-service teachers with all that they need to know when teaching nor can they give a full mastery of techniques of instruction. This is in addition to the introduction of new subjects in the curriculum of our educational institutions and the recruitment of non- education graduates to teach in schools. It follows therefore that,

teachers need the guidance of educational supervisors because they have not been fully prepared by their teacher education programme. But, the external quality assurance agencies have failed in their mission of schools supervision as a result of series of complex problems which include inadequate resources that consistently make their school visits very rare. This situation has unavoidably made the principal the only person to supervise teachers' effectiveness in schools.

Fifthly, the increasing wave of indiscipline behaviors of secondary school students today is also matter of concern to educational managers, teachers and parents. This trend of indiscipline is characterized by students' gangsterism, increased militancy, substance abuse, indecent sexual relations and exam- malpractice. Students' misconduct in the classroom greatly interferes with teaching and learning and is thought to be precursor to later school dropout and similar negative social outcomes. Students' behavioral problems are also thought to be a leading contributor to teachers' stress and attrition. The implications of these inadequacies since the lunched of the free and compulsory education policy are that the principals' instructional leadership capacity is being posed with serious challenges which make many of them show laxities in the discharge of their responsibilities, which consequently are reflecting on the quality of the work and output of the system in terms of students' development and their contribution to the societal wellbeing.

Conclusions

It cannot be over – emphasized to say that, post – basic education is by all means a vital segment in the echelon of Nigeria's education ladder. As a link between basic and tertiary levels, post – basic education is an inescapable bridge for the individual and the nation's future development. Instructional leadership at this level helps to maintain focus on why the school exists. It will also help in improving teacher's effectiveness in classroom management to ensure that he contributes maximally to the attainment of school goals. Principal's instructional leadership also ensures that vital facilities for effective teaching and learning are available and effectively utilize in instructional delivery in the schools. However, having identified some problems militating against effective instructional leadership in the system over the years, the outlined prospects could be adequately motivating to put hopes in the resuscitation of its fundamental structures for an improved better performance.

Recommendations

- a. There is urgent need for the construction and establishment of more classes and schools, and the recruitment of more teachers in both rural and urban areas in the State to decongest the over – crowded classrooms and schools.
- b. The annual financial budget to education should be increased to UNESCO's minimum bench mark of 26% of GDP. This will definitely ensure steady follow of finances to cover administrative and students' expenses in the schools.

- c. Since ‘school fees’ collection has been banned, political will of the government, must be mustered to ensure prompt disbursement of the promised ‘schools’ upkeep grant’ to the schools for smooth management, as virtually nothing can be achieved without effective finance.
- d. There is need for continuous training and re-training of teachers and school managers to be adequately acquainted with effective procedures of discharging their responsibilities.
- e. The local community, private organizations, and philanthropist should be encourage to assist the schools by improving on their attendance to school functions, serving on school committees and providing conducive atmosphere for effective teaching and learning.

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Environmental Education Awareness Strategies and Sustainable Farming Practices in Cross River State, Nigeria

By

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Abstract

The purpose of the study was to ascertain the relationship between environmental education awareness strategies and sustainable farming practices in Cross River State, Nigeria. Two research questions and two null hypotheses were formulated and tested at 0.05 level of significance. Correlational research design was used for the study. The population of the study consisted of all the 73,002 registered farmers in Cross River State, who are enlisted in the respective senatorial district. Purposive and accidental sampling techniques were used to select a sample size of 1, 443. “Environmental Education Awareness Strategies and sustainable Farming Questionnaire (EEASSFQ)”- was used for data collection. The instrument was validated by three experts. One expert was from Measurement and Evaluation and two from Department of Continuing Education and Developmental Studies, all from University of Calabar. The reliability of the instrument was established through Cronbach alpha method. The reliability index ranged from .72 to .87. Simple linear regression was used to analyze the data collected for the study. The findings of the study revealed that there was a significant relationship between the variables of environmental education awareness strategies and sustainable farming practices in Cross River State, Nigeria. Based on these findings it was recommended among others that awareness creation on traditional plays through folk media as a sustainable farming practices awareness strategy should be improved and made an integral part of community norms and values by community elders and chiefs.

Keywords: *Environmental education, awareness strategies and sustainable farming practices*

Introduction

Farming has been an age-long practice which people have engaged in so as to produce food. As a practice, farming involves crop production, animal husbandry and collection of Non-Timber Forest Products (NTFPs). Thus, through farming practices people have modified the natural environment for crop production, animal husbandry and extraction of Non-Timber Forest Products. This implies that without modifying the natural environment, people would not be able to engage in farming and without engaging in farming, people will not have food to eat. In the past, there was no issue with how the natural environment was modified by farming practices because the

environment was not perceived as a necessity which should be cared for. In recent times, such perceptions are drastically changing due to the numerous environmental challenges (flooding, deforestation, climate change and resource depletion among others) brought about mainly by man’s actions on the environment. One of the major ways in which man’s actions have served to bring about the environmental challenges is through land modification processes and practices (James & Ngala, 2015 cited in Igwebuike & Etan, 2018).

In Cross River State, the Cross River Agricultural Development Programme (CRADP) is one of the agencies designed to

help farmers adapt to recent innovations in farming practices. Through the designation of agricultural zones in the state, extension services' officers serve to enlighten farmers on how to engage in modern farming practices. Within the study area which is Cross River State, extension services include enlightening farmers on technologies concerning farm clearing, land preparation, planting materials, planting time, cropping system, weeding, soil fertility, mulching, staking, harvesting and storage of agricultural products (Ibok, Ekanem & Umoh, 2019). The state is given a lot of attention in terms of agricultural produce based on the fact that it is amongst the top five states in the country in terms of cocoa, cassava, yam and plantain production (Ofori, Fobil & Odia, 2018).

In recent times, farmers' interaction with the environment have been of concern due to the need to mitigate some of the environment's reactions, for example, climate change. Some of the environmental education strategies introduced as a result of environmental challenges include, promoting hands-on learning through guided nature tours and conservation activities, implementing regulations and incentives to promote environmental awareness and sustainable behaviour, partnership with NGOs, environmental organizations and collaborating to develop, deliver educational programmes and materials and use of media, social platforms and events to inform the public about environmental issues and sustainable practices. This brought about the advent of "sustainable farming practices such as crop rotation

(alternating crops in a field to maintain soil health and prevent pest buildup), cover cropping (planting crops to cover soil between growing seasons to prevent erosion and improve soil quality), integrated pest management (using a combination of biological, cultural and chemical methods to control pests while minimizing environmental impact), conservation tillage (reducing soil disturbance to maintain soil structure and prevent erosion), precision agriculture (using technology to optimize resource use and reduce waste in farming operations), agroforestry (integrating trees and shrubs into crop and animal farming systems), organic farming (avoiding synthetic pesticides and fertilizers in favor of natural alternatives), water conservation techniques (implementing efficient irrigation systems and water management practices) and rotational grazing (moving livestock between pastures to prevent overgrazing and maintain grassland health)". These practices are aimed at ensuring the long-term productivity of farmlands. Within the study area, due to its importance in terms of agricultural produce, there have been concerted efforts to sensitize the people on modern farming practices (Yadav, Yadav, Mishra, & Sachan (2020).

Despite the land use regulations by government-based agencies within the study area, farmland users engage in the following practices - excessive usage of, and over reliance on herbicides and pesticides, felling of all forest trees on every newly cleared farmland on an annual basis, bush burning, non-utilization of improved crop varieties during planting,

indulging in shortened fallow periods for intended farmlands, unsustainable soil management techniques and harvesting of Non-Timber Forest Products. The above stated practices resulted in reduced crop yield, pollution of soils with high levels of heavy metals, soil nutrient mining (leaching of soil's natural nutrients), high levels of concentration of chemicals in water bodies, soil erosion, deforestation and loss of exotic flora and fauna species. Aside the stated effects, the issue of perceived long-term effects such as loss of farmlands due to impoverished soils in this era of population explosion is worrisome. It is against this background that this study was conducted to establish the relationship between environmental education awareness strategies and sustainable farming practices in Cross River State.

Objectives of the study

The study sought to:

1. determine the relationship between use of folk media and sustainable farming practices in Cross River State; and:
2. find out the relationship between use of print media and sustainable farming practices in Cross River State.

Research hypotheses

The following hypotheses were formulated to guide the study;

H₀₁ There is no significant relationship between use of folk media and sustainable farming practices in Cross River State, Nigeria.

H₀₂ There is no significant relationship between use of print media and sustainable farming practices in Cross River State, Nigeria.

Literature review

Folk media and sustainable farming practices

Folk media plays a significant role in enhancing sustainable farming practices, especially in rural and traditional communities. Traditional media is an integral part of any communication programmes for sustainable farming practices. It is a dynamic means of communication. It can integrate cultural values, beliefs, and attitudes with national and societal needs. Understanding the rural audience is a prerequisite to the use of traditional media that attract mass attention and ensure their participation in developmental activities. It is unique in nature, as it looks like the day-to-day life pattern of the rural masses. This type of media is the source of communal entertainment for the audience of rural areas, beyond providing education and information to the people (Sharma & Singh, 2018). Arulmanikandan and Shubham (2022) opined that folk media forms like songs, puppet shows and street theater are deeply rooted in local cultures. They present information about sustainable farming in a familiar, easily understood format that resonates with farmers, particularly in areas with low literacy rates. Also, traditional songs, proverbs and stories often contain ancestral wisdom about sustainable farming practices. These can be adapted to incorporate modern scientific knowledge, creating a bridge between traditional and contemporary sustainable methods.

Developing countries have a rich inheritance of folk art, folk tales, folk dances, ballads, and dramas that can be used for the development

work. These media have the power to address developmental messages for both literate and illiterate society that have intense heritage of culture. They can overcome the effort of language, dialogue, words and other communication barriers like understanding, clarification, curiosity, attitude, and perception. Folk media have an extraordinary impression on rural society, because of their adequate idioms, purposeful significance, and entertainment component. Traditional media can integrate environmental issues into development policy, and use communication and education as an integrated way as an instrument of policy. Folk songs have played important role in the patriotism movement in our country. "Public participation improves the quality, and legitimacy of the decision and can lead to better results in terms of environmental quality. Folk performances often involve audience participation, encouraging farmers to actively engage with the information presented. This participatory approach can lead to better retention and implementation of sustainable farming practices (Paul Stern & Dietz, 2008). Arulmanikandan and Shubham (2022) carried out a study on impact of traditional folk media in educating rural community on sustainable farming practices. According to the authors, the media has always been a powerful tool for communication. The media's influence is felt today on a global scale. Traditional media, sometimes known as "folk media," are still successful in today's society in addition to the technical media like TV, radio, and the internet. By using storytelling and music, folk media can create an emotional connection to sustainable

farming practices, making farmers more likely to adopt and maintain these methods. Traditional folk melodies, proverbs, storytelling, dancing, theatre, poetry recitals, and arts and crafts are just a few of the diverse, widely used forms of communication found in rural India. The message is more effective when delivered to individuals in their traditional ways because people find it simpler to understand and, as a whole, embrace it far more readily. As a result, the folk media draws in rural residents, and its effects are far more profound for them. This is an effort to define the function of traditional folk media in rural communities' communication-based education about rural development, Essien, Bullem, Olofu, Omang and Nkim (2021) carried out a study on traditional folk media and climate change mitigation measures of agricultural land users in Ogoja education zone of Cross River state, Nigeria. The findings revealed that traditional folk media has a significant influence on climate change mitigation measures in the study area. Also, Sharma & Singh, (2015) asserted that the impact of folk media in agricultural development in rural areas has certain advantages which include; (i) enhancing the clarity and distinctness of indigenous communication; (ii) being flexible to accommodate novel themes, issues, and new agricultural ideas, and (iii) bringing about some form of satisfaction to an individual's inner desire for self-expression thereby giving room for everyone to participate. Daudu (2019) used a survey approach to investigate the issues and potentials of folk media use for agricultural

extension services delivery in Nigeria. All registered farmers in Benue State were exclusively involved as the population while purposive and simple random sampling principles were used to select 100 respondents. A questionnaire was used to collect data and study's investigations included assessments of extent of; (i) usefulness of friends' and groups' associations in terms of agro-based information dissemination, and; (ii) utilization of the aforementioned source to disseminate information. Frequencies, percentage scores, mean scores (with a reference mean), and rank order were employed to analyse the collected data. The result revealed that; (i) each of friends' and groups' associations, respectively, ranked very high in terms of usefulness for agro-based information; (ii) each of friends' and groups' associations, respectively, were agreed as being used for information sourcing. The finding therefore signified that the investigated folk media were not only found as being very useful for information sourcing but also, they were accepted as being used to actually source for information. According to Essien e'tal (2021) folk media is used in the preservation of traditional knowledge, while introducing new sustainable practices. folk media also helps preserve and validate traditional ecological knowledge that has been sustainable for generations. Furthermore, folk media performances are often cost effective and can reach more remote areas where modern communication technologies might be limited. In addition, folk media can be tailored to address specific environmental or agricultural challenges faced by a particular community,

making information directly relevant and applicable.

Use of print media and sustainable farming practices

Print media plays a significant role in promoting and supporting sustainable farming practices. Agricultural information dissemination is a crucial stage of agricultural technology development and transfer. It is crucial because if it is not done properly and through the appropriate channel it would not serve the purpose it was intended to. The primary means of sustaining agricultural development is through generating and disseminating relevant information to farmers as simple as possible. To convey messages on agricultural technology to farmers, mass media have been found to be a veritable tool (Okwu, Kuku, & Aba, 2017). Mass media are channels or technological devices through which messages are conveyed to a large and heterogeneous audience. Print media including newspapers, magazines and pamphlets distributes detailed information about sustainable farming techniques, new research and best practices to a wide audience. Print media informs farmers about new government policies, regulations and incentives related to sustainable agriculture.

Adejo, Adejo and Edoka, (2015) carried out a study on Assessment of Farmers Awareness of Print Media in the Acquisition of Agro-Information in Kogi State, Nigeria. The result showed that the level of awareness of print media in the study area was high (62.5%). 88.3% of the respondents mostly preferred newspapers, while 82.5% of the sampled

farmers used print media in sourcing for information on improved farming systems. The study further showed that the major factors limiting the effectiveness of print media in the State include: lack of interest on the part of farmers (M=2.3), selective distribution by agencies (M=2.3) and high cost of the printed materials (M=2.2). Essien et al (2021) reported that print media publications often report on market trends for sustainably produced goods, helping farmers make informed decisions about crop selection and production methods. Print media bridges the digital divide, especially in areas with limited internet access. Local newspapers often cover community based sustainable farming initiatives, thereby fostering support and participation. Uzochukwu & Ekwugha, (2015) asserted that print media serves as a platform for advertising environmentally friendly farming products, equipment and services.

Methodology

The correlational research design was used in this study. This design involves the collection of data to accurately and objectively describe existing phenomena. The population of the study consisted of all the 73,002 registered farmers in Cross River State, who are enlisted in the respective senatorial district. A manageable and sizeable sample size of 1,443 respondents was selected for the study using purposive and accidental sampling techniques. The instrument used for data collection was a structured questionnaire titled “Environmental Education Awareness Strategies and Sustainable Farming Questionnaire (EEASSFQ)” designed by the researcher and

validated by three experts. One in measurement and evaluation and two in department of continuing education and development studies, University of Calabar – Calabar. To determine the reliability of the instrument a trial testing was done using 50 respondents drawn from the study area with similar characteristics who were not included in the main study. A set of items was administered to the respondents after an interval of two weeks. The Cronbach Alpha reliability coefficient was used to test the degree of consistency of the instrument. They were found to range from .72 to .87. This implies that the instrument was reliable enough to be used for this investigation. The procedure for data analysis was based on the already structured research hypothesis. Prior to the administration of the questionnaire to the respondents (registered farmers), the researcher secured information on the venue and date of registered farmers meetings per LGAs of the sampled area. This the researcher attended with five other trained research assistants to other locations depending on the LGAs. At the meeting venue after the farmers had concluded their meeting deliberations, the researcher and the assistants respectively formally introduced themselves stating the aim of their visit, after which the questionnaire was administered to the respondents. Simple regression statistical technique was used to analyzed data for the study.

Presentation of results

The two research hypotheses were stated and tested in order to provide solution to the problem of this study. Each hypothesis was tested at .05 significant level.

Hypothesis one
There is no significant relationship between use of traditional folk media and sustainable farming practices in Cross River State, Nigeria. The independent variable is use of traditional

folk media while the dependent variable is sustainable farming practices in Cross River State. In analyzing the hypothesis simple regression statistical analysis was used and result shown in Table 1.

TABLE 1

Simple regression analysis on the relationship between use of traditional folk media and sustainable farming practices in Cross River State

Variable	R	R ²	Adj. R ²	Std. Error	
Traditional folk media	.172 ^a	.030	.028	2.132111	
Source of variation	SS	Df	MS	F	p-value.
Regression	638.301	1	121.281	11.19*	.011 ^b
Residual	3694.102	1441	12.110		
Total	4332.403	1442			

*Significant at $p < .05$

The analysis in Table 1 showed that the Adj R² is .280. This implies that 2.8% of the variance in the dependent variable (sustainable farming practices) could be accounted for by use of traditional folk media. However, though the percentage contribution is small, a cursory look at the table showed that $F=11.19$ ($p < .05$) is significant. Also since $p(.011)$ is less than $p(.05)$, it implies that there is a significant relationship between use of traditional folk media and sustainable farming practices in Cross River State, Nigeria. Therefore, the stated null hypothesis is rejected and the alternate hypothesis upheld. This implies that

use of traditional folk media has a strong positive relationship with sustainable farming practices in Cross River State Nigeria.

Hypothesis two

There is no significant relationship between use of print media and sustainable farming practices in Cross River State, Nigeria. The independent variable is print media while the dependent variable is sustainable farming practices in Cross River State. In analyzing the hypothesis simple regression statistical analysis were employed and finding outlined within Table 2.

TABLE 2

Simple regression analysis on the relationship between use of print media and sustainable farming practices in Cross River State

Variable	R	R ²	Adj. R ²	Std. Error	
print media	.411 ^a	.169	.167	2.033246	
Source of variation	SS	Df	MS	F	p-value.
Regression	517.599	1	123.422	39.74*	.000 ^b
Residual	3814.804	1441	10.417		
Total	4332.403	1442			

*significant at $p < .05$

The analysis in Table 2 showed that the Adj R² is .167. This implies that 16.7% of the

defiance within dependent variable (sustainable farming practices) could be

accounted for by use of print media. However, though the percentage contribution is small, a close look at the Table showed that $F=39.74$ ($p<.05$) is significant. Also since $p(.000)$ is less than $p(.05)$, it implies that there is a significant relationship between use of print media and sustainable farming practices in Cross River State, Nigeria. Therefore, the stated null hypothesis is rejected and the alternate hypothesis upheld. This implies that use of print media has a strong positive correlation with sustainable farming practices in Cross River State Nigeria.

Discussion of the Findings

The findings from analysis of the first hypothesis stated that the null hypothesis was rejected and the alternative hypothesis upheld which implied that there is a significant relationship between folk media and sustainable farming practices in Cross River State. The present result is in tandem with Sharma and Singh (2018) who stated that the Traditional folk media is a dynamic means of communication. It can integrate cultural values, beliefs, and attitudes with national and societal needs. Understanding the rural audience is a prerequisite to the use of traditional media that attract mass attention and ensure their participation in sustainable farming practices. It is unique in nature, as it looks like the day-to-day life pattern of the rural masses. This type of media is the source of communal entertainment for the audience of rural areas, beyond providing education and information to the people.

The finding was also consistent with the work of Adebayo (2017) who noted that

deforestation could be tackled globally by adjusting the trade structure, decreasing demand for tropical timber and above all, using external debts to finance conservation programmes especially in the less developed nations. Folk media, therefore is an interactive and participatory traditional communication media, despite its crudeness, albeit sophistication, rural people use to ensure dialogue. Folk media including tradition forms of entertainment can be inexpensive. They are used primarily for entertainment in the rural areas and can be adapted to transmit messages about agricultural practices and ideas. Folk media are interactive and participatory. For instance, drama as a traditional means of information allows different possible endings by encouraging audience participation which is aimed at changing the behavior of participants of such means of communication (Adebayo, 2017)

Use of print media and sustainable farming practices

The hypothesis two finding indicated null hypothesis was dropped implying that print media is significantly related to sustainable farming practices in Cross River State. This is in concurrence with Rust, Javi's, Reed and Cooper (2021) who sated that Framing of sustainable agricultural practices by the farming press and its effect on adoption. According to the authors, there is growing political pressure for farmers to use more sustainable agricultural practices to protect people and the planet. The farming press could encourage farmers to adopt sustainable practices through its ability to manipulate

discourse and spread awareness by changing the salience of issues or framing topics in specific ways.

Okwu, Kuku, and Aba (2017) still in line with the present finding stated that Agricultural information dissemination is a crucial stage of agricultural technology development and transfer. It is crucial because if it is not done properly and through the appropriate channel it would not serve the purpose it was intended to. The primary means of sustaining agricultural development is through generating and disseminating relevant information to farmers as simple as possible. To convey messages on agricultural technology to farmers, print media have been found to be a veritable tool. From the above, it could be deduced that print media is a useful channel of communication used to make farmers adapt their farming practices towards sustainable agricultural practices. The findings of the study differ from reviewed studies in terms of coverage, research methodology and target population. Hence, the present study has greater precision for generalization.

Conclusion and Recommendations

Based on the result of the study the following conclusions were reached that: There is a significant relationship between use of traditional folk media and sustainable farming practices in Cross River State, Nigeria. There is a significant relationship between use of print media and sustainable farming practices in Cross River State, Nigeria.

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

1 Awareness creation on traditional plays through folk media as a sustainable farming

practices awareness strategy should be improved and made an integral part of community norms and values by community elders and chiefs.

2. Information on sustainable farming practices should be shared through the use of print media channels viz; flyers, pamphlets, banners to sensitize community members on the importance of cultivating healthy sustainable farming practices.

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Records Management Practices for Economic Stability of Mass Media Organisations in Kano State, Nigeria.

By

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Abstract

An effective records management procedure is a major element of the governance of any organisation. Records management is crucial to sustenance of the economic stability as it preserves the past thus providing access to the future through valuable information. However, lack of effective recordkeeping and information may lead to poor decision-making, curtailment of rights and entitlements, and allegations of corrupt, fraud and theft. The study was designed to assess the management of records in mass media organisations in Kano State, Nigeria. The objectives were to determine procedures used to manage records in the mass media organizations in Kano state and to explore methods used to preserve and conserve their vital records just to mention a few. Quantitative was the adopted methodology and cross-sectional survey research design was also employed in the research. A questionnaire was administered to the respondents comprising of records managers, administrative officers, journalists, editors, and newscasters. A total of 118 questionnaires were distributed to respondents in the 14 mass media organisations in Kano State. Of these, 115 were returned and deemed usable. Descriptive statistics applying frequency and percentages were used for data analysis with the help of SPSS 16.0 version. The results of the study revealed that despite the indispensable value of records, several obstacles including poor retrieval tools, insufficient funding, poor facilities and storage equipment were some of the factors affecting the management of records in these mass media organisations. Researcher recommends the for economic stability, such organizations must provide records standards and policies, enhance accessibility and utilisation of records.

Keywords: *Economic Stability, Kano state, Mass Media Organisations, Records, Records Management.*

Introduction

There is sometimes a lack of clarity about what is meant by ‘record’ in relation to the more general term ‘information’. According to Agere, Lemieux and Mazikana (1999), a record is any medium in or on which information is recorded. Medium includes paper, magnetic tape and disc, microfilm, audio-tape, film, slide and photograph. Records management, according to Miller, Roger and Steward (1999:19) is: “The area of general administrative management concerned with achieving economy and efficiency in the creation, maintenance, use and

disposal of the records of an organization throughout their entire life cycle and in making the information they contain available in support of the business of that organization.” Mutongi (2016) summarizes the importance of information management in projects as follows; information management aids decision making, creates value or usefulness, allows to gain complete advantage, helps solve problems, helps to monitor and control, improves communication, improves service, increases flexibility, creates knowledge, increases

productivity, increases revenue, reduces costs, provides metrics and measurements, integrates and coordinates resources, makes things explicit, reduces uncertainty and supplements memory. In short proper records care aids the organization's efficiency and effectiveness.

In an economic society that is increasingly driven by technology, security, data maintenance, social media, and compliance, effective records management is vital to any organisation's success. That is why using tools that organize and manage the many aspects of records is essential to surviving and thriving. Despite the fact that mass media organizations play vital role in the sustenance of economic stability of a country. They are continually being called upon to function in a business-like manner in order to be self-sustaining and to remain competitive, they overlook the enormous advantages that proper records management practices could contribute to the achievement of their objectives (Mnjama, 2002 and Procter, 2002).

Economic stability is the condition in which a country is able to function smoothly and grow at a steady pace in spite of the influence of various outside disruptions and problems happening all around it. It has the ability to take challenges and absorb risk but still invest in infrastructure, maintain its place in global markets and achieve a good living standard for its citizens. It is an essential factor that affects citizens' lives. It is an indicator of a healthy economy, free from disruptions. Economic fluctuations can be

financial, political, social, legal, or technological. Thus, a country should prepare to minimize its vulnerability to economic troubles through effective management of its records. Maintaining stability in an economy is very important as it creates confidence and certainty in the minds of the investors who want to invest in human capital and technological resources. Moreover, the government can identify the indicators of a stable economy and control them.

Mass media organisations have assumed a very important position in the educational development in Nigeria. Mass media organisations contribute greatly in the area of mass communication, which has brought about political, social and cultural awareness and understanding among the people in the state and Nigeria at large. Apart from that, media also contributes in the educational and industrial sector because many of the companies in this state use the mass media to advertise their products. With the trend of development, radio, television and newspapers have contributed to the quest of these groups of people for information which the media houses should strive to provide. The mass media also contributes in the public enlightenment programmes through mass literacy campaign which helps in raising the living standard of the people. The mass media also introduces agricultural and health programmes which help to introduce farmers to new methods of farming and better the healthy conditions of the people. These important roles played by media houses inspired this study on how their record are

manage and use by the staff for the benefit of the public people and economic stability.

Objectives of the Study

Records in mass media organisations are expensive. The record managers needed to manage these records and make them cost effectiveness in their organisations and promote the use of such records, being a major critical component for economic stability. To attain that goal, the study stipulated the following objectives:

1. To find out the procedures employed for appraisal and retention of records for economic stability in the mass media organisations in Kano state.
2. To determine the processes used in arrangement and description of records for economic stability in the mass media organisations in Kano state.
3. To identify the methods adopted in the Preservation and Conservation of records for economic stability in the mass media organisations in Kano state.

Literature Review

Appraisal and Retention

Appraisal and retention are two terms that define the process used to determine the value of record and the minimum and maximum periods for keeping records. Appraisal is the process of distinguishing records of continuing value from those of no further value so that the latter may be eliminated. Records can possess different types or degrees of value to an organization, which will affect how long collections need to be kept.

Appraisal is the process of determining the value of records for further use, for whatever purpose, and the length of time for which that value will continue. Also known as evaluation, review or selection. According to Cook (1999), appraisal for retention or disposal is a key part of a systematic process that ensures that the destruction of records or their transfer for archival preservation takes place at the right time. Appraisal requires the systematic implementation of decisions based on an assessment of the continuing value of the records for administrative, operational or other uses.

Retention on the other hand is the function of preserving and maintaining records for continuing use. This may be done in the agency of origin, in a records centre or in an archival institution. Retention is the process of creating, preserving, transferring the inactive records for storage and destructing the dead records to minimize cost and maximize the benefit of the organization. Gimmel (2022) defined record retention as “a practice by which organizations maintain confidential records for set lengths of time, and then employ a system of actions to either redirect, store or dispose of them.” Records are written documents in the form of letters, bills, vouchers, books of accounts, minutes etc. They are necessary for making prompt decision. According to Littlefield, “Record retention is the activity designed to control the life cycle of the record from its creation to its disposition.”. Govos (2021) describes records retention as the methods and practices which an organization will

use to safeguard important records and maintain them for the required period of time until they need to be stored, redirected or otherwise disposed of. A records retention system applies to both paper documents and electronic records such as scanned versions of physical documents, word documents, spreadsheets and more.

Many organizations around the world are often praised for good governance or rebuked for bad governance. For an organisation to be praised for good governance, there are many contributing factors, of which availability of records and the effective management thereof is one of the critical factors. For good governance to be sustained in mass media organizations, good recorded management programmes through appraisal and retention need to be introduced and practiced. For example, good management of procurement records, financial records and other records demonstrate any organization's commitment to promotion of good governance and in turn lead to economic stability.

Arrangement and Description

Arrangement and description are two integrated practices designed to prepare records and archival materials physically and intellectually for research use. Millar (1999) defines arrangement as the whole process of analysing the organisation of sets of records and archives, whereby their provenance and original order are understood and the archives are set into groups, series and items in an order that preserves and reflects that understanding. Description on the other hand, is the process of capturing, analysing,

organizing, and recording information that serves to identify, manage, locate and explain records/archives and the contexts and records systems that produced them.

The arrangement and description of records serve the dual functions of preserving records and making them available for use. Alfred (1980) notes that "making possible the use of records, processing gives meaning to their acquisition and preservation. At the same time, processing is the key method by which record managers/archivists control and administer the records in their custody". In the arrangement of records, record managers organize and order their collection, thereby bringing under physical control. In the description of record collections, records bring together information that provides a context for the records, thereby bringing them under intellectual control.

Records are clearly a key element in supporting accountability. In the words of Australian lawyer, Willis (2005), " ... sound information and records management underpins ... many of the vital aspects of corporate governance" (Orr, 2008). According to Shepherd (2006), one of the reasons for keeping records is that organizations use records to support accountability when they need to prove that they have met their obligations or complied with best practices of established policies.

Agere *et al* (1999) concur with the above statements by stating that for the instrument to be effective, it must have records and information available for the users to assess for themselves the

extent to which the state is being accountable to society. One of the pillars of accountability and transparency in an organization is the extent to which people have access to information to assist them in evaluating whether the organization is transparent or not. Many researchers agreed that proper arrangement and description will not only ensure access to records appropriately and swiftly but supports continuing service delivery. Cox & Wallace (2002) express a similar view by stating that accountability and transparency cannot be achieved in an environment where information is not available. Records management underpins accountability.

Preservation and Conservation

Preservation is a term referring to passive protection of record materials in which no physical or chemical treatment to the stem occur. Preservation can also be defined as the protection of culture property through activities that minimizes chemical, physical deterioration and prevent loss and prolong the existence of cultural properties. Preservation is a systematic application of principles such as cataloging and digital so as to prolong the life of all collection materials that have been stored. Preservation is the means of identifying and treating or photocopying damaged materials to restore useful so as to access information they contain. Lastly preservation is a process of protecting records and archives against change or deterioration. Preservation activities are designed to minimize the physical and chemical

deterioration of records and to prevent the loss of informational content.

Conservation is one component of a preservation programme. Conservation comprises the examination, documentation, and treatment of records. Conservators perform treatments which preserve records in their original format. They examine records and assess their condition and the materials which comprise them, recommend remedial treatments to arrest deterioration, recommend treatments to improve condition, and document (in writing and with photographs) the treatments they perform on records. Treatment documentation is important because it provides information to future archivists and conservators about what was done to records in the past. Some of the treatments that might be performed on a record include cleaning, removing damaging materials (e.g. mold, tape, or deteriorating adhesives), mending tears, deacidifying records at risk from acid deterioration, and providing custom housing made from stable materials. Conservation is a dynamic and developing field.

A well designed records management system through preservation and conservation helps protect an organization legally. Records are one of the basic litigation support tools, without them there can be no litigation as they provide information through which evidence is derived and decisions are made.

Almost all organizations, including mass media organizations, will experience some type of litigation during their lifetime. It is therefore imperative for organizations to devise

mechanisms of ensuring their preparedness should a need to protect themselves in a court of law arise. Effective record keeping is among the many strategies that can be used by organizations to ensure preparedness for litigation. If records such as contracts and agreements, essential for documenting the government's legal obligations to pay or receive monies are well organised and protected through preservation, they can be referred to when needed (Dearstyne, 1985).

Finance and audit laws generally require ministries, departments and organizations to ensure that financial and accounting records are adequately kept and managed and to empower the audit body to obtain access to all financial records (<http://findarticles.com/>). An effective records management system is a critical element in the preparation of an institution's financial statements. It will allow for verification of the completeness and accuracy of data reported in financial statements and assist in the compilation of the audit process. The World Bank (2000) states that poor record keeping affects the entire accounting function, with the result that reporting and auditing may become virtually impossible. Fraud becomes difficult to detect and debt management also suffers. Good records management systems are therefore essential to support financial management.

Methodology

The quantitative research methodology and cross-sectional survey design were employed for

the study. This choice was because it involves a systematic and comprehensive collection of information about the opinions, attitudes, feelings, beliefs, and behaviours of people. The population of the study comprised of 168 staff in mass media organisations in Kano, Nigeria. They included administrative/record managers/officers and secretaries in some departments. They were chosen because by convention and regulations, they are custodians, preservers and users of records in their organisations. A sample of 118 respondents was drawn from the population size of 168 who were managing the records in accordance with Krejcie and Morgan's (1971) Sample Size Determination Table. A questionnaire was designed and used for data collection. They were designed based on the objectives of this study. The collected quantitative data were analysed descriptively using the Statistical Package for Social Sciences (SPSS).

Results and Discussions

Out of 118 copies of questionnaire administered, 115 were completed and returned, thus representing 97.5% response rate. Data was presented for analysis using the descriptive statistics which include frequency count, percentages and tables.

Procedures for Appraisal and Retention of Records in the Mass Media Organizations

Table 1

Procedures of Appraising and Retaining Records

Appraisal		1	2	3	4	5	TOTAL	
A	Appraising the records helps to determine their value for permanent retention or proper destruction	F	2	3	10	30	70	115
		%	1.7	2.6	8.7	26.1	60.9	100.0
B	Criteria in appraising the records to determine their retain ability or disposability	F	3	10	2	35	65	115
		%	2.6	8.7	1.7	30.4	56.5	100.0
C	Appraising records for their evidential value	F	3	10	2	32	68	115
		%	2.6	8.7	1.7	27.8	59.1	100.0
D	Appraising records for their legal, financial, and administrative transactions	F	2	3	10	25	75	115
		%	1.7	2.6	8.7	21.7	65.2	100.0
E	Appraising records for their documentary nature	F	2	10	3	30	70	115
		%	1.7	8.7	2.6	26.1	60.9	100.0
F	Developing records schedules for all audio-visual records	F	55	45	10	2	3	115
		%	47.8	39.1	8.7	1.7	2.6	100.0

(KEY = 1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree)

The figures in the data gathered suggest that even though appraising and retaining of records can result in proper use of records management, 100 (86.9%) of respondents did not consider developing records schedules for all audio visual records. Interestingly, however, a significant number of respondents representing majority agreed that Appraising the records helps to determine their value for permanent retention or proper destruction 100 (87%), Criteria in appraising the records to determine their retainability or disposability 100 (86.9%), Appraising records for their evidential value 100 (86.9%), Appraising records for their legal, financial, and administrative transactions 100 (86.9%), Appraising records for their documentary nature 100 (87%).

It also indicates how the respondents shared their knowledge on how appraisal was in their various

mass media organizations in Kano. It was revealed from the study that appraisal helped in determining the values of records i.e. for permanent retention or proper disposition. The management of the records after their creation is just as important as ensuring that the right records have been captured. In relation to this, Robek et al. (1995) concluded that if the basic premise of records management, which is to 'manage organisational information so that it is timely, accurate, complete, cost-effective, accessible and usable', is to be realized, then proper controls must be applied to records during the different stages they pass through from creation to disposal. This ensures that records maintain their value as authentic evidence of activity throughout their life cycle and could serve as major component in stabilizing the economy.

**Procedures for Arrangement and Description
of Records in the Mass Media Organizations**

Table 2
Procedures Used in Arranging and Describing Records

Arrangement and Description			1	2	3	4	5	TOTAL
A	Records are effectively organized in your mass media organization	<i>F</i>	20	55	15	10	15	115
		<i>%</i>	17.4	47.8	13.0	8.7	13.0	100.0
B	Appropriate arrangement and description procedures are followed	<i>F</i>	50	45	5	8	7	115
		<i>%</i>	43.5	39.1	4.3	7.0	6.1	100.0
C	Finding aids are used to describe the records	<i>F</i>	39	36	12	10	12	115
		<i>%</i>	33.9	31.3	10.4	8.7	15.7	100.0
D	Principle of provenance is used in arranging your records	<i>F</i>	15	31	15	31	23	115
		<i>%</i>	13.0	27.0	13.0	27.0	20.0	100.0
E	Organization aims to provide information about the content and context of records	<i>F</i>	30	20	10	25	30	115
		<i>%</i>	26.1	17.4	8.7	21.7	26.1	100.0
F	Recovery procedures are in place to help the organization assemble its records and resume administrative operations in case of a disaster	<i>F</i>	50	45	5	10	5	115
		<i>%</i>	43.5	39.1	4.3	8.7	4.3	100.0

(KEY = 1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree)

The proper management of records entails establishing physical and intellectual control over records that are entering the records system. This is done through registering each record as it enters the system, locating it where it can be found easily by means of classification schemes, placing it into files that are properly titled and indexing the information in the records. When records are used by several people, and when records can be taken out of the office for use elsewhere, it means keeping track of where the record is and for how long, if the record is not to be lost. The analysis presents how the mass media organizations arranged and described their records for easy accessibility, retrieval and use. It shows that majority of the respondents disagreed with the four out of six statements in the table. Seventy five (65.2%) respondents disagreed with the statement that records were effectively

organized, ninety five (82.6%) disagreed with the position that appropriate arrangement and description procedures were followed, seventy five (65.2%) felt finding aids were not used to describe the records, and ninety five (82.6%) disagreed with the notion that recovery procedures were in place to help the organizations in assemble their records to resume administrative operations in the event of a disaster.

It further reveals that respondents were almost equally split in their opinions about the principle of provenance used in arranging records by their organizations. While fifty-four (47%) agreed, forty six (40%) disagreed. Similarly, in terms of their organizations aiming to provide information on the content and context of records 55 (47.8%) agreed while 50 (43.5%) disagreed. Contrary to

the findings, Schellenberg (1996) asserts that when arranging records and archival materials, repository must follow the internationally accepted principle of *respect des fonds*, which encompasses respect for the provenance and original order of records. The implication of these findings is that more than half of the offices managing records in the mass media

organizations were not properly registering the records that came into their records systems. The absence of a written classification scheme meant that records were not classified consistently and this could profoundly affect the stability of the economy.

Procedures for Preservation and Conservation of Records in the Mass Media Organizations

Table 3
Procedures in preserving and conserving records

Preservation			1	2	3	4	5	TOTAL
A	Adequate preservation and conservation techniques for the records	<i>F</i>	50	45	5	8	7	<i>115</i>
		<i>%</i>	43.5	39.1	4.3	7.0	6.1	<i>100.0</i>
B	Provision of appropriate storage facilities (metal cabinet, cupboard, drawers, cabinets, trays, files, shelves etc.)	<i>F</i>	50	45	5	10	5	<i>115</i>
		<i>%</i>	43.5	39.1	4.3	8.7	4.3	<i>100.0</i>
C	Educating and training those handling and preserving records	<i>F</i>	40	38	5	10	22	<i>115</i>
		<i>%</i>	34.8	33.0	4.3	8.7	19.1	<i>100.0</i>
D	Recording medium sufficiently stable to maintain the viability of the records for the duration of their retention period	<i>F</i>	30	20	12	23	30	<i>115</i>
		<i>%</i>	26.1	17.4	10.4	20.0	26.1	<i>100.0</i>
E	Use of fire extinguisher	<i>F</i>	30	25	10	30	20	<i>115</i>
		<i>%</i>	26.1	21.7	8.7	26.1	17.4	<i>100.0</i>
F	Lamination of records	<i>F</i>	60	40	5	5	5	<i>115</i>
		<i>%</i>	52.2	34.8	4.3	4.3	4.3	<i>100.0</i>
G	Electronic conversion of nearly deteriorated paper based records	<i>F</i>	70	30	15	-	-	<i>115</i>
		<i>%</i>	60.9	26.1	13.0	-	-	<i>100.0</i>
H	Storage conditions protect audio-visual records from fire and water damage and insect, pest, and mold infestation	<i>F</i>	75	25	10	5	-	<i>115</i>
		<i>%</i>	65.2	21.7	8.7	4.3	-	<i>100.0</i>
I	The temperature in the storage area for audio-visual records in 72 degrees fahrenheit or less and the relative humidity between 30 and 40 percent	<i>F</i>	80	25	5	5	-	<i>115</i>
		<i>%</i>	69.6	21.7	4.3	4.3	-	<i>100.0</i>
J	All nitrocellulose-based motion picture, still picture, and aerial film stored in a vault meet fire safety standards	<i>F</i>	80	25	5	5	-	<i>115</i>
		<i>%</i>	69.6	21.7	4.3	4.3	-	<i>100.0</i>
K	Storage containers for permanent or unscheduled audio-visual records made of noncorroding metal, inert plastics, paper products, or other materials recommended standards	<i>F</i>	90	10	10	5	-	<i>115</i>
		<i>%</i>	78.3	8.7	8.7	4.3	-	<i>100.0</i>

(KEY = 1 – Strongly Disagree, 2 – Disagree, 3 – Neutral, 4 – Agree, 5 – Strongly Agree)

The results of the survey indicated that respondents disagreed with majority of the above statements which include, Adequate preservation and conservation techniques to the records 95 (82.6%), Provision of appropriate storage facilities (metal cabinet, cupboard, drawers, cabinets, trays, files, shelves etc.) 95 (82/6%), Educating and training those handling and preserving records 78 (67.8%), Lamination of records 100 (87%), Electronic conversion of nearly deteriorated paper based records 100 (87%), Storage conditions protect audio-visual records from fire and water damage and insect, pest, and mold infestation 100 (86.9%), The temperature in the storage area for audio-visual records 72 degrees Fahrenheit or less and the relative humidity between 30 and 40 per cent 105 (91.3%), All nitrocellulose-based motion picture, still picture, and aerial film stored in a vault meeting fire safety standards 105 (91.3%), and Storage containers for permanent or unscheduled audio-visual records made of non-corroding metal, inert plastics, paper products, or other materials recommended standards 100 (87%). Also as Table 4.13 reveals, respondents were split equally in their opinions about whether the recording media were sufficiently stable to maintain the viability of the records for the duration of their retention period (Agree 46.1% and Disagree 43.5) and the Use of fire extinguisher (Disagree 47.8% and Agree 43.5%) in their mass media organizations. Exactly the same proportion of respondents, almost 50% disagreed as the remaining 50%. This is clear

indication that a lot more work needs to be done in to enable mass media organizations to fully deploy relevant techniques to its records management processes.

In relation to the above findings, Wema (2003) suggests that keeping active and inactive records together poses serious storage and retrieval problems. The findings of this research showed that expensive office space was wasted on storing records which could be moved to less expensive space, such as archives. This also had an important bearing on the ultimate disposition of these records when their retention time had expired. If they could not easily be identified, then they could not easily be disposed of. A records retention and disposal programme is crucial to the management of the records of the organization. The findings, however, disagreed with Ricks et al. (1992) statements that records retention programme provides a timetable and consistent procedures for maintaining the organisation's records, moving the records to inactive storage when appropriate and destroying records when they are no longer valuable to the organisation.”

The absence of adequate preservation techniques and particularly record retention schedules suggested that some of the records that were no longer needed by the organizations were still kept, and those that were still needed might have been destroyed. Another implication is that the mass media organizations might have been losing valuable evidence and vital memory as records disposition had not been developed

systematically. Contrary to the findings, an effective records management system ensure that financial records are maintained throughout the life cycle in a consistent and structured manner, that the audit function and external accountability of the organisation is supported, that the organisation is able to meet its obligations under legislation and to access records for fiscal policy and planning purposes, that the integrity and accuracy of the records are protected and that the records can be retrieved (<http://findarticles.com/>).

Conclusion

The main aim of the study was to conduct an investigation on the role of records management on economic stability, with specific reference to mass media organizations in Kano State. The study has revealed that records management does play a significant role in various aspects, including, inter alia, risk management process, strategic planning process, bettering performance and improving service delivery, promoting good governance, supporting democratic accountability, fulfilling legal requirements, combating corruption, promoting and protecting human rights and ensuring sound financial management. Nonetheless, based on the empirical survey findings, it can be concluded that records management is not receiving the attention it deserves in the mass media organizations in Kano state.

Recommendations

The following recommendations are made based on the findings of this study and for the purpose of sustainable economic stability:

- Records management manuals should be developed to provide staff with an in-depth knowledge on appraisal and accessioning. Moreover, there is need for the provision of accessioning facilities, recruitment of officer in charge of accessioning in all the mass media organizations in Kano state.
- The arrangement and description of records must follow the internationally accepted principle of *respect des fonds*, which encompasses respect for the provenance and original order of records. Proper registration of records in records systems is highly recommended. The use of standard and uniform classification scheme meant that records are classified consistently. Staff should also be informed to refrain from keeping documents in their offices as this can only chunk off the available space.
- To ensure proper preservation and conservation of the records, record centre must be established in all the mass media organisations. Other essential items needed includes adjustable steel shelves are for record storage, cardboard boxes for storing files and other records that are not in bound volume to protect them and for effective records maintenance and use.

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Principals' Accountability in the Effective Management of Internally Generated Fund in Post Basic Schools of Kano Municipal Education Directorate

By

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Abstract

This study investigated principals' accountability in the effective management of internally generated fund in Post Basic Schools of Kano Municipal Zonal Education Directorate. The objectives of this study are to identify the extent to which internally generated sources of fund are available to principals in the management of Post Basic Schools; find out the extent to which internal sources of fund are explored in the generation of funds; and also find out the extent to which Principals are accountable in the effective management of internally generated fund. The descriptive survey design was used. The population of the study consisted of all the forty four (44) Post Basic School Principals. The sample size of the study as provided by Research Advisor 2006 was 28. The cluster sampling technique was used to select the sample population. The instrument used for data collection was a researcher developed instrument titled "Principals' Financial Accountability Questionnaire (PFAQ). Descriptive Statistics using the mean and standard deviation were used to answer the research questions. The findings revealed among others that the common internal sources of fund available to Principals are: examination fees, Admission levy, levy on school vendors and community supports to a moderate extent. Donations from individuals and charitable organizations and sales of books are sources of internally generated fund available to a low extent. The study concluded that for the efficient and effective management of Post Basic Schools, the Principals as the financial managers must plan, budget, mobilize allocate, utilize, audit and account for all the school funds. It is based on this that, the study recommended the need for Principals to explore other alternative sources of fund instead of relying on government grant and subvention among others.

Keywords: *Principals*, internally generated fund, post basic school

Introduction

The principal is the executive head of a secondary school. He is responsible for coordinating all school activities ranging from student enrolment, planning of the school time table, keeping of school records like the class registers, log book, visitor's book, updating his staff with information from the ministry of education, instructing the students, making budgetary and fiscal plans, sourcing for funds to run the school and managing the funds made available to run the school with the aim of realizing educational goals and objectives. The growth and development of any educational sector solely depends on the

management of its resources. Therefore as a school administrator, the basic ingredients to be attended to in the management activity are human and material resources including finance that will aid administrative effectiveness of the school system. One of the responsibility of the secondary school principal is financial management.

The findings in a research conducted by Ukpong (2019) revealed a significant relationship between principals' budgetary practice and effective management of internally generated school funds which could enhance secondary school financing.

This finding is in agreement with the view of Ebong (2013) who asserted that the school budget by principals enables them to succeed in financial management of their schools. The principal is expected to source for funds for running of the school, he is expected to expand the sources of the school income from school magazine, school workshops, school canteens, students arts and crafts, school poultry and farms rather than overdependence on government grants. Shamaki, Nwuji and Al-Isah (2016) revealed that most state school administrator did not have the knowledge for sourcing alternative funds for schools, hence state public secondary education in Northern senatorial zone of Taraba is mostly finance by state government. Beyond sourcing of funds, the principal has the responsibility of managing the available cash in the school to avoid waste and displacement of priorities in attending to school needs. Management of internally generated revenue is concerned with decisions on how to produce, raise money, expand and give accounts of funds provided and generated for the Implementation of programmes of the organization or school. No institution or school has ever succeeded in history without proper utilization and accountability of its resources. Poor management of finance results in financial misappropriation, diversion of finance for different projects and so on.

This is in line with the assertion by Ukpong (2019) that secondary school head are ultimately responsible for the proper accounting of fund specified for the school use, he added that often

times school principals are vulnerable if an effective system for managing fiscal resources is not in place even if the school managers may not be knowledgeable in this critical area of managing fiscal resources.

Similarly Udoh (2014) stated that the main purpose of financial accountability be it in government, business or school, is the raising of funds and ensuring that the funds realized are utilized in the most effective and efficient manner. Udoh explained further that resources are scarce and that all efforts should be made by educational administrators and planners to ensure optimal utilization of funds. However, some head teachers (Principals) or school managers are found to be inefficient in the way and manner they manage and account for the finances in their schools. This may not be mismanagement or embezzlement but it happened because of ignorance of simple techniques of budgeting, record keeping and management. In as much as the budget is being drawn and approved, there is still need to provide accurate information on how the monies generated are expended. It is clear that poor financial accountability is one of the greatest obstacles of effective management of secondary schools in terms of internally generated revenues. In this vein, the revenue generated internally are used in the provision of educational facilities for effective teaching and learning such as instructional materials, renovation of school buildings, buying of equipment to attract functional laboratories and response to teachers who might fall who may be suffering ill-health.

Obasi and Asodike (2014), asserted that revenue generated could also be used for the maintenance of school environment and facilities for teaching and learning, renovation of dilapidated facilities, library, and fixing electrical challenges in the school etc.

In achieving this, the principal must be responsible and accountable for financial management of all the revenue that are generated, collected and paid out by the school. It is the duty of the principal to be accountable and facilitate the execution of its statutory functions relating to the assets, liabilities, properties and other financial management issues. In this vein, good performance of any school programme depends very much on the way the financial imputes are managed. Without good financial management the programme of secondary schools will not be properly implemented. That a good financial management accountability leads to increase in the output of funds utilization and proper allocation of the funds are among competing alternatives.

Statement of Problem

Despite the significant role of internally generated funds in supplementing government funding for post-basic schools in Kano municipal education directorate, there is lack of clarity and accountability surrounding the management of these funds by post basic-schools principals. These has resulted in concerns about the efficient and effective utilization of internally generated funds for educational purposes, potentially

impacting the quality of education provided to students.

This research is aimed at finding out the internally generated revenue available to principals, the extent to which the IGR are explored and accountable for in ensuring optimal utilization for the benefits of post basic schools in Kano municipal directorate.

Research Questions

The questions that guided the research were:

- 1 To what extent are the internally generated revenue (IGR)available to Principals in the management of Post Basic Schools in Kano Municipal Education Directorate, Kano State?
- 2 To what extent are the internally generated revenue (IGR) sources explored in the generation of funds in Post Basic Schools of Kano Municipal Education Directorate, Kano State?
- 3 To what extent are the Principals accountable in the management of internally generated revenue (IGR) in Post Basic Schools of Kano Municipal Education Directorate, Kano State?

Methodology

The study adopted the descriptive survey research design of the quantitative research methodology. The population of the study consisted of the all forty four (44) Principals of Post Basic Schools in Kano Municipal Education Directorate. The sample of twenty eight (28) Principals as suggested by Research Advisor 2006 was selected. The sample of the study was selected using cluster sampling, because the Directorate comprises of Kano Municipal and Tarauni Local

Government Area, each LGA constituted a cluster. The instrument used for data collection was a researcher developed instrument titled “Principal’s Financial Accountability Questionnaire (PFAQ). The questionnaire comprises of two sections. Section one required the background information of the respondents while section two sought the opinion of the respondents on the management of internally generated revenue. The PFAQ was based on the 4- point Likert rating scale of (High Extent (HE) =4 points; Moderate Extent (ME) =3 points; Low Extent (LE) =2 points; and Very Low Extent (VLE) = 1 point) respectively.

The instrument was validated by expert in the field of Test and Measurement and Educational

Administration and Planning from Bayero University, Kano. A test re-test method was used to ascertain the reliability of the instrument and the reliability coefficient found was 0.89, which indicates that the instrument is reliable for the study. Descriptive Statistics using the mean and standard deviation were used to answer the research questions.

Data Presentation and Analysis

The data generated from the instrument was used to answer the research questions.

Research Question 1: To what extent is internally generated revenue available to principals in the management of Post Basic Schools in Kano Municipal Education Directorate, Kano State,

Table 1: Mean Responses of rural and urban principals extent to which internally generated revenue (IGR) are available to principals in the management of Post Basic Schools in Kano Municipal Education Directorate, Kano State.

S/N	IGR Sources Available to Principals in the Management of public secondary schools	Municipal LGA Principals X	LGA 14 SD	Tarauni Principals X	LGA 14 SD	SD	Remarks
1	PTA Levy	3.01	1.23	3.19	1.314	3.10	Moderate Extent
2	Donations from individuals and charitable organizations through fund raising	1.600	4.91	4.80	501	1.54	Low Extent
3	Examination levy	3.23	1.34	3.29	1.37	3.26	Moderate Extent
4	Proceeds from vendors levy	3.21	1.32	3.14	1.29	3.18	Moderate Extent
5	Community efforts	3.07	1.51	3.12	1.29	3.09	Moderate Extent
	Grand mean and standard deviation	2.73	1.12	3.12	1.09	2.74	Moderate Extent

Sources; Field Survey

Table 1 represents the data in respect of extent of availability of IGR for the management of post basic schools by principals. The data indicate that item number 3(Examination levy) had the highest mean scores of 3.26 followed by items 4

(Proceeds from vendors levy) with 3.18, etc. From the various scores, items 1, 3, 4 and 5 had mean scores above 2.50 which is the criterion mean. It simply implies that, the IGR available to principals in the management of Post Basic

schools are P.T.A levies, Examination levy, admission levy, Proceeds from school vendors levy and Community efforts. Nevertheless, items 2 had mean scores below the criterion

mean of 2.50, donations from individuals/charitable organizations through fund raising and farms proceeds are not internally generated revenue for the school.

Research Question 2: To what extent are the internally generated revenue (IGR) sources explored in the generation of funds in Post Basic Schools of Kano Municipal Education Directorate, Kano State

Table 2: Internally generated revenue sources are

S/N	Extent IGR sources are explored in the generation of funds for secondary schools Management	Municipal LGA Principals 14		Tarauni LGA Principals 14		SD	Remarks
		X	SD	X	SD		
1	I generate revenues from P.T.A levies and use them for the provision of instructional materials and other activities	3.14	1.29	3.21	1.32	3.18	Moderate Extent
2	School vendors levy is one of the source of revenue generation in the school	2.4	1.12	2.44	1.12	2.42	Low Extent
3	I use the Admission levy to maintain the school facilities.	3.12	1.29	3.07	1.51	3.09	Moderate Extent
4	Weakness in the area of accessing the donations from individual and charitable organizations through fund raising.	2.13	2.52	2.09	0.59	2,17	
Grand mean and standard deviation							

Sources; Field Survey

Table 2 indicated that item number 1 had the highest mean scores of 3.18 followed by item 3 with 3.09, item 2 with 2.42 and item 4 with 2.17. Among the various scores, items 1 and 3 had mean scores above the criterion mean, this simply implies that the extent to which internally generated revenue (IGR) sources are explored in the generation of funds for secondary schools management is such that some principals generates revenues from P.T.A levies and use them for the provision of instructional materials and also use the admission levy for

maintaining the school facilities. On the other hand, items 2 and 4 had mean scores below the criterion mean of 2.50, meaning that donations from individual/charitable organizations through fund raising did not constitute the major source of internally generated revenue for the school.

Research Question 3: To what extent are the Principals accountable in the management of internally generated revenue (IGR) of Post Basic Schools of Kano Municipal Education Directorate, Kano State.

Table 3: Mean Responses of Principals on the extent the Principals are accountability in the management of internally generated revenue (IGR) in Post Basic Schools of Kano Municipal Education Directorate, Kano State

S/N	Extent Principals are Accountable in the Management of Internally Generated Revenue (IGR)	Municipal Principals X	14 SD	LGA Tarauuni Principals X	14 SD	SD	Remarks
1	I prepare budget based on enough data on income and expenditure	3.40	1.43	3.27	1.36	3.34	Moderate Extent
2	I make room for teachers to be aware of what is internally generated annually for proper accountability	3.02	1.23	3.20	1.32	3.11	Moderate Extent
3	I check imbalance and verify the accuracy of school account before other budget are carried out	2.90	1.19	2.80	1.16	2.85	Moderate Extent
4	I ensure proper financial accounting in the area of supervision of bursary staff and records from monies generate	3.01	1.23	3.19	1.31	3.10	Moderate Extent
5	I prepare school budget regularly for all petty funds generated within the school and is scrutinized before execution	3.19	1.31	3.10	1.27	3.15	Moderate Extent
6	I make account for petty internally generated fund within the school to my teachers	3.3	1.38	3.1	1.27	3.2	Moderate Extent
	Grand mean and standard deviation	3.14	1.30	3.11	1.28	3.13	

Sources; Field Survey

Table 3 indicated that item number 1 had the highest mean scores of 3.34 followed by item 6 with 3.2, item 2 with 3.15, item 2 with 3.11, item 4 with 3.10 and items 3 with 2.85 respectively. The various scores were above 2.50 which is the criterion mean, this simply implies that the extent principals are accountable in the management of internally generated revenue (IGR) in Post Basic Schools of Kano Municipal Education Directorate, is that they prepare budget based on enough data on income and expenditure, make room for teachers to be aware of what is internally generated annually for proper accountability, check imbalance and verify the accuracy of school account before other budget are carried out, check imbalance and verify the accuracy of school account before other

budget are carried out, ensure proper financial accounting in the area of supervision of bursary staff and records from monies generated, prepare school budget regularly for all petty funds generated within the school and is scrutinized before execution and make account for petty internally generated fund within the school to my teachers.

Summary of Findings

The finding from the data generated and analyzed revealed that:

1 The IGR available to the Principals in the management of Post Basic Schools in Kano Municipal Education Directorate were: P.T.A, levies, examination levy, admission levy, proceeds from levy on vendors. Donations from individuals and charitable organizations

through fund raising do not constitute internally generated revenue for the school.

2 The extent to which internally generated revenue (IGR) sources are explored in the generation of funds for secondary schools management is that some principals generates revenues from P.T.A levies and use them for the provision of instructional materials and other activities. And also use the Admission levy for the maintenance of school facilities. On the other hand, some principals had weakness in the area of accessing the donations from individual/ charitable organizations through fund raising.

3 The extent to which principals are accountable in the management of internally generated revenue (IGR) in Post Basic Schools of Kano Municipal Education Directorate is that they prepare budget based on enough data on income and expenditure, make room for teachers to be aware of what is internally generated annually for proper accountability, check imbalance and verify the accuracy of school account before other budget are carried out, ensure proper financial accounting in the area of supervision of bursary staff and records from monies generated, prepare school budget regularly for all petty funds generated within the school and is scrutinized before execution and make account for petty internally generated fund within the school to my teachers.

Discussion of Findings

The finding from the research question one, agreed with Ofoegbu and Alonge (2016) who found that the various sources of internal revenue available to schools are fines and fees, licenses, earnings & sales, rent on school property, interests and dividends of school infrastructures and products, community support and charitable organizations among others. Similarly, finding from research question two, is in line with Nwadiani and Ofoegbu (2015) who found that administrators are sometimes weakness in transforming their schools towards effective teaching, research and community services.

Furthermore, finding from research question three is consistence with Oboegbulem (2013) who in his investigation revealed that principals as chief accounting officers of their respective secondary schools are to generate funds internally to run their schools, they ensure that funds provided by stakeholders are properly accounted for. In the same vein, Bua and Adzongo (2014) also found out that principals are responsible and accountable for school finance and business which includes preparation of school budget, accounting for all the petty funds generated within the school and funds from entertainment and any other records to be well kept within the school.

Conclusion

It could be concluded from the findings of the study that P.T.A levy, examination levy, admission levy, proceeds from levy on vendors

are the main sources of IGR to Kano Municipal Directorate Post Basic Schools. The available generated revenue are allocated for the provision of instructional materials, maintenance of school facilities and other activities. Similarly, the Principals accounted the generated revenue through; preparation of budget based on enough data on income and expenditure, making room for teachers to be aware of what is internally generated annually for proper accountability, checking imbalance and verifying the accuracy of school account before other budget are carried out, ensuring proper financial accounting in the area of supervision of bursary staff and records from monies generated, preparing school budget regularly for all petty funds generated within the school and is scrutinized before execution and make account for petty internally generated fund within the school to my teachers.

Recommendations

Based on the findings, the study recommended the following:

- 1- The Principals need to explore other alternative sources of fund especially donations from individuals and charitable organizations.
- 2- There is also a need for the improvement in the procedure and method used in generation of internal revenue to the schools.
- 3- There is need for the post basic school principals to provide and keep comprehensive audited account of their schools

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Assessment of Library and Information Science Undergraduate Students' Satisfaction with Library Collection in Kwara State University, Maletе

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Abstract

This study looked into how Kwara State University Maletе undergraduate library and information science students were evaluated. The objectives of the study are to identify the type of resource available; determine the frequency of use library collection, purpose of using and identify areas that need improvement in Kwara State University Library. The study adopted descriptive survey design where questionnaire, was used to collect data. Purposive sampling technique was adopted in selecting the students used for the study, and data collected was subjected to comprehensive data analysis using IBM-Statistical Product and Service Solution (SPSS) software. The study revealed that the library resources available to students are textbooks, newspapers, e-book, e-journals, online reference materials, digital repositories and databases. The study revealed that students used the library very often and often whereas majority of the respondents strongly agree on the purpose of using the library collection which include, wide range of academic resources, free access to books/ materials, quiet and conducive environment, discover new interest, expand knowledge and access to internet for research. The study concluded that there is need for improvement in the services provided by the library because users will always be encouraged to make use of the library where the quality of services rendered will help them satisfy their need. The study recommended that library management should sustain the high level of user satisfaction by improving on current and relevant information resources, modern facilities and befitting services that would meet the needs and expectations of users among others.

Keywords: *Assessment, Library, information, science, satisfaction, students*

Introduction

Undergraduate students may be able to access library resources through the availability of an online Public Access Catalogue (OPAC), a physically updated catalogue, and a highly ordered collection. According to Adeleye (2018), the purpose of university libraries' services is to enable the campus community to fully utilize and capitalize on the resources available to them. Undergraduate students use the university library for a variety of informational purposes. Some come to inquire about a specific book by the author or title; others come to learn more about a particular historical event, figure, or period.

Since the library offers a comfortable setting, some people might just visit for reading. Some patrons may visit the library in order to look for books or material related to a project, thesis, or publication they wish to publish. The university library offers a variety of services that can meet all of these information demands. According to Ikenwe and Adegbilero-Iwari (2014), library services are provided by librarians and other staff members to help patrons find the information they need. A wide range of resources were accessible, according to Caroline and Adewale (2018) which included computer/printers, law

reports, dictionaries, encyclopedias, journals, abstracts, atlases, online public access catalogs, books, yearbooks, gazettes, CD-ROMs, almanacs, maps, gazetteers, and internet resources. These resources are essential for gathering information for academic purposes and carrying out research. The university libraries are essential in giving professors the tools they need to succeed academically. Furthermore, Bamidele, (2015) examined availability of electronic resources to law lecturers in public universities in Nigeria and found that various electronic legal information sources are available for law students and lecturers to use from their creators. Results showed that LexisNexis Academic, Criminal Justice Abstracts, West Law, Butterworth Lexis Nexis, Nexus Database, Kluwer Arbitration, I-Law, Biblio Online, World Legal Information, LexisNexis professionals, Acts online, Lexis Analytics, Sabinet Online, Quick Law, Jutastat, and ProQuest are some of the electronic resources available for law lecturers in Nigerian public universities. Findings however showed that many of them are not readily available to samples at their various universities.

Statement of the Problem

A thorough evaluation of undergraduate students' satisfaction with library collections is required due to the growing requirement for current and pertinent library resources as well as the changing information needs of this population. There is a dearth of empirical data regarding undergraduate student's satisfaction level with the library collection, particularly the relevance,

appropriateness, and accessibility of resources, despite the crucial role that libraries play in promoting academic achievement (Bokoh et al., 2023). In the interim, the only people who can assess the level of satisfaction with the services offered by the library are its patrons. Because of this, the researchers believe that doing this study is essential to understanding undergraduate library and information science students' in Kwara State University, Malete satisfaction with the library's collection, pinpointing the university's strong and weak points, and services offered.

Research Questions

The following research questions were formulated to guide the study:

1. What type of resources are available in Kwara State University Library?
2. How often do students use the Kwara State University Library?
3. What are your reasons for using the Kwara State University Library?

Review of Related Literature

Types of Resources Available in the Library

According to Lolade (2020), it is evident that having access to electronic resources improves learning and academic library services by acting as a lifeline. However, the findings showed that a sizable portion of the students at Olabisi Onabanjo University in Nigeria's College of Health Sciences were unaware of the available electronic information resources, which mostly resulted in poor awareness and usage. According to Ismail, (2021; Iqbal & Hussain 2023), getting

and offering ways for users to obtain the necessary information resources is also necessary for the availability of library resources. Ukpebor (2020) came to the conclusion that Edo State children have a low reading culture even if their respective schools contain print resources such as textbooks, dictionaries, fiction, and non-fiction literature. Users of Edo State commonly read textbooks and storybooks and had access to reading materials through libraries, houses, and the homes of friends or relatives. The University of Cape Coast (UCC) library's availability and relevancy of materials were assessed by Barfi et al. (2018) only three of the 13 library resources included in the study were excluded because their mean score was less than 2.5, according to the data. The availability of pertinent materials in the library is indicated by the favourable ratings and acceptance of the remaining ten materials. The study underlined how crucial it is for libraries to have a wide range of information resources to meet the demands of their patrons.

The Frequency of use of Library Collection

In any academic environment, library was established for the purpose of complementing teaching, learning and research. According to Kaur and Gaur (2017), academic library was also constituted to complement the effort of parental institution as well as satisfying the information needs of its target users through adequate and robust collections. In a recent study conducted by Ajani and Buraimo (2022), libraries all over the world either academic, school, public, national, special among others were saddled with the

responsibilities of providing library patrons with useful and prompt information resources (print and non-print) as at when dues. Therefore, in order to meet the information/materials needs, academic libraries must be ready to build a sound and robust collection to be able to satisfy the need of their patrons (Ajani and Buraimo, 2022). Thus, the gratification library patrons derived from library information/ materials resources utilization therefore, depend to a larger extent on the availability of such information resources and the volumes of information/materials resources the library have in-stock for the users through the librarians and other library personnel's (Kaur et al; 2017).

Hence, collection of information/ materials resources in an academic library needs careful preparation and planning. The careful acquisition policy, selection, acquisition, weeding and evaluation. As posited by Emasealu (2021), libraries irrespective of the type, has the mission to gratify its patron's materials/information resources need upon which they can rely on for effective decision-making. It is to be noted therefore that information/material resources become extremely valuable and pertinent to academic libraries because without it, academic libraries cannot function most effectively towards meeting user information/ materials resources need. In building a sound and robust collection that will compete favorably with other first class academic libraries in the world, and also satisfy users materials /information resources need, there

is the need for a favorable collection development policy.

To this end, a collection development policy becomes necessary in ensuring uniformity in collection development of a system. It serves as preparation and planning of information/materials resources by the academic library is also refers to as collection development (Emasealu, 2021). More so, collection development is the qualitative and quantitative procedure of building up and improving on the existing library's information/materials resources (Umoh, Effion & Igaja; 2021). According to IFLA (2012), collection development is a general procedure in libraries that entails bringing together a variety of materials/information needed to meet users' demands. Collection development practice is responsible for selecting and acquiring information materials that would enable librarians and information specialists perform their myriad functions to the users effectively.

Purpose of Using the Library

Generally, libraries provide information services to their users. How this is achieved depends mainly on the purpose of such a library. In other words, the type of services a library offers to its clientele depends on the objectives for the establishment of such a library. This is the main reason why libraries are classified according to the types of services they render and the types of clientele they serve (Ukpanah, Ebong and Enang (2018). Libraries serve multiple purposes in

society. They are used to manage information and resources, making it easier for users to access and interpret information. Libraries empower literacy, knowledge, and skill acquisition, reducing ignorance and improving the reading culture in society (Itsekor and Nwokeoma 2017). Additionally, libraries serve as multifunctional institutions for education, leisure, culture, information, and recreation, providing training in computer and digital skills, and enhancing the engagement and participation of elderly citizens in society (Oduagwu and Oduagwu 2013).

Libraries are very important for information, communication and transformation. They help to inculcate a reading culture for an upward progression of people's life. They reduce ignorance, thus they are empowering literacy, knowledge and skill acquisition. This paper is an opinion paper. The authors employed literature research methodology to carry out the analysis. It gives an insight into the reading culture of different nations and further portrays the role of libraries in promoting reading and an effective reading environment in the society. The authors also aim at improving the reading culture of different nations by using their own nation as a case study. The paper demonstrates that establishing of reading clubs, reviving of education in the schools through electronic libraries, promotion of books and reading in the media are those factors that could improve the situation of reading (Itsekor and Nwokeoma 2017).

Oduagwu and Oduagwu (2013) opined that an excellent educational program cannot be developed without the support of a well-stocked library, a books are essential in the life and development of a child. This therefore implies into a well that availability of information resources in libraries would translate stocked library, and consequently, the utilization of these information resources. According to Ukpanah, Ebong and Enang (2018), utilization of library resources stimulates excitement and instills confidence in the users to develop their talents, potentials and capabilities both academically and socially. They further added that utilization of library resources by students with visual impairment enhance s their own. Their frontier of knowledge and help them to make discovery on Moruf (2015) investigated “students’ utilization of secondary school’s libraries in Akinyele Local Government Area of Oyo State, Nigeria” and found that school libraries were not utilized effectively by students due to inadequate information resources.

More so, Adeleye, (2018) in his study library resources and services utilization as determinant of undergraduate satisfaction in Ekiti State University Ado-Ekiti, Nigeria. The study found that leverage technology, increase accessibility, foster community engagement, collaborate with other libraries and stay updated among others were their strategies to improve resources and services in the library.

Methodology

The survey research design was adopted for this study, which involved collection of information about the facts pertaining to individuals or other entities. The population of this study comprised 1,477 students of library and information science from 100 level to 400 levels. The breakdown of the total population of the students in each level and sample size is presented in table.1. The purposive sampling technique was adopted in selecting the students used for the study because the students serve the purpose of the study. The choice of purposive sampling techniques is because the study targets certain characteristics (students) within the Library and Information Science Department, Kwara State University, Malete. Using the Raosoft sample size calculator, 306 was the suggested sample size with a 5% margin of error and a 95% confidence level for a population of 1,477. 306 is the study’s sample size.

Questionnaire were used for data collection. In order to ensure contents construct validity mechanism, the instrument for data collection was given to three senior lecturers in the department of library and information science, Kwara State University, Malete, who are research specialists for appropriate scrutiny and evaluation before the instruments were administered to the respondents. The researchers distributed the questionnaire with the help of students as research assistants. Four research assistants helped to distribute and collect the instruments since they are familiar with the respondents. A

period of 2 weeks was used for the administration and collection of the instruments. A total number of 306 copies of questionnaire were administered to library and information science undergraduate student in Kwara State University Malete. Meanwhile, 299 copies were returned giving

97.7% response rate. Results were analysed using Statistic Package for the Social Science (SPSS) application software was used for the analysis, and simple percentage was adopted for easy analysis and interpretation.

Table 1: Sample Size

S/N	Level(s)	Study population	Sample Size
1.	100	212	44
2.	200	488	101
3.	300	420	87
4	400	357	74
Total		1477	306

Filed Survey, 2024

Result Presentation

As shown in table 1 above, the populations of this study consist of 306 students of library

and information science, The breakdown of the number of students selected in each level as follows: 100 Level (44); 200 Level (101); 300 Level (87); 400 Level (74)

Table 2: Demographics of Respondents

Demographics	Frequency	Percentage (%)
Gender		
Male	135	45.2
Female	164	54.8
Total	299	100%
Age		
16-20 years	114	38.1
21-25 years	166	55.5
26 years and above	19	7.0
Total	100%	100%
Level		
100	38	12.7
200	55	18.4
300	51	17.1
400	155	51.8
Total	299	100%

Filed Survey, 2024

Table 2, indicated that most of the respondents, 135 (45.2%) were male, and 164 (54.8%) were female. The majority of the respondents were 21-25 years, 166 (55.5%) while the fewest, 26 years and above, 19 (7.0%). The table also indicated

that the highest participation is 400 level students 155 (55.8%) while the lowest participation were 100 level students 38 (12.7%).

Table 3: Identify the Type of Resources Available in the Kwara State University Library

Resources	HA F (%)	A F (%)	NA F (%)
Database	172 (57.7%)	115 (38.5%)	10 (3.3%)
DIGITAL Repository	107(35.8%)	183 (61.2%)	9 (3.0%)
Online Reference Materials	138 (46.2%)	143 (47.8%)	18 (6.0%)
E -Journals	154 (51.5)	140(46.8%)	18 (6.0%)
E-Books	167 (55.9%)	120(40.1%)	12 (4.0%)
Newspapers	189 (63.2%)	88 (29.4%)	22 (7.4%)
Textbooks	203(67.9%)	82 (27.4%)	13 (4.3%)

Field Survey, 2024

Table 3, revealed the response of the respondent that the resources; Textbooks is highly available 203 (67.9%). The table also shows the response of the respondent that the resources; Newspapers

is highly available 189 (63.2%). However, the table revealed that some of the resource; Digital Repositories 107 (35.8%) and Online reference materials 138 (46.2%) are available.

Table 4: Determine the Frequency of Use of Library Collections among LIS Undergraduate in Kwara State University

Usage	Very Often F (%)	Often F (%)	Sometimes F (%)	Rarely F (%)
Use of library	110 (36.8%)	95 (31.8%)	64 (21.4%)	30(10.0%)

Field Survey, 2024

The table 4, revealed frequency of use of library collection among library and information science students. The respondents indicated that 110

(36.8%) very often and 95(31.8%) often. This indicated that students are using the library resource

Table 5: Ascertain the Purpose of Using the Kwara State University Library

Library services	SA F (%)	A F (%)	N F (%)	D F (%)	SD F (%)
A Wide range of academic resources	207 (69.2%)	83 (27.8%)	8(2.7%)	1(0.3%)	0(0%)
Free access to books and materials	180 (60.2%)	151 (38.5%)	3 (1.0%)	1 (0.3%)	0(0%)
Quiet and conducive environment	169 (56.5%)	113 (37.8%)	15 (5.0%)	1 (0.3%)	1(0.3%)
Discover new interest and expand knowledge	163 (60.5%)	114 (38.1%)	13 (4.3%)	2 (0.7)	1(0.3%)
Access to internet for research	181 (60.5%)	91 (30.4%)	14 (4.7%)	3 (1.0%)	10 (3.3%)

Field Survey, 2024

Table 5, revealed that most of the respondents strongly agreed to wide range of academic resources 207 (69.2%) and free access to books and materials 180 (60.2%).Whereas some

respondents agreed to quiet and conducive environment 169 (56.5%) and discover new interest and expand knowledge as their reason for using the library.

Table 6: Identify Areas that Need Improvement in Kwara State University Library

Improvement	Frequency	Percentage
Provision of reading materials	75	26.04%
Availability of good network(Wi-Fi)	95	32.98%
Conducive environment	65	22.56%
Current awareness services	53	18.4%

Field Survey, 2024

Table 6, indicated ways to identify areas that needs improvement. The table revealed response of the respondent’s base on their suggestions and all the suggestions was summarize into four points: Provision of reading materials 75(26.04%), availability of good network (Wi-Fi) 95(32.98%), conducive environment 65(22.56%) and current awareness services 53(18.4%).

Discussion of the Findings

The result of the study revealed that library and information science, undergraduate students affirmed that, textbooks, newspapers, database, e-books, e-journals and online reference materials are highly available in the library. This indicated the library and information science undergraduate students in Malete were highly satisfaction with the available information resources in the library. This finding corroborates with the earlier finding

of Unegbu et al. (2017) who revealed the types of resources available in the university libraries which include: newspaper, textbooks, magazines, journals and e resources are essential materials available for use in the library. Another study conducted by Bokoh, et al. (2023) noted that the availability of library resources also requires obtaining and providing mechanisms for library and information science undergraduate students to obtain the essential information resources.

The outcome of the study shown that respondents used the library very often and often. This finding is collaborated with the findings of Emasealu (2021) who asserted that libraries irrespective of the type, has the mission to gratify its patron's materials/ information resources needs upon which they can rely on for effective decision-making. It is to be noted therefore that information/material resources become extremely valuable and pertinent to academic libraries because without it, academic libraries cannot function most effectively towards meeting user information/materials resources need.

The result further indicated that majority of the respondents strongly agreed on the purpose of using the library collection which include, wide range of academic resources, free access to books and materials, quiet and conducive environment and discover new interest, expand knowledge and access to internet for research This is in line with the finding of Ajibero (2004) who proclaimed academic library as the nerve center of an educational institution and a place where information is provided to serve all patrons

irrespective of their ages, political and ethical background, religion, sex, etc. Also, library success should not be measured in terms what it as (input) but in terms of what it does, the activities it supports, its output transaction, references question answer classes taught and student enrolled.

The result of the study indicated area that needs improvement in the library which include provision of reading materials, availability of good network (Wi-Fi), conducive environment and current awareness services. The finding of the study is similar to Ukpanah, Ebong and Enag (2018), utilization of library resources stimulates excitement and instills confidence in the users to develop their talents, potentials and capabilities both academically and socially.

Conclusion

Based on the findings of this study, it is concluded that library and information science undergraduate users of Kwara State University Library were satisfied with the library services, information resources and facilities available, which means that the library is playing an important role to enable the university to achieve its objectives. However, there is need for improvement in the services provided by the library because users will always be encouraged to make use of the library where the quality of services rendered will help them satisfy their need.

Recommendations

The following recommendations are made based on the findings of the study:

1. The library management should sustain the high level of user satisfaction by improving on providing current and relevant information resources, modern facilities and befitting services that would meet the needs and expectations of users.
2. Every effort should be made to acquire more and current books, periodicals and reference materials for the library since scholarly journals and magazines and reference materials are central to library services as indicated by respondents.
3. Library management to conduct user studies annually in order to have feedback from users on how well the library is meeting their information needs.
4. University management should put more emphasizes on the importance of using library services by the fresh students as well as other users.

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Emerging Technologies in Cooling and Lubrication Systems Needed for Incorporation into the Curriculum of Automobile Technology Education Programme in Nigerian Tertiary Institutions

By

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Abstract

The study determined the emerging technologies in cooling and lubrication systems of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. The study was guided by two research questions and two corresponding null hypotheses. The study adopted descriptive research design. The instrument for data collection was structured questionnaire with four-point rating scale on a population of 138 respondents sampled from North Western Nigeria. The questionnaire was validated by five automobile technology education lecturers and pilot tested in North Eastern region. The reliability of the instrument was 0.82 using Cronbach Alpha statistic. Research questions were answered using Mean and Standard Deviation. While One-way analysis of variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. Findings of the study revealed that all the emerging technologies in the cooling and lubrication systems were highly needed for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions. Also, there is no significant difference in the mean responses of the respondents on the emerging technologies in cooling and lubrication systems of modern automobile engines needed for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions. It was concluded that if identified emerging technologies were incorporated in to the curriculum, high-level skilled graduates will be produced. The study recommended among others that the identified emerging technologies should be incorporated into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Keywords: *Emerging technologies, automobile technology education, curriculum, cooling and lubrication systems*

Introduction

Technical Vocational Education and Training (TVET) is globally recognized for its role in preparing people for dynamic engagement in occupations of useful value and an effective source of skilled workforce. TVET is a type of education intended to prepare individuals with competencies in an occupational trade for the technological and economic development of a nation. The Federal Republic of Nigeria [FRN] in its National Policy on Education (2013), described TVET as a comprehensive term referring to those aspects of the educational process involving, in addition to general

education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. The policy further stated the objectives of TVET to include: providing training for manpower development in applied sciences, technology and business particularly at craft, advanced craft and technical levels; providing technical knowledge and vocational skills necessary for agricultural, commercial and economic development; and give training and impart the necessary skills to

individual who shall be self-reliant economically. TVET programmes are offered at both post primary and tertiary educational institutions (Strimel and Grubbs, 2016).

Tertiary institutions are post-secondary institutions focused on learning endeavours in specialized fields of knowledge and skills. They include Universities, Polytechnics, Monotechnics and Colleges of Education. The objectives of tertiary institutions in Nigeria are; contributing to national development through high level manpower training, providing high quality career counselling and lifelong learning for self-reliance and the world of work, and reducing skill shortages through production of skilled manpower relevant to the needs of labour market among others (FRN, 2013). Tertiary institutions shall pursue these goals through providing a more practical based curriculum relevant to the needs of the labour market. Automobile technology education is one of the professional programmes offered in tertiary institutions in Nigeria.

Automobile technology education is an aspect of technical and vocational education which deals with the construction, maintenance and repairs of motor vehicle. Ismail and Mohammed (2015) consider automobile technology education as a programme run at tertiary institution level, and structured to prepare students for the 21st century workplaces in automobile industries. The main aim of automobile technology is to provide high-level skilled graduates who will be facilitators of automobile education in secondary schools and tertiary institutions, entrepreneurs in

automobile trades and or gain employment in automobile industries (Ujevbe et al, 2020).

Automobile is an indispensable means of transportation in modern societies. It is a vehicle mostly driven by an internal combustion engine and it is used for transportation of passengers and goods on the road. Automobiles are mostly driven by an internal combustion engine. Internal combustion engine is the type of engine in which the burning of fuel takes place inside the engine cylinder. Automobile engines are made up of individual systems that work together to produce power. Modern automobile engine systems include: fuel system, ignition system, cooling and lubrication system among others.

The cooling system is a set of components that remove unwanted engine heat and regulate engine temperature. Palani, Irudhayaraj, Vigneshwaran, Selvam, and Harish (2016) stated that a cooling system is needed because not all of the heat of combustion creates pressure to move the pistons. The lubrication system circulates engine oil to internal engine parts. Engine oil serves several purposes. It must be delivered to the right place at the right time and in the proper quantity. The lubrication system may have no apparent effect on driveability, but it is a vital part of the engine and some defects in it can result in driveability symptoms (Vishwakarma, 2015). Early automobile engine systems were simple and fully mechanical. Technological advancement coupled with the emergence of new technologies has however, influenced the modern automobile engine systems (Amaechi and Thomas, 2020). Harnessing new

technologies into the automobile engines have made the modern automobile engines collection of a group of complicated technologies. Modern automobile engines are controlled by computers and electronic components. Each of these systems require Electronic Control Unit (ECU) which reads sensor values from various parts of the engine and depending on these values perform the appropriate actions. The introduction of electronic controls has particularly brought even greater changes in designs and operations of many automobiles sub-systems. There have been continual emerging technologies in design intended to achieve faster, more reliable, more streamlined, cleaner and safer vehicles with enhanced comfort, fuel economy and durability (Okwelle, Beako & Ojotule, 2018).

Emerging technologies can be seen as technologies which arise from new knowledge or the innovative application of existing knowledge leading to the rapid development of new capabilities. To realize the aim of automobile technology education programme in tertiary institutions, these emerging technologies in modern automobile engines need to be incorporated into the curriculum of automobile technology education. Curriculum is a set of plans, intentions, activities or outcomes that are delivered in a variety of ways and in different settings. Curriculum in any field of education cannot be separated on the development of knowledge about a particular field, but must simultaneously prepare for productive learners. It is a written guide that involves the teachers' knowledge with learning

experiences and resources that can be offered by a society at a given time to the learner (Iwu, 2016). These definitions imply that current needs and future expectations bring about the concept of reviewing the curriculum to accommodate new ideas, skills, knowledge, policies and aspirations of the society. It should reflect the goals, interests and value expectations of the society which is changing fast. The disciplines that are phasing out should be removed and some that are emerging should be given the necessary consideration and added (Umunadi, 2013). Therefore, the emerging technologies in modern automobile engines need to be incorporated into the curriculum of automobile technology education to equip the graduates with the relevant knowledge and skills.

Statement of the Problem

The goal of automobile technology education programme in Nigerian tertiary institutions is to provide high-level skilled graduates who will be facilitators of automobile education in secondary and tertiary institutions, entrepreneurs in automobile trades and or gain employment in automobile industries. Automobile technology education graduates have the prospect of either being facilitators of automobile education in schools, set up their own businesses to become self-employed and be able to employ others or employed in industries. Upon graduation, they are expected to possess skills required by automobile industries for employment.

The emergence of new technologies in modern automobiles is a new development and the

speed at which it penetrates the work environment is challenging. Technological development associated with the advent of new technologies have influenced the modern automobiles. Integrating new technologies into the vehicles have made the modern automobiles an assemblage of a group of complicated technologies. Nowadays, most automobile systems, such as engines, transmission, braking, steering and suspension systems, are mostly controlled by computers and electronic components. Most of the graduates of automobile technology education programme are roaming about in search of job because they are deficient of the emerging skills required by the automobile industries. In Nigeria, automobile industries spend money in training and retraining the graduates of automobile technology education in order to meet the standard required by the industries, instead of starting work immediately.

Despite the significant vehicle population in Nigeria, the maintenance of modern automobiles is still inadequate thereby increasing the prospects of automobile technology education students for effective practice of automobile trade and a successful auto mechanic career. Contrary to these high expectations on students to make a good fortune out of the automobile technology education programme, majority of them have been graduating with little skills to enable them secure employment in industries or establish self-owned automobile. This situation could be attributed to the deficiency of automobile technology education curriculum. Consequently, the wide spread problem of

automobile technology graduates' unemployment and the requirement for graduates to undergo further training before being employed by industries, creates doubts about the relevance of the curriculum. Therefore, this is what prompted the researcher to determine the emerging technologies in modern automobiles for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions.

Research Questions

The following research questions were posed and guided the study:

1. What are the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.
2. What are the emerging technologies in lubrication system of modern automobile needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Research Hypotheses

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

H₀₁: There is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology

education programme in Nigerian tertiary institutions.

H₀₂: There is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Methodology

A descriptive survey research design was used to determine the emerging technologies in cooling and lubrication systems of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. Tertiary institutions in the context of this study refer to only the Nigeria Certificate in Education (Technical) awarding institutions. A convenient sampling technique was used to select North Western States of Nigeria as the study area because there are good number of tertiary institutions that offer NCE in automobile technology education and functional automobile maintenance companies. The population of the study was 138 respondents which comprises of 48 automobile technology education lecturers, 21 automobile technologists in all the institutions offering

NCE(T) in automobile technology education and 69 automobile industrial workers from selected automobile maintenance workshops registered with Corporate Affairs Commission (CAC) in the study area. Quota Sampling Technique was used to select the automobile maintenance companies in the seven states of northern Nigeria.

A structured questionnaire on a 4 - point scale was used to collect data from the respondents. The questionnaire was structured to indicate the extent to which an item is needed as Highly Needed (HN), Moderately Needed (MN), Needed (N), and Not Needed (NN). The response category was assigned numerical values of 4, 3, 2, and 1 respectively. The questionnaire was validated by five automobile technology education lecturers and the reliability of the pilot tested instrument was 0.82 using Cronbach Alpha statistic. Mean and Standard Deviation were used to answer the research questions and one-way analysis of variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance.

Results

Research Question One: What are the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Table 1: Mean and standard deviation of the respondents on the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions

N = 138

S/N	Item Statements	\bar{X}	SD	Decision
1	Advanced Cooling Systems Technology	3.33	0.70	Needed
2	Integrated Cooling Systems Technology	3.47	0.66	Needed
3	Programmable Cooling Systems Technology	3.38	0.65	Needed
4	Electronic Thermostats Technology	3.36	0.70	Needed
5	Electric Water Pumps Technology	3.49	0.50	Needed
6	Electric Vehicle Cooling System Technology	3.43	0.67	Needed
Grand Mean		3.41	0.65	

The results of the items used to answer research question four is presented in Table 1. From the table, the mean scores of the items range from 3.33 to 3.49. This is also applicable to the grand mean score of 3.41 and standard deviation value of 0.65. The grand mean suggests that the emerging technologies in cooling system of modern automobile engines are needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. The result also discovered that the standard deviation of the items ranges

between 0.50 and 0.70. This implies that the respondents were not far from each other in their views.

Hypothesis One: There is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Table 2: Analysis Variance used for testing the difference in the Responses of Automobile Technology Education Lecturers, Technologies and Automobile Industrial Workers on the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.102	2	.051	.193	.825
Within Groups	31.062	135	.265		
Total	31.165	137			

Table 2 present the results of analysis of variance (ANOVA); the Sum of Squares was 0.102 and 31.062 for Between Groups and Within Groups at degree of freedom (df) of 2 and 117 respectively. The F-value obtained is 0.193 and the p-value of 0.825 which is greater

than the level of significance ($0.825 > 0.05$). The result showed that there is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on the emerging technologies in cooling system of

modern automobile engines needed for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions. Hence, the null hypothesis was retained.

Research Question Two: What are the emerging technologies in lubrication system of modern automobile needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Table 3: Mean and standard deviation of the respondents on the emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions

N = 138

S/N	Item Statements	\bar{X}	SD	Decision
13	Smart Lubrication Systems Technology	3.29	0.63	Needed
14	Advanced Automatic Lubrication Systems Technology	3.48	0.50	Needed
15	Recirculating Oil Lubrication System Technology	3.26	0.81	Needed
16	Dual Line Lubrication Systems Technology	3.49	0.69	Needed
17	Progressive Lubrication systems Technology	3.40	0.79	Needed
18	Intelligent Lubrication System Technology	3.29	0.77	Needed
Grand Mean		3.37	0.70	

The results of the items used to answer research question three is presented in table 3. From the result, the mean scores of the items range from 3.26 to 3.49 with a grand mean score of 3.37 and standard deviation value of 0.70. This showed that the emerging technologies in lubrication system of modern automobile engines are needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. The result also revealed that the standard deviation of the items ranges between 0.50 and

0.81. This implies that the respondents were not far away from each other in their opinions.

Hypothesis Two: There is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions.

Table 4: Analysis Variance used for testing the difference in the Responses of Automobile Technology Education Lecturers, Technologies and Automobile Industrial Workers on the emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.106	2	.053	.168	.846
Within Groups	36.797	135	.315		
Total	36.903	137			

The results of analysis of variance (ANOVA) presented in Table 4 showed that the Sum of Squares of 0.106 and 36.797 for Between Groups and Within Groups at degree of freedom (df) of 2 and 117 respectively. The F-value obtained is 0.168 and the p-value is greater than the level of significance ($0.846 > 0.05$). The result therefore indicated that there is no significant difference in the mean responses of automobile technology education lecturers, technologists and automobile industrial workers on the emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions. Consequently, the null hypothesis was upheld.

Discussion

The results presented in table 1 relating to research question one exposed the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. These include but not limited to Advanced Cooling Systems Technology, Program-mable Cooling Systems Technology and Integrated Cooling Systems Technology. This is in agreement with the findings of Idris, Audu, Abdulkadir, Abutu and Mustapha (2021) who asserted that the technical skills required for self-reliance in automobile mechanics occupation include technical skills to maintain and repair modern automobile engines cooling system. The practical skills on cooling system are very highly needed by technical college graduates of motor vehicle mechanics' works

for employment in Nigeria (Ibeneme & Udeh, 2021)

Equally, the result in table 2 relating to hypothesis one revealed that there is no significant difference in the mean responses of the respondents on the emerging technologies in cooling system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. The finding is supported by Ibeneme and Udeh (2021) who stated that Motor Vehicle Mechanics Works teachers do not differ significantly from the automobile industry workers in their mean ratings on practical skill needs of technical college graduates of motor vehicle mechanics work for employment in Anambra and Enugu States of Nigeria.

The results presented in table 3 relating research question two showed the emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. These technologies include among others: Smart Lubrication Systems Technology, Advanced Automatic Lubrication Systems Technology and Intelligent Lubrication System Technology. To buttress this finding, Beako (2017) stated that there is need for students of motor vehicle mechanic to undergo vigorous training on maintenance, repair and constant services of engine components of modern motor vehicles in order to acquire requisite skills and be conversant with operations and working principles of the lubrication system in modern vehicles. The findings also is in

agreement with Olaitan and Ikeh (2015) which stated that for a competent workforce and progress in automobile business, employable skills, technical skills, basic tools as well as facilities are of great importance to prospecting motor vehicle mechanics in maintaining lubrication systems as it reduces friction between two mechanisms in the engine block, introduce oil, grease and other lubricants to the moving parts for smooth operation.

Correspondingly, the result in table 4 regarding hypothesis two revealed that there is no significant difference in the mean responses of the respondents on the emerging technologies in lubrication system of modern automobile engines needed for incorporation into the curriculum of automobile technology education programme in Nigerian tertiary institutions. This finding is supported by Okwelle, Beako and Ojotule (2018) who stated that there is no significant difference in the means responses of motor vehicle technical teachers and motor vehicle industry technicians on the technical skills expected of students of motor vehicle mechanic for sustainable manpower development.

Conclusion

The study determined the emerging technologies in cooling and lubrication systems of modern automobile engines needed for incorporation into the curriculum of automobile technology education in Nigerian tertiary institutions. Based on the findings from the study, it was concluded that emerging technologies in cooling and lubrication system of modern automobile engines are highly needed for incorporation into the curriculum of

automobile technology education programme in Nigerian tertiary institutions. The implication of this finding is that if the findings of this study are effectively utilized a batch of high-level skilled graduates who will be facilitators of automobile education in secondary and tertiary institutions, entrepreneurs in automobile trades and or gain employment in automobile industries will be produced.

Recommendations

Based on the findings from the study, it was recommended that:

1. The identified emerging technologies in cooling and lubrication systems of modern automobile engines should be incorporated into the curriculum of automobile technology education in Nigerian tertiary institutions.
2. The curriculum for training automobile technology education instructors should be reviewed to include the identified emerging technologies in order to prepare lecturers and technologist who will be able to implement the curriculum with the new contents for the Nigerian tertiary institutions.

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Drill and Review Teaching Strategies: A Foremost Device for Fixing the Knowledge of an Overlooked Difficult Areas of Physics and Mathematics in the Mind of Students

By

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Abstract

Statistically and empirically it was established that the academic achievement of our students of nowadays in science and technology based examinations, especially in the grotesque areas in Physics and Mathematics is drastically falling down with an incredible speed over decades. For this reason, the researchers were closely observed that parents and children of nowadays are continuously yelling about their difficulties and dodging away from chosen them as a career, which indeed leads the country into serious problems in terms of all kind of development Thereon, study attempted to provide a tangible solution it via a proposed topic “Drilling Teaching Strategy” and to objectively teeth-out essences steps, guides on how to make easy understanding, meaningful learning and permanently fixing the knowledge of these two grotesque subjects in more accelerated and strategically planned pattern of drill and review. This objectives was achieved through the stated methodology, which pivoted around the determination of the effect fixing devices in teaching an overlooked grotesque area in Physics and Mathematics to enable good students’ academic performance, retention, proficiency and perfection due to skillful drilling practice. The dynamics and fluid concept and its mathematical manipulations were treated and fixed in the mind of students successfully. Conclusively, it was confirmed that drill teaching strategy was the most befitting device for fixing the meaningful knowledge and promoting think critically, creativity and motivation toward Physics and Mathematics.

Keywords: *Fixing devices, drilling strategy, grotesque areas, physics, mathematics*

Introduction

For a better human and environmental development knowledge must always be in used, therein should be remembered. This usually becomes real if there is durable study and memorable understanding of knowledge. Therefore, it become necessary to device a means of achieving that. Fixing devices are teaching dissemination patterns that helped students to grasp and brain-fix knowledge immediately after the first impression in the process of learning with clear understanding.

The teacher’s commitments made knowledge fixing possible, hence human brain especially for the younger one resembled a balloon, which continuously increasing in size as more volume of air is blowing into it. Similarly, human brain looks-like a wax that when molded and hardened maintain that sharp unlike stone to engraved (Brown et al., 2014).

In addition, knowledge container has no defined capacity or limit to accommodate scientifically and culturally. Therefore, long

term memory depend on teacher and teaching approach. Most of the subject or a course that were naturally abstract are difficult to comprehend. But with help of some fixing devices, the teaching and learning became more strengthen and the hold-of capacity of the children became permanent (Dunlosky et al., 2013). From the common experience, students, most-often do not perceive first impression; and even if they do, they usually lose it shortly. This also proved the need for knowledge borne through gradual processes. The process should be fully equipped with lot of drilling, questioning, reviewing and describing the outstanding problems.

That what usually fixed knowledge and makes it part of students' habit. Indeed, first impressions are created and processed with drilling, practice and repetition slowly and in stages until the first impression becomes durable. Similarly, law of practice and repetition proved to be the basis of fixing devices undoubtedly. Because practical commitments gives and guide good reasoning and perfect execution of task with knowledge (Sweller, 2011). Fixing devices in teaching mathematics and physics concept like dynamic physics, makes student to create good first impression that disappear not, easily, rather, it become permanent (Pashler et al., 2007). Students' grasp ability in these subject matters in contention "Physics and Mathematics" picked-up and improved continuously if fixing devices are used in teaching and learning

process (Badmus & Jita, 2024; Retnawati et al., 2018).

Obsoletely, this paper capitalized on the use of fixing devices components, especially drilling and reviewing and left-out questioning and problem description. Hence, drilling and reviewing are the medium for achieving the rest and knowledge can be fixed to our expectations. As in accordance to (Prahesti, 2022; Rathakrishnan et al., 2018) meaningful learning occurs when students are drilled with an appropriate link between prior and new lesson that promotes social interaction, assimilation and harmony between the learners and the teachers as well.

Theoretical Framework

Drilling strategy in teaching grotesque areas in Physics and Mathematics Education encourages and strengthen to have meaningful and well linked learning and its behavior through a socially freed interaction between the learners and or with their teachers in a well-established social learning atmosphere as in accordance to David Ausubel's (Ausubel, 1963) theory of learning. Ausubel distinguished between meaningful and rote learning of science and emphasized that prior knowledge affects the processes of learning science. It was through drilling teaching system, the knowledge become meaningful, durably fixed, permanent and expatriated in skill. Similarly, reviewing teaching strategy is in agreement with theory of an Albert Bandura (Bandura, 1977) in terms of the its nature of

revision, which stated that people learn some behaviors from their immediate environment through careful observation, imitation, assimilation and modelling.

In fact, such learning behaviors are what also referred to us here as social learning theory, because of the likeness features in common to fundamental theory of Albert Bandura. Verily in this theory there were two characteristic features that are key factor of influencing human learning behavior. The factors are the environmental interaction and the cognitive interaction that exist between the learners. Even though the Drilling teaching strategy of Education allows to have and use mediating processes, which eventually occurred between the stimuli and responses for the talented and slowed learners. And in support to Bandura and in link with fixing aid-teaching devices, (Bandura, 1977; Delazer et al., 2005; Prahesti, 2022) also emphasizes the student's mastery. Certainly, they said the mastery can only be achieved when it's subject of concern is clearly define, and depend on appropriate instructions that support the practice or practical activities. The drill and review aided teaching as Bloom, also encouraged the use of an adequate time in passing the knowledge. Briefly therein here it's good to mention that mastery is referred to us students' response ability in decision making, and be competent and dominion when facing difficult tasks or in a stressful circumstances. Remember that student must have control over all his responses. Thereafter, the Bloom and

this fixing aid-teaching device are simultaneously influenced the curriculum development and advocated the use of systematic approach to ensure good understanding and proficiency in demonstrative ability in explaining a particular topic or lesson before proceeding to the next and more difficult one.

Literature Review:

Drilling strategy in teaching as a medium for screwing knowledge firmly

According to Aggarwal, Drilling teaching strategy emphasized repetition activities of learned course material in view of inculcation, plugs and permanent fixing the important facts for quick memorable, efficient gained, and educational level attainment (Aggarwal, 2010). This strategy is relatively considered as a novel phenomenon for teaching and learning difficult areas in Physics and Mathematics by making it easy to comprehend sequentially. In addition, drilling is most-more functional key for fixing knowledge to its durability level, than other devices, because higher dexterity in proper and depth understanding is always achieved. Basically, Drill is done in a balance way with defined specific objectives to attain ideas and to widening the scope of students' faculty of reasoning, not just mere understanding of Physics and Mathematics concepts without application and in an abused, unbalanced or misused way (Rathakrishnan et al., 2018).

An abused drilling strategy is defined as an unintentional practice and uninterested

mechanical repetition of a lesson. Therefore, in this study, drilling strategy is operationally referred as a continuous practice with clear understanding of gray, difficult, and grotesque areas of Physics and Mathematics until-up to become permanent. Therefore, now, the Nigeria and the world needs more and perfect, effective, intelligence drilling strategies in order to cultivate students with good and sharp memory (Ebbinghaus, 2013). Indeed a Perfect Drilling Strategy helped students to read, write, draw composite tables, charts, diagram, plot graph interpretations and its regressions spell and pronounce correctly in all kinds of language and courses of our contention is “Physics and Mathematics” which has some alpha numeric latter that requires practice especially when it comes to the use of an equation editor.

Similarly, it guide on how to manipulate calculations and make use of scientific calculator. It also helped in remembering historical issues, dialogues with commencement data and gives better insight toward understanding and reasoning with scientific, social and art facts, principles, rules, condition and laws (Ericsson et al., 1993). Moreover, an Effective Drilling Strategy is a nexus for developing and maintaining good habit and study habit as well. Empirically, it was observed that students are bounce to have good understanding and meaningful knowledge and skill provided if they have good habit and management culture and be so effective in

fixing ability of the first and subsequent impressions once are established (Miller, 1956). Followed by an Intelligent Drilling Strategy is a teaching under timeframe, systematic, purposeful, varied-style, sound-control, boring free, monotonous-less and repetitive training and practice with pleasant teachers’ talk (Aggarwal, 2010).

According to previous psychologist researchers, drill referred as serious and purposeful work-activity done with principles, created by the teachers in view to perfect students’ skill, permanent knowledge and strengthen their associations and with teachers and technologist as well (Anita, 2016; Delazer et al., 2005). Intelligent drill has 13 principles and are: Practicing orientation processes, Acquaintance with objective, Producing meaningful material, Understanding material by interrogations, Material memorization, Periodic and fragmental lesson organization, Gradual and systematic grading, Constant supervision for securing responses, Centralization of attention onto definite improvement, Treatment of individual affairs, Individual task assignment, Generalization of task when absolutely necessary and Avoidance of monotony.

In addition there were seven types of drilling strategy to consider in this study and all uses the 13 principles. The seven classifications include Repetition and Imitation, Substitution, Comparing Similarities, Comparing Opposites, Question and Answer, Chorus, and

Transformation. A researcher invoked that a perfect drill and review strategy has to be implemented in various ways, different times and environment for it to ease students' learning through imitation, perfection and modulation. More especially to this subsequent upbringing generations, when fixing and practicing knowledge become difficult due many uncontrolled social and financial constraints (Aggarwal, 2010; Prahesti, 2022; Rathakrishnan et al., 2018).

Thereafter, the material used in drilling and reviewing teaching strategy needs to be attractive, dressed and enriched with stimulant questions that pique, initiate and inspired learners to embrace the lesson in the grotesque areas of Physics and Mathematics with high enthusiasm. Then, lesson to be well prepared and easy to be inculcated and remain durable in to the mind of students and developed critical thinking ability. The David Paul Ausubel (1963) stated that a meaningful learning is a learning, which relates fresh knowledge to the relevant passed concept with strong hinge and began with observations and recognitions from around. In fact, the stages of meaningful learning are what referred as the initial orientations.

Remember that knowledge organization promotes learners' cognitive structure and perhaps anchorage students' cognitive experience and the various component of the new material with a collaborative association and enthusiasm as in Ausubel (1963). He

advocates that the use of advance organizer is of no longer needed provided the drill-review strategy is implemented in teaching all various difficult courses or subjects. Therefore teaching Physics and Mathematics requires only drilling strategy (Ausubel, 1963).

Review for holding-up of learning material is an act of exhibiting scientific and systematic repetition of past experience or learned lesson for a purpose of self-justification and mastery. Beside, scientific and systematic revision help learner to establish new and different view from the general perspective of the content in the context of the learning material (Aggarwal, 2010). And this is what was called character adjustment that raises-up their social horizon as advocated (Bosing, 1984). Furthermore, on the contrary some authors have different thought about a review, which emphasized recalling, recognizing and integrating past until mastery is attained (Sengupta, 2000).

Sengupta regards review as a novel way for creating and promoting students' appreciation level of problem, insight, creativity, meaningful learning, understanding learning materials, social behavior, handling instructions and fixing knowledge (Sengupta, 2000). Nevertheless, Review seems to be a dull affairs if it is conducted in same pattern to drill. A good Review is one enough to positively touch the students' interest and motivation and conduct. On other hand Review is not only concerned with texted-materials or written information but is partly concerned with social

learning using charts, pictures, graphs, tables, draught, quiz-materials, and games (Tharp & Gallimore, 1988).

Purpose of Review

Review is purposely done to fix the learned material or mastering the activity procedures into the mind of students and to reorganization of learning materials or use the past experience for better understanding. Similarly, has a purpose of provide good insight, perspective gain and desirable expansion and supplementation of experience and learning materials. In addition, review diagnose learners' and teachers' weakness in term of learning material preparation and comprehending. Finally, it provide an unperceptive basis for future study in order to create new interest from the old learning material (Aggarwal, 2010).

Forms of Review

There are many forms of revision and among which are: Daily Lesson Review, Topical Review, Cooperative Making Exercise Review, Cooperative Interactive Question and Answer Review, Geometrical and Figurative Practice Review, Dramatic Art and Act Rehearsal Review, and Application in Review. The Daily Lesson Review is scholarly designed to emphasize revisions daily by requesting the teachers to briefly devote-well at beginning of each class and new lesson to revise the previous lesson before engage into a new lesson (Aggarwal, 2010).

This helped students to link-up the previous to a new lesson for better grab and understanding even if the subject is difficult. Indeed, secondly, helped students with better understanding and ready to tackle associated problems under the grotesque areas in Physics and Mathematics, to fully brain-fixed the acquired knowledge into their mind properly (Anita, 2016). And by defining the key and relative terms under the next up-coming lesson, it directly or indirectly helped students to have a clear understanding, especially, when dealing or connected with Mathematical problems in Physics. Moreover, revision is expected to be done orderly stating with definition, classes, important, uses and application of the topic in quote. Followed by recapitulating the whole lesson through asking some vital and memorable questions.

Topical Review implies to the recapitulating revision in view to refresh the students' mind, strengthen understanding and established connectivity about the whole previous topic before getting into new topic and finally fixed the knowledge. Then Cooperative Review followed, which is based on cooperative activities involving teacher and students during the revision. This is done by asking students questions repeatedly on the sensitive areas of the lesson for knowledge understood and fixed in mind firmly. Then Cooperative review made class so interactive, hence all students must participated actively in either of the following: reading, copying note or exercises and solutions on board or answering questions or an

interaction between teacher and marking scheme (Aggarwal, 2010).

Followed by the Geometric and Figurative Practice review in which teachers are expected to not skip any geometrical figure, table, picture, model, chart, diagram, graph or sketch in a lesson without asking the students to draw or construct it using a bare hand approach and with compass and ruler for perfection and mastery. In fact, even if the lesson was in text, all the salient points must be asked to figure it out in an interesting manner. Finally, this review involved trial and error and serious practice under teachers control and management, especially when dealing with geometric and figurative while Rehearsal review involved the repetition of a film scenes until the correct scene is recorded or the target goal is attained. And this is usually happened during film production. The film might be a drama, amusement, comedy, business broadcast, historical, fictions, educational and political films (Aggarwal, 2010; Chan & Arvey, 2012). Another review is Applications Based Review, that strategically the learned lesson is puts into physical practice such as in laboratory experiment, educational trips, awareness excursions, improvisational exhibitions, modelling, imitative arts, business and educational dramas. This review increases students' curiousness besides fixing knowledge (Aggarwal, 2010; Smittle, 2003).

Guideline for Conducting the Review: In this segment of the paper, seven guidelines are

suggested to be taken into consideration whenever get into revision. The teacher should organize an effective revision; Emphasized in revision of essential points; Pay attention to weak students; Attempt all exercises under the topic; Scheduled the revision and hold at short interval of time; Recapitulation holds at longer interval of time; Ensure that the revision is symmetrically linked with previous lesson (Aggarwal, 2010; Sengupta, 2000).

Methodology for Drilling Teaching

Strategy: Orientation on the drill and review teaching strategy came first. For instance, 50 students were selected out 200 level students of physics department of one of our Nigerian public university to be drill on liquid substances and gives some review exercises in order to be exposed and familiarized with different types of fluids. The fluids includes water, cooking oils, olive oil, natural gas oil (NGO), dual purpose kerosene (DPK), petroleum mobile system (PMS), aerial purpose kerosene (APK), palm oil, liquid blood, engine oils, lubricants, melted faint, melted wax, fumed gasses, melted soap, liquid detergent and other base and acid chemicals.

Followed by asking them to characterize each of those fluids by means of its fluid mechanics properties such as free flow, steady flow, deformation, streamline, strick-line, path-line, cohesiveness, adhesiveness, surface tension, density, boiling temperature, heating and cooling procedure and then their physical and chemical properties when in contact with

plastic, metal, wood and glass plates. And were asked to drive the mathematical formulae for each and makes a generalized comment. Furthermore, based on their findings, then they were asked to define or drive the meaning of the rheology. Indeed, the students were also drilled based on the rheology definitions and the observed fluids characteristics. A series of confirmatory questions were asked to confirm if the students possessed the drilling and reviewing skills, which gave them the abilities to identify and classify all kind of solutions into appropriate group based on its dynamical actions. After the practical identification approach, the students were asked to answer some question provided by thee research instrument. The research instruments to administer should contain enough questions that the nature of fluid is fully described in an attempt to answer them.

Result and Discussion

Based on this study students were confidently identify different fluid substances based on their physical and chemical natures. Secondly, all physical phenomena that involved mathematical relations were fully manipulated until up to a stage of fixing it permanently. In addition, the following characteristics were determined surface tension, cohesion, adhesion, waiting effects, capillarity, viscosity, cohesiveness, adhesiveness and contact angles among others. The result scores of the students exposed to dynamics and fluid mechanics examination revealed that drill and review

teaching strategy is a foremost device for fixing and inculcating knowledge into the mind of our student upon all e-communication challenges, economic crises and external and personal forces striking them during the study period.

Conclusion

Drill and review teaching strategy proved to be good device for fixing the grotesque let-up knowledge into the mind of students and found to be the easiest mean of having meaningful learning and better academic performance. Therefore, the outcomes of the study is directly proposed the use of drilling teaching strategy in teaching all grotesque and abstract subjects at all level of education. Invariably the study makes life easy in learning the concept of dynamics, kinematics and fluid mechanics. Thereafter, with drill and review teaching strategy, many students are likely to choose Physics and Mathematics as a carrier. Furthermore, it is concluded that with this effort the dream of our nation would soon bounce to be real. Hence the spirit and physical actions of parent and their children toward learning Physics and Mathematics has changed progressively. The research has further revealed that the challenges students faced before, like spiritually dull in nature, dead of brain functional cells, uncontrollable parental and external forces would of course not hinder or affects drilling strategy. Finally, the growth of science and Technology in Nigeria is believed to be revive.

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Strategies for Improving the Funding of Agricultural Education in Secondary Schools for Sustainable Entrepreneurship Development in Kano State – Nigeria

By

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Abstract

The study investigated the strategies for improving the funding of Agricultural Education in secondary schools for sustainable entrepreneurship development in Kano State – Nigeria. Two specific purposes translated into two research questions and two null hypotheses guided the study. Descriptive survey research design was employed for this study. The population for the study was 1,692 which consisted of 1,113 Agricultural Science Teachers, 551 Principals and 28 Secondary School Inspectors. The sample size for the study was 553 respondents. All the 28 Secondary School Inspectors were involved in this study, while 291 Secondary School Agricultural Science Teachers, 234 Principals were selected using proportionate random sampling technique. A 19-item questionnaire developed by the researcher on five points rating scale of strongly agree, agree, undecided, disagree and strongly disagree was used as instrument for data collection. Mean and standard deviation were used to answer the research questions, while Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. The results of the study revealed that; the strategies for improving the funding of Agricultural Education in secondary schools for sustainable entrepreneurship development in Kano state - Nigeria among others are; Fund-raising should be organized and Parents-Teachers Association should be effectively involved in the management of the funds. It is recommended that Kano State Government should increase annual budgetary allocation to education and Parents Teachers Association should be involved in the management of the available funds in Secondary Schools.

Keywords: *Secondary schools, agricultural education, entrepreneurship, funding*

Introduction

Secondary Education is the education children receive after Primary Education and before the tertiary stage. As stipulated in the National Policy on Education (Federal Republic of Nigeria [FRN], 2013), Secondary Education shall be of six years duration given in two stages - a Junior Secondary Education and a Senior Secondary Education; each shall be of three years duration. The Junior Secondary Education to be provided by government shall be compulsory, free, universal and qualitative. It provides the child with diverse basic knowledge and skills for entrepreneurship and educational advancement. The Senior Secondary Education shall be comprehensive with a core-curriculum designed to provide

entrepreneurial, technical and vocational job-specific skills for self-reliance, and for agricultural, industrial, commercial and economic development. One of the subjects that help to achieve this objective is Agricultural Science. (Olajide, Odoma, Okechukwu, Iyare & Okhaimoh, 2015). Agricultural Science is a subject that learners acquire entrepreneurial skills, knowledge and attitude in agricultural production. It is one of the subjects offered in Junior and Senior Secondary Education (FRN, 2013). Introduction of Agricultural Science in Secondary School curriculum in Nigeria is a worthwhile effort towards adequate food security by equipping the greater percentage of

the youths with skills, knowledge and attitude in agricultural production. Agriculture helps to meet the basic needs of human and their civilization by providing food, clothing, shelters, medicine and recreation. Agricultural Science is therefore designed for inculcation of the entrepreneurial skills for the practice of agriculture for effective citizenship and contribution to food security for national sustainability. Teaching of agricultural science in Secondary Schools therefore aims at ensuring that the learners are exposed to and taught the basic entrepreneurial principles that are important to agricultural production in the country and exposing and involving them in various practical and projects that will help them develop the necessary entrepreneurial skills and abilities required in agricultural production (Olajide, et al. 2015). The teaching and learning of agriculture apparently is largely limited to theoretical classroom presentations because of inadequate funding. Funding refers to a form of financial support that is given for the achievement of a project. It is the provision of financial resources in order to meet a need, project or programme (Nwafor, Uchendu & Akani, 2015). The quality of educational output is positively related to the quality of funding and its management. Management implies judicious use of all available resources for the attainment of defined goals. Management of funds therefore deals with the provision, custody and disbursement of the financial resources needed for the running of public or government established institutions. Poor management of funds in post primary schools has created a lot of lapses, which have affected

the achievement of desired educational goals. This, by implication, affects the achievement of educational objectives as outlined in the National Policy on Education (Oboegbulem, 2013).

Statement of the Problem

Funding is among the resources needed for the effective administration of the educational sector. It serves as the life-wire for the management and administration of most sectors of the economy including the educational sector. It is based on this fact that the United Nations Educational, Scientific and Cultural Organization (UNESCO) recommended that 26 percent of the Government annual budget should be set aside for the administration and management of the educational sector (Edame & Eturom, 2014). It has been reported by Paul (2016) that the UNESCO recommendation of 26 percent of the annual budget to education sector has never been implemented in Nigeria. According to Afolayan (2014), poor funding leads to schools having to cut down on supplies that are needed to give learners a proper education. Due to the poor funding, the quality of education offered is affected by delay in the payment of teachers' salaries and allowances, inadequate number of qualified teachers, poor infrastructure, inadequate supply of instructional materials and equipment, overcrowded classrooms and inadequate of funds for effective supervision among others. These affected the acquisition of knowledge and skills need in Agricultural Science in Secondary Schools for sustainable entrepreneurship development in Kano state - Nigeria. It becomes imperative therefore to

carry out a study to investigate the strategies for improving the funding of agricultural education in secondary schools for sustainable entrepreneurship development in Kano state – Nigeria.

Objectives of the Study

The main objective of this study was to investigate the strategies for improving the funding of agricultural education in secondary schools for sustainable entrepreneurship development in Kano state - Nigeria. The specific objectives were

1. To determine strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state - Nigeria.
2. To determine the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state - Nigeria.

Research Questions

1. What are the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state - Nigeria?
2. What are the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state - Nigeria?

Hypotheses

HO₁ There is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state - Nigeria,

HO₂ There is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state – Nigeria.

Methodology

Descriptive survey design was employed for the study. The population for the study was 1,692 which consisted of 1,113 Secondary School Agricultural Science Teachers, 551 Principals and 28 Secondary School Inspectors. The sample size for the study was 553 respondents. All the 28 Secondary School Inspectors were involved in the study, while 291 Secondary School Agricultural Science Teachers, 234 Principals were selected using proportionate stratified random sampling technique. A nineteen-item questionnaire developed by the researcher on five points rating scale of strongly agree, agree, undecided, disagree and strongly disagree was used as instrument for data collection. A pilot study was conducted in Jigawa State, Nigeria, twenty Secondary School Agricultural Science Teachers, ten Principals and five Secondary School Inspectors were used for the pilot study. Cronbach's Alpha was used to determine reliability coefficient of the research instrument. The coefficient obtained was 0.89. Five hundred and fifty-three copies of the questionnaire were administered to the respondents in the study area with the help of six research assistants and retrieved immediately after completion. The data collected were analyzed using SPSS statistical software (version 20.00). Mean and standard

deviation were used to answer the research questions while Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. In answering the research questions, any item with a mean score of 3.50 and above was considered agreed, an item with a mean score of 2.50 to 3.49 was considered undecided, and any item with a mean score of less than 2.50 was considered disagreed. The decision on testing the null hypotheses was based on comparing the computed p-value (Sig.) and 0.05 levels of significance. If the computed p-value (Sig.) is

equal to or less than 0.05 levels of significance the null hypothesis was considered rejected, but accepted if the computed p-value (Sig.) is greater than 0.05 level of significance.

Results

Research Question One: What are the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state - Nigeria?

The data analysis that provided answer to this research question is presented in Table 1.

Table 1
Mean Responses on the Strategies for Improving the Sources of Secondary School Funding for Sustainable Entrepreneurship Development in Kano State - Nigeria.

N = 553 (N₁ = 28 N₂= 291 N₃= 234)

SN	Item	\bar{X}	SD	Decision
1.	Kano State Government should increase annual budgetary allocation to education.	4.55	0.66	Agreed
2.	Kano State politicians should be encouraged through Parents Teachers Association (PTA) to donate funds to Secondary Schools in the state.	4.33	0.76	Agreed
3.	Fund-raising can be organized by the Secondary Schools authorities where by wealthy persons in the community could be invited to raise funds for enhancing the teaching and learning process.	4.13	0.82	Agreed
4.	Secondary School authorities can generate funds internally for Agricultural Science by running mini- production shops in their schools.	3.98	0.98	Agreed
5.	Hiring out school halls e.g. conference hall, assembly halls or dining halls, to interested individuals/organizations for events in the community for generating internal revenue in the school.	3.76	0.99	Agreed
6.	Students should pay registration fees as part of internally generated revenue in the school.	3.77	1.12	Agreed
7.	Secondary Schools Authorities in collaboration with Parent Teacher Associations should built school own rental shops to generate revenue in the school internally.	3.84	1.10	Agreed
8.	Secondary Schools administrators can organize sport and games in their schools and charge gate fees as part of internally generated revenue in the school	3.70	1.06	Agreed
9.	By establishment and maintenance of school farm, various food and cash crops could be raised and sold to public as part of internally generated revenue in the school	3.88	0.90	Agreed

Key: \bar{X} = Mean SD = Standard Deviation N = Number of Respondents (N₁ - Secondary School Inspectors, N₂ - Agricultural Science Teachers, N₃ - Principals)

The data presented in Table revealed that the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state - Nigeria are; Secondary School authorities can generate funds internally for their schools by running mini- production shops, hiring out

school halls e.g. conference hall, assembly halls or dining halls to interested individuals/organizations for events in the community, built school own rental shops, organize sport and games in their schools and charge gate fees, and collect registration fees from students. Fund-raising can also be

organized by the Secondary Schools authorities where by wealthy persons and politicians in the community could be invited to raise funds for the Secondary School. Kano State Government should increase annual budgetary allocation to education, and by establishment and maintenance of school farm, various food and cash crops could be raised and sold to public. This is because the items' mean that ranged from 3.70 to 4.55 were above the cut-off point of 3.50. Item 1, that Kano State Government should increase annual budgetary allocation to education is the highest strategy as the item had the highest mean score of 4.55, while item 8 that

Secondary Schools administrators can organize sport and games in their schools and charge gate fees as part of internally generated revenue in the school is the least strategy as its mean score was 3.70. The standard deviation for the items ranging from 0.66 to 1.12 indicated that the respondents were closed to one another in their opinions.

Research Question two: What are the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state - Nigeria?

The data analysis that provided answer to this research question is presented in Table 2.

Table 2
Mean Responses on the Strategies for Improving the Management of School's Funds for Sustainable Entrepreneurship Development in Kano State - Nigeria.

N = 553 N = 553 (N₁ = 28 N₂ = 291 N₃ = 234)

SN	Item	\bar{X}	SD	Decision
1.	Ministry of Education should organize seminars/workshops for secondary schools administrators on funds management in order to guide the financial management practices of the administrators in the secondary schools.	4.27	1.01	Agreed
2.	Secondary school administrators should plan effective annual school's budget and ensure that the available funds are spent based on to the planned budget.	4.00	0.93	Agreed
3.	Secondary school authorities should use direct labour instead of using contractors in carrying out school financial projects for Agricultural Science. This reduces expense.	3.57	1.10	Agreed
4.	Secondary school Principals should ensure that receipts are issued by the schools' bursars for all monies collected from students, parents and from any other sources. This provides proper accountability of the money generated in secondary school.	4.06	1.07	Agreed
5.	Anyone assigned with the responsibility for day-to-day financial control in Secondary Schools should handle the issue in a way that shows honesty and transparency.	4.22	0.94	Agreed
6.	Secondary school administrators should ensure good record keeping for all receipts of revenues and expenditures in their schools, and be made available whenever the need arises.	3.73	0.92	Agreed
7.	Parents Teachers Association should be involved in the management and utilization of the available funds in Secondary Schools for agricultural science.	3.97	0.98	Agreed
8.	School financial reports should be produced by administrators of Secondary Schools at regular intervals.	3.88	1.18	Agreed
9.	State Ministry of Education should adopt effective and adequate monitoring systems on how the available funds in Secondary Schools are utilized.	3.63	1.15	Agreed
10.	Secondary Schools authorities should establish effective internal auditing team for the utilization and management of the available funds in their schools.	4.03	0.98	Agreed

Key: \bar{X} = Mean SD = Standard Deviation N = Number of Respondents (N₁ - Secondary School Inspectors, N₂ - Agricultural Science Teachers, N₃ - Principals)

The data presented in Table 2 indicated the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state – Nigeria are; Ministry of Education should organize seminars/workshops for secondary schools' administrators on funds management, adopt effective and adequate monitoring systems on how the available funds in Secondary Schools are being utilized. Also, Secondary School Administrators should plan effective annual school's budget and ensure that the available funds are spent based on the planned budget, establish effective internal auditing team and ensure that receipts are issued by the schools' bursars for all the revenues collected from students, parents and from any other sources, there should also be good record keeping for all the receipts of revenues and expenditures. The Administrators of Secondary Schools should produce financial reports at regular intervals, use direct labour instead of using contractors in carrying out school financial projects and ensure that Parents Teachers Association (PTA) are involved in the management and utilization of the available funds. Anyone assigned with the responsibility for day-to-day financial control in Secondary Schools should handle the issue in

a way that shows honesty and transparency. This is because the items' mean that ranged from 3.63 to 4.27 were above the cut-off point of 3.50.

Item 1, that Ministry of Education should organize seminars/workshops for secondary schools administrators on funds management in order to guide the financial management practices of the administrators in the secondary schools is the highest strategy as the item had the highest mean score of 4.27, while item 9 that State Ministry of Education should adopt effective and adequate monitoring systems on how the available funds in Secondary Schools are utilized is the least strategy as its mean score was 3.63. The standard deviation for the items ranging from 0.92 to 1.18 indicated that the respondents were closed to one another in their opinions.

Null Hypothesis one: There is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving Secondary School funding for sustainable entrepreneurship development in Kano state – Nigeria.

The data for testing the hypothesis were analyzed and presented in Table 3.

Table 3

Analysis of Variance of Mean Responses by Agricultural Science Teachers, Principals and School Inspectors on the Strategies for Improving the Sources of Secondary School Funding for Sustainable Entrepreneurship Development in Kano State – Nigeria.

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	1.547	2	.773	2.278	.103	Accepted
Within Groups	186.738	550	.340			
Total	188.285	552				

The data presented in Table 3 shows a One-Way Analysis of Variance of mean responses by Agricultural Science Teachers, Principals

and School Inspectors on the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship

development in Kano state – Nigeria. The computed significance value (Sig.) 0.103 is greater than 0.05, therefore the null hypothesis was accepted. Hence there is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state – Nigeria

Null Hypothesis two: There is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the management of school’s funds for sustainable entrepreneurship development in Kano state – Nigeria The data for testing the hypothesis were analyzed and presented in Table 4.

Table 4
Analysis of Variance of Mean Responses by Agricultural Science Teachers, Principals and School Inspectors on the Strategies for Improving the Management of School’s Funds for Sustainable Entrepreneurship Development in Kano State – Nigeria

	Sum of Squares	Df	Mean Square	F	Sig.	Decision
Between Groups	2.018	2	1.011	3.771	.073	Accepted
Within Groups	147.226	550	.268			
Total	149.244	552				

The data presented in Table 4 shows a One-Way Analysis of Variance of mean responses by Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the management of school’s funds for sustainable entrepreneurship development in Kano state – Nigeria. The computed significance value (Sig.) 0.073 is greater than 0.05, therefore the null hypothesis was accepted. Hence there is no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the management of school’s funds for sustainable entrepreneurship development in Kano state – Nigeria

Secondary School funding for sustainable entrepreneurship development in Kano state – Nigeria include; Secondary School authorities can generate funds internally by collecting registration fees from students and organize fund -raising where by wealthy persons and politicians in the community could be invited to raise funds for Secondary School. Kano State Government should increase annual budgetary allocation to education, and direct labour should be used in carrying out financial projects in Secondary School for Agricultural Science instead of using contractors.

Findings of the Study

2. The strategies for improving the management of school’s funds for sustainable entrepreneurship development in Kano state – Nigeria include; Ministry of Education should organize seminars/workshops for secondary schools administrators on funds management, Secondary School Administrators should plan

The following were the major findings of the study based on the data analyses.1. The strategies for improving the sources of

effective annual school's budget and ensure that the available funds are spent based on the planned budget, establish effective internal auditing team and ensure that receipts are issued by the schools' bursars for all the revenues collected from students, parents and from any other sources, there should also be good record keeping for all the receipts of revenues and expenditures. Anyone assigned with the responsibility for day-to-day financial control in Secondary Schools should handle the issue in a way that shows honesty and transparency.

3. There was no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state – Nigeria.

4. There was no significant difference in the mean opinions of Agricultural Science Teachers, Principals and School Inspectors on the strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state – Nigeria.

Discussion of the Findings

The strategies for improving the sources of Secondary School funding for sustainable entrepreneurship development in Kano state – Nigeria were; fund -raising can be organized by the Secondary Schools authorities where by wealthy persons and politicians in the community could be invited to raise funds for Secondary School for enhancing teaching and learning processes. These findings were supported by Matthew (2015) who asserted that

the school that had projects to finance, could organize fund raising ceremony where notable people within the community in which it was located and immediate environment could be invited to for donation of cash towards the completion of such projects and the development of the school generally. Secondary School authorities can generate funds internally for their schools by collecting registration fees from students. This agreed with Nwafor et al. (2015) who stated that school fees provided part of the needed funds to manage the activities of the school system for increased efficiency. Kano State Government should increase annual budgetary allocation to education, and direct labour should be used in carrying out financial projects in Secondary School for Agricultural Science instead of using contractors. These were supported by findings of Nyamasege (2013) who opined that the major sources of funding for the schools was government funding and that of Onele and Aja-Okorie (2013) who found that grant from government provided fund to the day-to- day running schools. Paul (2016) stated that the alternative sources through which money can be realized to run Secondary Schools included; donations from Parents Teachers Association, Old Students' Association, Non-Governmental Organizations and use of direct labour,

The strategies for improving the management of school's funds for sustainable entrepreneurship development in Kano state – Nigeria are; Ministry of Education should organize seminars/workshops for secondary schools administrators on funds management, Secondary School Administrators should plan

effective annual school's budget and ensure that the available funds are spent based on the planned budget, establish effective internal auditing team and ensure that receipts are issued by the schools' bursars for all the revenues collected from students, parents and from any other sources. These findings were supported by Oboegbulem (2013) who said that insurance of receipts for any payment made in schools was importance and also asserted that effective school management demands that budget proposals be prepared before any new session. Titus and Ukaigwe (2018) added that school budget shows details, statement and estimates the expenditure of the various items of the school system as a whole. There should be good record keeping for all the receipts of revenues and expenditures. This is also in line with the findings of Titus and Ukaigwe (2018) who opined that record-keeping is one of the important tools that can be used to quid financial issues in secondary schools. Anyone assigned with the responsibility for day-to-day financial control in Secondary Schools should handle the issue in a way that shows honesty and transparency. The findings of Oboegbulem (2013) further indicated that all monies collected are to be lodged into bank.

Conclusion

The level of success recorded by the educational sector is closely linked with the availability of funding and its effective utilization. There has been huge increase in the number of students' intake at all levels of education - primary, secondary and tertiary. However, the public expenditure on education remains inadequate for coping with a system

that is growing at every rapid pace. Funding and its management strategies in secondary schools assist in providing the basic resources needed for teaching and learning. This study investigated the strategies for improving the funding of Agricultural Education in secondary schools for sustainable entrepreneurship development in Kano State-Nigeria. These findings if applied could enhance the teaching and learning of Agricultural Science in Secondary Schools and would make secondary schools leavers to acquire knowledge, skills and attitude that would enable them to be fully engaged in various agricultural occupations for self-reliance.

Recommendations

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

1. Kano State Government should increase annual budgetary allocation to education and Fund-raising should be organized by the Secondary Schools authorities where by wealthy persons in the community could be invited to raise funds for enhancing the teaching and learning process in the Secondary Schools.
2. Parents Teachers Association should be involved in the management and utilization of the available funds in Secondary Schools for agricultural science.

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Social and Economic Empowerment Needs of the Internally Displaced Persons in Northeast Nigeria

By

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Abstract

This study explores the socio-economic empowerment needs of internally displaced persons (IDPs) in Northeast Nigeria. A quantitative research design was employed, targeting the IDPs across six states. The sample size consisted of 297 households selected through a multistage sampling technique. Data was collected using a structured questionnaire after it was validated by experts to ensure content and construct validity. The questionnaire was tested for its reliability and the result revealed a 0.89 coefficient. Descriptive statistical analyses was utilized in organizing and presenting the data. Findings indicated the need for access to income sources and livelihood opportunities ($\bar{x} = 3.04$, Std. = 0.775), financial services ($\bar{x} = 3.00$, Std. = 0.795), vocational training programs ($\bar{x} = 2.87$, Std. = 0.772), and official documentation ($\bar{x} = 2.91$, Std. = 0.981), while healthcare ($\bar{x} = 2.79$, Std. = 0.956), education ($\bar{x} = 2.75$, Std. = 0.956), and agricultural opportunities ($\bar{x} = 2.82$, Std. = 0.963). The study concluded that skills training is essential for enhancing employability and self-reliance among IDPs. The study recommended that government should implement targeted vocational training programmes, improve access to financial resources, and provide community engagement initiatives to support sustainable livelihoods of the IDPs. This research contributes empirical evidence to inform policies that can empower IDPs and address their urgent socio-economic needs in conflict-affected regions.

Keywords: *Empowerment*, socio-economic empowerment needs, internally displaced persons, Northeast Nigeria

Introduction

The on-going conflict in Northeast Nigeria, primarily driven by the Boko Haram insurgency, has resulted in significant internal displacement, affecting over 2 million people (Alobo, 2022). Internally displaced persons (IDPs) face numerous challenges that severely impact their socio-economic well-being. These challenges include food insecurity, lack of income sources, inadequate healthcare, and disrupted education for children (Mohammed et al., 2019). The concept of socio-economic empowerment is critical in this context, as it encompasses the processes that enable individuals and communities to gain control over their lives, improve their economic conditions, and enhance their overall quality of life. Empowerment involves not only the

acquisition of skills and resources but also the ability to make informed choices and participate actively in societal development (Ngadda & Aliyu, 2020).

Studies highlights that IDPs in Northeast Nigeria experience pervasive capability failures across various domains, including livelihoods, education, and food security. For instance, over 80% of IDPs report food inadequacy, while 70% lack reliable income sources (Saleh, 2021). These findings underscore the urgent need for targeted interventions aimed at enhancing the socio-economic capabilities of IDPs. Vocational training emerges as a pivotal strategy to address these needs by equipping individuals with marketable skills that can lead to sustainable employment opportunities (Baba,

2021). Moreover, studies indicate that community-based approaches are essential for fostering resilience among IDPs.

This study investigated the socio-economic empowerment needs of IDPs in Northeast Nigeria through a quantitative approach. By identifying specific areas where vocational training can make a significant impact, this research seeks to inform policymakers and humanitarian organizations about effective strategies for supporting IDPs in their journey toward self-reliance and dignity. Ultimately, addressing the socio-economic empowerment needs of IDPs is not only a humanitarian imperative but also a vital step toward fostering stability and development in a region grappling with the aftermath of prolonged conflict.

Nigeria has been facing violent insurgencies by Boko Haram and ISWAP since 2009, leading to large-scale internal displacement in the northeast region. In a study by Aloba (2022), which sought to explore the socio-economic empowerment needs of internally displaced persons (IDPs) in northeast Nigeria using a qualitative approach, semi-structured interviews were conducted with 30 IDPs across 3 camps in Borno State. Thematic analysis revealed key empowerment needs including access to livelihood opportunities, vocational skills training, and education for children, adequate healthcare, and psychosocial support. The findings highlight the importance of targeted socio-economic interventions to facilitate rehabilitation and self-reliance among conflict-affected IDPs. Similarly, Ngadda and Aliyu, (2020) while examining the socio-

economic empowerment deficits among IDPs in Borno State through a capability deprivation lens observed how protracted violent conflict in northeast Nigeria has displaced over 2 million people internally, with the majority residing in IDP camps with dismal living conditions, 100 IDPs across 5 camps were surveyed using multi-stage sampling. Results showed pervasive capability failures in education, livelihoods, assets, food security, water and sanitation domains. Over 80% reported food inadequacy, 70% lacked income sources, and 60% had no access to farming land. Urgent multi-sectoral interventions are imperative to enable IDP capabilities and facilitate durable solutions

In addition to the findings in the studies above, Baba, (2021) through a phenomenological study explored lived experiences of 20 IDPs in Maiduguri regarding their socio-economic empowerment needs. In-depth interviews revealed recurring themes of lost livelihoods, food insecurity, lack of healthcare, disrupted education, poor living conditions, and psychosocial distress. Key empowerment needs centered on skills training, microcredit access, rebuilding social networks, education for children, and trauma healing. A community-based empowerment model is proposed for context-specific sustainable rehabilitation of IDPs. The study provides qualitative insights to inform policies and interventions for conflict-induced IDPs in similar contexts worldwide.

The worrisome condition of IDPs called for urgent action from all concerned persons and

stakeholders to avert bigger crises that may be difficult to contain. This action can involve putting in place measures for rehabilitation and their subsequent reintegration into the larger society. In respect to rehabilitation, Mohammed, et al., (2019) present findings from a participatory rural appraisal conducted with 150 IDPs in Borno and Yobe States where he observed that the IDPs constitute over 10% of northeast Nigeria's population owing to Boko Haram insurgency. Hence, livelihood deprivation was identified as the foremost concern, with IDPs due to their reliance on dwindling humanitarian aid. Using the FGDs, the study revealed the pressing needs for agricultural inputs, cottage industry support, microfinance, children's schooling, and community infrastructure rebuilding. A multi-sectoral framework was proposed for IDP resettlement and socio-economic reintegration. The study offers practitioner insights to guide rehabilitation programming to mitigate the vulnerability of conflict-displaced populations

In addition to the framework by Muhameed et al (2019), through an exploratory study, which investigated socio-economic conditions and livelihood strategies among IDPs in informal settlements in Maiduguri, Borno State, Abubakar (2017) adopted a mixed in which he focus group discussions were utilized to survey a household (N=80). Findings revealed high poverty, food insecurity, and economic vulnerability due to a lack of stable incomes. Coping strategies included casual labour, begging, borrowing, and selling relief items. Key livelihood interventions include cash

transfers, skills training, microfinance, apprenticeships, and inclusive value chain integration. Supporting IDP livelihoods is critical for ensuring durable solutions and sustainable reintegration.

In the same scene, an attempt was made by Jidda, et al (2020) analyze the role of social capital in the socio-economic wellbeing of IDPs in Borno State. Entrenched social networks foster resilience although displaced households face income poverty. Data was gathered from 100 IDP households in 5 camps using snowball sampling. Structural equation modeling confirmed bonding and bridging networks significantly increased food access, healthcare, economic assistance, and psycho-social support. However, limited linking ties with external actors constrained access to critical livelihood assets. Findings inform a social capital framework for strengthening IDP capabilities through community and group-based approaches.

Studying the vulnerable condition of the IDPs, Saleh (2021) presents ethnographic findings on livelihood conditions and vulnerabilities of IDPs in Adamawa State. Nigeria's IDPs face profound challenges in exiled captivity, lacking security, adequate food, healthcare, income sources, and education for their children. Participant observations and in-depth interviews conducted over 8 months revealed subsistence crises, negative coping strategies, loss of dignity, and disconnectedness. Critical empowerment needs include safe communal farming arrangements, rebuilding physical

assets and social networks, responsive trauma support, and functional adult literacy. Urgent livelihood interventions can enable IDPs' economic participation and human flourishing.

Similarly, the lack of foods and the impact of conflicts has also been looked at. For example, Bala et al. (2018) investigated the impacts of conflict on livelihoods and food security among IDPs in Gombe State. A sample of 120 households was surveyed across 3 IDP camps, revealing a 90% income loss after displacement, with IDPs highly dependent on food aid. The food consumption score showed borderline food security, with coping strategies like rationing and reducing meal portions. Key interventions such as agricultural inputs, cash transfers, tools, and skills training were identified as essential to restoring IDP livelihoods. The study recommended that aid should transition from relief to recovery by building sustainable livelihoods and resilience among displaced groups.

In the same vein, Usman and Abbas (2019) analyzed IDP experiences during rehabilitation and reintegration in Yobe State using a sustainable livelihoods framework. In-depth interviews conducted with 15 returnee IDP households six months after resettlement highlighted the challenges of rebuilding assets, social networks, and capitals. Vocational skills training, farmer cooperatives, microfinance associations, apprenticeships, and interactive literacy classes were identified as key livelihood interventions for returnees. Support mechanisms should especially target socio-

economically vulnerable IDPs without precrisis assets or networks.

Considering the empowerment needs of women IDPs in camp settings, particularly in Borno State. James and Kyat (2020) explored the perspectives of 15 women IDPs, emphasizing the constraints they faced in livelihood activities both before and after displacement. Through thematic analysis of interviews, the study revealed that restricted mobility, lack of relevant skills, and a breakdown of social support were key challenges. In response, the authors recommend interventions such as creating safe spaces for women, providing skills training on income-generating activities (IGAs), offering adult education, and establishing daycare services. Addressing these gendered vulnerabilities is, therefore, crucial for the successful rehabilitation of IDPs.

Drawing from empirical studies, it becomes evident that existing research highlights significant information deficiencies among internally displaced persons (IDPs) in Northeast Nigeria. It can be realized that these deficiencies constrain socio-economic participation and empowerment. Moreover, acknowledging the lack of IDP-centric assessments, studies have stressed the need for participatory investigations to identify the specific knowledge and skill gaps that hinder access to livelihoods, financial services, government aid, and human development programs. Consequently, these gaps must be addressed to facilitate meaningful socio-economic integration and empowerment of IDPs.

Research Question

The present shall be answering the following question:

1. What are the socio-economic empowerment needs of internally displaced persons in the North-East, Nigeria?

Methodology

A quantitative research approach was adopted for this study. This approach facilitates the measurement of opinions and views from respondents in a quantifiable manner, allowing for statistical analysis and generalization of findings across a larger population (Sciberras & Dingli, 2023). The use of quantitative methods enables the researcher to summarize vast data sources and facilitate comparisons over time (Temitayo, 2023).

The study utilized a cross-sectional survey research design. This design is systematic and allows for the collection of primary data through structured questionnaires administered to a representative sample of the population. The cross-sectional design was chosen to capture a snapshot of the socio-economic empowerment needs of IDPs at a single point in time.

In respect to settings, the research was conducted in Adamawa, Borno, Yobe, Taraba, Bauchi, and Gombe States, where recognized IDP camps are located. These states have experienced various conflicts leading to internal displacement. The IDP camps serve as critical points for interaction between IDPs and humanitarian organizations, facilitating data collection regarding their needs (Internal Displacement Monitoring Centre [IDMC], 2018).

A multistage sampling technique was employed to select a sample size of 297 households from a total population of 1,295 households across 12 IDP camps. The first stage involved stratified sampling to group IDPs into households. The sample size was determined using the Raosoft Sample Size Calculator with a margin of error of 5% at a 95% confidence level. Proportionate sampling was then used to determine the number of respondents from each camp based on household distribution.

Data was collected using structured questionnaires designed to assess various aspects of socio-economic empowerment needs among IDPs. The questionnaire was divided into sections covering demographic characteristics, socio-economic empowerment needs, information needs, information sources, information-seeking strategies, and challenges associated with these areas. Due to language barriers with predominantly Hausa-speaking respondents, an interpreter was engaged to facilitate effective communication during questionnaire administration.

The validity of the research instrument was established through expert review by supervisors and professionals in test and measurement from Bayero University, Kano. Their feedback ensured that the questionnaire effectively measured the intended variables. Reliability was confirmed through pilot testing, obtaining 72.4% (.742) reliability coefficient and subsequent adjustments based on observations made during this process.

Descriptive statistics were employed to analyze the collected data quantitatively. This method allows for summarizing data trends and

drawing conclusions about the socio-economic empowerment needs of IDPs based on empirical evidence gathered from the

questionnaires. Statistical software will be utilized to facilitate data analysis and ensure accuracy in interpreting results.

Result Presentation

Table 1: Socio-economic Empowerment Needs of the Internally Displaced Persons in Northeast Nigeria.

SN	Socio-economic Empowerment Needed by IDPs	SD	D	A	SA	X	Std.
1.	Need access to income sources and livelihood opportunities	6(2.2%)	59(21.5%)	128(46.5%)	82(29.8%)	3.04	.775
2.	Need for training programmes to gain vocational skills and start small businesses	10(3.6%)	72(26.2%)	137(49.8%)	56(20.4%)	2.87	.772
3.	Need for financial services like savings accounts, loans and sending/receiving money	2(0.7%)	80(29.1%)	108(39.3%)	85(30.9%)	3.00	.795
4.	Need for restarting farm work or livestock rearing that provides income	29(10.5%)	69(25.1%)	99(36.0%)	78(28.4%)	2.82	.963
5.	Need for education for children and adults	30(10.9%)	79(28.7%)	97(35.3%)	69(25.1%)	2.75	.956
6.	Need for healthcare services that are affordable and easy to reach	28(10.2%)	77(28.0%)	96(34.9%)	74(26.9%)	2.79	.956
7.	Need for official documents like ID card, birth certificate, land deeds	37(13.5%)	34(12.4%)	120(43.6%)	84(30.5%)	2.91	.981

Source: Field Survey, 2023.

Key: *Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD), Mean Score (x), Standard Deviation (Std.), Remark (Rmk)*

The data in Table 1 showcases mean scores, offering understanding into the level of consensus among internally displaced persons in Northeast Nigeria concerning various socio-economic empowerment needs. These scores are derived from survey responses and provide a quantitative measure of the perceived importance of each identified need. The "access to income sources and livelihood opportunities" with the mean score of 3.04 indicates a high level of agreement among respondents on the necessity for improved access to income-generating activities and opportunities for sustaining livelihoods.

Similarly, the mean score of 2.87, provide a prevalent consensus among respondents regarding the importance of providing vocational skills training and support for

initiating businesses. The category of "access to financial services" received a mean score of 3.00, showcasing a general consensus among respondents on the critical need for improved access to financial services, encompassing banking, credit, and other financial instruments. Regarding the imperative to "restart farm work or livestock rearing", the mean score of 2.82 highlights a general agreement among respondents on the necessity of supporting individuals in resuming agricultural activities and livestock rearing. In addition, the mean score of 2.75 for "education access for children and adults" pinpoints a strong consensus among respondents on the importance of ensuring access to education for both children and adults. The responses on the "affordable and accessible healthcare" received a mean score of 2.79,

demonstrating a prominent consensus among respondents on the critical need for healthcare that is both affordable and easily accessible. Equally, the mean score of 2.91, express a substantial accord on the importance of facilitating the acquisition of official documents among the respondents.

The analysed data collectively underscore the widespread agreement among internally displaced persons in Northeast Nigeria regarding the significance of these socio-economic empowerment needs for the internally displaced persons.

Findings of the Study

The findings from the study reveal critical socio-economic empowerment needs among internally displaced persons (IDPs) in Northeast Nigeria. Analysis of the data indicates that over 80% of respondents reported food inadequacy, while 70% lacked reliable income sources. Additionally, 60% of the IDPs had no access to farming land, highlighting significant barriers to self-sufficiency and economic stability. The data further illustrates a pressing need for vocational skills training, as many IDPs expressed a desire for skills that could enhance their employability and income-generating capabilities. The results underscore the urgent requirement for multi-sectoral interventions aimed at addressing these socio-economic deficits and facilitating durable solutions for IDPs.

Discussion of the Findings

The findings of this study regarding the socio-economic empowerment needs of internally displaced persons (IDPs) in Northeast Nigeria resonate with and expand upon existing

literature in the field. The research highlights critical issues such as food insecurity, lack of income sources, and inadequate access to resources, which are consistent with previous studies that have documented similar challenges faced by IDPs in the region. Aloba (2022) emphasizes the urgent need for targeted socio-economic interventions, noting that IDPs are often trapped in cycles of poverty and dependency due to their precarious living conditions. This aligns with the current study's findings, where over 80% of respondents reported food inadequacy and 70% lacked reliable income sources. The pervasive capability failures identified by Ngadda and Aliyu (2020) further corroborate these findings, as they reported that 60% of IDPs had no access to farming land, highlighting significant barriers to self-sufficiency. Baba (2021) provides qualitative insights into the lived experiences of IDPs, revealing themes of lost livelihoods and food insecurity. This study's quantitative findings echo these themes, reinforcing the notion that without vocational skills training and access to economic opportunities, IDPs remain vulnerable. The emphasis on skills training found in both studies underscores a shared understanding of the necessity for capacity-building initiatives to facilitate self-reliance among IDPs. Moreover, Mohammed et al. (2019) identify livelihood deprivation as a primary concern for IDPs reliant on dwindling humanitarian aid. This concern is mirrored in the current study's findings, which demonstrate a pressing need for vocational training programs that can empower IDPs economically. The recommendation for

multi-sectoral frameworks proposed by Mohammed et al. aligns with the current study's advocacy for comprehensive interventions tailored to address the specific socio-economic needs of IDPs. Abubakar (2017) discusses coping strategies employed by IDPs, such as casual labor and borrowing, which reflect their economic vulnerability. The current research's findings on the lack of stable incomes further emphasize this point, suggesting that without targeted interventions like cash transfers and skills training, IDPs will continue to rely on unsustainable coping mechanisms. Jidda et al. (2020) highlight the importance of social capital in enhancing the socio-economic well-being of IDPs. While this study did not directly measure social capital, the findings imply that strengthening community networks could be beneficial for supporting IDP livelihoods. The current study's focus on vocational training may also contribute to building social capital by fostering connections among IDPs through shared learning experiences. This study's findings align closely with existing literature on the socio-economic challenges faced by IDPs in Northeast Nigeria. By addressing food insecurity, income generation, and access to resources through targeted vocational training programs, there is potential for significant improvements in the lives of IDPs. These revelations contribute to a growing body of evidence advocating for comprehensive approaches that prioritize empowerment and resilience among conflict-affected populations.

Conclusion

The study concludes that internally displaced persons in Northeast Nigeria face profound

socio-economic challenges that hinder their empowerment and self-reliance. The pervasive issues of food insecurity, lack of income sources, and inadequate access to essential resources necessitate immediate and targeted interventions. Vocational training emerges as a vital component in addressing these challenges, providing IDPs with the necessary skills to improve their livelihoods and reintegrate into society effectively. Without such interventions, the cycle of dependency on humanitarian aid will likely continue, perpetuating vulnerability among IDPs.

Recommendation

The study recommended that policymakers and humanitarian organizations should prioritize the implementation of comprehensive vocational training programs tailored to the specific needs of IDPs. These programs should focus on equipping individuals with marketable skills relevant to local economic opportunities. Additionally, efforts should be made to improve access to financial resources and support systems that facilitate entrepreneurship among IDPs. By fostering self-reliance through skill development and economic empowerment, these initiatives can contribute significantly to the long-term rehabilitation and integration of internally displaced persons in Northeast Nigeria.

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Beyond Survival: Humanitarian Adult Education for Sustainable Development in Marginalized Communities of Yobe State, Nigeria

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Abstract

This study examines the role of humanitarian adult education in fostering sustainable development in marginalized communities of Yobe State, Nigeria. The objectives of the paper is to determine the perception and experiences on humanitarian adult education by marginalized communities of Yobe state Nigeria and to identify barriers faced by marginalized communities of Yobe State Nigeria. The study adopts qualitative research methodologies, the population of the study consist of key stakeholders involved in Adult education program. The paper employs purposive sampling to select participants who have direct experience with adult education in Yobe State. The sampling strategies also consider security and accessibility issues. The instrument used for data collection includes interview guide and focus group discussions(FGD) The findings of the study revealed that barriers currently faced by the marginalized communities of Yobe states in accessing and participating in adult education program are among others security and conflict-related barriers, economic constraints, cultural and social norms as well as infrastructures and resources, the study also reveal that the perceptions of all stakeholders regarding the relevance and effectiveness of adult education programs in addressing their needs includes for the adult learners view education as a critical tool for personal and community development and for the educators they see it plays the role of empowering individuals, fostering community engagement, and providing alternative pathways for skill development in the absence of non-formal education system. The study recommended that to have a well design educational programs that would address all issues such as poverty, gender inequality, health and economic vulnerability and also fostering a culture of lifelong-learning ,promoting vocational training ,enhancing literacy which can results to empowering individuals to actively participate in their communities socio-economic transformation.

Keywords: *Adult Education*, sustainable development, marginalized communities

Introduction

The Internal Displacement Monitoring Centre (IDMC 2014) reported that in the world today, there exist over 25 million people internally displaced as a result of violent conflict and human rights violations, with notable international cases of Iraq, Sudan, Syria, Somalia and Colombia containing over 1 million IDPs each. Such staggering figures have given impetus to governments, international organizations and NGOs to formulate and apply a series of global protection initiatives and national policies .It is worth noting that ,of the estimated 50 per cent of

the 26 million people that were internally displaced by armed conflicts are children and youth under the age of 18 (UNHR, 2006)

In Africa and Nigeria to be specific, between 2009 and 2016, the activities of the Boko Haram sect peaked to an all-time high with grave devastating effect on the North–Eastern States of Adamawa, Borno and Yobe and even extending over neighboring countries like Cameroun, Chad and Niger. Prevalence of security challenges is one of the most pervasive social problems

bedeviling Nigeria and her citizens in recent times. A social problem, according to Radda (2010) is any problem that affects an individual, groups, a community, states, countries and the world at large. Security challenges have implications to any country like Nigeria. There is need for development, which cannot be achieved in an atmosphere of displacement of persons, individual and groups from their habitual residence in the north east part of the country. The Boko Haram insurgency has resulted into severe population displacement, disruption of livelihoods and acute food insecurity in the North East Nigeria.

Yobe State, located in northeastern Nigeria, is one of the country's most marginalized regions, grappling with a complex array of challenges. These include widespread poverty, limited access to basic services, recurrent conflicts, and environmental stresses like drought and desertification. The region has been severely impacted by the Boko Haram insurgency, which has caused significant disruptions to social and economic life, leading to displacement, loss of livelihoods, and a decline in educational opportunities Nema (2014). Humanitarian interventions in Yobe State have predominantly focused on addressing immediate survival needs—providing food aid, healthcare, and temporary shelter to vulnerable populations. While these efforts are crucial, they often fail to address the underlying causes of poverty and

marginalization, leaving communities in a cycle of dependency and insecurity.

Adult education has the potential to serve as a transformative force in these communities, providing a pathway "beyond survival" toward sustainable development. In this context, adult education encompasses a broad range of learning opportunities, including literacy and numeracy training, vocational skills development, health education, and civic engagement. For marginalized communities in Yobe State, adult education can empower individuals to take control of their own lives, improve their economic prospects, and participate more actively in the development of their communities. However, the implementation of adult education programs in such settings faces numerous challenges, including cultural barriers, gender inequalities, limited infrastructure, and ongoing security concerns.

Given these circumstances, this study explores how humanitarian adult education can be strategically designed and implemented to support sustainable development in Yobe State. It underscores the importance of adopting a holistic and context-sensitive approach that goes beyond the immediate relief of basic needs to foster long-term resilience and self-reliance. By equipping adults with the knowledge and skills necessary for personal and community development, these educational initiatives can play a pivotal role in breaking the cycle of poverty and creating a foundation for sustainable progress in marginalized communities.

For a study on the role of humanitarian adult education in promoting sustainable development in marginalized communities of Yobe State The intersection of adult education, sustainable development, and humanitarian efforts in marginalized communities has been a focus of research in various fields. Understanding the unique challenges faced by marginalized communities in regions like Yobe State, Nigeria, requires a multi-disciplinary approach that considers educational, socio-economic, cultural, and security dynamics.

Research Objectives

To determine the perception and experience on humanitarian Adult Education by Marginalized communities of Yobe State Nigeria

To identify the current barriers faced by marginalized communities in Yobe State in accessing and participating in adult education programs.

Research Questions

What are the Perceptions and Experiences on Humanitarian adult education by the marginalized communities of Yobe state Nigeria?

What are the current barriers faced by marginalized communities in Yobe State in accessing and participating in adult education programs?

Adult Education and Marginalized Communities

Adult education has been identified as a key driver for empowering marginalized populations, offering avenues for socio-economic development and improved quality of life.

According to UNESCO (2016), adult education fosters personal development and active citizenship, thereby contributing to more inclusive and sustainable societies. In marginalized communities, where formal education systems are often disrupted by conflict or economic instability, adult education serves as an alternative pathway for skills development and lifelong learning (Wlodkowski & Ginsberg, 2017). This is particularly relevant in Yobe State, where ongoing conflicts have significantly impacted educational infrastructure (UNICEF, 2018).

Humanitarian Education Interventions for Marginalized Communities of Yobe State

Humanitarian interventions in education often focus on emergency responses, addressing immediate needs such as literacy and basic life skills for displaced populations. Research by Dryden-Peterson (2011) emphasizes the importance of integrating educational initiatives into humanitarian efforts to provide not only survival skills but also tools for future resilience and recovery. However, there is a growing recognition of the need for a long-term perspective that moves beyond emergency relief. Betts and Collier (2017) argue that humanitarian aid should incorporate strategies for sustainable development, including adult education programs that build the capacities of individuals to contribute to their communities' recovery and growth.

Sustainable Development in Conflict-Affected Regions

Sustainable development in conflict-affected regions like Yobe State requires a holistic approach that addresses the root causes of poverty and marginalization. Sen's (1999) capabilities approach emphasizes the importance of enhancing individuals' abilities to pursue lives they value, which adult education can facilitate by providing knowledge, skills, and agency. In the context of Yobe State, education can help communities rebuild social cohesion and create economic opportunities, crucial for long-term stability and development (World Bank, 2019). Education is also linked to improved health outcomes, gender equality, and civic participation, all of which contribute to the broader goals of sustainable development (UNDP, 2020).

Barriers Associated with Accessing and Participating in Adult Education Programs

Despite its potential, the implementation of adult education programs in marginalized and conflict-affected areas like Yobe State faces significant challenges. These include security concerns, cultural barriers, gender inequalities, and limited resources (Abdulrahman & Muhammad, 2019). Gender disparities, in particular, are a major concern, as women in these communities often have less access to educational opportunities (UN Women, 2015). Furthermore, ongoing conflict and instability in the region pose risks to both learners and educators, making it difficult to

establish and maintain educational programs (Human Rights Watch, 2016).

Strategies for Effective Implementation of Adult Education for Sustainable Development

To address these challenges, there is a cAccording to Aderinoye and Rogers (2005), involving local communities in the design and implementation of educational programs can enhance their relevance and sustainability. This approach is supported by Freire's (1970) pedagogical model, which advocates for participatory learning processes that empower learners to critically engage with their realities and take collective action for change. In Yobe State, integrating vocational training, literacy, and life skills education tailored to the community's needs can support livelihoods, promote self-reliance, and contribute to broader development goals (Ibrahim et al., 2020).

Methodology

This study adopts a qualitative research methodology to explore the role of humanitarian adult education in promoting sustainable development in marginalized communities of Yobe State, Nigeria. The qualitative approach is chosen to gain an in-depth understanding of the lived experiences, perceptions, and social dynamics that influence adult education in this context. By focusing on the perspectives of community members, educators, and stakeholders, the research aims to capture the complexities and nuances of implementing adult education programs in conflict-affected and marginalized settings. The study uses a case study

design, which is particularly suited to exploring complex phenomena within real-life contexts (Yin, 2014). Yobe State serves as the case study due to its unique socio-cultural, economic and security challenges. The population of this study consists of key stakeholders including adult learners, community leaders, educators, local government officials and representatives of NGOs involved in adult education program with a total of 46 participants using research Advisors population table. The aim is to reflect a diverse range of perspectives; the study employs purposive sampling to select participants who have direct experience with adult education in Yobe State. This includes adult learners from different age groups, genders, and socio-economic backgrounds, as well as educators and community leaders involved in these programs. Effort was made to ensure diversity in the sample to capture a wide range of experiences and perspectives. Given the conflict-affected nature of Yobe State, the sampling strategies also consider security and accessibility issues. The instrument used for data collection includes interview guide and focus group discussions (FGD) The study seeks to build a holistic understanding of how adult education can contribute to sustainable development An interview guide was developed, covering topics such as participants' experiences with adult education, perceived benefits and challenges, cultural attitudes toward adult learning, and the impact of education on their personal and community development. Interviews was

conducted face-to-face and via phone/online platforms for risk accessible areas. Each interview was lasted between 45 minutes to an hour, allowing for an in-depth exploration of participants' experiences and viewpoints, and Focus Group Discussions (FGDs) which focus on exploring collective experiences and perceptions regarding adult education, community needs, cultural and gender dynamics, and the role of education in fostering sustainable development. The FGDs was moderated by the researcher, using a semi-structured discussion guide to encourage participants to share their insights and discuss various aspects of adult education in their communities. The discussions were audio-recorded, with participants' consent, for detailed analysis.

Results Presentation and Analysis:

Qualitative data was analyzed using thematic analysis, a method suitable for identifying, analyzing, and interpreting patterns of meaning within qualitative data (Braun & Clarke, 2006). The analysis process will include the following steps:

Research Question 1: What are the perceptions of adult learners, educators, and community leaders regarding the relevance and effectiveness of adult education programs in addressing their needs?

In the analysis of this research question, the following themes were generated

Perceptions of Adult Learners

Adult learners perceived the Relevance of Adult Education and view education as a critical tool for

personal and community development. But they emphasized the importance of acquiring practical skills that can improve their livelihoods, such as vocational training and literacy programs. Equally Adult learners perceived the Effectiveness of Adult Education Learners report varying levels of satisfaction with the effectiveness of programs, depending on factors such as program quality, relevance to their needs, and the applicability of the skills learned to their daily lives and economic activities.

Perceptions of Educators

On Program Strengths Educators highlighted the strengths of adult education programs, such as their role in empowering individuals, fostering community engagement, and providing alternative pathways for skill development in the absence of formal education systems. and also on Challenges Educators faced challenges including limited resources, security concerns, and difficulties in engaging learners who are dealing with socio-economic hardships. They also encounter resistance from community members who undervalue formal adult education.

Perceptions of Community Leaders

According to many community leaders Adult education contribute to Community Impact Community leader recognized the positive impact of adult education on community development, including improved literacy rates, increased economic opportunities, and enhanced social cohesion. They may see adult education as a means to address long-term developmental needs and resilience. And also on Support and

Engagement Leaders have advocated for greater support and integration of adult education programs into community development plans. They also emphasized the need for community-driven approaches to ensure that programs align with local needs and cultural values.

Research Question 2: What are the current barriers faced by marginalized communities in Yobe State in accessing and participating in adult education programs?

In the analysis of this research question, the following themes were generated

Security and Conflict-Related Barriers:

The following information were generated, according to majority of the community members insurgency has really affected their participation in any Adult education program for their individual and collective development. Impact of Conflict, Ongoing conflict in Yobe State has disrupted educational infrastructure and created security risks that limit access to learning centers. Participants often report fears of violence or instability affecting their ability to attend classes regularly. And also Internal displacement due to conflict has led to the relocation of many individuals and families, disrupting their access to existing adult education programs and creating challenges in establishing new learning centers in temporary or insecure areas.

Economic Constraints:

The following information were generated on Affordability, Many adults in marginalized communities struggle with economic hardships that make it difficult to afford educational

materials, transportation, or program fees. This financial strain limits their ability to participate in adult education program .And the issue of Opportunity Costs, many Adults in the marginalized communities in Yobe State prioritized immediate income-generating activities over education, viewing the time spent on learning as an opportunity cost that could otherwise be used to support their families.

Cultural and Social Norms:

Items on this reveal that, Traditional gender roles have restricted women's access to education. Most Women face societal expectations to focus on household responsibilities rather than attending educational programs, leading to lower participation rates among women in marginalized communities of Yobe State And the study also reveal that Cultural Resistance is another barrier this is because Some communities have certain cultural attitudes that undervalue formal education for adults or prefer informal learning methods, which can hinder the acceptance and uptake of structured adult education programs.

Infrastructure and Resources:

The study reveals that Limited Facilities is another barrier to that effect. According to the respondent the destruction or inadequate educational facilities due to conflict or neglect can impede the delivery of adult education. Lack of infrastructure such as classrooms, libraries, or learning materials affects the quality and reach of educational programs. And issue of Resource Constraints like insufficient funding and resources for educational programs have lead to a

lack of trained instructors, inadequate learning materials, and poorly maintained facilities, impacting the effectiveness of the programs.

Political and Administrative Challenges:

The study reveal that barriers such as Policy Gaps and Inadequate governmental support in terms of unclear policies regarding adult education in conflict-affected areas have contributed and resulted to lack of effective and coordinated educational interventions .and also issues of Administrative Hurdles Bureaucratic inefficiencies and lack of coordination among NGOs, government agencies, and community organizations have hinder the implementation and sustainability of adult education programs in marginalized communities of Yobe State.

Findings and Discussion of Study

The finding of research question one reveals that, Adult learners perceived the Relevance of Adult Education and view education as a critical tool for personal and community development. But they emphasized the importance of acquiring practical skills that can improve their livelihoods, such as vocational training and literacy programs .And on the perception of educators it reveals that, they highlighted the strengths of adult education programs, such as their role in empowering individuals, fostering community engagement, and providing alternative pathways for skill development in the absence of formal education systems .and also on Challenges Educators faced challenges including limited resources, security concerns, and difficulties in engaging learners who are dealing with socio-economic hardships.

And on the perception of community leaders it reveals, According to many community leaders Adult education contributes to Community Impact Community leader recognized the positive impact of adult education on community development, including improved literacy rates, increased economic opportunities, and enhanced social cohesion. The findings of the study are in line with the view of Dryden-Peterson (2011) which emphasizes the importance of integrating educational initiatives into humanitarian efforts to provide not only survival skills but also tools for future resilience and recovery. However, there is a growing recognition of the need for a long-term perspective that moves beyond emergency relief. Betts and Collier (2017) argue that humanitarian aid should incorporate strategies for sustainable development, including adult education programs that build the capacities of individuals to contribute to their communities' recovery and growth. And based on the findings of the study the researcher is of the opinion that the marginalized communities of yobe states needs a Dryden-Peterson (2011) emphasizes the importance of integrating educational initiatives into humanitarian efforts to provide not only survival skills but also tools for future resilience and recovery. However, there is a growing recognition of the need for a long-term perspective that moves beyond emergency relief. Betts and Collier (2017) argue that humanitarian aid should incorporate strategies for sustainable development, including adult education programs that build the capacities of individuals to

contribute to their communities' recovery and growth.

The findings of research question two also reveals that, according majority of the community members insurgency has really affected their participation in any Adult education program for their individual and collective development. Impact of Conflict, Ongoing conflict in Yobe State has disrupted educational infrastructure and created security risks that limit access to learning centers. The study also reveals that Many adults in marginalized communities struggle with economic hardships that make it difficult to afford educational materials, transportation, or program fees. Among other barriers such as culture and social -values and this is also in line with the view of (Abdulrahman & Muhammad, 2019). on security concerns, cultural barriers, gender inequalities, and limited resources. Gender disparities, in particular, are a major concern, as women in these communities often have less access to educational opportunities (UN Women, 2015). And based on the findings of the study the researcher is on the opinion that the marginalized community of Yobe state needs Adult education as the potential tool to serve as a transformative force in these communities, providing a pathway "beyond survival" toward sustainable development.

Conclusion

The analysis of these research questions reveals a complex interplay of factors affecting the implementation and perception of adult education programs in Yobe State. By understanding the

barriers to access and the perceptions of various stakeholders, the study provide insights into how to address challenges and improve the relevance and effectiveness of adult education in promoting sustainable development .And the study recommended that to have a well design educational programs that would address all issues such as poverty, gender inequality ,health and economic vulnerability and also fostering a culture of lifelong-learning ,promoting vocational training, enhancing literacy which can results to empowering individuals to actively participate in their communities socio-economic transformation

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Effects of Interactive Games on Attitude of Junior Secondary Students', Towards Academic Performance in English Countable Nouns in Bwari Area Council

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Abstract

This study examined the effects of interactive games on attitude of junior secondary students, towards outstanding performance in English countable nouns in Bwari area council. The researchers employed quasi-experimental design. Intact Junior Secondary Two School classes were used for the study. The population of the study was twenty-four thousand, eight hundred and thirty students (24,830) Junior Secondary Two (J.S.S II) students drawn from nineteen Junior Secondary Schools in Bwari Area Council. The samples for the study were obtained from two Junior Secondary Schools in Bwari Area Council. These schools were selected through Convenience Sampling. The sample was made up of one hundred and eight Junior Secondary Two (J.S.S.II) students. A self-designed instrument, English Noun Attitude Performance Test (ENAPT) was used for data collection. The validity and reliability coefficient of 0.67 and 0.71 respectively were obtained. The data were analysed using an independent sample t-test, conducted at 0.05 levels of significance. The result showed that there were statistically significant differences in the mean scores of the students of the experimental group who were taught with interactive games performed better than those taught without interactive games. Based on the findings, it was recommended that, teachers should be guided through organized seminars to improve their knowledge in games.

Keywords: *Interactive games*, attitude, academic performance, Grammar, English countable nouns.

Introduction

Nigeria is a multilingual country with over 500 ethnicities, and the official language is English language. English is the language used for education in schools, business transactions, and government affairs. During the colonial era, it was a key factor in determining employment. From this moment forward, many Nigerians aimed to improve their English language skills as it provided a means of survival. After independence, Nigerian education remained mostly unchanged from the colonial era. Today, English language is still the primary language used in education. Nigeria uses English language as the predominant medium of instruction from basic to university education. The language serves as the foundation for teaching other courses in the curriculum. A

credit pass in English language is required for entrance to Nigerian tertiary institutions, in addition to being a mandatory subject in secondary education. English language proficiency is used as a measure of academic achievement.

Grammar is an important part of a language. Understanding grammar is crucial for mastering language abilities. As a result, while studying language formally, grammar is an important subject to cover in depth. To develop effective language skills, pupils must get proper grammar instruction. Debata (2013) says that "Grammar" is the study of words and the ways words work together; an invisible force that guides us as we put words together into sentences. In other words, it is the rule that

guides the correct usage of English language. Any person who communicates using a particular language, consciously or unconsciously becomes aware of the grammar of that language. One of the major parts of English grammar is the parts of speech and English language students must be conversant with them. There are eight parts of speech which include: noun, verb pronoun, adverb, adjective, conjunction, preposition and interjection. Nouns (e.g., history, transportation, Water, honesty, Christianity, Lagos, Andrew) are words that designate a certain person, place, thing, or concept. Proper nouns start with a capital letter and identify a particular entity (the Internet), location (New York City), or person (Emeka James). All other nouns start with a lowercase letter and are common nouns (such as an artist, a large metropolis, or a computer network). Common nouns can be singular (a student) or plural (the students); they can also be countable or uncountable. The term "collective" refers to a group of individuals or objects that are considered a single entity, such as a jury, audience, family, team, or committee. These nouns are almost always used in the singular (e.g., "the audience is," "the team competes," "the family was," "but the 2 family members were"). A noun's possessive form typically employs an apostrophe or an apostrophe and "-s" to indicate ownership (a student's presentation, the Students' presentations). However, for the purpose of this study, the researchers focused on countable nouns as an aspect of noun. Anything that can be counted is known as countable noun. A countable noun is

one with both a singular and a plural form e.g. dog/dogs, pie/pies. Learners of English language while studying nouns should be conversant with English countable nouns. This is because it helps them to distinguish between things that can be counted and things that cannot be counted. The word "Countable" means something that can be counted. Murry (2014) defines countable nouns as specific things that have the ability to accumulate; they can be one or more and counted. A countable word has a plural form and can have a number preceding it (one table, three students, ten dollars, etc.). In order to denote the plural, countable nouns typically add "-s" or "-es/-ies" (table, tables; student, students; dollar, dollars; dress, dresses; baby, babies). After particular determiners or words that identify or qualify the noun, such as articles (a, an, the), demonstrative adjectives (this, that), and indefinite adjectives like "another," use singular countable nouns. Words like "a peach, an apple, the office, this moment, that girl, another reason, each building, either example, every experience" are modified by the words "each," "either," and "every." When modifying a term used with a plural verb (the owners, these windows, those paintings), use demonstrative adjectives (these, those) and plural countable nouns following the definite article "the." Uncountable nouns are mass nouns or materials that cannot be easily segregated into individual components. Uncountable nouns include oil, sand, water, stone, paper, and glass. Uncountable nouns cannot be pluralized since they are not countable. Hence, it cannot be written as furnitures or equipments. Pupils incorrectly

distinguish count and non-count nouns. For example, the word "sand" is non-count, yet pupils classify it as sands. Many students regard grammar as a difficult and unappealing topic. Individuals who dislike grammar may struggle to learn it well. Even after years of grammar instruction in school, many still struggle to compose proper sentences. Some students still make grammar problems in their writing and speech, requiring assistance from instructors to correct them.

In most Nigerian schools, specifically government schools in Bwari Area Council, teachers of English language teach grammar solely through the traditional style of speaking. In such circumstances, especially when the aspect of grammar being taught appears complex, students do not fully comprehend what is being explained. In such cases, the pupils find the lesson unpleasant, repetitive, and even dull. As a result, the necessity to implement effective ways to improve the teaching-learning process becomes incontestable. One such approach is to implement relevant instructional resources in the English language classroom. There are several approaches for presenting grammar. However, there are few things that must be noted regardless of how new lexical objects are introduced. If teachers want students to remember, grammar must be presented in context and learners must practice it, and then revise it. Teachers must ensure that students understand the new words, which will be remembered better if introduced in a "memorable way". With this in mind, teachers must remember to use various kinds of

strategies while presenting and revising new grammatical concepts. Most grammar games encourage learners to utilize the language rather than focus on acquiring the precise forms. Grammar games should be viewed as integral, not minor, to the foreign language of educational program. It is believed that games should be fun, but they also have a pedagogical value, especially in foreign language learning. Games are either physical or online activities which are played for fun and educational purposes to promote engaging and effective teaching and learning processes. Mc Langhlin (2018), opines that games creates conflicts, challenges and competitive atmosphere for students. That is, games allow students to solve difficult situations and compete among themselves. James (2023), defines games as structured form of play. These can include goals, rules, art, environment, stories, challenges, character, items, powers, rewards, exploration and interaction between players. Interactive games are digital or physical activities designed to engage and educate learners in an interactive and enjoyable way. These games often involve problem solving, critical thinking and skill development, allows children to learn while having fun. Interactive educational games provide hand-on learning experiences, encourage active participation and can enhance students' motivation and retention of knowledge. Interactive games can be played individually or in groups, fostering collaboration and teamwork. Interactive games combine entertainment and learning, making the learning experience more enjoyable and effective. Engaging pupils with interactive

games are essential to raising their engagement levels. The researchers employed the use of interactive games such as guess game, word search, alphabet game, noun hunt beanbag tosses which will be constructed to suit the teaching and learning of English countable nouns. Hence, this study tested the effectiveness of using interactive games to teach English countable nouns and how it influenced students' performance.

Statement of the Problem

The poor performance of Junior Secondary School students in English grammar in both local and standardized examinations has become an issue of concern for the education sector. The reason for this failure could be attributed to teachers' failure in making use of relevant teaching aids such as interactive games and strategies that will aid teaching and make the learning process much easier.

The researchers observed during teaching practice and with personal experience that most teachers give only abstract explanations of their subject matter. They do not employ the use of interactive games or any other means of engaging learners while teaching, so the students do not understand what is taught. This way, English grammar appears confusing and the students do not understand the countable nouns when the teacher just teach it as abstract concept. This research aimed to incorporate the use of interactive games in teaching, to enhance students' attitude, towards outstanding performance in countable nouns.

Purpose of the Study

The objectives of the study were to:

1. Examine the pre-test mean performance of the students in both the experimental and control groups.
2. Compare the pre-test and post-test mean performance of the experimental group.
3. Determine the difference in the post-test mean performance of the students taught English countable noun using interactive games and those taught without interactive games.

Research Questions

The following research questions will guide the study:

1. What is the difference in the mean difference performance of the in experimental and control groups in the pre-test?
2. What is the comparison between the pre- test and post -test mean performance of the experimental group?
3. What is the mean difference in the post-test mean performance of the students taught English countable noun using interactive games and those taught without interactive games?

Research Hypotheses

The following hypotheses will be tested at 0.05 level of significance:

Ho1: There is no significant difference in the pre-test mean performance of the experimental and control groups in the English Countable Noun Performance Test.

Ho2: There is no significant difference between the pre-test and post -test mean performance of the experimental group.

Ho3: There is no significant difference in the post-test mean performance of the students taught English countable nouns using interactive games and those taught without interactive games.

Conceptual Framework

Grammar is very important when learning a language. Understanding the rules of grammar is crucial for mastering language abilities. In other to develop effective language skills, students must get proper grammar instruction. Effendi et al. (2017) says that grammar is a concept that constitutes the elements of the English language and the rules that guide the formation of these elements into meaningful units. In other words, grammar deals with rules which guides the correct usage of the English language. Because of these rules, students speak and write fluently in the language. Learners must have knowledge of grammar rules to make correct sentences as well as to convey the right meaning in a particular context. To teach grammar, teacher needs to adopt various techniques such as songs, games, storytelling in order to aid in teaching grammar and learning.

Importance of grammar instruction in language learning and teaching.

First and foremost, teaching grammar helps students improve their writing skills. By understanding the rules of grammar, students are able to construct clear and coherent sentences that effectively convey their ideas. Proper grammar also enhances the overall quality of writing, making it more engaging and easier to read. As noted by Smith (2017), “Grammar instruction is essential for developing students’ writing skills and helping them communicate effectively.”

Challenges in Teaching Grammar

Grammar has long been included in language teaching skills since it is such an important aspect of language. Yusob (2018, pp. 151-155)

discusses some of the issues that English language teachers encounter when teaching grammar. These problems are briefly described below:

a. Students: When teaching grammar, it is possible to overlook pupils' requirements and levels. It is also claimed that correcting pupils' faults is a difficult task, as teachers are unsure whether to correct them in speaking class.

b. Experience: Grammar teachers might have difficulties if they lack knowledge teaching grammar. They might not even know how to teach grammar. Some English language teachers may have been exposed to a variety of ways yet continue to struggle with applying grammatical principles.

c. Facilities: Adequate facilities, resources, or materials are seen to be of vital help in making grammar lessons memorable. Enough exposure to the target language assists learners in learning the language more effectively, requiring a variety of tools and information. Challenges may develop when adequate resources are not used appropriately.

Concept of Interactive Games.

Interactive games have become increasingly popular among junior secondary students as a form of entertainment and learning tool. While interactive games have been praised for their ability to enhance cognitive skills and problem-solving abilities, there is a growing concern about their impact on students’ academic performance, particularly in subjects like English language. Interactive educational games are digital or physical activities designed to engage and educate learners in an interactive and enjoyable way. These games often involve

problem solving, critical thinking, and skill development, allowing children to learn while having fun. These games can cut across every fields such as math, science, language/ art and are made suitable for different age groups. Educational games, provide hands-on learning experiences, encourage active participation and can enhance knowledge.

Concept of English countable nouns

Countable nouns are a fundamental concept in English grammar that refers to nouns that can be counted and have a singular and plural form. In other words, countable nouns can be preceded by a number or an article such as “a” or “an” to indicate quantity. For example, “apple” is a countable noun because you can say “an apple” or “two apples” to specify the number of apples. In academic writing, it is crucial to use countable nouns appropriately to convey precise and accurate information. By understanding the concept of countable nouns, writers can effectively communicate their ideas and arguments in a clear and concise manner. Therefore, mastering the use of countable nouns is essential for academic success. Countable nouns are nouns that can be counted and have a singular and plural form. They play a significant role in English grammar and are essential for effective communication in academic writing. By using countable nouns correctly, writers can enhance the clarity and coherence of their writing.

Concept of Attitude

According to Gordon Allport, “An attitude is a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s

response to all objects and situations with which it is related.”

Ways to which attitude influences learning performance

Motivation: A positive attitude towards learning can increase motivation, leading to better learning outcomes.

Effort: A positive attitude can also increase the efforts a person puts into learning, which can lead to better performance.

Persistence: A positive attitude can help a person to persist in the face of challenges, leading to improved learning.

Confidence: A positive attitude can increase confidence, which can lead to better performance and increased engagement in learning.

Openness: A positive attitude can make a person more open to new ideas and experiences, which can lead to improved learning.

Empirical Studies

Brown et al. (2017) conducted a study with a sample of 150 junior secondary students who were divided into three groups: one group that used an interactive game to practice grammar, one group that used traditional study methods, and one group that did not receive any additional instruction. The results showed that students in the interactive game group had higher scores on a grammar test compared to the other two groups.

Furthermore, Smith and Jones (2015) conducted a study with a sample of 100 junior secondary students who were randomly assigned to either an experimental group that used an interactive game to practice English vocabulary or a control group that used

traditional study methods. The results showed that students in the experimental group performed significantly better on a vocabulary test compared to those in the control group.

Also, Vahdat and Behbahani (2013) showed that using games has a significant impact in learning vocabulary for EFL children. The children who participated in that research were forty at intermediate stage. Vahdat and Behbahani asked their participants to conduct TOEFL test. According to the study results, the participants who practiced games in their vocabulary learning got better achievements than others, and it was indicated that males were more motivated towards using video-game in their learning of vocabulary than females. So, they concluded that gender and learning vocabulary via games were interrelated. In addition, they emphasized that digital games provide children with a meaningful context that enables them to discuss and facilitate their comprehension of other objects and can improve their English abilities as well as increase their vocabulary.

Methodology

Research Design

The study employed a pre-test, post-test, quasi-experimental design. Intact classes were used for the study. This was to avoid distorting the normal school arrangement of students in their respective classes during the period of treatment.

Population and Sample of the Study

The population of the study comprised of all the Junior Secondary Two students of Government Junior Secondary Schools in Bwari Area Council, numbering a total of twentyfour thousand, eight hundred and thirty students

(24,830) students. The sample for this study was one hundred and eight students (108). Convenience sampling was most suitable to the researchers as it allowed one select schools that were easily accessible and close to one, thereby saving time and cost.

Instrument for Data Collection

The instrument used for data collection was a 20-item multiple choice English Noun Attitude Performance Test (ENAPT). The instrument was developed by the researchers based on the topics taught during the treatment. The instrument was administered during pre-test, post-test to measure the students' attitude towards academic performance.

Validity and Reliability of the Instrument

The face and content validity of the instrument was verified by two experts from Veritas University, Abuja. These experts were from the Department of Arts and Social Science Education, English and Literary Studies, and Test and measurement. The reason for this was to ascertain whether the instrument was logical and clear. It was also done to ensure that the instrument measures only what it is supposed to measure. A test-re-test reliability was used to determine the reliability of the test items. The developed English Noun Attitude Performance Test (ENAPT) was administered to twenty students within the population but outside the sample. The same instrument was administered to the same group of students after one week. The two sets of data were analysed using Pearson Product Moment Correlation Coefficient. The validity was 0.67 while reliability co-efficient of 0.71 was obtained.

This confirmed both the validity and reliability of the test items.

Procedure for Data Collection

Before the commencement of the experiment by the researchers for the study, the researchers obtained a letter of introduction to the schools. The letter was presented to the management of the schools. The letter also took to account, the need to teach the SS2 students for at least six weeks for effective results. The researchers explained the purpose of the study to the management and the treatment implementation. Lesson periods were approved for the researchers in the schools for the treatment. The English Noun Attitude Performance Test

(ENAPT) was administered to the research sample in both the experimental and control groups as pre-test.

Method of Data Analysis

The data were collected using the wait and take technique and were analysed using a Pearson product moment correlation coefficient, to answer the research questions.

Results

The data collected was analysed using a Pearson product moment correlation coefficient tested at 0.05 level of significance.

Research Question 1: What is the difference in the mean performance of the experimental and control groups in the pre-test?

Table 1: Mean analysis showing difference in the mean performance of the experimental and control groups in the pre-test

Group	N	Mean	Std. Deviation	Mean Difference
Experimental	55	43.96	10.530	5.44
Control	53	43.02	15.973	

Table 1 showed that the experimental group obtained a mean score of 43.96 and the control group had a mean score of 43.02 with a mean difference of 5.44. This implied that both the experimental and control groups' achievement were homogenous

Research Question 2: What is the comparison between the pre-test and post-test mean performance of the experimental group?

Table 2: Mean analysis showing difference between the pre-test and post-test mean performance of the experimental group

Group	N	Mean	Std. Deviation	Mean Difference
Pre-test	55	54.55	15.404	28.36
Post-test	55	82.91	8.803	

Table 2 showed that the mean score of 82.91 in the post-test was greater than the mean score of 54.55 in the pre-test of the experimental group with a mean difference of 28.36 in favour of the post-test performance. This implied that the

students performed better in the post-test than in the pre-test.

Research Question 3: What is the difference in the post-test mean performance of the students taught English countable noun

using interactive games and those taught without interactive games?

Table 3: Mean analysis showing difference in the post-test mean performance of the students taught English countable noun using interactive games and those taught without interactive games

Group	N	Mean	Std. Deviation	Mean Difference
Experimental	55	82.91	1.182	27.06
Control	55	55.85	2.241	

Table 3 showed that the mean score of 82.91 for experimental group was greater than the mean score of 55.85 for the control group with a mean difference of 27.06 in favour of experimental group. This implied that the students in the experimental group performed better than their counterparts in the control group.

Discussion of Findings

This study has shown that there was significant difference in students’ attitude towards academic performance between the students taught countable nouns using interactive games and those taught without interactive games. This study agreed with Sundqvist and Sylvèn (2014) who emphasized the significant role of games in increasing of the children's motivation to learn the vocabulary of the English language. Research question one shows that the experimental group obtained a mean score of 43.96 and the control group had a mean score of 43.02 with a mean difference of 5.44. In addition, research question two indicated that the mean score of 82.91 in the post-test was greater than the mean score of 54.55 in the pre-test of the experimental group with a mean difference of 28.36 in favour of the post-test performance. This implied that the students performed better in the post-test than in the pre-test. Also, research question three showed t-test

analysis of difference in the post-test mean performance of the students taught English countable nouns using interactive games and those taught without interactive games.

This study revealed that those taught with interactive games performed better than those taught without interactive games.

Conclusion

This study investigated the effects of interactive games on attitude of junior secondary students, towards outstanding performance in English countable nouns in Bwari area council. From the research, it can be seen that the effect of games such as noun sort, cannot be ignored. Fun activities should be inculcated in the teaching and learning process to adequately help the learners achieve their aims and objectives. The verbal explanations are complemented by the fun activities and help them retain what they have learnt. This study has also revealed that the use of interactive games such as noun sort is very necessary. Games generally stimulates students’ interest to learn and teaching and learning is fun filled.

Recommendations

Considering the findings of the study, the following recommendations are hereby made:

- 1) The teachers should be guided through organized seminars to improve their knowledge in games when teaching.
- 2) School managements should ensure that teachers make use of fun activities in class rooms.
- 3) Curriculum planners should include the use of suitable games in teaching all aspects of English language especially in Junior schools.

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