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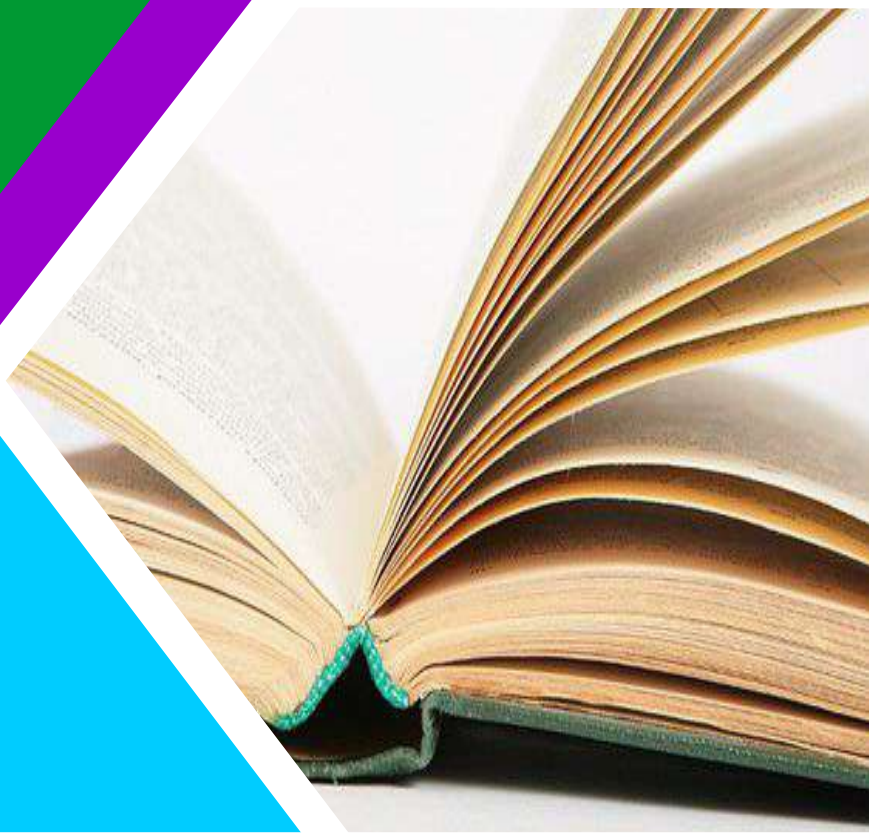

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Influence of Recreational and Instructional Space planning on Job Performance among Government Secondary School Teachers in Delta State, Nigeria

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Abstract

This study examined the influence of recreational and instructional spaces planning on job performance among government secondary school teachers in Delta State, Nigeria. Two research questions were raised and two research hypotheses formulated to guide the study. Descriptive survey research design was used for the study. The population of this study comprised of 14,877 teachers including principals from all the 493 government secondary schools in Delta State, Nigeria. Simple random sampling procedure was adopted in determining the sample size of 43 schools and 744 teachers. Questionnaire titled "Influence of recreational and instructional spaces planning on Teachers' Job Performance" (QIRIPTJP) was used for data collection. The instrument with 10 items was validated by expert and a pilot study conducted which yielded a validity index and coefficient of 0.79 and 0.82 respectively. Data were analyzed using descriptive statistics, mean and standard deviation to answer research questions and chi-square to test the hypotheses at 0.05 level of significance. The findings revealed that recreational and instructional spaces planning has significant influence on teachers' job performance Based on the findings of this study it was recommended that Delta State Government through the State Ministry of Education should engage educational planners to handle the planning of recreational and instructional spaces in government secondary schools and also provide adequate fund to build adequate recreational and instructional facilities to enhance teachers' job performance in government secondary schools in Delta State, Nigeria.

Keyword: Recreational space, Instructional Space and Job performance.

Introduction

Education is seen as the backbone of development in any nation. It improves the quality of life of a society through refinement of its potentials. Education further enhances the application of man's achievement towards improvement of his environment. In every known great nation, therefore, national development was preceded and accomplished by educational advancement. Today, there is an increasing faith in the casual relationship between education and economic development especially in the developing countries likeNigeria. Education has been seen as a vehicle for economic, social-cultural and political development of nations and individuals (Obayan, 2016). Education is a social process in which one achieves societal competence and individual growth and the art of learning about one's self and one's environment for the purpose of self-development (Oyedeji, 2018). Education in general and secondary education in particular does not only occupy an important place in the Nigerian education system, it also serves as a link between the primary and tertiary levels. The Federal Republic of Nigeria (2013) defined secondary education as the education the learner receives after primary education and before the tertiary stage. Secondary educationin Nigerian schools is for a period of 3 years and it is for students who had successfully completed the Basic 9 education programme. The secondary school system is however a very crucial level of educational system and as crucial as it is, its goals cannot be achieved without proper school plant planning in place (Odunfowokan, 2017). Oyesola, (2017) buttresses that, for the realization of the goals of secondary education there must be appropriate school plant planning.

School plant planning is an integral part of the over-all educational planning. As a concept, school plant planning has been subjected to several definitions by various scholars though they share similar view. For example, according to Ajayi and Yusuf (2019), school plant planning is a process in which a suitable site is selected and instructional space, administrative space, circulation space, and spaces of convenience are designed to facilitate the teaching and learning process in the school system. In his own view, Oyesola (2017) defined school plant planning as a process in which a congenial site is selected and appropriate structures (buildings) designed and constructed to satisfy the identified educational needs of the students. Similarly, according to Ololube (2014), school plant planning means considering various ways to put up the structured features to suit the instructional and learning processes. Olagboye (2018), defined school plant planning as the process of positioning schools facilities in organized positions where educational activities could be achieved be it in primary,

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secondary or tertiary education. According to Adeyemi (2016), school plant planning is the process of management, construction, utilization and maintenance of school plant facilities to ensure goal achievement. Ajayi and Yusuf (2019), described school plant planning as a process in which a suitable site is selected and instructional space, administrative space, recreational space, circulation space, and spaces of convenience are designed to facilitate the teaching and learning process in the school system. A broader definition comes from Odunfowokan (2017) who said that school plant planning refers to the following: (i) Instructional Spaces: These include classrooms, auditorium, gymnasium, library, workshops, laboratory, arts room, home economics rooms, multipurpose rooms/halls, music area and any other space where students receive instruction. (ii) Administrative Spaces: These comprise principal`s office, clerk's office, staff room, Guidance Counselors' office and Health clinics. (iii) Recreational space: These include parks, garden, fields, courts and lawns. (iv) Spaces of convenience: These consist of toilets, cafeteria, kitchen dormitories custodian sheds and stores (v) Circulation Spaces: These include corridors, lobby, staircases and other spaces where students recreate. In the context of this study, however, school plant planning is a process in which a functional educational programme is developed, suitable site is chosen, appropriate structures (buildings) are architecturally expressed and constructed with adequate resources provided for effective teaching and learning in order to ensure the attainment of educational goals and objectives.

From the above definitions, the following indices of school plant planning of Instructional Space, and recreational space planning are used for this study on influence of recreational and instructional spaces planning on job performance among government secondary schools teachers in Delta State, Nigeria.

Recreational Facilities Space Planning: Ezeanichinedu (2019), defined recreational facilities as materials that are necessary for students teaching and learning process and thereby aids in effective students" academic performance. The recreational facilities necessary for teaching processes include gymnasium, basketball court, volley ball court, table tennis, triple jump and long jump as well as football pitches (Mokaya and Gitari 2014). Recreational facilities are therefore according to Fakomogbon (2020) those materials put in place during teaching and learning process that could also be used to interact with staff and students during leisure hours in the school premises. Mokaya and Gitari (2014) research showed that recreation helps participants to relax and feel great, reduce stress and improve concentration, build confidence and self-esteem and improve health. The researchers noted that these benefits are made possible to the health related physical fitness (cardiovascular endurance, muscular endurance, muscular strength, flexibility and body composition) and also the skill-related physical fitness (agility, balance, co-ordination, power, reaction time and speed) of the respondents. Recreation space planning provides opportunity for physical activities and sporting which have health benefits from moderate participation; improved strength and endurance, healthier bones and muscles, weight control, reduced anxiety and increased self-esteem, and, often, improved blood pressure and cholesterol levels hence the need for recreational facilities in school plant planning.

Instructional space planning: Writing on instructional space planning Odufowokan (2017) listed instructional space to include classrooms, auditorium, library, workshop, laboratory, art room, home economics room, multipurpose room/halls, music area and any other space where students receive instruction. Odufowokan (2017) states that a well-planned instructional space will gear up expected outcomes of education that will facilitate good social, political and economic emancipation through effective teaching and academic performance of students. Therefore, it can be said that instructional space is an essential aspect of educational planning because unless buildings are properly located, adequately constructed and equipment adequately provided much teaching may not take place. As a result, school plant planning is often considered an essential aspect of educational planning (Oluchukwu, 2020). It therefore behooves that school plant if appropriately planned will facilitate the effectiveness of secondary school system so as to bring about the achievement of secondary education objectives. Odufowokan (2017) states that a well-planned school plant will gear up expected outcomes of education that will facilitate good social, political and economic emancipation through effective teaching and academic performance of students. Therefore, it can be said that the school plant is an essential aspect of educational planning because unless schools are well sited, buildings adequately constructed and equipment adequately provided much teaching may not take place. Corroborating this, Mark (214) and Ajayi (2017) maintained that the realization of secondary education goals and objectives may not be guaranteed where instructional space such as standard classrooms, libraries, technical workshop and laboratories are lacking. According to Emetarom (2014), instructional spaces are the physical and spatial enablers of teaching and learning which will increase the production of results and serve as pillars ofsupport for effective teaching.

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Noting the importance of instructional space planning in school outcomes, Okunola (2017); Hallmark (2014); Adeogun (2015) and Madumere (2015) asserted that availability, relevance and adequacy of planned instructional spaces contribute to the academic achievement and hence competence level of graduates. According to them, schools without instructional space planning have the tendency to hinder good teaching of the teachers and as such are a deterrent to learning with far reaching implications for students' performance and competence level on graduation.

School plant planning in terms of recreational and instructional spaces planning is very useful in bringing about effective and purposeful teaching and learning in secondary education. This however cannot be achieved without the teachers as the success of any system of education particularly secondary education system depends to a large extent on the teachers, their quality, devotion to duty and effectiveness on the job. It is as a result of this central position of the teachers that it is often said that no educational system can rise above the quality of its teachers (Rusillo and Arias, 2014). The teacher is a critical element in the teaching-learning situation. Rusillo and Arias, 2014) pointed out that, what he/she does or does not do affects learning in a proud way as research has shown that the quality of teaching by the teacher makes a considerable difference in students' learning and performance. This implies that the teacher is the key factor in whether a child learns well or not. The teacher is the one that translates educational philosophy and objective into knowledge and skill and transfers them to students in the classroom. The teacher commands and emits the image of one who improves knowledge and the physicalconditions of the classroom through orderliness, discipline and control. He makes diagnosis of student's feelings and attitudes inferred by their behaviour and response in the classroom environment (Farland, 2016). The teacher is basically saddled with the responsibility of transferring knowledge, skills, attitudes and techniques to his students. The teacher makes an attempt to help people to acquire some skills, attitudes, knowledge, ideas and applications. Thus, the teacher's task is to influence or create desirable changes in behaviour in his or her own students. The teacher often guides the students through a series of planned activities so that his studentsmay acquire the highest learning possible experiences.

In the school system, teacher's job performance according to (Adeyemi, 2014) could be described as the duties performed by a teacher at any given time in the school geared towards achieving both thedaily school and classroom objectives and the entire set goals and objectives of education. The performance could be described as low, moderate, high, etc, depending on the extent to availability of planned facilities in the school as well as his commitment to work in order to achieve set objectives and goals(Adeyemi, 2016). This means that the variables of job performance such as effective teaching, effective use of scheme of work, lesson note preparation, effective supervision, monitoring of students' work and disciplinary ability are virtues which teachers should uphold effectively in the school system. According to Nwogwu (2017), theplanned activities of the teacher involve classroom instructions, preparation of lesson notes and lesson plan, evaluation of students performance, discipline of the children where necessary, etc, while the students respond positively and contribute meaningfully to the instructions received through classroom participation of answering questions and asking questions. School plant planning such as instructional and recreational spaces planning in particular are essential in enhancing teachers' job performance process in the secondary school system (Odunfowokan, 2011). Odunfowokan, (2017) stated that well planned school plants in terms of instructional and recreational spaces will facilitate effective teachers' job performance and enhance better learning outcomes of the students. Mokaya and Gitari (2014) report that school plant planning especially recreational space planning helps teachers after the day's work to relax and feel great, reduce stress and improve concentration, build confidence and self-esteem and improve their health status. Again, Ijaduola (2017) cautioned that with poor availability of school plants, there are likely to be mental fatigue, truancy, frustration, discomfort, and poor health; which consequently reduces teachers' job performance.

In spite of the importance accorded school plant planning in realizing educational goals, it has not been given the adequate attention it deserves especially in developing countries like Nigeria and particularly in Delta State, Nigeria. According to Amanchukwu and Ololube (2015), one of the strongest problems with the Nigerian educational system is the inappropriate school plant planning. It is worrisome that majority of the schools in our cities and towns especially secondary schools in Delta State are not properly planned. For instance, students, especially in government-owned secondary schools, sit on floors to receive instruction due to lack of proper planned instructional spaces such the dimension of the classroom size and insufficient classroom blocks that can accommodate the large number of students admitted in secondary schools. It becomes challenging for the teacher to move around during lessons and effectively manage his students. The libraries,

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football pitch, and even school hall cannot contain a reasonable number of students. Classroom blocks are located close to each other in such a way that there is no circulation space for free movement of both staff and students within the school premises. Most of these schools are ignorantly sited near market places, highways, rail line, industries, airports, very close to main roads etc and this may prevent teachers from concentrating on the lesson because of the distractions from the noise within the environment as well as preventing students from paying rapt attention to what is being taught in class by the teacher (Mutiu, 2019). More so, schools in the study area lack recreational spaces such as parks, garden, fields, courts and lawns for recreation. Again, due to poor academic performance of students especially in external examinations (WAEC, NECO NAPTEP) in recent time, teachers in government secondary schools in Delta State have been accused of not properly doing their jobs by parents and stakeholders in education sector. They accused teachers in the study area that they (teachers) don't go to teach their lessons regularly and even when they do, they don't adequately cover the content of the lesson/subject taught and don't write their lesson plan/notes as well. Also, some absent themselves from school without permission which may affect their job performance. The reason for teachers' poor job performance as alleged by parents and stakeholders in education sector, may be due to poor school plant planning in terms of instructional and recreational spaces in government secondary schools in Delta State, Nigeria. It is in view of the above premise that the researcher carried out a study to determine whether recreational and instructional spaces planning has any significant influence on job performance among government secondary schools teachers in Delta State, Nigeria.

Objectives of the Study

The main purpose of the study was to determine:

1. The extent to which recreational space planning influence job performance among government secondary school teachers in Delta State, Nigeria.
2. The extent to which instructional space planning influence job performance among government secondary school teachers in Delta State, Nigeria.

Research Questions

The following research questions were formulated to guide the study:

1. To what extent does recreational space planning influence job performance among government secondary school teachers in Delta State, Nigeria?
2. To what extent does instructional space planning influence job performance among government secondary school teachers in Delta State, Nigeria?

Research Hypotheses

H_{O1}: There is no significant influence of recreational space planning influence job performance among government secondary school teachers in Delta State, Nigeria

H_{O2}: There is no significant influence of instructional space planning influence job performance among government secondary school teachers in Delta State, Nigeria

Methodology

This study examined the influence of recreational and instructional spaces planning on job performance among government secondary school teachers in Delta State, Nigeria. Descriptive survey research design was used. The population of this study was 14,877 teachers including principals in all the 493 government secondary schools in Delta State, Nigeria. While the sample size of schools stood at 49 sampled through the simple random sampling procedure representing10% of the total population of schools and 477 teachers representing 5% in government secondary schools in Delta State, Nigeria. Questionnaire on Influence of recreational and instructional spaces planning on Job Performance (QIRISPTJP) was used for data collection. Data collected were analyzed using descriptive statistics, mean and standard deviation for research questions and tested using chi-square statistical tool for testing of hypotheses at 0.05 level of significance.

Presentation of Result

Research Question 1: To what extent does recreational space influence job performance among government secondary school teachers in Delta State, Nigeria?

Table 1: Showing the extent to which recreational space planning influences job performance among government secondary school teachers inDelta State, Nigeria

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S/N	Variable	Mean	Std. Dev.	Decision
1.	Recreational Space Planning	3.23	0.67	Agree
2.	Job Performance			

Scale Mean: 2.50. Source: Author's computation, 2025

Table 1 revealed an aggregate mean of 3.23 and standard deviation of 0.67. This infers that recreational space planning to a high extent influence job performance among government secondary school teachers in Delta State, Nigeria

Research Question 2: To what extent does instructional space planning influence job performance among government secondary school teachers in Delta State?

Table 2: Showing the extent to which instructional space planning influences job performance among government secondary school teachers in Delta State, Nigeria

S/N	Variable	Mean	Std. Dev.	Decision
1.	Instructional Space Planning	3.84	0.79	Agree
2.	Job Performance			

Scale Mean: 2.50. Source: Author's computation, 2025

Table 2 revealed an aggregate Mean of 3.84 and corresponding standard deviations of 0.86 respectively. This infers that recreational space planning to a high extent influence job performance among government secondary schools teachers in Delta State, Nigeria

Test of Hypotheses

Hypothesis 1: There is no significant influence of instructional space planning on job performance among government secondary school teachers in Delta State, Nigeria

Table 3: Chi-square test on influence of recreational space planning on job performance among government secondary school teachers in Delta State, Nigeria

Variable	No	Mean	Std	Df	χ^2-cal	P-value	L/s	Decision
Recreational space planning	**477**	**3.23**	**0.67**	**3**	**650.28**	**0.00**	**0.05**	**Significant**
Job performance								

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 226.5

Table 3 revealed that $\chi^{2\text{-cal}}$ =650.28, at df =3 and p = 0.00. Since p-value of 0.00< 0.05 at 3 degreeof freedom, the null hypothesis which states that there is no significant influence of instructional space planning on job performance among government secondary schools teachers in Delta State, Nigeria was therefore, rejected. This implies that there is significant influence of instructional school plant planning on job performance among government secondary school teachers in Delta State, Nigeria.

Hypothesis 2:

There is no significant influence of instructional space planning on job performance among government secondary schools in Delta State, Nigeria

Table 4: Chi-square test on influence of instructional space planning on job performance among government secondary school teachers in Delta State, Nigeria

Variable	No.	Mean	Sdt	Df	χ^2-cal	P-value	L/sig	Decision
Instructional space planning	**477**	**0.84**	**0.79**	**3**	**728.50**	**0.00**	**0.05**	**Significant**
Job Performance								

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 226.5

Table 4 revealed that $\chi^{2\text{-cal}}$ = 728.50, df =3 and p = 0.00. Since p-value of 0.00< 0.05 at 3 degree of freedom, the null hypothesis which state that there is no significant influence of instructional space planning on job performance among government secondary schools teachers in Delta State, Nigeria was therefore, rejected. This means that there is significant influence of instructional space planning on job performance among government secondary school teachers in Delta State,

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Nigeria.

Discussion of Findings

Based on the results of the analysis of the two research questions and testing of the two hypotheses postulated for the study, the findings are discussed thus:

The first finding of this study revealed that recreational space planning influence job performance among government secondary school teachers in Delta State, Nigeria. This finding is in agreement with Fakomogbon (2020) who noted that recreational facilities are important tools in the school that can strengthen the emotional health and rejuvenate the teacher to enhance teachers' job performance. He stated that, by engaging in recreational actives it reduces the feelings of depression and anxiety in teachers thereby preparing them mentally for job performance. And that those teachers who are mentally alert goes with excitement and teach with vigor which gives students better understanding. Corroborating on the views of Fakomogbon & Owoeye (2016) stated that physical activities and sporting have health benefits from moderate participation, improved strength and endurance, healthier bones and muscles, weight control, reduced anxiety and increased self-esteem, and, often, improved blood pressure and cholesterol levels which gives teachers renewed energy for better job performance. Ezeanichinedu (2019), also supported the finding of this study when he stated that the use of recreational facilities encourages social interaction among teachers, improve concentration, increase personal confidence and self-awareness. These according to him are motivating factors for teachers' job performance. Ikoya and Onoyase (2015) reported in their investigation of teachers job performance through results of public secondary schools in WAEC 2011 – 2015 in Cross River State find out that schools with adequate recreational facilities and whose teachers participate actively in sporting activities perform better than without adequate recreational facilities. Supporting the result of the findings (Millard, 2020) emphasized that recreational facilities play important roles in the work lives of the teachers. They help the teachers to live a healthy life in the course performing their job.

The second finding of this study revealed that there exists a significant influence of instructional space planning on job performance among government secondary school teachers in Delta State, Nigeria. This findingis is in line with Martin (2008) who admitted that, the school plant planning with number of buildings, sufficient classrooms, spacious enough to avoid over-crowding in the classrooms gives teachers the comfort to teach their lessons and go round the classroom to check individual student class work. This was corroborated by Adegboyega, (2018) who posited that, well planned school buildings with well-ventilated and adequate light provide a good teaching and learning environment for both the teacher and student. Ololube, (2014) also in agreement with the finding started that, a well-planned school with facilities such as library, laboratory, class computer laboratory, and office accommodation for teachers have a great impact on the teachers' effectiveness and students' performance in secondary schools. The above finding was also in accordance with the views of Owoeye and Yara's (2016) whose study revealed a significant relationship between the job performance of teachers in secondary schools and availability of library facilities, availability of textbooks, and availability of laboratory facilities. Their study revealed that facilities were potent to teachers' job performance and high academic achievement of students. In agreement the finding Work Adjustment Theory (1964) by Dawis and Lofquist conceptualized work as an interaction between an individual and work environment. As such, the work environment requires that well-planned physical facilities be provided in adequate, attractive and supportive manner as submitted by Bushiri (2014) to make the environment safe and comfortable place to work. The finding of this study however, disagreed with the views of Emecheta (2017) who carried out a study on availability and adequacy of physical facilities and Staff job performance in private schools in Port Harcourt in River State found out that there was no significant difference in planned, availability and adequacy of physical facilities and Staff job performance.

Conclusion

Based on the findings as revealed in the study that recreational and instructional spaces planning significantly influences job performance among government secondary school teachers in the study area, it concluded that, well-planned recreational and instructional spaces will enhance the job performance among government secondary schools teachers in Delta State, Nigeria.

Recommendations

Based on the findings of this study, the following recommendations were made;

i. Delta state government should ensure that it takes responsibility through the state ministry of education to handle and

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coordinate for proper instructional space school plant planning and ensure that the school plant are provided in line with the planning in public secondary schools in Delta state, which will go a long way to enhance teachers' job performance

ii. Delta state government should increase budgetary allocation to secondary education through ministry of education to adequately fund for effective planning of recreational spaces of school plant in secondary schools in the state.

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Qualitative Study on Transformative Role of Christian Religious Studies in the 21st century Classroom in Nigeria: A Review

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Abstract

This paper explores the transformative role of Christian Religious Studies (CRS) particularly in the 21st-century Nigerian classroom, it examines how it serves as a catalyst for moral, spiritual, and societal change in a rapidly dynamic and non-statitic educational landscape. Pointing through biblical principles, pedagogical theories, and contemporary Nigerian experiences, the study investigates the relevance, challenges, and opportunities of teaching CRS in modernized classrooms, particularly as they are influenced by globalization, technological advancement, and moral relativism. The paper emphasizes the need for a paradigm shift from rote learning to transformational education that shapes character, fosters critical thinking, and encourages active citizenship stemmed from Christian values. The paper also examines the impact of socio-cultural factors, curriculum design, teacher competence, and government policy on the effectiveness of CRS in Nigerian context. It is a qualitative paper which proposes innovative strategies for integrating CRS into the broader national development agenda. It also indicates that CRS, when taught intentionally and contextually, can become a vital tool for nurturing ethical leadership, promoting peace, and fostering holistic development among Nigerian youths especially in the 21st century.

Keywords: Teaching, transformation, 21st-century classroom, Christian religious studies.

Introduction.

Christian Religious Studies (CRS) holds a vital place in Nigeria's educational system, particularly as it is responsible for shaping the moral and spiritual consciousness of learners. As part of the national curriculum, CRS is aimed to inculcate ethical values, foster spiritual growth, and promote a sense of social responsibility based on Christian teachings (Federal Republic of Nigeria [FRN], 2014). In a pluralistic religious and cultural society like Nigeria, with moral decadence, corruption, and youth restiveness as pressing issues, the role of CRS in moral transformation and nation-building cannot be overemphasized as indicated in Okafor, (2017) and Uka, (2021). However, the 21st-century classroom setting comes handy with complex challenges, and consequently calling for a reform on how CRS is taught and understood. Globalization, technological advancement, and the constantly heightened influence of secular ideologies have caused a significant change in the educational system in Nigeria. These changes have affected students' attitudes toward religion and morality, thereby necessitating a shift from traditional rote learning to more transformative and student-centered pedagogies (Adewale, 2019). The rise of digital media and the plurality of worldviews which is now accessible to learners calls for an urgent and vital need for CRS educators to adopt approaches that are both contextually relevant and spiritually formative (Ojo &Ayoola, 2022). In this context, CRS features more than an academic subject; it becomes a tool to equip students with the moral compass and critical thinking skills necessary to navigate contemporary life experiences. Moreover, the effectiveness of CRS depends on curriculum content as well as on teacher competence, policy implementation, and the integration of faith-based principles into classroom practice (Eze & Nwogu, 2020). To fulfill the transformative potential, CRS must be capable of addressing the holistic development of learners, spiritually, morally, socially, and intellectually. This paper therefore explores the transformative role of CRS in the 21st-century Nigerian classroom, by analyzing its contemporary challenges and proposing innovative strategies for making it a dynamic instrument of moral and social transformation.

Conceptualizing "Teaching for Transformation"

"Teaching for transformation" is an educational philosophy and practice that deals beyond the transmission of knowledge, it extends to the holistic formation of learners, intellectually, morally, spiritually, and socially. This concept stems out of the idea that education should lead to meaningful lifelong changes in both the learners and the broader society. In the context of Christian education, teaching for transformation involves aligning pedagogical goals with biblical values and standards, and fostering critical thinking, and nurturing students to become agents of change in their communities, as

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affirmed in James(2018). In contemporary educational context, transformation refers to a deepened lifelong change in worldview, character, and behaviour. It extends beyond the acquisition of facts and theories toward cultivating wisdom, ethical awareness, and purpose-driven living. According to Mezirow (2000), transformative learning is a process by which individuals critically examine their assumptions, engage in reflective discourse, and adopt new frames of reference that guide their actions. When applied to Christian Religious Studies (CRS), it reflects teaching in a way that encourages students to internalize Christian values and live them within in a pluralistic society.

Teaching for transformation also emphasizes the role of the teacher as a facilitator of moral and spiritual growth, instead of an ordinary instructor of religious content. According to Palmer (1998), the identity and integrity of the teacher are crucial to the formation of students, as authentic teaching requires educators to engage both the heart and mind. In the Nigerian context, where education is often focused on examination success, there is a need to orientate and reorientate on this transformative approach particularly toward value-based and life-long applicable learning as posited in Adeyemi & Adeyinka,(2020). Furthermore, teaching for transformation requires curriculum designs that integrate faith with learning, connect theory to practice, and address the real-life challenges of learners. This approach holds significance particularly in the 21st-century Nigerian classroom, wherein learners are faced with moral dilemmas, social instability, and existential questions that academic instruction alone cannot resolve. By integrating transformational goals into CRS, educators can foster resilience, moral clarity, and leadership qualities among Nigerian youth, as indicated in Omoregie & Abimbola, (2022).

Conceptualizing 21st-Century Education

The concept of 21st-century education is attributed to a dynamic, learner-centered approach to teaching and learning, thereby equipping students with the knowledge, skills, values, and attitudes essential to thrive in a rapidly changing, technology-driven, and interconnected world. Unlike traditional models that emphasizes rote memorization and passive learning, the 21st-century education is geared towards critical thinking, creativity, collaborating, digital literacy, and adaptability as indicated in Trilling & Fadel, (2009). The 21st-century education seeks to prepare learners for academic success, as well as for lifelong learning, civic responsibility, and meaningful participation in the global knowledge economy. The key characteristics of 21st-century education according to Voogt & Roblin,(2012) include the integration of information and communication technology (ICT) in classroom learning, interdisciplinary learning, personalized instructions, and the promotion of soft skills such as communication, problem-solving, and emotional intelligence. However, these elements reflect the need for education systems to move beyond traditional boundaries and respond to the complexities of modern life, including economic shifts, cultural diversity, and environmental challenges.

In the Nigerian context, 21st-century education embraces addressing the unique challenges such as infrastructural deficits, teacher training gaps, and the digital divide, while striving to modernize teaching methods and curricular to reflect global standards (Okonkwo & Umezinwa, 2020). The Federal Ministry of Education has emphasized the need to align Nigerian education with global competencies through curriculum reforms and teacher development programmes (Federal Ministry of Education [FME], 2020). Furthermore, 21st-century education is deeply attached to the idea of transformational learning, through which learners become both receivers of knowledge and co-creators of meaning. This shift requires educators to adopt more interactive, project-based, and reflective practices that engage learners in real-life problem-solving and ethical decision-making as posited in Saavedra & Opfer,(2012). For subjects like Christian Religious Studies, this approach enriches learning by making spiritual and moral teachings relevant to contemporary challenges and learners experiences.

The 21st-Century Education in Nigeria

The 21st-century education paradigm in Nigeria feature a growing recognition of the need for skills, values, and competencies that prepare learners for both academic success and for active participation in a high paced evolving, knowledge-driven global society. In response to global trends and local challenges, Nigeria's education system is gradually getting a shift from rote memorization and teacher-centered instruction towards a learner-centered, skill-based, and technology-integrated instructions, affirming Okonkwo & Umezinwa, (2020). However, the transition is met with numerous systematic, infrastructural, and pedagogical challenges. One of the core features of 21st-century education is the emphasis on critical thinking, creativity, collaboration, and communication often referred to as the "4Cs" of 21st-century skills (Trilling & Fadel, 2009). These competencies are essential for students to thrive in a dynamic world where knowledge

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is rapidly expanding, and problem-solving skills are crucial. In Nigeria, however, the education system has traditionally prioritized exam preparation and factual recall, limiting the development of these higher-order thinking skills (Adewale, 2019). In addition, digital literacy and technological integration are central to 21st-century learning, yet many Nigerian schools especially in rural areas lack the infrastructure, resources, and trained personnel needed to support digital education (Jegede, 2020). While some urban schools are adopting e-learning platforms, interactive tools, and online resources, a significant digital divide persists between urban and rural learners, exacerbating educational inequality and limiting access to modern learning opportunities (Ojebola & Adu, 2021). The curriculum and pedagogical approaches also require urgent reform. Nigeria's curriculum, though revised periodically, often fails to incorporate interdisciplinary learning, problem-solving, or ethical reasoning in ways that are practically and contextually relevant (Federal Ministry of Education[FME], 2020. Many teachers still use traditional methods of construction that do not engage students actively in the learning process, partly due to inadequate teacher training and professional development opportunities (Adebayo & Lawal, 2021).

Despite these challenges, there are emerging opportunities and positive developments. Educational reforms and initiatives, such as the Education Sector Strategic Plan (2020-2025), have outlined priorities including ICT integration, teacher capacity building, and competency-based learning (FME, 2020). The increasing involvement of non-governmental organizations, private sector partners, and faith-based institutions in education delivery also suggests a growing awareness of the need to modernize education and make it more inclusive and relevant. Furthermore, Nigerian educators and policymakers are beginning to acknowledge the importance of values-based education, particularly in addressing national challenges such as corruption, insecurity, and youth unemployment. Integrating moral and civic education, entrepreneurship, and life skills into the curriculum is becoming more prominent, reflecting the broader goals of 21st-century education to develop well-rounded, socially, responsible individuals (Ogunyemi & Akinbote, 2019). It is thus concluded that 21st-century education in Nigeria is evolving yet faces considerable barriers to full realization. Conversely, there is a prompt need for comprehensive reforms that can tackle the challenges of infrastructure, curriculum design, teacher training, and equitable access. By embracing global best practices while adapting them to local realities, Nigeria can build an education system that equips its youth for the challenges and opportunities of the modern world.

Theoretical Framework

A comprehensive and transformative approach to teaching Christian Religious Studies (CRS) in the 21st-century Nigerian classrooms requires a theoretical synthesis that integrates Transformative Learning Theory, Biblical Worldview Education, and Constructive Learning Theory. Each of these theoretical frameworks presents complementary indepth into how learners learn, grow, and are shaped intellectually and morally. Transformative Learning Theory, propounded by Mezirow, (2000) provides the gateway for learners to engage in critical reflection and personal transformation. In CRS, this means giving the learners the opportunities to question assumptions about morality, society, and faith with the aim of attaining positive personal changes. Through critical self-reflection and dialogue, teachers assist learners to make a change from been passive receivers to become active participants in moral reasoning and ethical actions. This process is enriched by the integration of a Biblical perspective, which serves as the spiritual and moral compass for transformation. Biblical perspective education emphasizes that all learning should be done through the lens of scripture, and guiding learners to interpret life and knowledge such that it aligns with God's truth as indicated in Van Brummelen, (2009). When CRS is grounded in biblical principles, it informs learners about Christian beliefs and also shapes their identity, purpose, and behaviours particularly in a pluralistic world. Complementing these is Constructivist Learning Theory, which emphasizes that learners are able to construct meaning through interaction with their environment and their personal experiences (Jonassen, 1999). In the classroom, constructivist strategies, such as discussions, case studies, role play, and collaborative projects enhance learners' ability to personalize and internalize biblical teachings. Thus, learning becomes active, student-centered, and contextually relevant, particularly in tackling the complex moral and social realities of Nigerian youth. Together, these frameworks present a comprehensive model for teaching CRS such that it becomes formative, experiential, and spiritually imbibed. Transformative learning provides the reflective depth; constructivism brings pedagogical relevance; while the biblical perspective anchors the entire process in faith. Hence, teachers are empowered to cultivate learners who understand Christian values and also live, and reflect them as responsible citizens and spiritual leaders in Nigeria's evolving society.

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Relevance of Christian Religious Studies in the 21st-Century Education System

In the context of the 21st-century education system, Christian Religious Studies (CRS) remains a vital and relevant discipline, particularly in tackling the moral, spiritual, and socio-cultural challenges learners face particularly in contemporary societies. While modern education increasingly emphasizes science, technology, engineering, and mathematics (STEM), the ethical and value-driven dimension provided by CRS should not be undermined. Its relevance is founding its capacity to foster moral development, identity formation, social responsibility, and peaceful coexistence, especially in diverse and complex societies such as Nigeria. Firstly, CRS contributes significantly to moral and character education, which is increasingly acknowledged as essential in today's globalized and morally pluralistic world. As young people face pressures from digital culture, consumerism, and ethical relativism, CRS provides the needed stable moral foundation as regards to Christian principles such as love, justice, honesty, and respect for human dignity (Okafor, 2017). More so, Eze & Nwogu, (2020) affirms the fact that these values are vital for shaping responsible citizens who can contribute positively to national and global development.

Secondly, CRS plays a critical role in the holistic development of learners; spiritually, emotionally, and intellectually. CRS encourages reflection on the life, the nature of human relationships, and the importance of service to others as posited by Van Brummelen, (2009). However, this aligns with 21st-century educational goals that emphasize academic competence as well as emotional intelligence, ethical reasoning, and social empathy (Trilling & Fadel, 2009). Moreover, CRS enhances learner's intercultural and interreligious understanding, which is also a crucial factor in multi-faith societies. By promoting tolerance, mutual respect, and dialogue, CRS can help reduce religious tensions and foster national unity (Uka, 2021). Meanwhile, in Nigeria, religion often intersects with politics and ethnicity, as such, the study of CRS can serve as a tool for peacebuilding and reconciliation especially as an inclusive and context-sensitive subject matter. In addition, James (2010) affirms that CRS is relevant to the development of transformational leadership as it challenges students to go beyond personal success and to engage in societal transformation, relying on biblical models of servant leadership and social justice.. In an era of widespread corruption and ethical decline, especially in public service, the values taught through CRS can inspire a new generation of principled and visionary leaders.

Lastly, CRS is confirmed in Omoregie & Abimbola (2022) to support 21st-century pedagogical goals by integrating critical thinking, ethical inquiry, and real-life applications into the learning process especially within the classroom. Teaching CRS using learner-centered and constructivist approaches, like debates, storytelling, role-playing, and problem-solving, it facilitates learners intellectually while it heightens their learning in faith-based action. In a simple term, Christian Religious Studies remains deeply relevant in the 21st-century education system and Its contributions to moral formation, holistic education, intercultural dialogue, and leadership development make it an indispensable component of a well-rounded curriculum, particularly in contexts like Nigeria, where moral crises and religious diversity are pressing realities.

Contemporary Issues Affecting Christian Religious Studies in 21st-Century Education System

Christian Religious Studies (CRS), as a subject within Nigeria's formal education system, continues to face a series of contemporary challenges which pose threats to its relevance, implementation, and impact in the 21st century. While CRS holds the potential to contribute significantly to the moral, spiritual, and social formation of learners, several systematic and societal factors have undermined its effectiveness particularly in recent decades. Moreover, these challenges stems out from curriculum design, teacher preparation, societal values, technological change, and religious pluralism. One major challenge facing CRS is its marginalization within the curriculum. In the recent decades, in many Nigerian schools, CRS is often treated as a non-core subject, especially at the senior secondary level, where students prioritize science and commercial subjects due to the perception of career value as indicated in Okafor, (2017). Consequently, this has led to the persisting reduced interest among learners and the limited instructional time, and invariably weakening the subject's potential to tackle both the moral and spiritual development. Hence, it should be noted that the available curriculum reforms have not always enhanced the visibility and integration of CRS into broader educational goals, particularly in relation to 21st century skills such as critical thinking and civic responsibility (Federal Ministry of Education [FME], 2020). Another pressing issue is the shortage of qualified and committed CRS teachers. Many schools, particularly in rural areas, either lack dedicated CRS teachers or engaged untrained personnel without or with inadequate or inappropriate theological skills or tools or the pedagogical background to teach the subject effectively as affirmed by Eze & Nwogu, (2020).

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Furthermore, the absence of ongoing professional development opportunities also contributes to outdated teaching practices, which aggravate the decline in the subject's capacity to engage students meaningfully in discussions of faith, ethics, and contemporary issues. Another challenge is the influence of secularism and moral-relativism which is fueled by globalization, digital media, and youth subcultures has also affected students' perception of CRS. In a society such as Nigeria, with an increasing influence from individualism and materialism, many young people view religious studies as irrelevant or disconnected from their everyday realities as indicated in Ojo & Ayoola, (2022). This ideological shift makes it more challenging to cultivate spiritual depth and moral commitment among learners. Moreover, religious pluralism and interfaith tensions in Nigeria poses both as a challenge and an opportunity for CRS. According to Adebayo & Lawal, (2021), in regions with mix religious adherents, teaching CRS may face restrictions or subjections especially due to political and religious sensitivities. In some cases, Christian learners are denied access to religious instructions in public schools, and this has become concerns especially about religious freedom, equity, and national integration. Technology and the digital revolution, although provides new opportunities in education, it also propounds challenges for CRS, such as the lack of digitized religious education materials, and limited ICT skills among CRS teachers, and these have made it difficult to adapt the subject to 21st century pedagogical models buttressing Jegede, (2020). As a result, CRS ranks low behind other subjects in utilizing online resources, vital classrooms, and interactive platforms to enhance learning.

Lastly, societal neglect of values-based education has relegated the influence of CRS. Also, with national discourse often focused on STEM and economic advancement, subjects like CRS are undervalued, despite their potential role in resolving societal issues such as corruption, violence, and youth indiscipline as indicated in Uka, (2021). There is a growing need to reposition CRS as a religious or academic discipline as well as a tool geared towards national transformation and moral reawakening. Conclusively, as Christian Religious Studies remains vital in the 21st century Nigerian education system, its effectiveness is hindered by several contemporary issues. To tackle these challenges requires a multi-faceted approach, ranging from curriculum reform, teacher training, policy support, digital integration, to a renewed societal emphasis on moral and spiritual values. CRS can play transformative role in grooming the next generation for ethically grounded and socially responsible Nigerian citizenry.

Strategies for Enhancing Christian Religious Studies in 21st-Century Nigerian Education.

In light of the numerous contemporary challenges facing Christian Religious Studies (CRS) in Nigeria's 21st century educational landscape, strategic interventions are required to reposition the subject for greater relevance, engagement, and impact. Hence, the following recommendations provide a roadmap for strengthening CRS across curriculum, pedagogy, policy, and technology. The current CRS curricula should be reviewed such that it integrates 21st-century competencies which embrace critical thinking, ethical reasoning, communication, and problem-solving. Lessons should be linked to real-life moral and social issues, thus allowing learners the opportunities to apply biblical principles to contemporary contexts particularly as regards to their personal life experiences. In addition, curriculum planners and stakeholders should ensure that the content is inclusive, contextually relevant, and adaptable to local cultures and global realities (Federal Ministry of Education [FME], 2020; Ogunyemi & Akinbote, 2019).

Teachers of CRS must be adequately trained in both theology and pedagogy, with regular opportunities for professional development, especially the concurrent training in digital literacy, student-centered teaching methods, and the use of contemporary resources and tools for religious education (Eze & Nwogu, 2020). Teachers should also be supported to embody the values they teach, serving as role models to learners (Palmer, 1998). To enhance student engagement and accessibility, CRS should incorporate educational technologies such as multimedia presentations, e-learning platforms, and interactive applications. Developing open-access digital resources, videos, podcasts, and online Bible study tools, can also make religious education more dynamic and relevant to tech-savvy learners as opined by Jegede, (2020). Investment in ICT infrastructure, especially in rural schools, is also critical to narrowing the digital divide (Ojebola & Adu, 2021). Also, CRS instruction should shift from the traditional abstract moral instruction to modern experiential learning that includes community service, storytelling, drama, and group discussions. These strategies allow students to internalize Christian values through practice and reflection, and promoting character development and ethical behaviour (Van Brummelen, 2009; Omoregie & Abimbola, 2022).

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Educational policymakers must recognize and acknowledge the importance of CRS as a subject essential toward attaining national development, peacebuilding, and ethical leadership. This entails making CRS compulsory across relevant education levels, providing adequate and efficient funding, and ensuring the equitable inclusion of religious education in all regions of the country (Adebayo & Lawal, 2021). Also Faith-based organizations, churches, and civil society groups should also be involved in shaping and supporting the delivery of CRS. Given Nigeria's religious diversity, CRS should be taught in a way that respects and tolerate other faiths while affirming Christian beliefs. Encouraging dialogue, tolerance, and comparative religious perspectives can foster mutual respect and national cohesion, helping to reduce religious tension and conflict as indicated by Olupona, (2020). In all, enhancing Christian Religious Studies in Nigeria requires a multifaceted approach that aligns with contemporary educational needs while remaining rooted in timeless Christian values. Through intentional curriculum design, empowered educators, strategic policy implementation, and the use of technology, CRS can fulfill its transformative role in 21st-century education.

Conclusion

The teaching of Christian Religious Studies (CRS) in the 21st-century Nigerian classroom holds significant potential for individual transformation and national development. Amid the challenges of globalization, moral decline, educational inequality, and technological change, CRS serves as a vital tool for nurturing ethical values, spiritual awareness, and responsible citizenship among learners. However, for CRS to remain relevant and impactful, it must be intentionally imagined and strengthened to meet the non-static needs of contemporary Nigerian society. This paper has explored the conceptual and theoretical foundations of "teaching for transformation", contextualizing CRS within the broader framework of 21st-century education. It has also examined the curriculum, pedagogical issues, societal influences, and systemic challenges confronting CRS in Nigeria today.

Recommendations

The Study Recommends that;

i. CRS can play a transformative role, when supported by curriculum reforms, teacher training, digital innovation, and values-based learning models.
ii. stakeholders, including educators, policymakers, faith-based organizations, and communities must work collaboratively to prioritize CRS beyond being a marginal subject to a central component of holistic education.
iii. learners should be equipped with both spiritual grounding and critical life skills,
iv. CRS can contribute meaningfully to the shaping of morally upright, intellectually capable, and socially responsible citizens who can engage with the complexities of the 21st-century with wisdom and integrity.

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Integrating Trauma-Informed Care into Private School systems: A model for Supporting Out-Of-School Children Resettled through Government Initiatives

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Abstract

This study examines the integration of Trauma-Informed Care (TIC) into private school systems as a strategic model to support out-of-school children resettled through government initiatives. Grounded in Bronfenbrenner's Ecological Systems Theory, the research highlights how layered environmental factors influence the developmental trajectories of displaced children experiencing trauma. The proposed Trauma-Informed Private School Integrated Model (TIPSIM) operationalizes TIC principles across institutional policies, pedagogical practices, and community partnerships to foster safe, trusting, and empowering learning environments. The model addresses unique educational and psychosocial needs by embedding trauma sensitivity into leadership decisions, teaching approaches, and wraparound support systems. A government implementation roadmap outlines phased strategies for policy mandates, capacity building, financing, monitoring, and sustainability to institutionalize TIC within private schools. Despite its promise, TIPSIM faces challenges including limited staff capacity, financial constraints, cultural adaptation needs, stigma, workforce burnout, and governance gaps. The study underscores the necessity of comprehensive, culturally responsive, and system-wide approaches to overcome these barriers. Integrating TIC into private education not only advances academic recovery but also promotes resilience and social integration among resettled learners, aligning with global education equity imperatives. This research contributes valuable insights into operationalizing trauma-informed frameworks in humanitarian education contexts, emphasizing multisectoral collaboration and sustainable policy support.

Keywords: Ecological Systems Theory, Private Schools, Resettled Children, Trauma-Informed Care

Introduction

Widespread displacement, ongoing conflict, and persistent insecurity have led to large populations of children being excluded from formal education for extended periods. When these children are resettled through government-led initiatives, they encounter numerous challenges in re-entering the formal school system. According to the United Nations High Commissioner for Refugees (UNHCR, 2025), prolonged school absence not only causes significant learning deficits but also elevates vulnerabilities such as child labor, early marriage, and other protection risks. Consequently, education emerges as a vital pillar for both recovery and sustainable development among these children. Extensive research consistently demonstrates that traumatic experiences—encompassing violence, forced displacement, loss of loved ones, and chronic adversity—adversely affect children's cognitive, emotional, and social development (Maynard et al., 2019). Trauma can disrupt critical functions such as attention, memory, executive control, and motivation, while also contributing to psychosocial difficulties including anxiety, hypervigilance, and social withdrawal (Lasater et al., 2022). Without deliberate and structured support within schools, these trauma-related effects pose substantial barriers to academic achievement. In response to these challenges, Trauma-Informed Care (TIC) has gained recognition as a comprehensive framework designed to address the multifaceted needs of trauma-affected students. TIC prioritizes the establishment of safe and trusting environments, emphasizes choice and empowerment, and promotes holistic well-being (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014).

However, as Berring et al. (2024) emphasize, TIC is not a standalone intervention but rather an organizational transformation demanding systemic policy adjustments, ongoing staff capacity-building, environmental modifications, and

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contextual tailoring. Despite the rising adoption of TIC, recent reviews reveal persistent gaps in clear operational definitions, standardized measurement tools, and evidence of sustained impact, particularly in resource-limited or crisis-affected regions. In such humanitarian and resettlement settings, school-based mental health and psychosocial support (MHPSS) programs have shown encouraging results. Realist reviews suggest that consistent daily routines, development of emotional regulation skills, robust teacher support systems, and strong collaboration between caregivers and schools significantly mitigate distress and foster learning readiness (Lasater et al., 2022). Yet, the success of these initiatives heavily relies on strong leadership commitment, adequate funding, and well-functioning referral pathways. Moreover, for children with refugee backgrounds or those returning after prolonged educational disruptions, trauma-sensitive educational approaches must be adapted to accommodate diverse cultural and linguistic backgrounds, as well as the accelerated learning requirements necessary to bridge knowledge gaps. Lembke et al. (2024) observe that while various trauma-sensitive models exist globally, few are specifically tailored for resettled children, and integration with accelerated learning programs remains inconsistent. In contexts where governments engage private schools to absorb and educate resettled children, there is a conspicuous absence of comprehensive operational models that integrate trauma-informed organizational reform with focused academic catch-up strategies. Addressing this gap is essential to ensure that private school systems are equipped to meet the complex psychosocial and educational needs of these vulnerable learners.

Theoretical Framework

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's ecological systems theory, which later evolved into the bioecological or Process Person Context Time (PPCT) model, offers a comprehensive lens to examine how human development is shaped through dynamic interactions between individuals and their environments. Originally, Bronfenbrenner (1979) conceptualized development as occurring within a set of nested environmental systems: the microsystem, mesosystem, exosystem, and macrosystem. Each of these layers exerts either direct or indirect influence on the individual, while the chronosystem incorporates the dimension of time and historical change. The PPCT model further refines this framework by emphasizing the role of proximal processes those enduring, reciprocal interactions between a person and their immediate environment as the primary drivers of development. These processes are influenced by individual characteristics, broader contextual factors, and temporal dynamics (Bronfenbrenner & Morris, 1998; Tong & An, 2024). Recent scholarship highlights the relevance of the PPCT model for designing educational interventions in settings marked by adversity and displacement. Tong and An (2024) critique that many applications of the theory focus narrowly on its concentric system metaphor without fully exploring how specific daily interactions (proximal processes) foster development or are affected by systemic factors. In situations involving trauma and early adversity, Lopez et al. (2021) argue that both risk and protective factors exist at multiple ecological levels, and interventions that capitalize on strengths across these layers can mitigate the negative consequences of trauma. For children displaced and resettled through government programs, coordinated support spanning home, school, and policy domains is essential to promote both academic achievement and psychosocial wellbeing (Palencia-Ramírez & Mallah, 2024; Mullin et al., 2024).

Applying this ecological framework to the current study provides a strong theoretical basis for embedding trauma-informed care (TIC) within private school systems as part of resettlement initiatives. At the microsystem level, direct interactions such as those between teachers and students, classroom routines, and peer relationships serve as critical proximal processes that can either aggravate or alleviate trauma-related effects. The mesosystem comprises connections between families, schools, and social services, where effective communication and referral mechanisms bolster recovery. The exosystem includes policies and institutional frameworks such as funding mechanisms, enrollment policies, and inter-agency partnerships that indirectly influence a school's ability to respond to trauma. At the macrosystem level, prevailing cultural norms, societal attitudes, and education policies determine whether trauma-informed approaches are embraced or resisted. Lastly, the chronosystem dimension acknowledges that factors like the timing of school reintegration, duration of displacement, and broader sociopolitical changes profoundly impact intervention outcomes. By situating TIC implementation within this layered ecological perspective, the study ensures that program design is sensitive to the complex, interacting environments shaping resettled children's learning and psychosocial adaptation (Bronfenbrenner & Morris, 1998; Lopez et al., 2021; Mullin et al., 2024; Tong & An, 2024).

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Conceptual Framework

Trauma-Informed Care

Over the past two decades, Trauma-Informed Care (TIC) has developed into a comprehensive approach to service delivery that acknowledges the pervasive effects of trauma, identifies its manifestations, and integrates this awareness into organizational policies, practices, and environments to prevent re-traumatization (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). Originating in healthcare and social services, TIC has increasingly been adopted in educational settings, especially where students have experienced displacement, violence, or ongoing adversity (Maynard et al., 2019; Berring et al., 2024). Central to TIC is a paradigm shift in understanding student behavior—from asking "What is wrong with you?" to "What has happened to you?" which situates learners' actions and academic performance within the context of their lived trauma experiences (Chafouleas et al., 2021). The foundational principles of TIC comprise six key elements: safety, trustworthiness, peer support, collaboration, empowerment, and responsiveness to cultural, historical, and gender influences (SAMHSA, 2014). When translated into school environments, these principles manifest as predictable routines, emotionally secure classrooms, staff trained to identify and respond to trauma-related behaviors, and meaningful engagement with families and communities in culturally sensitive ways (Lasater et al., 2022).

Effective implementation demands a whole-school approach, where leadership, policies, physical settings, and instructional methods are cohesively aligned with trauma-sensitive values (Mullin et al., 2024). Recent scholarship stresses that TIC in schools should transcend isolated interventions and instead be embedded within the organizational culture itself. Berring et al. (2024) emphasize that lasting integration requires systemic policy reform, continuous professional development, and partnerships with external mental health and social support networks. In contexts of displacement and resettlement, Palencia-Ramírez and Mallah (2024) argue that TIC must also address challenges such as language barriers, cultural adaptation, and the provision of accelerated learning opportunities. This comprehensive perspective positions TIC not merely as an adjunct service but as an overarching framework guiding all facets of school operations serving displaced and out-of-school children.

Trauma-Informed Private School Integrated Model

The Trauma-Informed Private School Integrated Model (TIPSIM) is an innovative framework designed to embed trauma-informed care (TIC) principles comprehensively within the operational, pedagogical, and cultural dimensions of private schools. This model specifically targets the unique needs of out-of-school children resettled through government initiatives, recognizing that these learners often face complex educational, emotional, and social challenges stemming from experiences of displacement, poverty, abuse, or conflict (Palencia-Ramírez & Mallah, 2024). Guided by the core tenets of TIC, TIPSIM ensures that trauma sensitivity permeates every level of school functioning from governance and leadership decisions to classroom practices prioritizing safety, trust, and student empowerment (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014). TIPSIM operates through three interconnected components. The first, institutional alignment, calls for embedding trauma-informed principles explicitly into the school's mission, policies, and physical infrastructure. This includes securing leadership commitment to ongoing staff training, developing disciplinary policies that are supportive rather than punitive, and modifying the school environment to minimize potential trauma triggers (Mullin et al., 2024).

The second component, pedagogical adaptation, emphasizes instructional strategies that integrate social-emotional learning, differentiated teaching approaches, and culturally responsive pedagogy tailored to the distinct needs of resettled students (Berring et al., 2024; Lasater et al., 2022). The third component, community and systems integration, fosters collaboration between schools, government resettlement programs, mental health providers, and family networks, establishing a holistic wraparound support system extending well beyond academic instruction (Chafouleas et al., 2021). By weaving TIC principles into the very fabric of private school operations, TIPSIM addresses both immediate and enduring challenges faced by resettled children. In the short term, it facilitates the creation of emotionally safe, predictable learning environments that enhance student engagement and reduce behavioral disruptions (Maynard et al., 2019). Over the long term, the model aims to promote improved academic outcomes, resilience, and social integration, thereby fulfilling

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education's dual protective and promotive roles for vulnerable populations (Mullin et al., 2024). The significance of integrating TIC into private schools is heightened in contexts where public educational infrastructure is overstretched and government efforts depend on private sector partnerships to accommodate displaced learners. This model advances the understanding that trauma-informed practices benefit not only individual students but also serve as a strategic, systemic approach to enhancing the inclusivity and overall effectiveness of private education in humanitarian and post-crisis settings. In doing so, TIPSIM aligns closely with global education policy imperatives that prioritize equity, quality, and psychosocial support for marginalized learners (UNESCO, 2023).

Government Implementation Roadmap of Trauma-Informed Private School Integration

A successful government-led implementation of Trauma-Informed Care (TIC) within private school systems begins with establishing a clear and authoritative policy mandate that recognizes trauma-informed practice as a fundamental public good and an integral component of resettlement strategies. Governments should formalize this commitment through an official policy statement or directive that explicitly defines TIC in the educational context, sets clear objectives for supporting resettled and out-of-school children, and outlines minimum standards for any private school receiving government placements or funding. This high-level alignment not only creates incentives and unlocks funding streams but also fosters the normalization of trauma-sensitive practices across sectors (Substance Abuse and Mental Health Services Administration [SAMHSA], 2014; Nguyen et al., 2023). To ensure clarity and accountability, policy frameworks should be complemented by memoranda of understanding (MOUs) that delineate roles and responsibilities among ministries, local education authorities, and private school partners. These agreements clarify resource commitments and operational expectations from the outset (Mullin et al., 2024).

Before rolling out TIC programs, governments should commission a rapid yet comprehensive needs and capacity assessment. This assessment should map the number and demographic profile of resettled children, gauge private schools' capacity to absorb them, and evaluate existing psychosocial services and community support systems. Identifying gaps such as shortages in qualified staff, counseling availability, language assistance, and catch-up learning initiatives is critical to tailor interventions appropriately. International guidelines on education in emergencies and mental health and psychosocial support (MHPSS) emphasize that context-specific diagnostics are essential to avoid generic, one-size-fits-all approaches (UNICEF, n.d.; Lasater et al., 2022). The assessment should also examine legal or administrative barriers affecting flexible enrollment, assessment accommodations, and data-sharing, allowing early resolution of systemic obstacles. Central to the roadmap is a tiered approach to capacity building. All school staff should receive foundational trauma awareness training, while teachers are equipped with classroom-focused strategies such as predictable routines, behavioral de-escalation, and restorative practices. Counselors and designated trauma coordinators require advanced clinical and case management skills. Effective training programs combine competency-based learning modules, practical role-plays, and ongoing coaching or reflective supervision to enhance staff resilience and maintain fidelity to TIC principles (Mullin et al., 2024; Schoolsafety.gov, 2024). Governments can expedite scale-up by partnering with NGOs, academic institutions, and health services to provide training-of-trainers and clinical oversight.

Realistic and transparent financing mechanisms are vital. Governments should establish dedicated budget lines or grant programs specifically earmarked for trauma-informed integration in private schools, covering expenses such as teacher training, counselor recruitment, creation of safe spaces, intake screening tools, and catch-up learning materials. Where direct public funding is limited, blended financing models—combining government funds, donor grants, and cost-sharing with private providers—have proven effective in similar initiatives (SAMHSA, 2023; Resource Guide on State Actions, National Governors Association, 2023). Financial agreements must be formalized within MOUs and subject to regular auditing to ensure accountability and proper fund allocation. The operational rollout should be phased, beginning with pilot projects. Pilot sites enable governments and partners to test intake protocols, screening instruments, multi-tiered systems of support (MTSS), referral pathways to health and social services, and accelerated learning curricula. Intake screening should be brief, culturally sensitive, and focused on triage rather than clinical diagnosis, guiding students into universal social-emotional learning (SEL), targeted group interventions, or individualized clinical care as needed. Evidence from humanitarian settings demonstrates that MTSS frameworks and predictable classroom routines, when implemented with

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fidelity, effectively reduce distress and facilitate learning recovery (Lasater et al., 2022; Maynard et al., 2019). Data collection, monitoring, and evaluation must be integral from the outset. Governments should define a core set of process and outcome indicators such as percentage of trained staff, screening coverage, attendance and retention rates of resettled children, short-term SEL improvements, and foundational academic gains and require regular reporting from participating schools. Employing mixed-methods evaluation designs helps capture implementation fidelity, contextual influences, and student-level outcomes. Implementation science frameworks like the Consolidated Framework for Implementation Research (CFIR) can guide interpretation of variation across sites and inform adaptive management strategies (Mullin et al., 2024). Robust data protection and child safeguarding protocols should govern all information sharing. To ensure sustainability, governments should plan scale-up only after pilots demonstrate feasibility and generate actionable insights. Strategies for broader adoption include integrating TIC competencies into pre-service teacher education, mandating trauma-informed training as a licensing requirement for private schools engaged in resettlement, and aligning accreditation standards with psychosocial support benchmarks. Embedding TIC language into national education sector plans and budget cycles can institutionalize change beyond short-term projects (Trauma-Informed Organizations Implementation Roadmap, 2023). Anticipating common challenges enhances resilience. Potential barriers include stigma deterring families from accessing psychosocial support, variable commitment from private providers, workforce shortages, and overreliance on donor funding.

Mitigation strategies encompass universal, classroom-wide SEL to reduce stigma; incentive schemes for private schools (such as conditional funding or accreditation rewards); developing workforce pipelines that include paraprofessionals and community liaisons supervised by clinicians; and diversified funding streams. Strong inter-agency coordination through joint working groups, designated points of contact, and regular collaborative monitoring—is critical for maintaining functional partnerships and accountability (UNICEF, n.d.; Schoolsafety.gov, 2024). Finally, community and caregiver engagement must be central to the roadmap. Orientation programs, caregiver support groups, and transparent communication regarding educational expectations cultivate the mesosystem supports essential for sustained student recovery. Evidence from education in emergencies highlights that robust family-school-community collaboration amplifies the impact of school-based interventions and addresses broader social determinants of wellbeing (Lasater et al., 2022; UNICEF, n.d.).

Challenges of Trauma-Informed Private School Integration

Although integrating Trauma-Informed Care (TIC) within private school systems to support resettled out-of-school children presents substantial benefits, it also faces several significant challenges that impact its implementation, sustainability, and overall effectiveness. A primary obstacle is the readiness and capacity of school staff. Many private schools lack personnel trained in trauma-sensitive practices, and effective professional development demands considerable time, resources, and cultural tailoring. Without ongoing coaching and reflective supervision, the initial gains from training risk diminishing, thereby weakening adherence to trauma-informed approaches (Mullin et al., 2024; Maynard et al., 2019). Financial constraints also pose a critical challenge. Sustainable TIC implementation requires continuous investment in teacher training, hiring specialized counselors, adapting curricula, and creating safe, supportive physical environments. For many private schools reliant on tuition fees or minimal public subsidies, these costs can be prohibitive—especially in settings where trauma-informed practices lack dedicated funding or donor support (Resource Guide on State Actions, 2023). This financial strain is particularly pronounced in low- and middle-income countries, where government education budgets for psychosocial interventions remain limited (Lasater et al., 2022). Cultural and contextual adaptation represents another complex hurdle. Many trauma-informed models originate from Western contexts and may require substantial modification to align with local cultural norms, languages, and conceptions of trauma and mental health. Without thoughtful adaptation, interventions risk poor acceptance among educators, students, and families, or could unintentionally reinforce stigma and mistrust (Nguyen et al., 2023). In resettlement scenarios, cultural disconnects between school staff and students may intensify feelings of alienation rather than fostering safety and inclusion (UNICEF, n.d.). Stigma and concerns about confidentiality further complicate implementation. In numerous communities, mental health remains stigmatized, discouraging children and families from seeking support. If trauma screening and interventions are not universally framed as beneficial for all students, targeted supports may inadvertently single out resettled children,

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contributing to social exclusion (Lasater et al., 2022). Workforce burnout and secondary traumatic stress present serious threats to program sustainability.

Educators and counselors working with trauma-affected populations frequently face emotional exhaustion, decreased job satisfaction, and vicarious trauma, particularly when institutional support is lacking and workloads are high (Maynard et al., 2019). These challenges are intensified in private schools, where staffing levels tend to be lean and mental health services are often underdeveloped. Finally, gaps in policy and governance can undermine the consistent delivery of TIC. In contexts where trauma-informed approaches are not mandated within resettlement education, private school participation remains voluntary and uneven, leading to disparities in access and quality (Schoolsafety.gov, 2024). Weak coordination across education, health, and social service sectors further hampers timely referrals and disrupts integrated care networks (Mullin et al., 2024). Consequently, while the Trauma-Informed Private School Integrated Model (TIPSIM) offers a promising framework for supporting resettled children, it must overcome challenges related to staff capacity, financing, cultural relevance, stigma, workforce wellbeing, and policy coherence. Addressing these barriers calls for a systemic strategy that combines dedicated resource allocation, culturally sensitive adaptations, robust institutional support for personnel, and comprehensive policy frameworks to ensure equitable and sustainable outcomes.

Suggestions

The following suggestions have been made:

1. Governments should establish clear mandates and standards for TIC integration in private schools receiving resettled children, backed by formal agreements with stakeholders.
2. Implement ongoing, culturally tailored professional development and supervision to equip all school staff with trauma-sensitive skills.
3. Allocate dedicated and diversified funding streams (government, donors, private partnerships) to support training, counseling, safe spaces, and instructional adaptations.
4. Customize TIC models to local cultural and linguistic contexts to improve acceptance and reduce stigma among students, families, and educators.
5. Foster collaboration among education, health, and social services to ensure integrated support and timely referrals for trauma-affected children.

Conclusion

Integrating Trauma-Informed Care into private school systems via the Trauma-Informed Private School Integrated Model offers a transformative approach to supporting resettled out-of-school children. By embedding trauma sensitivity across institutional, pedagogical, and community dimensions, TIPSIM addresses the multifaceted challenges faced by displaced learners and promotes their academic and psychosocial recovery. Successful implementation hinges on robust government leadership, sustainable resources, culturally responsive practices, and multisectoral partnerships. Overcoming barriers related to staff capacity, funding, stigma, and governance requires systemic commitment and adaptive strategies tailored to local contexts. Ultimately, trauma-informed private education can significantly enhance the inclusivity, equity, and effectiveness of schooling for vulnerable children, contributing to broader goals of humanitarian resilience and social cohesion.

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Effects of Real Specimens on Retention in Biology Concepts among Secondary School Students in Bomadi, Delta State, Nigeria

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Abstract
The study investigated the effects of real specimens on retention in Biology concepts among secondary school students in the Bomadi local government area. The study employed a Pre-test Post-test non-equivalent control quasi-experimental design using intact classes. Three research questions and three corresponding null hypotheses guided the study. The Population of the study was five hundred and thirty-seven (537) Senior Secondary year one students during the 2023/2024 in Bomadi Local Government Area, Delta State, using a sample size of one hundred and one (46 males & 55 females) students selected from two coeducational public schools using the multistage sampling technique. The Biology Retention Test (BRT), with a reliability coefficient of 0.791, was used to collect data for the study. T-test of independent samples and Analysis of Covariance (ANCOVA) were used to test the hypotheses at a 0.05 level of significance. Results revealed that students taught Biology concepts using real specimens had significantly higher retention scores than their counterparts taught without real specimens. There was no significant difference in the mean retention scores by gender or the interaction of gender and method. It was recommended that Biology teachers should use real specimens to facilitate students' retention of Biology concepts and improvement of academic achievement in Biology at the senior secondary school certificate examinations. Government and other stakeholders, like the Parents, Teachers' Association should make efforts to provide real specimens to Schools.

Keyword: Real Specimens, Retention, Gender, Hands-on specimen, Biology learning

Introduction
A focal point for improving science education and its products globally is improving science teaching. Meaningful learning is a product of retention. Inability of students to retain what they have learnt has been pointed out as one of the contributing factors to students' poor achievement in the sciences. Retention is the ability to remember things. Among the attributes of retention that are closely related to success are the ability to recall (memory) and to recognize. Memory is the capacity to retain an impression of past experiences. According to the Chief Examiner's report (WAEC, 2022), learners performed poorly in Biology due to inadequate knowledge of the identification procedure and inability to retain structures in organisms and their functions. According to Neboh (2011), if one cannot retain what one has learned, then there is no reason to expect that they will perform well in that activity in the future. This point is emphasized in the definition of retention by Adegbenro et al. (2013), who defined retention as the ability to reproduce the learned concept when the need arises. They further added that students' interest and retention could be stimulated and maintained through the use of appropriate instructional materials, such as real specimens or pictorial representations. Burke (2013) stressed that retention of what was learned is also linked to sensory experience. This implies that the level of retention is influenced by the type of material used. In teaching and learning concepts in Biology, different senses are engaged. Biology is the study of living things with abundant activities that learners can engage in. Opportunity to observe, touch, and feel these specimens in their natural forms conveys information which are difficult to forget.

Enohuean (2015) citing Onasanga and Adegbija (2008) explained that there is no need teaching if what is learnt cannot be recalled. Igiri and Effiong (2015) in the same light expressed the view that real aid ensures better retention ability, thus making learning more permanent while) Literature also suggest that the nature of the instructional materials contribute to

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level of retention ability in students (Abubakar et al. 2024; Jerono, 2024; Enohuean, 2015). Gaikwad (2013) suggests that perception, understanding, transfer of training, recall, and retention are enhanced when instructional materials are matched to the specific objectives of the lesson. Students could understand and retain the meaning of Biology concepts when they have seen or touched some objects associated with such concepts. The use of real materials in teaching Biology is very important because it provides a concrete basis for retention, which motivates students to learn more. Students understand and retain the meaning of a word better when they have seen or touched some object associated with it. A good understanding and retention of what is being taught in class by teachers requires the effective use of instructional aids (Umeohana, 2025; Olatoye, 2017). Several studies have revealed an unimpressive students' retention rate at the senior secondary school level in Nigeria. They have attributed the students' poor retention capacity to the use of inappropriate and ineffective teaching methods, such as the lecture method and the non-use of instructional materials such as real specimens and pictorials. In this regard, inappropriate teaching method and instructional materials used by Biology teachers invariably translates to students' inability to retain and put into practice what is learnt in reality. Okoye (2012) expressed the view that knowledge gained through practical work is easily retained and recalled than that acquired through theoretical teaching.

A growing body of research underscores the powerful role of visual and hands-on instructional aids in enhancing students' understanding, recall, and long-term retention of scientific concepts (Moemeke, 2024; Caroline et al., 2024; Junco & Nabua, 2023). Ngonyani (2018) found that when visual aids are effectively integrated into teaching, they not only strengthen comprehension and memory but also boost learners' motivation, engagement, and interest in the lesson. Similarly, Enohuean (2015) reported that students taught biology concepts with instructional materials retained information significantly better than peers in control groups who were taught without such aids. Evidence from subject-specific strategies also supports this conclusion. Arokoyu and Obunwo (2014), for example, examined the use of concept mapping for teaching organic chemistry and discovered that students exposed to this method retained concepts better than those taught using conventional methods, with mean scores of 60.67 for the experimental group compared to 54.00 for the control group. In another study, Olatoye (2017) investigated the effects of charts, real specimens, and videos on secondary school students' achievement in the mammalian skeletal system. The results showed that students taught with real specimens demonstrated a higher retention ability than those taught with charts, videos, or without instructional materials altogether.

A similar finding was reported by Igiri and Effiong (2015), whose study in Yakurr LGA revealed that students in the experimental group taught with instructional materials outperformed the control group in retention tests. Enohuean (2015) further emphasized that the nature of instructional materials—particularly their concreteness, meaningfulness, and ability to evoke mental imagery—can influence retention levels. However, retention is not solely determined by instructional materials. The gender effect on students' achievement and retention of Biology concepts has been a subject of debate for decades. In Nigeria, prevailing societal perceptions sometimes suggest that boys are superior to girls in physical strength, intelligence, and reasoning. Some educators even hold the view that girls are less capable of competing in science. While some studies suggest that boys outperform girls in retention, others report the opposite, and many find no significant difference at all. For instance, Enohuean (2015) found a significant difference in retention between male and female students taught with instructional materials, suggesting gender-based variations. Conversely, Attah (2014), Moemeke, (2024) and Buckley et al. (2021) have argued that gender does not significantly influence science retention and that any difference may be as a result of other variables. Nja, et al. (2015) also found no significant gender difference in retention scores when teaching thermochemistry with or without kitchen resources. Similarly, Ibe et al, (2021) reported no interaction effect between gender and the type of instructional materials used in chemistry lessons. Given these mixed findings, the present study sought to investigate both the effect of real specimens on the retention of biology concepts and the influence of gender in this context. By addressing these two dimensions, the research aims to provide deeper insights into how instructional strategies and learner characteristics interact to shape educational outcomes.

The persistent decline in students' academic achievement in the sciences remains one of the most pressing challenges facing secondary education in Nigeria, and schools in Delta State are no exception. Successive West African Examinations Council (WAEC) Chief Examiners' Reports (2016, 2017, 2018) consistently highlight poor performance in Biology, a trend that undermines the quality of instruction and learning outcomes in the subject. Studies by Auwal, Muhammad, and

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Mohd (2014) corroborate that Biology performance at the Senior Secondary Certificate Examinations (SSCE) has been subpar for several years. Omoifo (2012), as cited in Mezue, Urevbu, and Omoifo (2017), further emphasized the troublingly low levels of achievement and mastery among students. One key factor contributing to this trend is the inadequate use of effective instructional resources. In most classrooms, Biology lessons are still dominated by lecture-based delivery, textbook readings, and static illustrations, with little or no integration of real specimens. According to Okoye (2012), textbooks and picture-based materials alone cannot fully support the mastery of curriculum objectives, particularly for concepts such as movement, growth behavior, and taxonomy, which students understand best when they can observe organisms in their natural contexts. Enohuean (2015), referencing Tabotndip (2004), lamented that many Biology teachers have abandoned the use of authentic materials, resorting instead to abstract teaching methods that detach learners from practical realities.

The consequences of this approach are evident. WAEC Chief Examiners' Reports (2017, 2018) revealed that many candidates performed poorly in tasks requiring the identification of specimen parts and diagrammatic representation. Adebisi and Oladimeji (2020) noted that most Biology teachers prefer using illustrations or online images rather than authentic specimens for practical lessons—a finding echoed by Kpangban and Okoye (2015), who observed that models and drawings often replace real specimens in classroom teaching. If the goal is to foster lasting understanding and retention of biological concepts, reliance on artificial representations may be insufficient. The use of real specimens offers direct, sensory-rich, and contextually grounded experiences that can deepen comprehension and support long-term memory. This study, therefore, seeks to investigate whether integrating real specimens into Biology instruction can significantly enhance students' retention and achievement compared to conventional methods that exclude such resources.

Objectives of the study

The study was conducted to achieve the following objectives

1. To determine whether there is a difference in the retention of learned biological concepts by students taught biology using real specimens compared to those taught without them.
2. To ascertain if the use of real specimens has differential effects on male and female students' retention of learned biological concepts
3. Determine if students' gender interacts with the use of specimen type in influencing retention of learned biological concepts

Research Questions

To direct the investigation, the following research questions were posed:

1. What is the difference in the mean retention scores of students taught Biology concepts using real specimens and those taught without real specimens?
2. What is the difference in the mean retention scores of male and female students taught Biology concepts using real specimens?
3. Will there be any interaction effect of teaching method and gender on students' retention in Biology?

Hypotheses

The following null hypotheses were stated to guide the investigation. Decisions were made at a significance level of 0.05.

Ho_1: There will be no significant difference in the mean retention scores of students taught Biology concepts using real specimens and their counterparts taught the same concepts without real specimens.

Ho_2: There will be no significant difference in the mean retention scores of male and female students who were taught Biology concepts with real specimens.

Ho_3: There will be no significant interaction effect of teaching method and gender on students' retention score in Biology.

Methodology

This study employed a quasi-experimental pre-test post-test equivalent control group design with one experimental group and one control group. There was no randomization of students into groups, as intact classes were used. The population of the study was five hundred and thirty-seven (537) Senior Secondary one (SS1) Biology students in eight (8) public Government schools in Bomadi Local Government Area, Delta State. The sample consisted of one hundred and one (101) students in two intact classes.

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Data were collected using the Biology Retention Test (BRT). The BRT is a multiple-choice instrument with five response options A to E. The items were drawn from the identification and classification of Vertebrates (Pisces, Amphibians, Reptiles, Aves, and Mammals) in the senior secondary school year one (SS1) Biology curriculum used in Delta State. The BRT was given to a specialist in measurement and evaluation and an SS 1 Biology teacher in Delta State for face validity. The content validity of the instrument was ensured using the test blueprint. Kuder-Richardson formula (K-R 20), which provides an estimate of internal consistency of the instrument was used to obtained an internal consistency reliability coefficient of 0.79. Treatment duration was ten weeks. During the first week, the researcher visited each of the schools and obtained permission to use the schools for the research work. The pretest was also administered. From the second to sixth week, students were taught vertebrates. Students in the Experimental Group were taught the five classes of vertebrates (Pisces, Amphibia, Reptilia, Aves, and Mammalia) for five weeks (two periods of forty minutes per week), given a total of ten (10) periods of teaching using real specimens. The students in the Control Group were taught the same content for the same duration, but without the use of real specimens. The Post-test was administered during the seventh week to each of the classes taught. In the tenth week, the same BRT instrument was re-administered to the students to test for retention. The pretest, post-test, and retention tests contain the same questions but in a different sequence.

Analysis of t-test was used to test Hypotheses 1 and 2, while Analysis of Covariance (ANCOVA) was used to test Hypothesis 3. Significance was determined at the 0.05 alpha level. This level of significance served as the basis for deciding whether to retain or reject the null hypothesis.

Presentation of Results

Ho$_1$: There will be no significant difference in the mean retention scores of students taught Biology concepts with real specimens and their counterparts taught the same without real specimens

Table1: t-test analysis of the mean retention scores of experimental and control groups.

Groups	N	Mean	SEM	Df	T	Sig (2-tailed)
Experimental	42	35.59	1.856			
				85	16.247	.000
Control	45	16.22	.619			

$P \leq 0.05$ source: field (2025)

Table 1 reveals that students in the experimental group, who were taught using real specimens, achieved a mean retention score of 35.59, markedly higher than the 16.22 recorded for the control group taught without real specimens. To determine the statistical significance of this difference, an independent samples t-test was conducted, yielding $t(85) = 16.279$, $p < .001$. This value, being far below the 0.05 threshold, indicates a highly significant difference in retention between the two groups. Consequently, the null hypothesis of no significant difference in mean retention scores is decisively rejected, affirming that instruction with real specimens substantially enhances students' ability to retain biological concepts.

Ho$_2$: There will be no significant difference in the mean retention scores of male and female students taught Biology concepts with real specimens.

Table 2: t-test analysis of the mean retention scores of male and female students taught using real specimens

Sex	N	Mean	SEM	Df	t	Sig (2-tailed)
Female	24	.500	1.048			
				41	.068	.502
Male	18	.500	2.277			

Data source: source: field (2025) At significance of $P \leq 0.05$

Analysis of the retention scores by gender, as presented in Table 2, indicates that the mean retention score for female students (.500) was identical to that of male students (.500) among those taught Biology using real specimens. This initial observation suggests no apparent difference in retention based on gender. To statistically verify this, an independent samples t-test was conducted. The result produced a t-value of 0.068 with 41 degrees of freedom and a corresponding p-value of 0.502. Since the p-value exceeded the 0.05 level of significance, the null hypothesis—stating that there is no significant difference in the mean retention scores of male and female students taught with real specimens—was retained. This finding implies that, within the context of real-specimen-based instruction, gender did not influence students' ability to retain Biology concepts.

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Ho3: There will be no significant interaction effect of teaching method and gender on students' retention score in Biology.

Table 3: Analysis of Covariance (ANCOVA) of the effect of real specimens on students' retention in Biology

Source	Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9796.033[a]	4	2449.008	168.007	.000
Intercept	23.502	1	23.502	1.612	.208
POSTTEST	1431.485	1	1431.485	98.203	.000
RETENTION	430.750	1	430.750	29.550	.000
gender	75.560	1	75.560	5.184	.025
RETENTION * gender	13.922	1	13.922	.955	.331
Error	1195.300	82	14.577		
Total	68305.000	87			
Corrected Total	10991.333	86			

R Squared = .883 (Adjusted R Squared = .880)

Results in Table 3 show F - F-value df (1) = .955, and a significant value of .331. At the 0.05 level of significance, there is no significant interaction effect of method and gender on students' retention scores in Biology. Therefore, the null hypothesis is retained.

Discussion of Findings

Findings on retention of students taught Biology with real Specimens and those taught without real Specimens. The result showed that those who were taught Biology with real specimens had significantly higher retention ability than those taught without real specimens. Thus, this finding implies that the use of real specimens in teaching and learning of Biology increases students' retention ability. This finding conforms with the work of Olatoye (2017), who investigated the effect of teaching using charts, real specimens and videos on secondary school students' achievement in mammalian skeletal system concepts, found that the group taught Biology with real specimens had a higher retention ability than their counterparts taught with charts, videos and without (control group). The finding also corroborates that of Igiri and Effiong (2015), who investigated the impact of instructional materials in teaching and learning of Biology in senior secondary schools in Yakurr LG A, revealed that the experimental group taught with instructional materials had a better retention ability than the control group taught without instructional materials. The finding is also in line with Enohuean (2015), who carried out a study on the effect of instructional materials on achievement and retention of Biology concepts among secondary school students, found that students taught Biology concepts using instructional materials retained the learned concepts significantly better than their counterparts in the control group taught without instructional materials.

Results of the study on retention of male and female students taught Biology with real specimens, the finding showed that there was no significant difference between the mean retention scores of male and female students taught Biology with real specimens. Thus, this means that gender is not a significant factor in students' retention in Biology. This finding is in line with a research study by Nja et al. (2015), who investigated the interactive effect of gender and teaching with or without kitchen resources on the academic performance and retention of secondary school students in Chemistry in Calabar Education Zone, Cross River State, were it was found that there was no significant difference in the retention scores of male and female students taught thermochemistry with and without kitchen resources. However, the findings contrasts that of Enohuean (2015), who reported that there was a significant difference in the retention ability of male and female students exposed to the use of instructional materials, which could be as a result of the nature of instructional materials used and instruments for data collection. Regarding the interaction effect of teaching method and gender on students' retention in Biology, the findings showed that there was no significant interaction effect between the two variables. This means that neither teaching method nor gender significantly affected students' retention in Biology. This finding aligns with Ibe et al. (2021), who investigated the effect of improvised instructional materials on chemistry students' academic retention in secondary school and found no interaction effect of gender and type of instructional materials on students' retention in chemistry (science). Therefore, based on the findings, there was no significant interaction effect of method and gender on students' retention in Biology.

Conclusion

The findings show that students taught with real specimens had significantly higher retention ability than those taught without real specimens irrespective of student gender. It was therefore concluded that the use of real specimens in teaching and learning of Biology increases students' retention ability.

Recommendations

Based on the findings, it was recommended that Biology teachers should

1. Use real specimens to facilitate students' retention of learned Biology concepts.
2. Government and other stakeholders, like the Parents, Teachers Association (PTA), should regularly provide real specimens to school. This will make learning of biology concrete, real and also make learning concrete.
3. Mount regular training of teachers in sourcing, use and preservation of real specimens and other laboratory specimens
4. Entrench the teaching of laboratory procedures in teacher education curriculum at all levels so that Biology teachers can develop interest in collection and use of real specimens for teaching

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Effects of Scaffolding Strategy on Interest and Performance in Basic Science among Students in Kachia Education Zone, Kaduna State

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Abstract
This study examined the Effects of Scaffolding Strategy on interest and Performance in Basic Science among Students in Kachia Education Zone, Kaduna State. A quasi-experimental, pretest-posttest control group design was adopted. A total of 80 students from two intact classes were purposively sampled. The experimental group was taught using the scaffolding strategy, while the control group received instruction through the conventional method. Two validated research instruments—the Basic Science Performance Test (BSPT) and the Students' Interest Questionnaire (BSIQ) were used for data collection. The instruments had reliability indices of 0.82 and 0.79, respectively. Data were analyzed using mean, standard deviation, independent sample t-test and Mann Whitney U-test. The findings revealed that students taught with the scaffolding strategy demonstrated significantly higher academic performance and greater interest in Basic Science compared to those in the control group. The results also indicated a significant effect of scaffolding on both performance and interest at the 0.05 level of significance. These findings support the effectiveness of scaffolding in enhancing learning outcomes in science education. It was recommended that science teachers adopt scaffolding strategies to promote students' engagement and conceptual understanding. Curriculum planners should also incorporate scaffolding frameworks to encourage active and meaningful learning.

Keyword: scaffolding strategy, academic performance, interest, Basic Science, Upper Basic II

Introduction
Science education forms the bedrock of technological advancement and sustainable development in any nation. In Nigeria, Basic Science is introduced at the upper basic education level to equip students with foundational knowledge, skills, and attitudes necessary for understanding their environment and solving everyday problems (Oginni et al., 2024). The subject is intended to cultivate critical thinking, creativity, and scientific literacy. However, over the past decade, Basic Science has suffered from persistent challenges, especially in terms of low student performance and declining interest (Ndjangala et al., 2021). Student performance in Basic Science has been particularly worrisome. According to Assem et al., (2023) many students struggle with core science concepts, resulting in poor test scores, shallow understanding, and negative attitudes towards the subject. This problem is compounded by over-reliance on traditional teaching methods such as lecture and rote memorization, which fail to engage learners actively or accommodate individual differences (Fakhridinovna, 2025). As a result, both cognitive achievement and affective engagement in science remain low, especially among student.

To address these concerns, researchers have advocated for learner-centered instructional strategies that promote meaningful learning and foster students' interest and participation. One such approach is the scaffolding strategy, an instructional technique rooted in Vygotsky's (1978) sociocultural theory and the concept of the Zone of Proximal Development (ZPD). Scaffolding involves the provision of temporary, structured support by the teacher or a more knowledgeable peer to help students perform tasks they may not be able to accomplish independently. These supports such as modeling, questioning, cueing, and guided practice—are gradually withdrawn as learners gain competence and confidence (Puntambekar, 2022). The potential of scaffolding to enhance both academic performance and interest in the teaching of science has been widely documented. Several studies conducted in Nigeria have demonstrated that scaffolding improves students' understanding of science concepts and leads to higher academic achievement compared to conventional teaching methods (Onah, 2022; Awodun, 2024). Moreover, scaffolding has been found to positively influence students' interest by encouraging active participation, increasing confidence, and fostering a sense of ownership in the learning process (Acosta-Gonzaga & Ramirez-Arellano, 2022). Interest in science is a critical affective domain that determines students' willingness to engage with scientific content and pursue science-related careers. Despite researches conducted supporting scaffolding strategies in other parts of Nigeria, there is a limited of research focusing on its application within Kaduna State**,** and particularly in Kachia Education Zone**.** While some studies in the area have examined the effects of other teaching methods such as

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inquiry-based strategies on student interest or achievement in Basic Science (Margie, 2025), there remains a significant gap in the literature regarding the impact of scaffolding strategy on both interest and academic performance among Upper Basic II students in the zone. This study, therefore, examined the effect of scaffolding strategy on students' interest and performance in Basic Science concepts among Upper Basic II students in Kachia Education Zone.

The teaching and learning of Basic Science in Nigerian upper basic schools have faced persistent challenges, notably poor academic performance and low levels of student interest. This situation is particularly troubling in rural and peri-urban regions such as Kachia Education Zone in Kaduna State, where infrastructural limitations, teacher-centered pedagogies, and a lack of instructional innovation continue to hinder effective science education (Folashade, 2023; Oyubu & Agbigbe, 2025). According to Agboola (2025) despite the inclusion of Basic Science in the national curriculum to promote scientific literacy and stimulate students' interest in STEM careers, many students remain disengaged, underperforming, and uninspired. One major contributing factor to this decline is teachers' reliance on traditional teaching methods such as rote memorization, lecture, and note-copying that do not adequately engage learners or address their individual learning needs (Umeji, 2025). These methods often fail to provide the cognitive and emotional support required to promote deep understanding and interest in science concepts, especially among students at the middle basic level who are still developing foundational skills. Therefore, there is an urgent need for research-driven instructional strategies that can address both the cognitive (performance) and affective (interest) dimensions of learning.

Onah et al., (2025) reported that, scaffolding instructional strategy, which involves the gradual transfer of responsibility from teacher to student through structured support, has been shown in several studies to significantly enhance students' learning outcomes and motivation in science subjects. However, despite its demonstrated effectiveness in other parts of Nigeria, there is limited empirical evidence on the impact of scaffolding strategies in the specific context of Kaduna State, and more particularly within Kachia Education Zone. This gap in the literature highlights the need for a holistic investigation into the dual impact of scaffolding on both interest and performance in Basic Science. It is against this backdrop that this study seeks to investigate the effect of scaffolding strategy on interest and performance in Basic Science concepts among Upper Basic II students in Kachia Education Zone, Kaduna State.

Objectives of the study

This study guided by the following objectives which are to:

1. Determine the effect of scaffolding strategy on students' academic performance in Basic Science concepts among Upper Basic II students in Kachia Education Zone.
2. Examine the effect of scaffolding strategy on students' interest in Basic Science among Upper Basic II students in Kachia Education Zone.

Research Questions

The following research questions were answered in the study:

1. What is the difference between mean performance scores of Upper Basic II students taught Basic science concepts using Scaffolding Instructional Strategy and those taught using conventional method?
2. What is the difference between interest level Upper Basic II students taught Basic science concepts using Scaffolding Instructional Strategy and those taught using conventional method?

Hypotheses

Based on the research questions, the following null hypotheses were formulated and tested at $P \leq 0.05$ level of significance:

Ho_1: There is no significant difference in the academic performance of Upper Basic II students taught Basic Science using scaffolding strategy and those taught using conventional teaching methods in Kachia Education Zone.

Ho_2: There is no significant difference in the interest levels of Upper Basic II students taught Basic Science using scaffolding strategy and those taught using conventional teaching methods in Kachia Education Zone.

Methodology

The study employed a quasi-experimental research design, specifically the non-equivalent control group pretest-posttest design. This design was considered appropriate because the participants were drawn from existing intact classes without random assignment. The design involved two groups: an experimental group that was exposed to the scaffolding

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instructional strategy, and a control group that was taught using conventional methods. Both groups were pretested and posttested to determine the effect of the intervention on students' academic performance and interest in Basic Science.

The population for the study consisted of all Upper Basic II students in public junior secondary schools in Kachia Education Zone of Kaduna State, Nigeria. The Kachia Education Zone comprises several schools with a significant number of students offering Basic Science. According to data obtained from the Kaduna State Ministry of Education (2024), there were over 4,200 students in this category across all the public junior secondary schools in the zone. The sample for the study comprised 104 Upper Basic II students selected from two co-educational public schools within the Kachia Education Zone. A simple random sampling technique was used to select two schools. From each school, one intact class was selected. One class served as the experimental group with 55 students and the other served as the control group with 49 students. Two research instruments were used for data collection. The first instrument was the Basic Science Performance Test (BPT). This test consisted of 30 multiple-choice items designed to assess students' understanding of selected Basic Science concepts taught during the intervention. The test was developed by the researcher and was validated by experts in Science Education and Measurement and Evaluation. The reliability of the BSAT was established using the Kuder-Richardson Formula 20 (KR-20), and it yielded a reliability coefficient of 0.82, which was considered acceptable.

The second instrument was the Basic Science Interest Questionnaire (BSIQ), which was designed to measure students' interest in Basic Science. It consisted of 20 items based on a 4-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). The BSIS was adapted from existing validated interest scales and subjected to face and content validation by three experts two from Science Education and one from Educational Psychology of the Ahmadu Bello University, Zaria. The reliability of the instrument was determined using Cronbach's alpha, which yielded a reliability index of 0.86. The validation of the instruments involved a thorough review by the experts mentioned above. Their suggestions and recommendations led to revisions in some of the test items and statements to improve clarity, alignment with curriculum content, and appropriateness for the target population. These revisions helped to ensure the validity of the instruments. Data collection was conducted over a period of six weeks. During the first week, pretests (BSPT and BSIQ) were administered to both the experimental and control groups to determine their baseline performance and interest levels. The intervention was conducted for a period of 6 weeks. During this period, the experimental group was taught selected Basic Science concepts using the scaffolding strategy. The strategy involved instructional techniques such as teacher modeling, guided questioning, the use of visual aids, structured tasks, and the gradual withdrawal of support as students gained mastery. The control group, on the other hand, was taught the same content using the conventional method. In the sixth week, posttests were administered to both groups using the same instruments (BSPT and BSIQ) to measure any changes in academic performance and interest. Data collected were analyzed using both descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions. To test the null hypotheses, independent sample t-test and Mann Whitney U-test were used at a significance level of 0.05.

Presentation of Results

Research Question 1

What is the difference between mean academic performance scores of Upper basic II students taught Basic science concepts using Scaffolding Instructional and those taught using conventional method?

To answer this question, the mean scores and standard deviations of the pretest and posttest BSAT results for both experimental and control groups were computed and compared.

Table 1: Mean, Standard Deviation Statistics Posttest EPT scores for Students in Experimental and Control Groups

Group	N	Mean	Std	Mean difference
Experimental	55	35.03	1.78	
				6.02
Control	49	29.01	3.03	

In Table 1, the result of the analysis shows that there was difference in the mean performance scores of students taught Basic science concepts using Scaffolding Strategy and those taught using conventional method. Their mean Academic Performance Scores were 35.03 and 29.01 with a mean difference of 6.02 in posttest scores of the experimental and control groups respectively.

Research Question Two: What is the difference between the mean interest score of students taught Basic science concepts using Scaffolding Strategy and those taught using conventional method?

To answer research question three, the data obtained from posttest score on BSIQ was subjected to descriptive statistics of mean rank and sum of rank and summary of findings is shown in Table 1.3.

Table 2: Mean Rank, Sum of Rank Statistics of Posttest BSIQ Interest Scores for Students in Experimental and Control Groups

Group	N	Mean Rank	Sum of Ranks	Mean diff
Experimental	55	98.76	5432.00	

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				35.01
Control	49	63.75	3124.00	

Table 2 shows that a difference exists between mean Interest scores of Upper basic II students taught Basic science concepts using Scaffolding Strategy and their counterpart taught using conventional method. The computed Mean Rank Interest scores are 98.76 and 63.75 for Upper basic II students taught Basic science concepts using Scaffolding Strategy and their counterpart taught using conventional method respectively indicating a mean rank difference of 35.01 in favour of the experimental group.

Hypothesis 1

There is no significant difference in the academic performance of Upper Basic II students taught Basic Science using scaffolding strategy and those taught using the conventional method.

To test this hypothesis, independent sample t-test was conducted on the posttest scores of the experimental and control groups and a summary of the analysis is presented in Table 3

Table 3: Summary of Independent Sample t-test of Mean Posttest EPT Scores for the Experimental and Control Groups.

Group	N	Mean	Std	Mean diff.	df	t-value	p-value	Remark
Experimental	55	35.03	1.78					
				6.02	102	29.1	0.002	Sig
Control	49	29.01	3.03					

Significant at p≤0.05

Table 3 shows a p-value of 0.002, observed at degree of freedom of 102. This p-value is less than the 0.05 level of significance, indicating that there is significant difference between the mean academic performance scores of upper basic II students taught Basic science concepts using Scaffolding Strategy and their counterparts taught same concept using conventional method. The observed difference is in favour of the experimental group who were exposed to the scaffolding strategy. Hence, the null hypothesis is rejected, implying that Scaffolding Strategy significantly enhanced upper basic II students' academic performance in Basic science than the conventional method.

Hypothesis 1

There is no significant difference between mean interest score of Upper basic II students taught Basic science concepts using Scaffolding strategy and their counterpart taught using conventional method.

To test null hypothesis three, the scores obtained from posttest score of BSIQ was analyzed using Mann Whitney statistics and the result is presented in Table 4.

Table 4: Summary of Mann Whitney Mean Posttest BSIQ Score for Experimental and Control Groups.

GROUP	N	Mean Rank	Sum of Ranks	df	p-value	Remark
Experimental	55	98.76	5432.00		0.001	
				102		Sig
Control	49	63.75	3124.00			

Significant at p≤0.05

The data shows a significant difference between the experimental and control groups in terms of interest towards Basic science concepts. The experimental group have a mean rank of 98.76 and a sum of ranks of 5432.00 while the control group have a mean rank of 63.75 and a sum of ranks of 3124. a p-value of 0.001 is less than 0.5 at degree of freedom (df) of 102, which indicates a significant difference in favor of the experimental group. This shows that students taught basic science concepts using scaffolding strategy have higher interest compared to those taught using the conventional method. Therefore, the null hypothesis that states that, there is no significant difference between the interest level of Upper basic 1I students taught Basic science concepts using scaffolding strategy and those taught using conventional methods, is hereby rejected.

Discussion of Findings

This study investigated the effect of scaffolding instructional strategy on students' interest and academic performance in Basic Science concepts among Upper Basic II students in Kachia Education Zone, Kaduna State. The finding indicated that students taught using the scaffolding strategy significantly outperformed their counterparts taught with conventional methods. This supports the view of Awodun (2024) who reported that scaffolding instruction enhances cognitive

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engagement and promotes deeper understanding. The result also aligns with that of Folashade (2023) and Akubor et al., (2025), who found improved student performance in science subjects when learner-centered instructional approaches were used.

The study also revealed that students in the experimental group demonstrated significantly higher interest in Basic Science than their counter parts in the control group. This finding agrees with Hiğde and Aktamış (2022), and Krishan (2023) who found that interest and motivation in science learning improved when instructional strategies focused on active participation and learner support. The findings demonstrate that scaffolding not only improves students' academic performance but also positively influences their interest.

Conclusion

Based on the findings of this study, it can be concluded that the scaffolding instructional strategy is an effective teaching approach for improving both students' academic performance and interest in Basic Science at the Upper Basic level. The strategy's capacity to provide structured guidance and gradual release of learning responsibility made it particularly effective in engaging students cognitively and emotionally. The study shows that innovative and student-centered teaching strategies are important for addressing the persistent problems of poor performance and low interest in science subjects, particularly Basic science

Recommendations

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

1. Basic Science teachers should adopt scaffolding instructional strategies in their lesson delivery to enhance students' understanding and engagement in science concepts.
2. Educational administrators and curriculum planners should provide training and workshops for teachers on how to effectively implement scaffolding strategies and other learner-centered methods in science classrooms.
3. Textbook developers and instructional material designers should incorporate scaffolding elements such as prompts, guided questions, and graduated tasks to support learners' progression and autonomy.
4. Government and policymakers in education should encourage a shift from traditional lecture-based teaching to constructivist approaches like scaffolding, particularly in areas like Kachia.

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Effect of Problem-Solving Counselling Technique on Anxiety among Secondary School Student-Victims of Armed Banditry in Giwa, Kaduna State, Nigeria

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Abstract

This study examined the effect of problem-solving counselling technique on anxiety among secondary school students-victims of armed banditry in Giwa, Kaduna State, Nigeria. One hypothesis was formulated and tested. Quasi-experimental involving pre-test and post-test design was employed for the study. The population of this study was 113 SS II Students in Dr Shehu Lawal Government Girls Secondary School, during the 2024/2025 academic session in Giwa, Kaduna State out of which 18 Students among those who scored 60-69 points on Spielberger Anxiety Scale Inventory were purposefully selected from the entire population and used for the study. 18 students were exposed to problem-solving counselling technique. The instrument used for data collection was Anxiety Scale Inventory (ASI) adapted from Spielberger (1983) A anxiety scale, State-Trait Anxiety Inventory (STAI) was validated by experts in the department of Educational Psychology and Counselling, A.B.U, Zaria with reliability of 0.78. Data were analysed using paired sample t-test to test hypothesis at 0.05 level of significance. The findings revealed that Problem-solving counselling technique had significant effect on anxiety (p=.000) among secondary school student-victims of armed banditry in Giwa local government area of Kaduna State, Nigeria. Based on the finding of this study, it was concluded that problem-solving counselling technique significantly reduced the anxiety among secondary school student-victims of armed banditry. It was recommended among others, that, school counsellors and educational psychologists should employ problem-solving counselling technique in reducing the anxiety among student-victims of armed banditry in secondary school.

Key words: Anxiety, Problem-Solving, Students, Armed Banditry.

Introduction

Armed banditry and security issues have spread around the world and must be addressed in order to foster an atmosphere that supports the growth and psychological health of its people. In many places around the world, including Baghdad, armed banditry is a frequent occurrence and has been identified as one of the contributing factors to kidnapping or abduction for ransom. South Africa, Sudan, sections of the former Soviet Union, Mexico, Colombia, Haiti, Brazil, and the Philippines (Timoth et al, 2019). In addition to endangering residents' lives and property, insecurity halts a country's overall progress. Thus, security and development are closely related (Haruna as mentioned in Ahmed, 2021). Security issues have been a significant obstacle to attaining significant socioeconomic growth in the majority of African countries, including Nigeria, despite the fact that peace and stability have long been the primary goals of most countries worldwide.

The majority of Nigeria's states, including Kaduna, Katsina, Kebbi, Niger, Sokoto, Zamfara, Taraba, Adamawa, Katsina, and Borno, have yet to feel the repercussions of these new security challenges. According to Olufemi (2015), during the previous five years, Nigerian administrations have spent more than 462 trillion on national security. The government's attempt to halt the threat in order to prevent a complete collapse of law and order appears to have failed, particularly in North-Central and North-Western States like Kaduna State, where armed bandits continue to attempt student abductions and kidnappings at primary, secondary, and postsecondary educational institutions. Armed banditry has made Kaduna State's lack of access to education worse by uprooting entire communities. However, the state's high rate of out-of-school children was a result of the rise in banditry. Additionally, the disruption of educational activities in susceptible areas caused by the state's insecurity had a detrimental effect on young boys and girls. The few schools that were still in existence were unable to function effectively due to concerns about student abduction or bandit raids and murder. Due to insecurity on main roads, parents kept their kids from going to school. As schools and colleges become unsafe, are demolished and abandoned, teachers are killed, scholars are threatened, and students are kidnapped for ramson, insecurity has been found to be anathema to education patronage and growth (Abdulrasheed et al., 2015). Not all pupils will get PTSD, even though

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they may go through substantial traumatic incidents. Brief distress after a traumatic experience that does not significantly hinder functioning may be considered a typical response for some people. Others will experience trauma-related symptoms in the early aftermath of a traumatic incident, and if symptoms resembling PTSD appear within the first month after the trauma, they may be accompanied by severe distress or impairment, such as acute stress disorder reaction (anxiety).

Consequently, students who witnessed attempt of kidnapping, gun-shooting, or abduction of either self, family member, friends, classmates by armed bandits may develop feelings of anxiety behaviour which will result to social isolation, self-withdrawal from class mate. The issues of anxiety should be of much concern to educational stake holders because innocent students are at high risks of falling victims in such a way to withdraw from school. As such early intervention for the victims is needed in helping them manage anxiety and its symptoms. Furthermore, students who have been traumatized remain in a state of fear and will be encompassed with difficulty to school environment and these difficulties may lead to social isolation with classmate, inability to relate well with classmate or even found it difficult to concentrate on their academic activities. In schools today many students are dying in silence as a result of exposure to various experiences of bandit attacked which developed unwanted symptom such as anxiety and this may lead to decline in their social and emotional adjustment as well the academic adjustment.

A traumatic event is a life-threatening event such as military combat, natural disasters, terrorist incidents, serious accidents, or physical or sexual assault in adult or childhood. Most survivors of trauma return to normal given a little time (Lorith & Melanie, 2019). However, some people will have stress reactions that do not go away on their own, or may even get worse over time. These individuals may develop symptoms of PTSD. People with PTSD experience three different kinds of symptoms. The first set of symptoms which is aggression involves reliving the trauma in some way such as becoming upset when confronted with a traumatic reminder or thinking about the trauma when they are trying to do something else. The second set of symptoms which is depression that involves either staying away from places or people that remind them of the trauma, isolating from other people, or feeling numb. While third set of symptoms that is anxiety includes things, such as feeling on guard, irritable, or startling easily and all can make the students who experienced the above mentioned. Realizing this gap, the researcher intends to provide psychological support by exploring the effect of problem-solving counselling technique on anxiety among student-victims of armed banditry in secondary schools, Kaduna State, Nigeria. It is therefore, important and indeed crucial that secondary school students who are faced with anxiety symptom deserve attention in order to have a positive living within the school environment so as of their psychological well-being to be stable. In the light of the need for effective anxiety symptom approaches, problem-solving counselling technique may be considered.

Problem-solving technique (PSCT) is a psychosocial intervention also known as Problem-solving counselling technique, generally considered to be under a cognitive-behavioral umbrella, that is geared to enhance one's ability to cope effectively with both minor (like chronic daily problems) and major (such as traumatic events) which may cause symptoms such as anxiety, and other stressors that will extant to mental health and physical health problems. Problem-solving counseling is a therapeutic approach that helps individuals identify, analyze, and overcome challenges in their lives. It is a structured process that involves breaking down problems into smaller, more manageable parts, and then developing and implementing effective solutions. Problem-solving counseling is a therapeutic approach that equips individuals with the skills and strategies to effectively identify, analyze, and overcome challenges in their lives (Nezu et al, 2007). It is a structured process that involves breaking down problems into smaller, more manageable parts, and then developing and implementing effective solutions. Problem-solving counseling is a valuable tool for individuals seeking to enhance their problem-solving abilities and improve their overall well-being. By working collaboratively with a counselor, clients can develop the skills and strategies needed to navigate life's challenges effectively.

Problem-solving counseling has its roots in behavioral and cognitive psychology, with significant contributions from psychologists like Thomas D'Zurilla and Arthur M. Nezu (Nezu et al, 2007). They developed the Social Problem-Solving Model, which emphasized teaching systematic problem-solving skills, problem-solving counselling technique refers to a psychological treatment that helps to teach you to effectively manage the negative effects of stressful events that can occur

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in life. Such stressors can be rather large, such as experiencing the death of a loved one, kidnapping or abduction, or having. Negative stress can also result from the accumulation of multiple "minor" occurrences, such as ongoing family problems, constantly hearing of traumatic events, or tense relationships with class-mates or a teacher. When such stressful problems either create psychological problems, such as coping with stress or difficulties adhering to a medication regimen, problem-solving technique may be of help, either as a sole intervention or in combination with other techniques (Cohen et al, 2019).

Problem-solving counselling technique is thought to be an effective therapy approach because it helps people deal more effectively with the wide range of difficulties such as anxiety, aggression, depression and stressful problems that occur in everyday living. A large body of scientific evidence indicates that negative stressful events are a significant contributor to health and mental health problem (Cohen et'al, 2019). Problem-solving counselling technique is geared to assist individuals cope more effectively with stressful life problems experienced through traumatic events and can therefore decrease psychological and emotional difficulties, as well as improve the quality of life of individuals suffering from symptoms of post-traumatic stress disorder such as anxiety. The choice of this behaviour counselling technique was to investigate the effects of problem-solving counselling technique in helping secondary school students overcome anxiety symptoms due post-traumatic stress disorder symptoms.

The incidence of armed banditry in Nigeria generally and Kaduna State in particular has continued to deteriorate every now and then with negative consequences on the economic, social, educational and psychological state of not only the victims of armed banditry but also affects the well-being of everyone in the state at large. It is on record that many markets were closed down with partial or total stoppage of economic transactions militating against survival needs and wellbeing of the affected areas. With escalation of banditry and kidnapping in different parts of Kaduna State which were perpetrated by the saboteurs and evil-plotters popularly known as informants has created mutual distrust and suspicion amongst people as the so-called informants are within the community and very difficult to identity them which affects social life of the affected communities.

Increasing rate of banditry which is manifested by widespread kidnapping of students at all levels of education has crippled teaching and learning in the state, created phobia in the mind of students. The current scenario has affected the lives of victims of the armed banditry and their families and vicariously affects the psychological wellbeing and mental health of other students in the state. This negative psychological wellbeing as a result of armed banditry is manifested by symptoms of post-traumatic stress as they exhibit flashback, re-occurring thoughts of the traumatic experiences, nightmare, social withdrawal and day dreaming which may triggered anxiety tendencies. A careful observation by the researcher revealed that Kaduna State Schools had experienced several attacks, attempts of kidnapping or abduction of students from armed bandits such as Government Secondary School Marmara in Chikun, Government Science Secondary School Ikara, Federal College of Forestry Mechanization, Afaka, Igabi, Bethel Baptist High School and UBE Primary School in Rama village of Birnin-Gwari all in Kaduna State. The State has been a flashpoint for episodic after followed kidnapping or abduction, gun-shooting from armed bandits since the year 2000.

Armed banditry has disrupted the academic and social activities among secondary school students in Kaduna State, it has disorganized the normal school calendar which made students to be left behind among their counterparts in some states. Many youths who are secondary school students are also affected and this has made them vulnerable to psychological trauma due to armed banditry situation in the state like that of 121 Bethal Baptist High School Students Kaduna State that were abducted on July 5, 2021. Furthermore, secondary school students in Kaduna State have been exposed to this conflict and had exhibited some forms of psychological trauma such as flash back of the traumatic events, day dreaming, social isolation, reassurance of the previous event and these result to manifestation of anxiety. Concerted efforts by government, non-governmental organizations, philanthropists and concerned individuals were put in place to reinvigorate and resuscitate the victims of the banditry, however, the researcher also observed that the efforts were more of medical than psychological, many victims suffer anxiety symptoms such as Increased heart rate such as a racing or pounding heart, Rapid breathing such as shortness of breath or hyperventilation. Sweating which include, excessive sweating, especially on the palms, underarms, and forehead. Trembling or shaking that can be muscle tremors or shaking, often in the hands or voice. Muscle tension like feeling tense or tight in the muscles, particularly in the shoulders, neck, and jaw. Fatigue which involves,

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Feeling unusually tired or drained. Sleep disturbances like difficulty falling asleep, staying asleep, or waking up frequently, Gastrointestinal problems that includes, nausea, diarrhea, or stomach upset. Dizziness or lightheadedness like feeling faint or unsteady. Emotional Symptoms may include, feeling nervous, restless, or on edge, keeling tense or keyed up, feeling irritable or easily agitated, feeling overwhelmed or out of control, feeling a sense of impending doom or danger, difficulty concentrating or focusing, Difficulty relaxing, feeling restless or unable to sit still, feeling irritable or easily agitated. Behavioral Symptoms can include, avoiding situations that trigger anxiety, excessive worry or rumination about potential problems, difficulty making decisions, seeking reassurance from others, engaging in safety behaviors, such as checking or avoidance, using substances like alcohol or drugs to cope with anxiety which may in turn affect their wellbeing and adjustment in school.

Students who experienced armed bandit attacked such as attempted of abduction or kidnapping and gun-shooting may develop symptoms of anxiety, aggression and depression. As a result of these students may resort to unwanted behaviour which is also contrary to the way students can cope within the school premises and this also affect their academic activities. Individual students may exhibit different behaviour patterns due to personal experiences, and this also influences their psychological well-being and emotional stability as well as their relationship with other classmates. Secondary school students particularly in Giwa Local Government Area of Kaduna State, Nigeria who were victims of armed bandits attempts of abduction or kidnapping and gun-shooting, which poses insecurity of lives, where students are under perpetual fear and apprehension issue threats and the lives. The traumatic experience may bring about emotional instability as well as their psychological well-being stability, anxiety and the above-mentioned symptoms among secondary school students. Some secondary school students may become experienced anxiety due to the rate of kidnapping, gun-shooting from bandits, anxious as they cannot cope with the threat, they find themselves. There are cases of students lost their parents, loved ones and relatives which is another traumatic experience among the students which is another source in which the students may exhibits anxiety symptoms which will make them not to concentrate during normal class activities.

Despite widespread recognition of effects of anxiety on psychological wellbeing of victims of armed banditry, research on effective anxiety symptoms techniques and strategies appear to be scarce. Many strategies have been employed in effort to reduce anxiety among individuals. For example, cognitive restructuring, psycho-education, existential techniques among others. In light of need for effective anxiety symptoms cessation approached, problem-solving counselling technique may be considered. Due to the detrimental effect of anxiety to the lives of secondary school students, it has become a matter of concern to counsellors, psychologists, school administrators, parents and teachers. Therefore, it is in accordance with the above observations that the main thrust of this study is on the Problem-solving techniques on Anxiety among secondary school students-victims of armed banditry in Giwa, Kaduna State, Nigeria. The study reviewed a number of related empirical studies to guide the experiment. Hoek, Schuurmans, Koot and Cuijpers (2012) examined the Effects of Problem-Solving Technique for Adolescents with Depression and Anxiety in Amsterdam: A Randomized Controlled Trial. Symptoms of depression and anxiety were highly prevalent in adolescence and they are the cause of considerable suffering. The objective of the study was to evaluate the effects of preventive problem-solving technique (PST) for adolescents reporting mild to moderate symptoms of depression and/or anxiety as compared to a waiting list control group (WL). A total of 45 participants were randomized to the 2 conditions. PST consisted of 5 weekly lessons. Participants were supported by e-mail. Self-report measures of depression and anxiety were filled in at baseline and after 3 weeks, 5 weeks, and 4 months. Of the 45 participants, 28 (62.2%) completed questionnaires after 3 weeks, 28 (62.2%) after 5 weeks, and 27 (60%) after 4 months. Hierarchical linear modeling analyses revealed overall improvement over time for both groups on depressive and anxiety symptoms. However, no significant group x time interactions were found. No differences were found between completers and non-completers. The result show that depressive and anxiety symptoms declined in both groups. No support was found, however, for the assumption that PST was efficacious in reducing depression and anxiety in comparison to the waiting list control group.

Akbarian, Bajoghli, Haghighi, Kalak, Holsboer-Trachsler and Brand (2014) conducted a study on the effectiveness of cognitive behavioral therapy with respect to psychological symptoms and recovering autobiographical memory in patients suffering from post-traumatic stress disorder in USA. The aim of the present study was to investigate, among a sample of patients suffering from PTSD, the influence of an additional cognitive behavioral therapy (CBT) intervention on their

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symptoms of PTSD, depression, and anxiety, and on autobiographical memory. A total of 40 patients suffering from PTSD (mean age: 31.64 years; 78.6% female patients) and under psychopharmacological treatment were randomly assigned to an intervention or control condition. The intervention consisted of ten group sessions (one 60–90 minutes session per week) of CBT. At baseline and 10 weeks later, a series of self-rating and experts'-rating questionnaires were completed. Over time, symptoms of PTSD, depression, and anxiety decreased; however, greater improvement was observed in the experimental than the control condition. Likewise, as a general pattern of results, memory performance improved over time, though again this improvement was greater in the experimental condition. Compared to a control condition, additional CBT improves the treatment of PTSD, with respect to both symptoms and autobiographical memory.

Objectives of the Study

The objective of this study is to determine the effect of:

1. Problem-solving counselling technique on anxiety among student-victims of armed banditry in Dr. Shehu Lawal Government Girl's Secondary Schools, Giwa.

Hypothesis

The following null hypothesis was tested;

Ho_1. There is no significant effect of problem-solving counselling technique on anxiety among student-victims of armed banditry in Dr. Shehu Lawal Government Girls Secondary Schools, Giwa.

Methodology

The population of the study comprises of all SS II students 2024/2025 academic session in Dr Shehu Lawal Government Girls Secondary School, Giwa, (DSLGGSC) Giwa Local Government Area of Kaduna State with a total of 103 students. 18 students were identified with anxiety in DSLGGSC Giwa Local Government Area. The school is a boarding school and a girls' school. This selection is based on the premise that boarding school system makes it feasible for an experiment to be conducted and any change observed could be attributed to effect of the treatment rather than extraneous variable since students do not go out of the school, and have no contact with other external factors that may disrupt the treatment administered. The other reason for using the school is that armed bandits had once attacked the school but was not successful. A sample of 18 students who were identified with moderate level of anxiety was purposively selected in the school. The selection of students with moderate level of anxiety was based on the researcher's assumption that mild depression, do not constitute too much problem and could be adjusted by reinforcement from the environment while severe or extreme anxiety may require clinical attention. Thus, students with moderate level of anxiety symptoms were considered fit for this study.

The instrument used in this study was Spielberger's Anxiety Scale Inventory (ASI) (Spielberger, 1983). The adapted Anxiety Scale Inventory was designed to assess the level of anxiety for individuals diagnosed with anxiety disorder. The Anxiety Scale Inventory, is a short self-administer survey to quantify the anxiety status of individuals. There are 20 items on the inventory that rate the four common characteristics of anxiety: the physiological symptoms, the cognitive symptoms, emotional symptoms and behavioural symptoms. There were ten positively worded and ten negatively worded questions. Each question is scored on a scale of 1-4 (almost never, sometimes, often, almost always). The scores range from 25-100; 25-49 is Normal Range, 50-59 is Mildly Anxiety, 60-69 means Moderately Anxiety, 70 and above indicates Severely Anxiety. The researcher targeted those students with moderate Anxiety symptoms based on the assumption that moderate Anxiety could be treated within the psychological technique. Due to little modification, the instrument was validated by experts. Thus, content validation was established. Originally, ASI has a reliability index of 0.73. A pilot testing at Government Science Secondary School, Kufaina, Zaria, Kaduna State also confirmed a reliability index of .581 and .783 through split half method.

This research was carried out using quasi-experimental design, in form of pre-test, posttest design. The quasi-experimental design involves the manipulation of one or more independent variable, but there is no random assignment of subjects to conditions (Kolo, 2003). This is because the study covered fewer participants under controlled condition. The study took account of a pre-post-design with treatment groups. The experimental group was exposed to Problem-Solving Counselling Technique (PSCT). This is experimental research design. Participants were reached through the school authority. Participants completed a Spielberger's Anxiety Scale Inventory (SASI) (Spielberger, 1983). The research was carried out

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in three phases as follows: Pre-test (administering self-rating anxiety before the treatment), Treatment (Participants were exposed to problem-solving counselling technique for a period of eight weeks) and Post-test phase (administering self-rating anxiety scale to participants after the treatment). The data collected using the research instruments were organized and analysed. Thus, the data obtained by the researcher were analysed using the Statistical Package for Social Sciences (SPSS version 22). Both descriptive and inferential statistics were employed. Paired sample t-test was used to test hypothesis 1 at 0.05 alpha level of significance.

Presentation of Result

The data collected was analyzed using paired t-test at 0.05 level of significance. The hypothesis tested was

Ho_1: There is no significant effect of problem-solving technique on anxiety among student-victims of armed banditry in Dr. Shehu Lawal Government Girls secondary schools, Giwa

Table 1: Paired Sample t-test on the Effect of Problem-Solving Technique on Anxiety among Student-Victims of Armed Banditry in Dr. Shehu Lawal Government Girls Secondary Schools, Giwa.

Treatment	Variable	*N*	Mean	*SD*	*df*	*t*	*p*
	Pre-test	18	38.44	3.85			
PST					17	8.935	.000
	Post-test	18	24.94	6.53			

Table 1 shows the pretest mean of 38.44 and standard deviation of 3.85. After the treatment, the mean score reduced to 24.94 and the standard deviation was 6.53 with the degree of freedom and the t-value of 17 and 8.935 respectively. The table also shows a p-value of .000. From the table, the p-value of .000 was found to be lesser than the 0.05 alpha level of significance. Participants level of anxiety reduced to 24.10 from 38.44 as a result of the intervention. This implies that there is a significant effect of Problem-Solving Technique on anxiety symptoms. Therefore, the null hypothesis which states that there is no significant effect of problem-solving technique on anxiety among student-victims of armed banditry in Dr. Shehu Lawal Government Girls secondary schools, Giwa was rejected.

Discussion of the findings

The finding of this study revealed that problem-solving technique was effective in reducing on anxiety symptoms among Student-Victims of Armed Banditry in Dr. Shehu Lawal Giwa Government Girls Secondary Schools, Giwa, Kaduna State, Nigeria. The findings this study consonance with the findings of Hoek et'al (2012) They examined the Effects of Problem-Solving Technique for Adolescents with Depression and Anxiety in Amsterdam. Their results shows that problem-solving technique had a significant effect in reducing the anxiety among adolescent with anxiety symptoms. Their study is similar in the use of problem-solving technique and use of adolescent like the current study using secondary school student who were the same aged bracket. However, their study differs in one of the dependent variables (depression) treatment sessions, method and location.

Another finding from Akbarian, et'al (2014) who conducted a study on the effectiveness of cognitive behavioral therapy with respect to psychological symptoms and recovering autobiographical memory in patients suffering from post-traumatic stress disorder in USA. Their findings revealed that problem-solving technique was effective and significant in reducing anxiety. Their differs with the current study in terms of technique and number of groups (their study uses CBT and ten groups); the studies also differ in terms use of statistical tools utilize for testing hypotheses but the finding was the same with the current study.

Conclusion

Based on the findings of this study, it was concluded that counselling intervention using Problem-solving Counselling Technique reduced anxiety among student-victims of armed banditry in Dr Shehu Lawal Government Girls Secondary Schools Giwa, Kaduna State, Nigeria.

Recommendations

Based on the finding of this study, the following recommendations were made:

1. School counsellors and psychologists are encouraged to employ problem-solving counselling technique in reducing anxiety among student-victims of armed banditry in secondary schools.

2. Seminars and workshops should be organized for teachers and parents on how they could understand and handle anxiety in their students and help them in coping with the school environment.
3. Seminar and workshop should be organized for government and non-governmental organizations on the importance of employing psychological interventions such as problem-solving counselling technique on student-victims of armed banditry in secondary schools.

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Effects of Flipped-Classroom Strategy on Performance in English Language Concept among Secondary School Students

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Abstract

The study investigated effects of flipped-classroom strategy on performance in English language concept among secondary school students in Ogbia, Bayelsa Stata, Nigeria. The study was guided by two objectives, two research questions with corresponding research questions and two hypotheses, respectively. The study adopted quasi- experimental research design, specifically, pre- test post- test control group design. The population for this study comprised all Senior Secondary two (SS2) students in the 30 public secondary schools in Ogbia, Bayelsa State. Simple random sampling technique was used to select two (2) secondary schools for the study while stratified random sampling technique was used in selecting 100 students from two schools made up of 54 males and 46 females. Two intact classes were used to teach with flipped classroom learning strategy and lecture method. A pre test of Speech Writing Performance Test (SWPT) was given to all the students before the treatment. Thereafter, the experimental group was subjected to treatment. To establish the reliability of the instrument, Pearson product moment correlation method was employed and the reliability coefficient 0.72 was obtained. Data analysis was subjected to mean scores, standard deviation and analysis of variance (ANOVA) at 0.05 level of significant. The findings revealed that flipped classroom instructional strategy is more effective than lecture method. Also, the findings indicated that gender has no influence on students' performance in technical writing using flipped classroom. Based on the findings, it was recommended that the curriculum developers should consider adopting flipped classroom learning strategy to prescribe activities for topics in English language.

Keywords: Flipped Classroom, Learning Strategy, English Language, Lecture Method and Technical Writing.

Introduction

A good and quality education is the bedrock of sustainable development for any nation. The value of education cannot be over emphasized as the link between education and a nation's development is very strong. Human capital development is necessary for a sustainable development in education, economy, politics, and industries (Ijoko, 2021). The Federal Government of Nigeria (FGN, 2013) as cited in Ijoko, Ugboja and Emah (2024) stated that secondary education is the form of education children receive after primary education and before the tertiary education. The policy further explained that the aim of the secondary education within our overall national objectives should be: preparation for useful living within the society and preparation for further education. Writing is the art of giving order to our thoughts or ideas which is represented in how words are chosen and combined into meaningful expressions. Isnin, (2017) defines writing as a term with two conceptual meaning: grammatically, writing is a noun referring to something that can be identified by its written form. Secondly as a verb, writing refers to an activity of inscribing some marks on a surface that enables the writer to form letters, words and meaningful expressions. The art of writing therefore helps the writer to articulate his/ her mental thought on an issue. Lambert (2012) indicates that writing is one of the major learning tools as it activates the thinking capacity of the individual. He stresses that writing organises and clarifies our thoughts. Writing can be formal or informal. In informal writing, the writer does not follow the laid down steps or principles for writing, but he simply puts down ideas which may be used for a more formal writing.

It is a cognitive and social activity involving neuropsychological and physical processes and the use of writing systems to create persistent representations of human language. A system of writing relies on many of the same semantic structures as the language it represents, such as lexicon and syntax, with the added dependency of a system of symbols representing that language's phonology and morphology. The outcome of this activity, also called "writing", and sometimes a "text", is a series of physically inscribed, mechanically transferred, or digitally represented linguistic symbols.

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Writing systems do not themselves constitute languages (with the debatable exception of computer languages); they are means of rendering language into a form that can be read and reconstructed by other humans, separated by time and space. While not all languages use a writing system, those that do can complement and extend the capacities of spoken language by creating durable forms of language that can be transmitted across space (e.g. written correspondence) and stored over time (libraries or other public records). Writing can also have knowledge-transforming effects, since it allows humans to externalize their thinking in forms that are easier to reflect on, elaborate on, reconsider, and revise.

Scholars have discussed the standard of education in Nigeria for many years, with a few recognizing the decline in the written communication skills of the students. Effective writing is critical to educational activities, and must be taught throughout a student's formal education as writing cannot be learned informally like speech. Mastery of writing requires controlled and consistent practical work. Usman (2016) noted that the art of writing can only be measured through writing itself. Writing as a productive skill is a means of expressing one's feelings. According to Adawo (2013), many Nigerian university graduates lack the necessary technical skills as they do not have adequate acquisition of English language fundamentals, particularly in written communication. Writing skill is one of the live wires of educational activities. Songui, Yang and Park (2021) maintain that the art of writing is a useful learning activity which promotes higher order thinking. But he also observed that there are limited research works that prove its effectiveness. The impact of poor writing skills as reported by Endut, Yusoff and Kamarudin (2016) are that poor academic writing has been identified as the major hindrance for students not to score high marks in examination. And in a bid to identify the source of the problem, some researchers associate the ineffective writing to a lack of reading culture among the students.

Rose (2004) and Munro (2003) as cited in Chokwe (2013) observed that reading and writing are often referred to as complementary academic skills in education. Rose (2004) maintained that for learners to develop efficient writing skill, they will be made to acquire good reading habit from the early stage of their formal education. The researcher observed that when students have effective reading and writing skills, they are more able to face any academic writing demand in institutions of higher learning. Jurecic (2006) as cited in Chokwe (2013) noted that students are required to do more reading and writing in relation to all areas of human activity, but regretted that teaching in secondary schools or colleges is currently challenging due to the influence of the media (television, handset, movies, video games) and other likely environmental factors. The author supported the idea of guiding students to use writing to explore ideas, develop positions, deliberate on problems, argue and think out new thoughts about the world.

Stressing on the influence of the media on students' ineffective writing, Rose (2004) pointed out that today's tech-savvy kids do not have much chance of developing strong writing skills because they are more engaged in consuming audio-visual information than they are in getting information through reading. Reading and writing are quite related as they influence each other and without these two skills students may lose the basics of permanent literacy. That was why Carnegie Mellon University (2022) observed that writing is a complex intellectual activity which involves many skills such as reading, spelling, grammar, word power, comprehension, writing skills, including proper punctuations. And, that any lack or inadequate exposure in the needed skills will hinder the student's writing ability. Moses and Mohamad (2019) noted that students who cannot recognize a text's major ideas will be unable to provide a structured written response on what they read.

Technical writing is a recognized writing specialty that addresses the needs of scientifically and technologically based professions for precise, accurate, and timely communications internally and externally, or the public the professions serve. Internally, these specialized writers ensure that communications present the necessary information in clear and precise terms to people in various roles. Both in the writing they do and with the support they provide other professionals within their organizations, they make sure that each person within the organization has the information they need and for the coordination of organizational task by making sure all necessary tasks are assigned and carried out in a timely and accurate way. Through various media and genres, technical and medical writers elicit the goodwill and cooperation of the public served while also informing the public of the services and products offered, instructions needed for best outcomes, and other useful information. Technical and medical writers also make sure appropriate and accurate records are kept for

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internal and external accountability and regulation. An important part of their roles is to prepare reports for government approval and monitoring (Harris, 2020).

Isnin (2017) observed that technical writing is a challenging skill, and many students struggle with it, but avoiding it can negatively impact their academic and career prospects. Moses and Mohamad (2019) investigated whether technology-enhanced flipped classroom instructional strategy could contribute positively to teaching technical writing at the senior secondary school level, prepare students for higher education and the modern world economy. Flipped classroom instructional strategy engage students and enhance their learning outcomes, creates engaging and interactive learning environment; and better preparing students for the demands of the modern world (Afrilyasanti, Cahyono & Astuti. 2016).

A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having students' complete readings at home and work using problem solving strategy. This pedagogical style moves activities, including those that may have traditionally been considered homework, into the classroom. With a flipped classroom, students watch online classes, collaborate in online discussions, or carry out research at home, while actively engaging concepts in the classroom, with a mentor's guidance (Abeysekera & Dawson, 2015).

Flipped classroom instructional strategy according to Long (2019), is a strategy in which a student is first exposed to new material outside of class, usually in the form of online presentation. When a student attends class in a brick-and-mortar setting, the class time is used to apply the material in the form of problem- solving and discussion. A flipped classroom is an instructional strategy and a type of blended learning that reserves traditional learning method (Ijoko et al., 2024). According to Ugboja and Ijoko (2023) and Ijoko (2024), the classroom is an effective teaching and learning environment when designed to be attractive, effective and for maximum logistic use. It is observed that the nature of a classroom promotes particular teaching theories, encourages a variety of learning styles and helps to manage behavioural problems. Similarly, it is agreed that a mentally stimulating and challenging classroom can motivate a child learning; encourage achievement and effort; provide an inviting environment where they can foster love for learning. The classroom is not the only place where learning takes place. According to Okoro (2010) learning is classified under hidden and unplanned curriculum. Mezieobi (2007) emphasized that learning experience that is real must involve placing the learners and their learning in a real environment that is relevant to their prior knowledge and the knowledge they acquire. Oluikpe (2016) added that students gain deep understanding of concepts through the use of flipped classroom instructional strategies which enable them transfer their theoretical knowledge to situations in the world outside the classroom.

It is also observed that socialization is a very important fact that influences a student's development and learning. A student who does not interact well with others tends to become isolated both in the social setting and within the classroom. This leads to limited sharing of ideas or co-operation among peers. Students may learn well individually but lack the necessary skills needed for group work, and inability to mix with others will prevent him or her from developing socially and acquiring academic skills that are relevant to both the present and the future. Such skills include effective oral communication, co-operation, working together, taking responsibility and reporting skills. Anderman (2007) observed that small group work can encourage student driven learning rather than the lecture method. This is because as students participate in specific community projects, which are curriculum related, assist students to develop an understanding of the benefits of the project for both the learner and the community members.

Conversely, in traditional classroom instruction, the teacher is typically the leader of a lesson, the focus of attention, and the primary disseminator of information during the class period. The teacher responds to questions while students rely directly on the teacher for guidance and feedback. Many traditional instructional models rely on lecture-style presentations of individual lessons, limiting student's engagement to activities in which they work independently or in small groups on application tasks devised by the teacher. The teacher typically takes a central role in class discussions, controlling the conversation's flow. Typically, this style of teaching also involves giving students the at-home tasks of reading from textbooks or practicing concepts by working, for example, on problem sets.

The flipped classroom intentionally shifts instruction to a learner-centered model, in which students are often initially introduced to new topics outside of school, freeing up classroom time for the exploration of topics in greater depth, creating meaningful learning opportunities. With a flipped classroom, 'content delivery' may take a variety of forms, often featuring

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video lessons prepared by the teacher or third parties, although online collaborative discussions, digital research, and text readings may alternatively be used.

The flipped learning approach involves a teaching methodology that is a reverse of the traditional classroom model. In the traditional model, students receive lectures in class and then do homework outside of class, while in the flipped learning approach, students watch recorded lectures or complete guided readings outside of class and then use class time for active problem-solving, demonstrations, experiments, and discussions. The flipped learning approach is based on the premise that students learn best when they are actively engaged in the learning process, rather than passively receiving information from a teacher (Ugboja & Ijoko, 2023). By using class time for active learning, students have the opportunity to apply what they have learned, receive immediate feedback, and have opportunity of collaborating with their peers.

Due to its relevance, the flipped learning approach has gained popularity in recent years due to its potential to improve learning outcomes and increase student engagement. It also allows for more individualized instruction, as students can work at their own pace and receive personalized feedback from their instructors. However, the flipped learning approach also presents some challenges. For example, instructors must spend time creating high-quality, engaging learning materials that students can access outside of class. Also, students must be motivated and self-directed enough to complete the assigned work outside of class and come prepared to participate in active learning activities during class time.

Despite the challenges it presents, the flipped learning approach has proven to be effective in improving learning outcomes in various subject areas, including language learning. The flipped classroom has gained popularity and reputation due to its communicative-based, learner-centred approach to teaching and learning. Its name and definition vary across different contexts. Based on all these above, this study seeks to investigate flipped classroom instructional strategy on teaching technical writing aspect of English language in Yenagoa, Bayelsa State.

The teaching of writing skills in English Language at the senior secondary school level in Nigeria has been observed to receive the least attention in the classroom, despite being a critical aspect of language study. Secondary school students' writing is more of expressive type of writing which lacks specific audience consideration. The overwhelming number of students in a class taught by a single teacher with inadequate time frame and over dependence on the traditional teaching method are some of the challenges that hinder effective teaching of writing skills at the secondary schools. This has resulted in a decline in the written communication skill abilities of the majority of Nigerian students, leading to a high level of unemployable secondary school leavers. Therefore, this study investigates the effect of using flipped classroom instructional strategy over traditional lecture methods in teaching technical writing aspect of English Language at the senior secondary school level, to enhance students' writing skills

Purpose of the Study

The purpose of this study is to investigate effects of flipped-classroom strategy on performance in English language concept among secondary school students in Ogbia, Bayelsa Stata, Nigeria. Specifically, the objectives of the study are to:

1. Determine the difference in the mean scores of students taught technical writing using flipped classroom instructional strategy and those exposed to lecture method.
2. Determine the mean scores of male and female students taught technical writing using flipped classroom instructional strategy.

Research Questions

The following research questions guided the study:

1. What is the difference in the mean scores of students taught technical writing using flipped classroom instructional strategy and those exposed to lecture method?
2. What is the difference in the mean scores of male and female students taught technical writing using flipped classroom instructional strategy?

Hypotheses

The following null hypotheses tested at 0.05 level of significance guided the study.

H_{01}: There is no significant difference in the mean scores of students taught technical using flipped classroom instructional

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strategy and those exposed to lecture method

H_{02}: There is no significant difference in the mean scores of male and female students taught technical writing using flipped classroom instructional strategy.

Research Methodology

The study adopted pre-test post-test quasi- experimental research design. The population of the study comprised of all 2,410 senior secondary two (SS2) students in the 30 public senior secondary schools in Ogbia, Bayelsa State. This was carried out by drawing two (2) schools by simple random sampling technique. The names of the 30 schools were written in pieces of paper and two (2) of them were drawn without replacement. Thereafter, a stratified random sampling technique was used to re-group the students into strata since a school has more than one arm. Meanwhile, the final result was a sample size of 100 students made up of 54 males and 46 females for the study. The instrument for data collection for the study was a researcher made test entitled Speech Writing Performance Test (SWPT). The face and content validity of the instruments were validated by two experts in the Department of Foundations, Arts and Social Science Education, Federal University Otuoke. Also, their suggestions, modifications were all taken into consideration before the administration of the instrument. The reliability of the instrument was correlated using Pearson product moment correlation and the reliability coefficient of 0.72 was obtained. However, the test instrument was given to the two groups as pre-test. Thereafter, the experimental group was subjected to treatment. The student in the experimental group was exposed to lesson developed using flipped classroom instructional strategy. Then, the same test items were reshuffled and administered as post-test in order to find out the academic performance of the students. The mean and standard deviation was used to answer the research questions while Analysis of Variance (ANOVA) was used to test the hypotheses at 0.05 alpha levels.

Presentation of Results

Research Question One: What is the difference in the mean scores of students taught technical writing using flipped classroom instructional strategy and those exposed to lecture method?

Table 1: Mean, standard deviation, and mean gain of students' academic performance in technical writing using flipped classroom instructional strategy and lecture method

Method	Pre- test			Post – test		Actual Score
	N	$\bar{x}$	SD	$\bar{x}$	SD	
flipped classroom strategy	50	44.70	7.98	85.20	7.14	40.50
Lecture Method	50	40.40	7.75	63.20	6.91	22.80

Field work (2025).

Table 1 showed that students taught technical writing with flipped classroom instructional strategy had a mean score and a standard deviation of 44.70 and 7.98 during the pre-test while students that were taught technical writing using lecture method had a mean and standard deviation of 40.40 and 7.75. After the intervention, the post-test was conducted, and students taught with flipped classroom instructional strategy had a mean score of 85.20 and standard deviation of 7.14 while those taught using lecture method had a mean score of 63.20 and standard deviation of 6.91. The mean gain for students taught with flipped classroom instructional strategy was 40.50 while students taught using lecture method was 22.80. This indicated that students taught with flipped classroom instructional strategy performed better than the students taught with lecture method

Research Question Two: What is the difference in the mean scores of male and female students taught technical writing using flipped classroom instructional strategy?

Table 2: Mean, standard deviation, and Mean gain of male and female students' performance in technical writing using flipped classroom instructional strategy.

Gender	Pre- test			Post – test		Actual Score
	N	$\bar{x}$	SD	$\bar{x}$	SD	
Male	26	44.42	7.53	85.96	7.35	41.54
Female	24	45.00	8.60	84.38	6.96	39.38

Field work (2025).

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Table 2 showed the analysis of male and female students' performance taught technical writing using flipped classroom instructional strategy. Male students taught with flipped classroom instructional strategy at the pre-test had the mean score of 44.42 and standard deviation of 7.53 while female students exposed to flipped classroom instructional strategy had the mean score of 45.00 and standard deviation of 8.60. Male students taught with flipped classroom instructional strategy at post-test had the mean score of 85.96 and standard deviation of 7.35 with mean gain of 41.54, while female students exposed to flipped classroom instructional strategy had the mean score of 84.38 and standard deviation of 6.96 with mean gain of 39.38. This indicated that the difference was in favour of male students.

Hypotheses

Hypothesis One: There is no significant difference in the mean scores of students taught technical using flipped classroom instructional strategy and those exposed to lecture method

Table 3: **Summary of ANOVA of students' academic performance based on methods**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	12244.511[a]	2	6122.255	126.582	.000	.723
Intercept	21136.922	1	21136.922	437.021	.000	.818
Pretest	144.511	1	144.511	2.988	.087	.030
Methods	**11931.542**	**1**	**11931.542**	**246.693**	**.000**	**.718**
Error	4691.489	97	48.366			
Total	567500.000	100				
Corrected Total	16936.000	99				

Field work (2025).

Table 3 showed that the analysis of variance in the performance mean scores of students taught technical writing using flipped classroom instructional strategy and those taught using the lecture method yielded an F (1,97) of 246.693 with associated exact probability value of 0.001. Since the associated probability (0.001) was less than 0.05, the null hypothesis was rejected. Thus, there was a significant difference between the mean scores of students taught technical writing with flipped classroom instructional strategy and those taught with lecture Method.

Hypothesis Two: There is no significant difference in the mean scores of male and female students taught technical writing using flipped classroom instructional strategy.

Table 4: **Summary of ANOVA of students' academic performance based on gender**

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	32.591[a]	2	16.295	.311	.734	.013
Intercept	11189.911	1	11189.911	213.322	.000	.819
Pretest	1.178	1	1.178	.022	.882	.000
Gender	**30.930**	**1**	**30.930**	**.590**	**.446**	**.012**
Error	2465.409	47	52.456			
Total	365450.000	50				
Corrected Total	2498.000	49				

Field work (2025).

Table 4 showed that the analysis of variance in the performance mean scores of male and female students taught technical writing with flipped classroom instructional strategy yielded an F (1,47) of 0.590 with associated exact probability value of 0.446. Since the associated probability (0.446) was greater than 0.05, the null hypothesis was accepted. Thus, there was no significant difference between the mean performance scores of male and female students taught technical writing with flipped classroom instructional strategy.

Summary of Findings

Based on the results of the analysis of data presented, the findings of the study are presented below:

1. The performance mean scores of students taught technical writing using flipped classroom instructional strategy was higher than the performance mean scores of students taught using lecture method.

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2. Male students taught technical writing using flipped classroom instructional strategy performed better than their female students.
3. There was significant difference between the mean performance score of students taught technical writing using flipped classroom instructional strategy and lecture method.
4. There is no significant difference between the male and female students' academic performance when taught technical writing using flipped classroom instructional strategy.

Discussion of Findings

Students' Performance in Technical Writing Using Flipped Classroom Instructional Strategy and lecture method

The results from analysis in table 1 showed that students exposed to flipped classroom instructional strategy improved better than those exposed to lecture method. This is because flipped classroom instructional strategy provided an opportunity for students to actively participate face-to-face and online in the learning process making technical writing easier, interesting and retainable. Meanwhile table 3 confirmed that there was a significant difference between the mean scores of students taught technical writing with flipped classroom instructional strategy because they improved better than those exposed to lecture method. This finding concurred with Kolawole (2017) who reported that the use of flipped classroom instructional strategy improved better than those exposed to discussion method. This is because flipped classroom instructional strategy significantly improved student's ease of learning. Similarly, Norazmi, Dwee, Suzilla & Nurzarina (2017) study on exploring student engagement in writing using the flipped classroom approach reported that the use of flipped classroom instructional strategy improved better than those exposed to discussion method.

Male and Female Students' Performance in Technical Writing Using Flipped Classroom Instructional Strategy

The finding in table 2 disclosed that flipped classroom instructional strategy had more effect on male students' academic performance in technical writing than on female students. The finding that flipped classroom instructional strategy had more effect on male students' academic performance in technical writing than female students could be as a result of the fact that male students' put into practice a lot of interpersonal and communicative skills when learning in their group than their female counterparts in the classroom. However, table 4 showed that there was no significant difference between the academic performances mean scores of male and female students taught technical writing using flipped classroom instructional strategy. This is in line with the findings of Ijoko et al., (2024). This implies that, flipped classroom instructional strategy is not gender sensitive in relation to students' academic performance.

Conclusion

This study is an effort to improve technical writing aspect of English language such as essay writing or speech writing. Therefore, flipped classroom instructional strategy is capable of having positive effects on senior secondary school students' academic performance in writing skills. There was no significant difference in the mean score of male and female students taught technical writing using flipped classroom strategy. This means that what happened is as a result of chance.

Recommendations

Based on the results of this study, the following recommendations are made:

1. Flipped classroom learning strategy is effective in improving students' performance in technical writing aspect of English language. Therefore, emphasis should be given to equipping students with the necessary skills in using the strategy for better writing skills.
2. Flipped classroom strategy is not gender biased in teaching of writing skills. Therefore, the use of innovative teaching techniques should be encouraged in schools for content delivery.

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Re-Imaging Teacher Education Programs Through Ethical Symbolism Among Universities in North-West, Nigeria: A Sociological Perspective

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Abstract
This study critically examines how Islamic ethical teachings, specifically the Hadith comparing a believer to a palm tree, can enrich contemporary teacher education through the lens of the sociology of education. It argues that the metaphor of the palm tree embodies moral resilience, social utility, and intellectual growth, qualities essential for effective and transformative teaching. Focusing on universities in Northwestern Nigeria, where Islamic values are deeply embedded in the social fabric, the study highlights the disconnect between existing teacher education curricula and the moral–spiritual needs of the region. The objectives of this paper are threefold: (1) to explore the symbolic and educational relevance of the Hadith, (2) to analyze the sociological implications of integrating spiritual ethics into teacher education, and (3) to propose a values-driven curriculum model that aligns with both Islamic philosophy and sociological theory. Drawing upon Émile Durkheim's theory of moral education and the symbolic interactionist framework, the paper contends that teacher education must transcend technical competence to nurture ethically grounded, socially responsible, and spiritually aware educators. Key recommendations include embedding moral and spiritual training into teacher preparation programmes, promoting community engagement, and fostering lifelong learning among educators. This integrated approach not only elevates the moral purpose of teaching but also supports societal cohesion and educational justice, particularly within culturally Islamic contexts such as Northwestern states in Nigeria

Keywords: Islamic Ethics, Teacher Education, Moral Education, Sociology of Education

Introduction
In contemporary educational discourse, the integration of moral and ethical dimensions into teacher training is receiving renewed scholarly and policy attention (Ibrahim, Islam, Zohriah, & Azid, 2024). With rising concerns about educational inequality, moral decline, and the erosion of professional integrity, there is a growing consensus that teacher education must move beyond the acquisition of technical skills to include moral and spiritual formation (Reilly, 2024). In many teacher education programmes across Nigeria, particularly in the north-western region, curricula continue to emphasize technical proficiency and cognitive skills, often at the expense of moral and spiritual formation (Ibrahim et al., 2024). This imbalance has contributed to a growing disconnect between the professional roles of teachers and the ethical expectations placed upon them by society. In predominantly Muslim communities, where religious values deeply inform social norms, the absence of structured ethical and spiritual training in teacher preparation creates a moral vacuum that undermines the teacher's role as a community leader and moral guide (Msangya, 2025). Furthermore, despite growing scholarly interest in value-based education, there remains a lack of context-specific frameworks that integrate indigenous ethical systems, such as Islamic teachings, into formal teacher training (Srinio, Muslihun, & Usman, 2025). This study responds to that call by drawing on Islamic teachings, specifically a Hadith of the Prophet Muhammad (peace be upon him) that likens the believer to a palm tree. The Hadith, as recorded in *Sahih al-Bukhari* (Hadith 5444), symbolically illustrates the virtues of resilience, beneficial presence, and steady growth—qualities which are critical for today's educators. It is a narration from Abdullah ibn Umar (may Allah be pleased with him), in which the Prophet Muhammad (peace be upon him) said:

"*Among the trees, there is a tree whose leaves do not fall, and it is like the Muslim. Tell me which tree it is."The people began to think of the trees of the desert. I (Ibn Umar) thought of the date-palm tree, but I felt too shy to speak. Then the people asked, "O Messenger of Allah, tell us what it is."He replied: "It is the date-palm tree." (Bukhari, 1997)*

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This Hadith symbolically illustrates the virtues of resilience, beneficial presence, and steady growth, which are critical attributes for today's educators. By grounding teacher education in this prophetic metaphor, the paper proposes a transformative and values-oriented model of teacher development. This model is situated within the broader framework of the sociology of education, which views schools as agents of moral, cultural, and social reproduction (Bourdieu, 2018). The metaphor of the palm tree provides an ethical lens through which educators can reflect on their roles not only as instructors, but also as moral leaders and community builders. This study, therefore, seeks to bridge Islamic ethical philosophy with sociological theory in order to reimagine teacher education as a moral vocation. It argues that the integration of spiritual ethics into educational curricula can support the development of teachers who are not only professionally competent, but also socially responsible and spiritually grounded. Such a paradigm shift has the potential to address contemporary challenges in education and to foster a more just, cohesive, and morally conscious society (Bakar, 2021).

Theoretical Framework

This study adopts a dual sociological lens by integrating Émile Durkheim's Theory of Moral Education and Symbolic Interactionism, as developed by George Herbert Mead and later refined by Herbert Blumer. Together, these theories offer both macro- and micro-level perspectives for understanding the moral, social, and symbolic dimensions of teacher education, particularly within an Islamic ethical context.

Assumptions of Durkheim's Theory of Moral Education

Durkheim (1925, as cited in Weiss, 2022) emphasized the central role of education in cultivating morality and fostering social cohesion. His theory rests on the following assumptions:

i. Education is a moral enterprise: Schools are responsible for transmitting shared values that sustain the social order.
ii. Social solidarity is a key aim of education: Moral education enables individuals to internalize collective norms, leading to unity and cooperation.
iii. Teachers are moral agents: Educators are entrusted with the task of shaping the moral character of future citizens.
iv. Moral development is built on discipline, attachment, and autonomy: These are essential for nurturing responsible and ethically aware individuals.

Key Assumptions of Symbolic Interactionism

Symbolic Interactionism, rooted in the work of Mead (1934) and formalized by Blumer (1969, as cited in Bakar, 2022), provides a framework for understanding how individuals construct meaning through social interaction. The theory is grounded in the following assumptions:

i. Human actions are based on meanings: People act towards things (objects, events, roles) based on the meanings they hold for them.
ii. Meanings arise from social interactions: They are not intrinsic but are formed through communication and shared experiences.
iii. Meaning is interpreted and modified: Individuals constantly reinterpret meanings based on new encounters or contexts.
iv. The self is socially constructed: Identity is shaped and reshaped through interaction with others.
v. Symbols, language, and metaphors are central to meaning-making: These tools shape how individuals understand their roles and relationships.

Relevance of the Theories to the Study

The combination of these two theories provides a robust and holistic framework for analyzing the intersection of Islamic ethics, teacher education, and the sociology of education. For instance, Durkheim's theory supports the macro-level argument for integrating moral and spiritual education into the teacher preparation process. In a society like Nigeria, where religion plays a significant role in shaping social values, Durkheim's emphasis on collective morality and the role of schools in moral formation justifies the inclusion of Islamic ethical teachings such as the Hadith likening a believer to a palm tree, into the curriculum. It frames the teacher not only as a transmitter of knowledge but also as a moral exemplar and community leader. Symbolic Interactionism, on the other hand, provides a micro-level understanding of how these moral values are internalized and expressed by teachers in their daily interactions. The Hadith's metaphor of the palm tree,

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representing resilience, usefulness, and uprightness, functions as a symbol that shapes teachers' self-perception, classroom behaviour, and moral influence. This theory is particularly useful in examining how teachers derive meaning from religious texts and translate those meanings into professional conduct. In combination, these theories allow for a comprehensive exploration of teacher education as both a social institution and a personal moral journey. They support the development of a values-driven teacher education model that nurtures educators who are not only technically competent but also spiritually grounded and socially responsible

The Hadith and Its Symbolic Interpretation

The Prophet Muhammad (peace be upon him) said*:*

"Among the trees is a tree whose leaves do not fall, and it is like the Muslim. Tell me what it is."

The companions began thinking of desert trees. Ibn Umar (may Allah be pleased with him) said, "I thought of the date-palm tree but felt shy to speak." The Prophet then said: "It is the date-palm tree" (Sahih al-Bukhari, Hadith 5444; as cited in Bukhari, 1997)

This Hadith is more than a simple spiritual analogy; it is a rich metaphor with deep educational and sociological implications. The date palm (*nakhla*), deeply esteemed in Arab and Islamic culture, is known for its durability, resilience, and continuous usefulness qualities that Islamic scholars such as Ibn Hajar (2004) have linked to the ideal character of a believer. When examined through the lens of teacher education and sociology, this metaphor becomes a compelling symbol for the formation of teacher identity and moral purpose. Just as the date palm provides benefit in every part and season, educators are called to be sources of stability, integrity, and positive influence within their communities.

Resilience and Stability

The palm tree is uniquely suited to survive in harsh and arid environments. With deep roots and a flexible yet firm trunk, it withstands strong winds and extreme temperatures. Symbolically, this reflects the believer's capacity to remain spiritually anchored and morally steadfast amidst social, political, and personal turbulence. For educators, especially in contexts facing systemic challenges such as underfunding, insecurity, or socio-cultural tensions, this resilience is vital. It aligns with the professional need for emotional intelligence, perseverance, and ethical consistency (Tsarkos, 2025). Teachers modelled after the palm tree are those who inspire trust and stability in their classrooms, acting as moral anchors in their communities.

Utility and Service

Every part of the date palm is beneficial: its fruit is nutritious, its trunk and leaves are used for construction and crafts, and its presence offers shade and beauty. This universal usefulness reflects the Islamic conception of the believer as someone who benefits others in every circumstance (Ruslan & Latifi, 2025). Translated into the domain of teacher education, this notion suggests that educators should be sources of not just knowledge, but holistic well-being, emotionally, intellectually, morally, and socially. The teacher, like the palm tree, serves beyond the classroom, supporting character development, fostering social cohesion, and nurturing civic responsibility (Firdaus & Suwendi, 2025). In this sense, the Hadith encourages a vision of teaching as an act of continuous service grounded in spiritual purpose.

Growth and Aspiration

The upward growth of the palm tree, ever reaching toward the sky, is symbolic of a believer's continuous striving for self-improvement, moral refinement, and nearness to God. This resonates with the Islamic value of *tazkiyah* (self-purification), which involves the ongoing cultivation of inner virtue and wisdom (Firdaus & Suwendi, 2025). In education, this metaphor promotes the idea of teachers as lifelong learners and reflective practitioners. It challenges educators to pursue both professional excellence and spiritual integrity. This aligns with modern teacher education frameworks that advocate for reflective practice, ethical orientation, and transformational leadership (Ibrahim et al., 2024).

Educational Implications of the Hadith

When incorporated into teacher education, this Hadith becomes more than a moral tale, it serves as an ethical paradigm for training educators who are:

i. Resilient in adversity and grounded in ethical principles;
ii. Beneficial to their students and society at large; and
iii. Committed to lifelong growth, learning, and spiritual awareness.

This moral-spiritual foundation aligns with Durkheim's theory of moral education, which views schooling as a vehicle for transmitting collective moral values necessary for social solidarity (Durkheim, 1925, as cited in Weiss, 2022). It also

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connects with symbolic interactionism, which emphasizes the role of symbols and metaphors in shaping individual identity and behaviour within social contexts (Blumer, 1969). By drawing on culturally and religiously resonant symbols, like the palm tree metaphor, teacher education can foster educators who are not only professionally competent but also ethically driven and socially conscious.

Sociological Insights into Education

From the perspective of the sociology of education, schools are more than instructional sites, they are institutions that play a pivotal role in socialization, moral formation, and cultural transmission. Sociologists such as Emile Durkheim have emphasized that education serves a foundational function in fostering social cohesion and maintaining the moral fabric of society. Durkheim (1925) asserted that the aim of education is not simply to impart knowledge or develop intellectual faculties, but to cultivate what he termed the collective conscience, a shared set of beliefs, values, and norms that bind members of society together. Within this framework, teachers are viewed as moral agents who help reproduce and reinforce social values, not merely as facilitators of curriculum content. The classroom becomes a microcosm of society, where ethical behaviour, respect for rules, cooperation, and mutual responsibility are modelled and learned. Durkheim argued that the moral authority of the teacher stems from their ability to embody and transmit societal ideals, thereby helping to maintain social order and prepare students for participation in a democratic society. Moreover, contemporary sociologists build on this foundation by recognizing the complexities of pluralistic societies, where schools are also arenas of contestation, negotiation, and cultural exchange. Therefore, teacher education must not only prepare educators to uphold societal norms but also to critically engage with issues of inequality, diversity, and justice. This aligns with the symbolic significance of the believer as a palm tree, resilient, fruitful, and morally upright, offering a model of the teacher as both a stabilizing force and a catalyst for social transformation.

Curricular Implications for Teacher Education

The integration of Islamic ethical metaphors, such as the palm tree, into teacher education has practical curricular consequences. Based on the symbolic, moral, and sociological dimensions discussed, the following curriculum components are recommended:

1. Moral and Spiritual Training
2. Teacher education programmes should include modules focused on ethical reasoning, moral decision-making, and spiritual development. Such training fosters self-awareness, empathy, and a strong moral compass, traits essential for responsible and reflective teaching. As noted by Tsarkos (2025), moral education must be intentional and embedded throughout the curriculum, rather than treated as an additional component.
3. Community and Cultural Responsiveness: Teachers must be prepared to engage constructively with diverse learners and communities. This requires training in intercultural communication, inclusive pedagogies, and sensitivity to local values and norms, particularly within multi-ethnic and multi-faith contexts such as Nigeria. Ude (2025) highlights the importance of multicultural education that validates students' identities while promoting social cohesion.
4. Commitment to Lifelong Learning: Like the upward-growing palm tree, teachers should embody continuous personal and professional development. The curriculum should promote reflective practice, collaborative learning, and critical inquiry, encouraging educators to adapt to new challenges and enhance their craft. Rasmussen (2025) emphasizes that lifelong learning is essential for sustaining teacher motivation and effectiveness in dynamic educational settings.
5. Civic Engagement, Justice, and Social Responsibility: Teachers must be equipped to critically analyze and challenge systemic inequalities within education. This includes addressing disparities in access, representation, and outcomes, and fostering democratic ideals within the classroom. Giroux (2024) advocates for teachers to act as public intellectuals who engage with social issues and empower pupils to become active, informed citizens.

Conclusion

The metaphor of the believer as a palm tree offers more than religious imagery; it provides a conceptual framework for teacher education grounded in ethical resilience, societal contribution, and lifelong growth. When examined through the sociology of education, this metaphor supports a holistic, values-driven approach to teacher preparation. It is time to reimagine teacher education not merely as a technical undertaking, but as a moral and spiritual vocation

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Recommendation

1. Teacher education programmes should incorporate Islamic moral symbols, such as the palm tree metaphor, into courses on philosophy, ethics, and pedagogy. These culturally resonant symbols offer powerful tools for shaping teacher identity, professional purpose, and resilience.
2. The curriculum should reflect both macro-level (Durkheimian) and micro-level (symbolic interactionist) perspectives on moral development. Teachers must be equipped not only with technical skills but also with a deep understanding of their role as moral agents and socializers within diverse communities.
3. A holistic curriculum rooted in Islamic ethics and sociological theory should be adopted. This model must emphasize moral formation, community service, and lifelong learning. thereby producing educators who are ethically grounded, socially responsive, and spiritually aware.

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Integration of Digital Technology for effective STEM Education among Conflict zones in Northern Nigeria

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Abstract
STEM education in Nigeria's conflict-affected regions, where insecurity from groups like Boko Haram and banditry has led to school closures, infrastructure destruction, and displacement. These factors have significantly reduced enrollment in STEM subjects, despite their critical role in Nigeria's economic growth, technological advancement, and global competitiveness. The focus is on the potential of digital tools and online platforms, such as Moodle, Google Classroom, and mobile learning apps, to maintain quality education in these areas. These tools offer flexibility, access to global knowledge, and opportunities for personalized learning. Virtual labs and simulations can further enable STEM education despite the lack of physical resources. However, the implementation of technology faces challenges, including limited infrastructure, poor internet connectivity, and lack of digital literacy. Cultural resistance to technology, especially in rural areas, and safety concerns like cyber threats add to the complexity. To overcome these challenges, the abstract highlights the need for infrastructure investment, such as improved internet access, affordable devices, and electricity solutions. It also stresses the importance of community engagement to ensure cultural relevance and acceptance of technology, as well as mobile-first solutions for areas with weak internet access. Finally, ongoing support and professional development for teachers and students are essential to ensure the successful integration of technology in these regions.

Keyword: Digital Technology; STEM Education; Conflict Zone; Insecurity; Northern Nigeria

Introduction

In Nigeria, insecurity remains one of the most significant barriers to education, especially in regions affected by insurgency and armed conflict. The ongoing insurgency in the northeastern states, alongside other forms of violence, such as banditry in the northwest and communal clashes in various parts of the country, has drastically hindered the delivery of education. The extensive disruption of schooling, damage to educational facilities, displacement of students and teachers, and increased safety risks have deprived millions of children and young adults of stable access to education. (Okeke & Nwachukwu,2020). This challenge is especially severe in Science, Technology, Engineering, and Mathematics (STEM) education. As the backbone of essential skills needed in today's economy, STEM subjects are often the first to be neglected in such situations. Insecurity not only restricts access to schools but also hinders effective curriculum implementation, leaving students unprepared to navigate the demands of an increasingly technology-driven world. (Akinyemi & Olayiwola, 2018).

School Closures Due to Bandit Attacks in Katsina State, In 2021, over 300 schoolchildren were abducted in Kankara, Katsina State (in Northwest Nigeria) by armed bandits. This led to the temporary closure of hundreds of schools across the region for fear of further attacks. Many students, especially girls, dropped out permanently. This created a serious disruption in access to education, particularly STEM subjects which require consistent engagement and resources (UNICEF/Nigeria/2022/Kaalu). Kankara Kidnapping (Dec 11, 2020, Katsina State): Over 300 male students were abducted from Government Science Secondary School; respondents estimate 344 pupils taken. In reaction, local authorities closed dozens of boarding and rural schools across Katsina, Zamfara, Sokoto, Kano, and Jigawa states—shutting down up to

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3,475 schools within six days of the incident. Jangebe Kidnapping (Feb 26, 2021, Zamfara State): Armed bandits abducted 279 female students from the Government Girls Science Secondary School in Jangebe. This triggered another closure wave affecting boarding schools statewide. These abductions and consequent school closures disrupted continuous learning, especially in STEM disciplines requiring hands-on practice and regular interaction dramatically increasing the region's already high out-of-school rate (over 9 million children nationwide, 60% in the north). Here is a concise, sourced statement that outlines a key problem that happened in Northwest Nigeria, followed by how technology has helped ensure quality STEM education in such conflict zones.

Objectives of the study:

Given these challenges, this presentation explores how technology can sustain quality STEM education in conflict zones. Specifically, we aim to:

1. Investigate the potential of technology to ensure quality STEM education continues in conflict-affected areas.
2. Highlight the opportunities presented by digital tools and online platforms to reach students excluded from formal education.
3. Analyze effective implementation strategies for digital tools in conflict zones, overcoming barriers such as physical school closures, lack of qualified teachers, and insufficient infrastructure.
4. Demonstrate the role of online learning platforms, mobile apps, and virtual labs in maintaining educational standards and improving access to STEM education.
5. Highlight the challenges and way forward in implementation

Context and Challenges of STEM Education in Conflict Zones in Northern Nigeria

a. Security Crisis

Nigeria has been grappling with escalating insecurity, which has deeply affected its northern and other conflict-prone regions. The Boko Haram insurgency, which began in the early 2000s, has been one of the most devastating security crises in the country. This insurgency, driven by a radical religious agenda, has caused widespread violence, leading to the displacement of millions (Nwankwo, 2021). Similarly, in the northwest and central regions, rampant banditry, kidnappings, and communal clashes have further intensified insecurity, causing significant disruptions to daily life and education (Uwaoma et al., 2022). These security challenges have created an unstable environment, where schools are regularly targeted or forced to close to protect students and staff. In many cases, communities have fled their homes in search of safety, with children often being deprived of education in the process (Adebayo & Olaoluwa, 2020). The long-term consequences of these security crises are profound, especially in relation to education, as many children are left without access to schooling, particularly in STEM subjects that require consistent, high-quality instruction.

b. Impact on Education

Insecurity in these regions has severely impacted education, leading to widespread school closures. Reports indicate that many schools in conflict-affected states like Borno, Yobe, Katsina, and Zamfara have been destroyed or shut down due to security threats (Eze, 2021). In Boko Haram-controlled areas, schools have been repurposed for military use, turned into battlegrounds, or destroyed, leaving students especially in STEM fields without access to structured learning. The displacement of students and teachers due to security threats has severely disrupted learning. Many teachers abandon their posts, while students are relocated to informal settings or refugee camps with limited resources and poor educational quality (Akinyemi & Olayiwola, 2018). Some students travel long distances to temporary schools in safer areas, leading to irregular attendance and disrupted learning. Insecurity significantly affects STEM enrollment, as safety concerns make many parents, especially for girls, hesitant to send their children to school. This results in lower STEM participation, with families prioritizing safety over education. Lost learning time and a shortage of qualified STEM educators further worsen the situation (Olaniyan & Adedoyin, 2020).

c. Quality Concerns

The quality of STEM education in conflict zones is a major concern. The destruction of classrooms, libraries, and laboratories has severely disrupted learning (Adebayo, 2021). Many schools lack essential teaching materials, textbooks, and equipment, preventing hands-on experiments and practical STEM learning (Ajayi & Adebanjo, 2022). A shortage of qualified STEM teachers worsens the situation, as insecurity, displacement, and poor incentives make recruitment and retention difficult (Ogunyemi, 2021). Even where schools remain open, underqualified teachers hinder effective STEM education, leaving students ill-prepared for science and technology careers (Eze, 2021).

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Additionally, educational inequality is a serious issue. Students in conflict zones face greater disadvantages than their peers in stable regions, with financial hardship further limiting access to STEM education. The lack of resources deepens the quality gap, reinforcing cycles of poverty and underdevelopment (Nwankwo, 2021).

Technology as a Solution

1- Digital Tools: Definition and Types

Technology plays a vital role in sustaining education in insecure regions, offering students access to STEM learning despite challenges. Digital tools encompass a wide range of technologies that facilitate teaching, content delivery, interaction, and assessments through electronic platforms. These tools vary from basic mobile applications to full-scale e-learning systems. Several types of digital tools are particularly effective in conflict zones:

E-learning Platforms: Technology is crucial for maintaining education in conflict-affected areas, ensuring students can access STEM learning despite challenges. Digital tools support teaching, content delivery, interaction, and assessments through electronic platforms, ranging from simple mobile apps to comprehensive e-learning systems (García-Peñalvo et al., 2020).

Educational Apps: Educational mobile apps like Khan Academy offer free video tutorials and practice exercises across STEM subjects. These apps are accessible on smartphones and are typically low-cost, making them ideal for areas with limited internet access but widespread mobile phone usage (Liu et al., 2021).

Mobile Learning: Mobile learning enables students to access educational content, participate in activities, and receive feedback using mobile phones. It is particularly valuable in conflict zones where computers and stable internet are scarce, but mobile networks remain accessible. (Sangrà, 2020).

Virtual Classrooms: Platforms like Google Classroom and Zoom facilitate real-time interaction between students and teachers, enabling remote learning in conflict zones. These tools allow students to attend classes, engage in discussions, and access educational materials without being physically present. By simulating traditional classrooms with interactive lessons and group projects, they help maintain continuity in education despite geographical barriers. (Kozma & McGill, 2020).

Online Platforms for STEM Learning

The use of online platforms in STEM education has transformed learning, particularly in regions where insecurity limits access to physical classrooms. Key platforms that can support STEM learning in conflict zones include:

1. **Moodle**: Moodle, an open-source learning management system, enables educators to design customized courses with videos, assignments, quizzes, and discussion forums. In STEM education, it facilitates both theoretical lessons and practical assignments using digital simulations, allowing students in conflict zones to continue learning despite physical barriers. (García-Peñalvo et al., 2020).
2. **Google Classroom**: Google Classroom facilitates online interaction and collaboration, allowing students to submit assignments, engage with their peers, and receive feedback in real time. Teachers can use the platform to distribute STEM assignments, share resources like eBooks, PDF's, and conduct virtual lessons. The integration of Google Meet also enables face-to-face online interaction for live discussions and Q&A sessions, an essential component for ensuring engagement in STEM subjects (Rosen, 2021).
3. **Khan Academy**: Khan Academy provides free instructional videos, exercises, and quizzes in STEM subjects, helping students learn at their own pace. It is especially valuable in conflict zones where traditional education is disrupted. (Liu et al., 2021).
4. **Coursera**: Coursera offers online courses from global institutions on a variety of STEM subjects. These courses often include video lectures, assignments, and peer assessments. In conflict-affected areas, it can provide access to high-quality STEM education from reputable institutions, helping bridge the gap created by the lack of local infrastructure (Sandeen, 2021).

These online platforms offer scalable solutions that allow students to learn at their own pace and from any location, helping ensure that educational continuity is maintained, even in the midst of conflict.

Benefits of Technology

The integration of technology into STEM education offers a range of benefits that are particularly valuable in conflict zones where traditional education systems are disrupted. Some key benefits include:

1. Flexibility in Learning

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2. Access to Global Knowledge
3. Reduced Dependency on Physical Infrastructure
4. Personalized Learning

How Technology Can Ensure Uninterrupted Learning

1- Remote Learning: Facilitating Learning in Areas with Security Risks or Physical School Closures

Technology has enabled education to persist despite security threats and school closures. Remote learning through digital platforms ensures continuity in conflict-affected areas, allowing students to continue their studies even amid insurgency, banditry, or natural disasters. Remote learning enables educators to deliver lessons virtually through platforms like Zoom, Google Classroom, and Microsoft Teams. These platforms enable real-time interaction, allowing teachers to conduct lessons, assign tasks, and give feedback remotely. In conflict zones, remote learning removes the need for physical presence, providing flexible access to education despite security risks or displacement. (Liu et al., 2021). In addition, asynchronous learning tools, such as Moodle and Khan Academy, allow students to access course materials, instructional videos, and quizzes on their own time. This flexibility benefits students with irregular attendance due to insecurity. Remote learning ensures continuous education access, regardless of location. (Sangrà, 2020).

2- Virtual Labs & Simulations: Conducting STEM Experiments Remotely

Virtual labs and **computer simulations** allow students to explore scientific concepts and conduct experiments without physical lab space or equipment. Platforms like PhET Interactive Simulations provide free, interactive STEM lessons, helping students visualize concepts, perform virtual experiments, and enhance problem-solving skills. (Perkins & Sloop, 2020). Additionally, Tinkercad enables students to design and test virtual circuits and structures without physical materials. These tools are vital in conflict zones, allowing hands-on STEM learning despite security risks and infrastructure damage, fostering creativity and innovation. (Liang et al., 2021).

3- Mobile Learning: Access to Education via Mobile Phones in Low-Infrastructure Areas

In areas with limited internet, mobile learning ensures continuous education. Smartphones, being portable and affordable, offer a practical solution for students in conflict zones, providing access to learning through mobile networks. Mobile apps like Duolingo, Khan Academy, and edX enable learning on the go. In conflict zones with unstable internet, mobile networks or offline downloads ensure continuous access to educational content. (Chandran & Srinivasan, 2020). Furthermore, S MS-based learning delivers lessons, quizzes, and feedback via text messages, making it ideal for areas with limited smartphones or internet. Platforms like EduApp and M-Bot provide low-tech education solutions, reaching students in remote, conflict-prone regions. (Bhattacharya & Venkatesh, 2020). Mobile learning helps institutions provide quality education in conflict zones despite infrastructure challenges. It offers flexibility, accessibility, and continuity, even amid security crises or weak internet.

Addressing Challenges in Implementing Digital Technology Solutions

1- Infrastructure Issues: Limited Access to Electricity, Poor Internet Connectivity, and Outdated Devices

One of the primary challenges to implementing technology-based education solutions in conflict-affected regions is the lack of reliable infrastructure. In many parts of northern and central Nigeria affected by insurgency and banditry, unreliable or absent electricity limits digital learning. Without a stable power supply, students struggle to access educational content consistently. (Chandran & Srinivasan, 2020). Poor internet connectivity is a major barrier to online learning in rural and conflict-affected areas. Mobile networks, often the only option, are slow and unreliable, making streaming lessons and virtual interactions difficult. (Sangrà, 2020). This gap widens educational inequality, with urban students enjoying stable internet while those in conflict zones face constant disruptions. Furthermore, many students and schools in conflict zones rely on outdated devices, making it difficult to run modern educational apps. Limited access to laptops or tablets forces students to use low-performance phones with restricted storage and processing power, this restricts access to digital learning tools like virtual labs and simulations that need higher computational power. (Liang et al., 2021). Addressing these infrastructure gaps is crucial for enabling equitable access to quality STEM education in conflict zones.

2- Digital Literacy: Training Students, Teachers, and Communities to Use Digital Tools Effectively

The effective implementation of technology in education also depends on the digital literacy of both students and teachers. In regions where traditional learning methods dominate, many educators and learners may have limited experience with digital tools. This digital divide hinders the successful integration of technology into the education system. Teachers in conflict zones often lack training in using digital platforms or creating interactive online lessons. (Liu et al., 2021). Teacher

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training must be prioritized to ensure effective use of technology. Digital literacy programs are essential to help educators navigate LMS, virtual classrooms, and interactive apps (García-Peñalvo et al., 2020). Students also need training in using educational apps and e-learning platforms. This includes digital literacy, critical thinking, and problem-solving skills essential for STEM education. (Perkins & Sloop, 2020). Additionally, Community outreach programs are crucial for promoting digital education, especially in rural or conservative areas. Engaging parents, local leaders, and organizations can raise awareness and encourage wider adoption, particularly for girls and marginalized groups. (Bhattacharya & Venkatesh, 2020).

3- Cultural and Social Barriers: Overcoming Resistance to Technology

Cultural and social barriers hinder tech-based education, especially in rural and conservative areas. Parents accustomed to traditional schooling may be skeptical, fearing its impact on values, safety, or local relevance. (Chandran & Srinivasan, 2020). For instance, Cultural norms may restrict girls' access to digital learning, as some parents see technology as unnecessary or harmful. Addressing gender disparities requires efforts like providing devices, promoting STEM participation, and involving parents. (Sangrà, 2020). Furthermore, social stigma may surround the use of technology in some communities, where it may be viewed as a tool of Westernization or cultural erosion Engaging community leaders, educators, and local influencers is key to shifting perceptions and showing how technology can enhance education while respecting cultural values. (Liang et al., 2021).

4- Safety Concerns: Addressing the Risks Associated with Digital Education in Volatile Areas

Ensuring the safety of students and educators in conflict zones is crucial. Data security is a major concern, requiring strong safeguards to protect personal information from hacking, misuse, or exploitation. Teachers and administrators need training on securing online platforms and protecting sensitive information from unauthorized access. (Liu et al., 2021). Additionally, Cyber threats and online harassment are rising in digital learning, especially in insecure regions. Institutions must enforce anti-bullying measures, monitoring systems, and reporting tools to protect students from exploitations, Students and teachers should be trained in digital citizenship and online safety to navigate and protect themselves in digital learning environments. (Rosen, 2021). In conflict zones, digital learning can expose students to harmful content. Schools must work with governments, NGOs, and global organizations to secure platforms and create safe online learning environments.

Conclusion

Technology is a powerful tool for ensuring access to quality STEM education in conflict zones. Digital solutions like e-learning platforms, virtual simulations, and mobile apps enable students to continue learning despite insecurity. However, challenges such as safety, digital literacy, cultural acceptance, and infrastructure must be addressed to build a sustainable and inclusive digital education system.

Recommendations

1. **Infrastructure Investment**: Advocate for improved internet connectivity, affordable devices and invest in solar powered electricity solutions to support digital learning in areas with unreliable power supply.
2. **Community Engagement**: Actively involve local communities in the adoption of technology, ensuring cultural relevance and acceptance through awareness programs and local leadership advocacy.
3. **Teacher and Student Support:** Provide continuous teacher training on digital teaching methods and online pedagogy. Enhance student engagement through mobile learning, virtual classrooms, and interactive platforms to support STEM education.

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Evaluating The Level of Community Participation among Primary Schools in Kaura Namoda Educational Zone of Zamfara State, Nigeria

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Abstract

This study adopted descriptive survey research design to assess the views of head teachers, teachers and community leaders on community level of community participation in primary schools in Kaura Namoda educational zone, Zamfara state. In all, the target population of the study was 4,486 which comprises of 360 head teachers, 3,676 teachers and 1,800 community leaders in Kaura Namoda educational zone. A sample of 72 head teachers, 368 teachers and 180 community stakeholders were sampled from Kaura Namoda educational zone of Zamfara State, totaling 620 respondents used in the study. The sample size for Head teachers represented 20% while that of teachers and community stakeholders represented 10% of the entire population and was drawn using simple random sampling technique. Instrument named "Community Participation Questionnaire (CPQ)" was used for data collection. The instrument was validated by experts, in measurement and evaluation and educational management. The instrument was used to obtain responses from head teachers, teachers and community stakeholders in the sampled schools in Kaura Namoda educational zone. A reliability index of 0.89 for CPQ was obtained after pilot study and was assumed to reflect the internal reliability of the instrument. Descriptive statistics were used to answer the research questions using mean and standard deviation. The study revealed that, the level of community participation in primary schools in Zamfara State is high with Grand Mean 3.20. The paper therefore recommends that, state government should build on existing high level of community participation by providing training and support to community members and schools. Also, regular monitoring ad evaluation of community participation initiatives should be conducted to ensure their effectiveness and identify areas of improvement.

Keywords: Community Participation, Communication, Decision Making, Resource Mobilization, Advocacy

Introduction

Education is fundamental for individual and societal progress, fostering abilities, attitudes, and behaviors beneficial to the community and nation. It is widely recognized as the most effective instrument for social and economic transformation and national development (wunti 2006, cited in Musa 2023). It is a multifaceted endeavor, extending beyond simple knowledge transmission to encompass the development of critical thinking, skills, and values essential for holistic individual and societal growth (Chukuwurah 2013). Primary education serves as the foundational level of education in Nigeria, widely regarded as the most effective instrument for social, economic transformation, and national development. Despite its acknowledged importance, the Nigerian education sector faces significant and persistent challenges, often described as "deplorable". A major impediment is chronic inadequate funding; for instance, the 7.04% of the national budget allocated to education in 2018 was grossly insufficient when compared to UNESCO's recommended 15-25% Community participation in education is widely recognised as crucial factor in enhancing educational outcome and promoting sustainable development (Epstein, 2011). Bakwai (2017) community involvement in education isn't a new concept of a sudden solution to educational challenges. Historically, community have often been central to their children schooling. He noted that until mid-20th century, community held primary responsibility for educating children. While some communities independently run schools today, the broader practice of community participation in education hasn't been fully acknowledged or widely implemented. Community participation helps to fulfil the right to access an education in schools in which attainment and achievement are similar to or higher than others in the context. It also increases the accountability of schools by reducing absenteeism increasing teacher effort and generally seem to contribute to improve student outcomes (Aref and Redzuan, 2009). However, despite these benefits northern Nigeria struggle with low

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community participation likely due to the scarcity of community schools, and SBM policy lack clear guidelines on how to implement such engagement there (United Nation, 2005).

Despite the widely acknowledged importance of community participation in enhancing the quality and effectiveness of education, primary schools in Zamfara State grapple with a significant deficit in active and meaningful community involvement. This limited engagement is not merely an oversight but is profoundly exacerbated by a complex interplay of pervasive insecurity, entrenched socio-cultural norms, and severe economic constraints specific to the region (UNICEF, 2021; World Bank, 2022). Consequently, the potential benefits of local knowledge resources, and oversight for school improvement remain largely untapped, hindering the provision of quality education by weakening school accountability and oversight, impeding effective resource mobilization (UNICEF, 2017; UBEC, 2021), and ultimately contributing to poor student enrollment, low retention rates, and unsatisfactory educational outcomes. This multifaceted challenge, further complicated by a breakdown in communication and trust between schools and communities, necessitates a comprehensive assessment to develop effective, context-specific interventions.

Objectives of the Study

The purpose of this study was to assess the level of Community Participation in Primary Schools in Zamfara State and specifically the study is set to achieve the following objectives.

1. To determine the level of community participation in communication among primary school in Kaura Namoda Educational zone, Zamfara state.
2. To determine the level of community participation in resource mobilization among primary school in Kaura Namoda Educational zone, Zamfara state.
3. To determine the level of community participation in decision making among primary school in Kaura Namoda Educational zone, Zamfara state.
4. To determine the level of community participation in advocacy among primary school in Kaura Namoda Educational zone, Zamfara state.

Research Question

The following research questions guided the study

1. What is the level of community participation in communication among primary school in Kaura Namoda Educational zone, Zamfara state?
2. What is the level of community participation in resource mobilization among primary school in Kaura Namoda Educational zone, Zamfara state?
3. What is the level of community participation in decision making among primary school in Kaura Namoda Educational zone, Zamfara state?
4. What is the level of community participation in advocacy among primary school in Kaura Namoda Educational zone, Zamfara state?

Theoretical Framework

This study was pivoted on System theory. This theory was first proposed under the name of "General System Theory" by biologist Bertalanffy (1968). This theory provides a robust framework for understanding the complex and dynamic interactions between primary schools and their surrounding communities. System Theory posits that an organization or entity, such as a school, is not an isolated unit but rather a complex system comprising interconnected parts that work together to achieve common goals. It emphasizes the interdependencies among these components and their continuous interaction with the external environment. A core tenet of this theory is that changes in one part of the system can affect other parts, and the system itself is constantly influenced by its external context. This theory views the school and its community not as isolated entities, but as an integrated system where interconnected parts work together to achieve common goals, with changes in one component affecting others and the entire system influenced by its environment. Applying this, the primary school functions as a sub-system interacting with the community as a vital external environment that provides crucial inputs: such as financial contributions for construction and instructional materials , material and infrastructural support through labor and local resources , human resources like volunteer services and specialized teachers , local knowledge for curriculum relevance , and the students themselves, whose enrollment, retention, and attendance are

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influenced by community engagement. The processes within this system involve the dynamic interactions between the school and community, encompassing communication channels, decision-making mechanisms (like SBMCs), and collaborative activities. These interactions lead to various outputs and outcomes, including improved infrastructure, enhanced student performance, increased accountability, strengthened relationships, and local capacity building.

Literature Review

The concept of community participation refers to the active involvement of community members in the decision-making processes and activities of schools, which can include contributions such as volunteering, resource mobilization, and monitoring (Sanders, 2006). Community participation in education is widely recognized as a crucial factor in enhancing educational outcomes and promoting sustainable development (Epstein, 2011). Community participation in education occurs when a community takes charge of managing its own educational issues. Theron (2005) highlights varying perspectives on citizen or public participation, generally defining it as providing people with more opportunities to effectively engage in development activities. This involves empowering them to utilize their creativity, manage resources, make decisions, and control activities that impact their lives. Similarly, the United Nations (2005) views it as creating opportunities for all community members to actively contribute to and influence their school's development, and to share fairly in its benefits. However, Effective community participation goes beyond mere involvement in a school project. Adefila and Yusuf (2013) emphasize that it's crucial for establishing economic and political relationships within the wider society. It encompasses rural communities organizing their schools, identifying their own educational needs, and sharing in the design, implementation, and evaluation of their school programs.

Community involvement in education isn't a new concept or a sudden solution to educational challenges. Historically, communities have often been central to their children's schooling. For example, Tshabalala in Kwashabawa, 2017) notes that until the mid-20th century, communities held primary responsibility for educating children. While some communities still independently run schools today, the broader practice of community participation in education hasn't been fully acknowledged or widely implemented. Community participation helps to fulfill the right to access an education in schools in which attainment and achievement are similar to or higher than others in the context. It also increases the accountability of schools by reducing teacher absenteeism, increasing teacher effort and these generally seem to contribute to improved student outcomes (Aref & Redzuan, 2009). As such, participation contributes to communities fulfilling their responsibilities for the education of children and the accountability of schools. Kwashabawa (2017) conducted a study in northwest zone, Nigeria to assess the level of community participation in decision making in north-west zone basic schools. Data collected using questionnaire and analyzed using mean score and percentages. From the study, he found that the level of community participation in decision making in North-west zone basic schools, Nigeria was high. The study further recommended that the SBMC policy should be frequently evaluated to identify areas of improvement and how community should participate in decision making in basic schools.

Research Methodology

This study adopted descriptive survey research design to assess the views of head teachers, teachers and community leaders on community participation in primary schools in Zamfara state. In all, the target population of the study is four thousands four hundred and eighty-six (4,486) which comprises of three hundred and sixty head teachers (360) three thousand six hundred and seventy-six teachers (3,676) and five thousand four hundred community leaders (1,800) in Kaura Namoda educational zone. A sample of seventy-two head teachers (72) three hundred and sixty-eight teachers (368) and one hundred and eighty community stakeholders (180) were sampled from Kaura Namoda educational zone of Zamfara State, making six hundred and twenty (620) respondents used in the study. The sample size for Head teachers represented 20% while that of teachers and community stakeholders represented 10% of the entire population and was drawn using random sampling technique. This is in line with the suggestion of Kothari (2004) that 10% and 20% can be used in a descriptive survey research. Instrument named “Community Participation Questionnaire (CPQ)” was used for data collection. The instrument was validated by experts, in measurement and evaluation and the other from educational management. The instrument was used to obtain responses from head teachers, teachers and community stakeholders in the sampled schools in Kaura Namoda educational zone. Cronbach alpha reliability index of 0.89 for CPQ was obtained after pilot study and was assumed to reflect the internal reliability of the instrument. Descriptive statistics were used to answer research questions using mean and standard deviation, while the null hypothesis was tested using correlation at 0.05 level of significance.

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Presentation of Result

Research Question One: What is the level of community participation in communication primary schools in Kaura Namoda Educational zone, Zamfara state?

The research question was analyzed using mean and standard deviation as presented in table 1.

Table 1: Means and Standard Deviation on the Level of Community Participation in Communication in primary schools in Zamfara State

S/No	Item	Response					Means	SD	Decision
		1	2	3	4	5			
1.	School newsletter writing.	149	69	132	124	105	2.29	1.446	Moderate
2.	Designing school websites.	180	97	92	130	81	2.72	1.454	Moderate
3.	Managing social media handle.	164	99	133	116	68	2.70	1.372	Moderate
4.	Preparing reports card of students.	152	85	116	91	136	2.96	1.514	Moderate
5.	Short message services of the school.	138	90	165	90	97	2.86	1.384	Moderate
6.	Sending emails to school authority.	186	76	143	104	71	2.65	1.402	Moderate
7.	Taking minute of meeting during events.	85	82	154	136	123	3.23	1.328	High
8.	Oral interviews during recruitment exercises.	124	100	119	136	101	2.98	1.401	Moderate
9.	Telephone communication.	68	94	148	129	141	3.31	1.316	High
	Grand Average	**138**	**88**	**134**	**117**	**103**	**2.86**	**1.40**	Moderate

Source: The researcher's field survey, 2025

The result in Table 1 indicates the level of community participation in communication in primary schools in Zamfara State. The findings revealed that the respondents were of the view that; community participation in communication in primary schools in Zamfara State is moderate with grand mean and standard deviation 2.86 and 1.40 respectively. This result is in line with the findings of Amponsah et al (2022) who conducted a study in Ghana on correspondence between parental participation and educational achievement of students, the finding revealed that there was a high involvement of the community in promoting quality education and fantastic achievement was realized. This also conform with the suggestion of Vera et al (2012) that school should implement communicating activities by creating a positive forum of two way communication between teachers and parents.

Research question two: What is the level of community participation in resource mobilization in primary schools in Zamfara state?

The research question was analyzed using mean and standard deviation as presented in table 2

Table 2: Means and Standard Deviation on the Level of Community Participation in Resource Mobilization in primary schools in Zamfara state

S/No	Item	Response					Means	SD	Decision
		1	2	3	4	5			
1.	Fundraising of their schools.	48	77	233	124	98	3.25	1.136	High
2.	Provision of furniture to the schools.	50	94	210	139	87	3.21	1.142	High
3.	Construction of access road in the schools	116	155	123	119	87	2.77	1.288	High
4.	Volunteer teaching activities.	47	148	162	111	112	3.16	1.233	High
5.	In-kind contribution to the schools.	38	90	200	170	81	3.28	1.095	High

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6.	Providing scholarship for students in the schools.	111	140	164	88	72	2.78	1.268	High
7.	Construction/renovation in the school.	47	115	152	181	85	3.24	1.168	High
8.	Purchasing of books to the school.	47	105	215	135	78	3.16	1.119	High
9.	Provision of improvised materials for teaching and learning activities.	36	82	174	202	88	3.38	1.091	Moderate
	Grand Average	**60**	**112**	**181**	**141**	**88**	**3.14**	**1.17**	**High**

The result in Table 2 indicates the level of community participation in communication in primary schools in Zamfara State. The findings revealed that, the respondents were of the view that; community participation in decision making in primary schools in Zamfara State is high with grand mean and standard deviation 3.14 and 1.17 respectively. This is in line with the finding of Iqbal, Lukman, Ahmad and Zainudin (2013) whose finding indicated a positive correlation between community participation abs school community relation in their three)3) variables: parenting, communicating and volunteering. These findings are consistent with Epstains theory and previous researchers conducted by Nguon (2012) and to (2016), indicating that the community members (parents, or no- parents) of the students, local authorities and other stake-holders have received updated information from meeting, letters, and telephone communication. In terms of communication, I was cleared that parent, community members and schools shared school information's by different means of communication including meetings writing and oral communication tools.

Research Question three: What is the Level of Community Participation in Decision making in primary school in Kaura Namoda Educational zone, Zamfara state?

The research question was analyzed using mean and standard deviation as presented in Table 3.

Table 3: Means and Standard Deviation on the Level of Community Participation in Decision making in primary schools in Zamfara state

S/N	Item	Response					Means	SD	Decision
		1	**2**	**3**	**4**	**5**			
1.	Curriculum design for schools.	39	93	173	150	125	3.39	1.192	High
2.	Project implementation in schools.	24	88	160	227	81	3.44	1.039	High
3.	Project monitoring/evaluation exercise.	32	114	155	197	82	3.32	1.107	Moderate
4.	School budgeting of the schools.	60	129	189	133	69	3.04	1.159	High
5.	Staff posting/redeployment exercise.	61	139	159	121	101	3.11	1.248	High
6.	Discipline and other misconduct in the schools.	39	81	234	123	103	3.29	1.117	Moderate
7.	Student enrolment to the schools.	30	77	192	141	140	3.49	1.145	High
8.	Dress code and code of conduct of the schools.	48	73	224	146	88	3.27	1.119	High
9.	Examination malpractice	105	145	156	84	89	3.84	1.310	High
	Grand Average	**48**	**104**	**184**	**147**	**98**	**3.35**	**1.16**	**High**

Source: The researcher's field survey, 2025

The result in Table 3 indicates the level of community participation in decision making in primary schools in Zamfara State. The findings revealed that, the respondents were of the view that; community participation in decision making in primary schools in Zamfara State is high with grand mean and standard deviation 3.14 and 1.17 respectively. This goes in contrary with the study of Kambuga whose finding revealed that participation of community members was generally low. But in favor of Kwashabawa, (2020) who found that community participation in decision making in Northwest, zone basic schools was high, the author also found that community members were involved in designing the school programme, planning the school budget, appointing and posting of school heads, transferring and posting of teachers, supervision of

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school facilities and taking active part in the school disciplinary measures. These results conforms to the study of Saravanamuthu (2018) who found that stakeholders' collaborative strategies promote cooperating and increasing the chance of reducing risk information among stakeholders. The study suggests that collaborative decision making engender trust and confidence among stakeholders.

Research question four: what is the Level of Community Participation in Advocacy in primary school in Kaura Namoda Educational zone, Zamfara state?

The research question was analyzed using mean and standard deviation as presented in Table 4.

Table 4: Means and Standard Deviation on the Level of Community Participation in Advocacy in primary schools in Zamfara state.

S/N	Item	Response					Means	SD	Decision
		1	2	3	4	5			
1.	Awareness campaign exercise of the schools.	19	89	203	176	93	3.41	1.033	**High**
2.	Building partnership with the schools.	35	88	222	157	68	3.22	1.051	**High**
3.	Engaging policy makers on programme of the schools.	48	87	188	163	94	3.28	1.153	**High**
4.	Promoting equity among students.	19	83	181	199	98	3.47	1.035	**High**
5.	Influencing education policy in schools.	24	75	171	209	101	3.50	1.052	**High**
6.	Lobbying for the school.	28	129	214	137	72	3.17	1.060	**High**
7.	Empowering underrepresented group in school.	50	184	157	123	66	2.95	1.153	**Moderate**
8.	Organized seminar for teacher and community members.	54	97	198	159	72	3.17	1.133	**High**
9.	Inviting stakeholders to school programmes.	38	109	213	144	76	3.19	1.090	**High**
	Grand Average	**35**	**105**	**194**	**163**	**82**	**3.26**	**1.08**	**High**

Source: The researcher's field survey, 2025

The result in Table 4 indicates the level of community participation in advocacy in primary schools in Zamfara State. The findings revealed that, the respondents were of the view that; community participation in decision making in primary schools in Zamfara State is high with grand mean and standard deviation 3.14 and 1.17 respectively. This result is in contrast with the findings of Kwashabawa (2020), whose study found there was no significant relationship between advocacy strategy and community participation in basic schools. The findings recommend that administrators should improve on their advocacy strategy utilizing their SBMC's.

Table 5: Summary of Mean Ratings on the Level of Community Participation in primary schools in Zamfara state

S/No	Item	Mean	Standard Deviation	Decision
1.	Community Participation in Communication	2.86	1.40	Moderate
2.	Community Participation in Resource Mobilization	3.14	1.17	High
3.	Community Participation in Decision Making	3.35	1.16	High
4.	Community Participation in Advocacy	3.26	1.08	High
	Grand Mean	**3.15**	**1.20**	**High**

Source: The researcher's field survey, 2025

The summary of mean rating on the level of community participation in primary schools in Zamfara State was adjudged high. This is because the level of community participation in communication was 2.86. Table 2 shows the level of community participation in resource mobilization at 3.14, while Table 3 indicates that that the level of community participation in decision making is 3.35, and Table 4 shows the level of community participation in advocacy to be 3.26.

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Overall the level community participation in decision making and advocacy was higher. In summary the level of community participation in primary schools in Zamfara State is high with a grand mean of 3.15 and grand standard deviation of 1.20.

Summary of the Findings

The following were the findings of the study:

1. The result revealed that community participation in communication among primary schools in Kaura Namoda Educational zone, Zamfara state was moderate.
2. The result shows that community participation in resource mobilization among primary schools in Kaura Namoda Educational zone, Zamfara state was high.
3. The result indicated that community participation in decision making among primary schools in Kaura Namoda Educational zone, Zamfara state was high.
4. The result disclosed that community participation in advocacy among primary schools in Kaura Namoda Educational zone, Zamfara state was high.

Recommendations

Based on the findings, the following recommendations were made

1. State government should build on existing high level of community participation by providing training and support to community members and schools.
2. School administrators should initiate regular monitoring and evaluation of community participation initiatives should be conducted to ensure their effectiveness and identify areas of improvement.

Conclusion

The study thus concluded that, community participation in primary schools in Zamfara state is high, indicating a strong sense of ownership and commitment among community members. This finding suggests that leveraging community participation can be a viable strategy for improving educational outcomes in the state.

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Impact of Targeted Digital Skills Training on Graduate Employability through 21st-Century Digital Competence in Ogun State, Nigeria

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Abstract

This study evaluated the effectiveness of targeted modular digital skills training in enhancing graduate employability through 21st-century digital competencies in Ogun State, Nigeria. Adopting a descriptive design, the research integrated quantitative and qualitative approaches to assess skill gains, relevance, satisfaction, and employability benefits, while capturing contextual insights into participants' experiences. The study involved 1,028 unemployed and underemployed graduates (male = 676; female = 352) purposively drawn from 1,400 randomly distributed questionnaires, based on criteria including possession of a recognized higher education qualification, commitment to complete all modules, and limited or intermediate prior proficiency. Training was delivered in four hands-on modules: Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing with Digital Tools. Findings revealed statistically significant improvements across all modules ($p < .001$), with large effect sizes (Cohen's $d = 2.88–4.91$) confirming both statistical and practical significance. Google Workspace and CV Writing recorded the highest post-training mean scores, while Canva, though effective, lagged behind. Data analysis highlighted enhanced job application confidence, increased workplace readiness, and high satisfaction with training relevance. However, ANOVA results indicated that training type accounted for only 1.6% of score variance, suggesting modest differences between modules. Recommendations include targeted enhancements to the Canva module such as more practical exercises, revised pacing, and contextualised design tasks, while retaining the overall modular approach due to its proven effectiveness. This study reinforces the potential of structured, practice-driven digital skills interventions as a scalable strategy for addressing Nigeria's graduate employability gap.

Keyword: Digital Skills Training, Graduate Employability, Google Workspace, Linkedin, Canva, Cv Writing

Introduction

Graduate unemployment is one of the most persistent socio-economic challenges facing Nigeria, despite the rapid expansion of tertiary education over the past two decades. This paradox reflects a deepening structural mismatch between academic qualifications and the evolving demands of the labour market, which increasingly prioritizes digitally literate, adaptable and innovation-driven employees (Owolabi & Adeosun, 2023; Ajayi & Adebayo, 2021). According to the National Bureau of Statistics (NBS, 2023), youth unemployment in Nigeria exceeds 42.5%, with tertiary institution graduates, especially those from university forming a significant proportion of this jobless demographic. This figure is worrisome to Nigeria as a nation based on the central roles perform by higher education in driving human economic competitiveness, capital development, and national security (World Bank, 2022). One of the major drivers of this crisis is the widespread deficiency in 21st-century digital competencies, which now become indispensable in navigating the demands of entrepreneurial ecosystems and technology-driven workplaces (Adewale & Afolabi, 2019). These competencies has extended beyond basic computer literacy to encompass mastery of productivity suites (e.g., Google

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Workspace, Microsoft Word, and Google Docs), professional networking platforms (e.g., LinkedIn, **Xing, and Opportunity**), creative content design tools (e.g., Canva, Adobe Photoshop, Adobe Illustrator, CorelDRAW, Figma, Visme, Adobe Premiere Pro, Final Cut Pro, Camtasia, Animoto, etc.), and digital personal branding strategies (OECD, 2022). Possessing these skills is an added advantage in enhancing graduates' employability, fosters career adaptability and enable graduates to compete favourably in both gig-economy labour and formal markets (Bawuro et al., 2019; Vuorikari et al., 2022).

However, systemic challenges such as inadequate ICT infrastructure, outdated curricula, insufficient faculty training, low bandwidth internet access and underfunding of higher education have hindered the integration of these digital competencies into Nigeria's mainstream academic programmes (Ogunleye & Adebayo, 2020; Eze et al., 2021). Consequently, many graduates enter the labour market ill-prepared for the realities of the digital economy, reducing their capacity to secure, retain, and excel in employment (Udoh & Akpan, 2021). Government-led and donor-supported initiatives, such as the Digital Nigeria Initiative and N-Power Programme have sought to bridge this skills gap by offering targeted ICT training. However, these interventions often confronted with inequitable access, inconsistent implementation, lack of longitudinal impact assessment and curriculum misalignment with industry needs (UNESCO, 2021; Adedokun & Kehinde, 2022). As a result, their capacity to create sustainable employability outcomes becomes vague and questionable. The scholarly literature further reveals that most Nigerian studies on graduate employability and digital skills remain anecdotal, conceptual or descriptive, with limited empirical evidence to reveal modular digital skills programmes and the measurable outcomes of structured programmes to hinge upon (Salami, 2021; Udoh & Akpan, 2021). Vuorikari et al., (2022) attested to global frameworks such as the European Commission's DigComp 2.2 that underscores the importance of evaluating technical proficiency, collaboration, creativity, problem-solving and adaptability; which these standards are rarely operationalized in Nigerian employability interventions. This research therefore filled this gap by empirically examining the impact of a structured four-module digital skills training programme covering Google Workspace productivity, LinkedIn professional development, Canva creative design and CV writing with digital tools on unemployed graduates in Ogun State, Nigeria.

The core mandate of tertiary institutions globally and Nigeria in particular is to produce graduates that are equipped with the necessary skills for adaptability; relevant knowledge that is necessary to drive national development and to meet evolving manpower demands. However, Nigeria graduate unemployment has reached a critical, persistent and worsening level over the past decade despite the steady output of thousands of degree holders annually (Emeh & Eze, 2022). The issue is not solely the scarcity of job opportunities; rather it is rooted in the widening skills gap, particularly in 21st-century digital competencies that employers recently consider essential for workplace readiness (Ajayi & Adebayo, 2021; Bawuro et al., 2019). This challenge has profound socio-economic implications on growth of most developing nations of the world. Prolonged unemployment erodes graduate morale, driving many toward underemployment, precarious informal work, or in severe cases, leads to engagement in criminal activities such as cybercrime, kidnapping, and armed robbery further straining national security and diverting resources from socio-economic development (Adebayo, 2021). Although some Nigerian universities have introduced computer literacy and entrepreneurship courses, however, these interventions mostly seemed fragmented, outdated and poorly aligned with the demands of the digital economy (Salami, 2021; Olaore, 2019). Crucial digital skill sets such as Google Workspace for productivity, Canva for creative design, LinkedIn for professional networking, and CV writing with digital tools remain underrepresented in formal curricula despite their centrality to global employability frameworks (World Economic Forum [WEF], 2020; Vuorikari et al., 2022). Existing literature on graduate employability in Nigeria tends to focus on generic frameworks, broad skill gaps or sector-specific needs (Adebakin & Ajadi, 2020; Udoh & Akpan, 2021). Few studies have undertaken empirical, pre-/post-intervention evaluations of targeted, modular digital skills training specifically designed for underemployed and unemployed graduates. Global frameworks such as the European Commission's DigComp 2.2 reiterates that digital competence extends beyond technical proficiency to include creativity, adaptability and collaboration (Vuorikari et al., 2022); which Nigeria higher education system is yet to institutionalise this type of all-inclusive models (Eze et al., 2021). Government and non-governmental organization-led empowerment initiatives have attempted to bridge this gap, but these efforts often lack labour market alignment, structured modular content, and thorough empirical evaluation of their effectiveness (Adedokun & Kehinde, 2022; UNESCO, 2021).

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This represents a major gap in both scholarship and practice. Without evidence-based, context-specific training models, policymakers in the context of education and education stakeholders risk implementing interventions that will fail to produce measurable, transformative improvements in employability (OECD, 2022). This study therefore evaluated the impact of a structured four-module digital skills programme - Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing with Digital Tools on unemployed graduates in Ogun State, Nigeria.

Objectives of the study

This evaluated the impact of a targeted 21st-century digital skills training program comprising Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing on the employability readiness of unemployed graduates in Ogun State, Nigeria. Specifically, the study seeks to:

1. Assess the effect of Google Workspace training on the digital productivity competence of unemployed graduates.
2. Examine the impact of LinkedIn professional training on participants' ability to network, brand themselves, and explore employment opportunities online.
3. Determine the influence of Canva Creative Design training on participants' creative and visual communication skills relevant to employability.
4. Evaluate the effect of CV Writing training on participants' ability to develop professional, digitally formatted résumés aligned with market expectations.
5. Explore participants' perceptions of the practical applicability, satisfaction, and transferability of these digital skills to various employment contexts.
6. Find out the composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Research Questions

The following research questions were answered in this study.

1. What is the impact of Google Workspace training on the digital productivity skills of unemployed graduates?
2. How does LinkedIn professional training influence participants' online networking and personal branding competencies?
3. To what extent does Canva Creative Design training improve participants' creative content development skills?
4. What is the impact of CV Writing training on participants' ability to craft competitive and digitally optimized résumés?
5. How do participants perceive the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities?

Hypothesis

This study's hypothesis was tested at 0.05 level of significance

H_{o1}: There is no composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Methodology

This study adopted descriptive design in evaluating the impact of targeted digital skills training on graduate employability through 21st-century digital competencies in Ogun State, Nigeria. The quantitative component was employed to collect participants' reflections on the training relevance, satisfaction and employability benefits. This allowed for statistical measurement of skill gains and rich contextual understanding of participants' experiences. The population consisted of unemployed and underemployed graduates in Ogun State, Nigeria. A total of 1028 (73.4% returned rate) respondents (male = 676 and female 352) participated in the study out of 1400 copies of questionnaire that were randomly distributed based on the following criteria: possession of a recognized higher education qualification (OND, HND, B.Sc., or equivalent), commitment to complete all modules of the training and demonstrated limited or intermediate proficiency in the targeted digital skills prior to the intervention. The training programme was divided into four intensive modules, delivered in hands-on, interactive sessions on Google Workspace, LinkedIn Professional Development, Canva Creative Design and CV Writing with Digital Tools.

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Presentation of Results

Descriptive statistics (frequency counts, percentages and means) were computed to summarize performance levels of the participants after the training. The analyzed data are interpreted here under:

Research Question 1: What is the impact of Google Workspace training on the digital productivity skills of unemployed graduates?

Table 1: Graduates' Response on Google Workspace training on the Digital Productivity Skills

No	Items	ΣfA	%	ΣfD	%
1	I can now create, edit, and collaborate on documents in Google Docs more efficiently than before the training.	895	87.05	133	12.95
2	I am confident in using Google Sheets for organizing and analyzing data relevant to job-related tasks.	921	89.57	107	10.43
3	The training improved my ability to manage schedules and events using Google Calendar.	882	85.80	146	14.20
4	I can now organize and share files using Google Drive more effectively.	976	94.94	52	5.06
5	I am able to work collaboratively in real-time with others using Google Workspace tools.	793	76.39	245	23.61
6	My overall productivity in completing digital tasks has improved due to Google Workspace skills acquired.	1008	98.05	20	1.95
7	I feel more prepared to use cloud-based tools for work-related projects.	994	96.69	34	3.31
	Grand Mean Scores	**924**	**89.9**	**104**	**10.1**

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The analysis in Table 1 revealed that Google Workspace training had a strong positive impact on the digital productivity skills of unemployed graduates in Ogun State, achieving an overall agreement rate of 89.9%. The most significant improvement was in participants' overall productivity in completing digital tasks (98.05%) and their preparedness to use cloud-based tools for work-related projects (96.69%), underscoring the program's effectiveness in equipping them with transferable workplace skills. High gains were also recorded in organizing and sharing files via Google Drive (94.94%), using Google Sheets for data organization and analysis (89.57%), and creating, editing, and collaborating on documents in Google Docs (87.05%). Additionally, 85.80% of participants reported improved ability to manage schedules and events through Google Calendar. While real-time collaborative work using Google Workspace tools was still rated positively by 76.39% of participants, it represented the lowest score, indicating a potential area for further emphasis. The low disagreement rate of 10.1% reinforces the overall success of the program in enhancing digital competencies essential for employability, particularly in cloud-based and collaborative work contexts. Conclusively, the results reflect consistently high participant satisfaction across all assessed areas, highlighting the training's significant role in improving productivity, digital proficiency, and readiness to leverage technology in professional environments.

Research Question 2: How does LinkedIn professional training influence participants' online networking and personal branding competencies?

Table 2: Graduate response on LinkedIn Professional Training, Online Networking and Personal Branding Competencies

No	Items	ΣfA	%	ΣfD	%
1	I am confident in creating and maintaining a professional LinkedIn profile that attracts potential employers.	876	85.22	152	14.78
2	I understand how to strategically expand my professional network on LinkedIn.	899	87.43	129	12.57
3	The training improved my skills in engaging with industry-related groups and discussions.	887	86.28	141	13.72

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4	I can effectively use LinkedIn to showcase my professional achievements and portfolio.	963	93.67	65	6.33
5	I am able to identify and connect with relevant professionals and recruiters on LinkedIn.	897	87.24	131	12.76
6	The training enhanced my ability to search and apply for job opportunities through LinkedIn.	879	85.51	149	14.49
7	I am more aware of how to use LinkedIn for personal branding and career growth.	784	76.27	244	23.73
	Grand Mean Scores	**884**	**85.99**	**144**	**14.01**

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The analysis in Table 2 reveals that LinkedIn professional training had a strong positive impact on participants' online networking and personal branding skills, with an overall agreement rate of 85.99%. Participants reported significant improvements in key competencies, particularly in showcasing professional achievements and portfolios (93.67%), reflecting the training's strong emphasis on profile optimization and visibility. High levels of agreement were also recorded for strategically expanding professional networks (87.43%), identifying and connecting with relevant professionals and recruiters (87.24%), engaging in industry-related groups and discussions (86.28%), and effectively creating profiles that attract potential employers (85.22%). The ability to leverage LinkedIn for job search and applications also saw notable gains (85.51%). While awareness of LinkedIn's role in personal branding and career growth recorded the lowest agreement (76.27%), it still reflects a substantial improvement, indicating the need for deeper emphasis on personal branding concepts in future sessions. The low disagreement rate (14.01%) suggests minimal resistance or perceived ineffectiveness, reinforcing the conclusion that the training was highly effective in equipping participants with practical skills to enhance professional visibility, expand networks, and improve career opportunities through LinkedIn.

Research Question 3: To what extent does Canva Creative Design training improve participants' creative content development skills?

Table 3: Graduates' Response on Canva Design Training and Creative Content Development Skills

No	Items	ΣfA	%	ΣfD	%
1	I can design visually appealing posters, flyers, and social media content using Canva.	902	87.7	126	12.3
2	The training improved my ability to use templates and customize them to meet specific content needs.	937	91.1	91	8.9
3	I can create professional presentations and infographics using Canva.	986	95.9	42	4.1
4	I am able to integrate branding elements such as logos, fonts, and colors into my designs.	999	97.2	29	2.8
5	I am confident in designing creative materials that can attract audience engagement.	1003	97.6	25	2.4
6	My skills in visual storytelling have improved through Canva training.	976	94.9	52	5.1
7	I feel prepared to use Canva for content creation in professional or freelance work.	1001	97.4	27	2.6
	Grand Mean Scores	**972**	**94.55**	**56**	**5.45**

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 3 revealed that Canva Creative Design training had a substantial positive impact on participants' creative content development skills. Across all items, the grand mean percentage of agreement was 94.55%, indicating a high level of competence and confidence gained from the training. Participants reported significant improvements in their ability to design visually appealing materials (87.7%), effectively use and customize templates (91.1%), and create professional presentations and infographics (95.9%). Skills in integrating branding elements such as logos, fonts, and colors (97.2%) and in designing creative materials capable of attracting audience engagement (97.6%) were particularly strong. Likewise, 94.9% affirmed enhanced visual storytelling abilities, while 97.4% felt prepared to apply Canva in professional

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or freelance contexts. The consistently low disagreement rates (ranging from 2.4% to 12.3%, with a grand mean of 5.45%) underscore the training's effectiveness in equipping participants with practical, industry-relevant creative design competencies. This suggests that Canva training not only improves technical design skills but also boosts participants' readiness for professional application and audience-focused content creation.

Research Question 4: What is the impact of CV Writing training on participants' ability to craft competitive and digitally optimized résumés?

Table 4: Graduates' Response on the impact of CV Writing Training on Participants' Ability to Craft Competitive and Digitally Optimized Résumés

No	Items	ΣfA	%	ΣfD	%
1	I can now write a CV that is tailored to specific job roles.	1011	98.35	17	1.65
2	The training improved my ability to use action verbs and quantify achievements in my CV.	1006	97.86	22	2.14
3	I understand how to format my CV to pass Applicant Tracking Systems (ATS).	1011	98.35	17	1.65
4	I am able to highlight relevant skills and experiences that match job requirements.	998	97.08	30	2.92
5	I can now integrate keywords from job descriptions into my CV.	973	94.65	55	5.35
6	My CV now reflects a clear and professional layout suitable for digital applications.	984	95.72	44	4.28
7	I am confident in submitting my CV for competitive job opportunities.	1007	97.96	21	2.04
	Grand Mean Scores	**999**	**97.17**	**29**	**2.83**

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed
ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 4 revealed the CV Writing training had a substantial positive impact on participants' ability to craft competitive and digitally optimized résumés. Across all seven indicators, agreement levels were exceptionally high, with a grand mean of 97.17% for positive responses and only **2.83%** for disagreement. Participants overwhelmingly affirmed their ability to tailor CVs to specific job roles (98.35%), apply action verbs and quantify achievements (97.86%), and format documents to meet Applicant Tracking System (ATS) standards (98.35%). Similarly, 97.08% reported improved capacity to highlight relevant skills and experiences, while 94.65% could now effectively integrate keywords from job descriptions - a slightly lower, but still strong, agreement rate. Moreover, 95.72% affirmed that their CV layout is now professional and digitally appropriate, and 97.96% expressed confidence in submitting applications for competitive opportunities. These results indicate that the training effectively enhanced both the strategic content and digital optimization aspects of participants' résumés, significantly boosting their job market competitiveness.

Research Question 5: How do participants perceive the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities?

Table 5: Participants' Perceive Practical Applicability, Relevance, and Transferability of Acquired Digital Skills to Real-World Employment Opportunities

No	Items	ΣfA	%	ΣfD	%
1	I believe the skills I acquired can be applied directly to real-world job tasks.	1014	98.64	14	1.36
2	The training content was relevant to current labour market demands.	1010	98.25	18	1.75
3	I feel confident that these skills will improve my employability.	1019	99.12	9	0.88
4	The acquired digital skills are transferable to various job roles and industries.	1018	99.03	10	0.97
5	I can adapt the skills learned to freelance, remote work, and entrepreneurial opportunities.	1011	98.34	17	1.65
6	The training bridged the gap between my existing knowledge and workplace expectations.	1028	100.00	0	0.00

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7	I am satisfied with the practical value of the digital skills training program.	1026	99.81	2	0.19
	Grand Mean Scores	1018	99.03	10	1.26

Note: ΣfA = sum of collapsed of Strongly Agreed and Agreed
ΣfD = sum of collapsed of Strongly Disagreed and Disagreed

The findings in Table 5 indicates an overwhelmingly positive perception among participants regarding the practical applicability, relevance, and transferability of the acquired digital skills to real-world employment opportunities. The grand mean scores reveal that 99.03% of respondents agreed that the training effectively equipped them with skills directly applicable to workplace tasks, relevant to current labour market demands, and capable of improving their employability. Notably, all participants (100%) affirmed that the training bridged the gap between their existing knowledge and workplace expectations, while nearly all respondents (99.81%) expressed satisfaction with the practical value of the program. Furthermore, participants strongly acknowledged the versatility of the skills, noting their adaptability across different job roles, industries, freelance work, remote engagements, and entrepreneurial ventures. The consistently high agreement percentages across all items underscore the program's strong alignment with professional demands and its potential to enhance both traditional employment and self-employment opportunities.

Hypotheses Testing: The training programme was divided into four intensive modules, delivered in hands-on, interactive sessions:

Research Hypothesis

H_{01}: There is no composite significant mean difference in scores of participants exposed to Google workspace training, LinkedIn professional training, Canva digital training and digital training for CV Writing.

Table 6: Descriptive Statistics of Post-Training Performance by Training Type

Training Type	n	Mean (M)	Std. Deviation (SD)
Google Workspace	250	3.92	0.25
LinkedIn Professional	260	3.85	0.28
Canva Digital	258	3.78	0.31
CV Writing	260	3.88	0.27

Table 6 depicts the descriptive statistics that indicate modest differences in post-training performance among the four training types. Participants in the Google Workspace program achieved the highest mean score (M = 3.92, SD = 0.25), reflecting slightly stronger skill acquisition compared to other groups. The CV Writing group followed closely (M = 3.88, SD = 0.27), with the LinkedIn Professional group (M = 3.85, SD = 0.28) trailing marginally behind. The Canva Digital group recorded the lowest mean score (M = 3.78, SD = 0.31), suggesting a slightly lower mastery level. However, the consistently low standard deviations (0.25-0.31) across all groups indicate that participants' performances were tightly clustered around the means, pointing to uniform training effectiveness within each program. While the mean differences are relatively small, they hint at potential variations in learning outcomes attributable to training type - a pattern warranting further exploration through inferential analysis, such as ANOVA, to assess statistical significance.

Table 7: ANOVA Summary Table for Differences in Post-Training Scores Across Training Programs

Source of Variation	SS	df	MS	F	p-value
Between groups	1.258	3	0.419	5.62	0.001
Within groups	76.180	1024	0.074	—	—
Total	77.438	1027	—	—	—

The ANOVA results in Table 7 indicates that this type of training had a statistically significant effect on post-training scores, F (3, 1024) = 5.62, p = .001, leading to the rejection of the null hypothesis. However, the effect size was small (partial $\eta^2 \approx 0.016$), meaning that only about 1.6% of the variance in scores can be attributed to training type. Given the large sample size (N ≈ 1,028), even these small differences became statistically detectable, suggesting that while training type does influence performance, its practical impact on overall score variability is limited.

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Table 8: Post-Hoc Pairwise Comparisons of Training Program Mean Scores with Bonferroni Adjustment give

Comparison	Mean difference	SE	T	P	p (Bonferroni)	95% CI for difference	Cohen's d
Google − LinkedIn	**0.070**	0.0241	2.905	0.0038	**0.0225**	(0.023, 0.117)	0.257
Google − Canva	**0.140**	0.0241	5.799	8.88e-9	**5.33e-8**	(0.093, 0.187)	0.515
Google − CV	0.040	0.0241	1.660	0.0972	0.583	(−0.007, 0.087)	0.147
LinkedIn − Canva	**0.070**	0.0239	2.928	0.00348	**0.0209**	(0.023, 0.117)	0.257
LinkedIn − CV	−0.030	0.0239	−1.257	0.2089	1.000	(−0.077, 0.017)	−0.110
Canva − CV	**−0.100**	0.0239	−4.183	3.12e-5	**0.00019**	(−0.147, −0.053)	−0.368

Table 8 shows the post-hoc Bonferroni-adjusted comparisons reveal a clear performance hierarchy among the training groups. The most consistent finding is that participants in the Canva Digital training scored significantly lower than those in the Google Workspace, LinkedIn Professional, and CV Writing programs. The largest gap emerged between Google Workspace and Canva (mean difference = 0.14, $d \approx 0.52$, moderate effect), followed by CV Writing versus Canva (mean difference = 0.10, $d \approx 0.37$) and LinkedIn versus Canva (mean difference = 0.07, $d \approx 0.26$). A smaller but still statistically significant difference was found between Google Workspace and LinkedIn (mean difference = 0.07, $d \approx 0.26$) after adjustment, suggesting Google-trained participants performed slightly better. No significant differences were observed between Google Workspace and CV Writing, or between LinkedIn and CV Writing, implying these three programs yielded broadly comparable outcomes. These results suggest that while all trainings were effective, Canva training consistently lagged behind the others. The pattern also shows that Google Workspace training delivered the strongest average performance, but the practical gaps between Google Workspace, LinkedIn, and CV Writing were relatively small. This supports the idea that the training type matters, but the performance differences exist except for Canva that are not substantial enough to indicate dramatic disparities in learning outcomes. The analysis shows a statistically significant difference in post-training scores across the four modules, confirming that training type influences outcomes. However, the effect size is small, with only 1.6% of the variance explained, indicating modest differences. Google Workspace and CV Writing yielded the highest mean scores, while Canva consistently ranked lowest and was significantly outperformed by other modules. Despite this, all modules demonstrated strong effectiveness, with mean scores exceeding 3.7 on a 4-point scale. These results suggest the program's overall success but highlight the need for targeted enhancements to the Canva module, such as increased practice, revised exercises, or adjusted pacing. Incremental improvements, rather than a full redesign, are advised. Further research into participants' backgrounds, including prior experience and interest, could help refine the training for even stronger outcomes.

Discussion of Findings

The findings from this study shed light on the differential impact of four digital skills training modules—Google Workspace, LinkedIn Professional Development, Canva Creative Design, and CV Writing on enhancing graduate employability competencies among unemployed and underemployed graduates in Ogun State, Nigeria. The ANOVA results demonstrated a statistically significant difference in post-training mean scores across the four training types ($F(3, 1024) = 5.62$, $p = 0.001$), confirming that the type of digital training significantly influences participant outcomes. This concurs with findings from Eze et al. (2021), who emphasized that digital skills acquisition varies by the focus and design of training programs. However, the effect size was small ($\eta p^2 \approx 0.016$), indicating that training type accounts for only a modest proportion of variance in scores. This suggests that other factors, such as individual learner characteristics, prior digital literacy, motivation, and socio-economic background, likely play important roles in shaping training success, as supported by Oladele and Akinola (2019). Among the modules, Google Workspace and CV Writing produced the highest mean scores, highlighting their effectiveness in equipping participants with practical and widely applicable digital competencies. The prominence of Google Workspace training aligns with its centrality in contemporary workplace productivity, as noted by Okoro and Adetunji (2020), who highlighted cloud-based tools as critical for employability in Nigeria's evolving labor market. Similarly, the high performance in CV Writing underscores the importance of digital

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literacy in job application success, echoing findings from Abimbola (2017), who stressed that well-crafted digital résumés significantly enhance employability prospects.

Conversely, the Canva Creative Design module underperformed relative to the others, suggesting a need for pedagogical refinement. This may reflect limited prior exposure to creative digital tools or insufficient hands-on engagement, issues identified by Adeyemi and Yusuf (2022) in Nigerian digital skills programs. Enhancing this module through enriched content, practical exercises, and learner support could help bridge this gap, fostering stronger visual communication skills critical in digital marketing and freelancing sectors increasingly accessible to Nigerian youth (Nwafor & Eze, 2023). Despite these differences, all modules registered high mean scores (above 3.7 on a 4-point scale), reflecting general program success in delivering relevant 21st-century skills. This aligns with national policy initiatives such as Nigeria's Digital Economy Policy and Strategy (2020), which emphasize capacity-building for youth employment through digital skills development. The post-hoc analyses further clarified specific differences, showing that Google Workspace and CV writing significantly outperformed Canva, while LinkedIn training also exceeded Canva performance. However, the differences among Google Workspace, LinkedIn, and CV Writing were not statistically significant, indicating comparable effectiveness across these modules. This suggests that, while the core digital productivity and professional development skills are well-addressed, creative design training may require targeted improvement. In practical terms, the findings advocate for focused enhancement of the Canva module rather than overhauling the entire program. This aligns with best practices in instructional design that recommend iterative improvement based on learner feedback and outcome data (Clark & Mayer, 2016). Additionally, considering participant background variables such as previous digital experience and motivation could enable more tailored training interventions, improving effectiveness across diverse learner groups (Ajayi & Ogunleye, 2018). Generally, this study underscores the importance of continuous evaluation and responsive curriculum development in digital skills training initiatives aimed at enhancing graduate employability in Nigeria. As digital transformation accelerates, equipping youth with a balanced portfolio of technical, creative, and professional skills will be critical for closing the skills gap and reducing unemployment, particularly in regions with high graduate joblessness (National Bureau of Statistics, 2023).

Conclusion

This study investigated the impact of targeted digital skills training on graduate employability through the development of 21st-century digital competence in Ogun State, Nigeria. The findings revealed that graduates who underwent structured digital training demonstrated a marked improvement in their employability attributes compared to those who relied solely on traditional academic preparation. Specifically, they showed higher levels of adaptability, effective communication, teamwork, problem-solving, creativity, and workplace readiness - all of which are core requirements in today's technology-driven economy. The results highlight that Nigeria's graduate unemployment challenge is not merely a problem of limited job opportunities but also a reflection of a misalignment between graduates' competencies and employers' expectations. Employers increasingly demand digital fluency, the ability to navigate dynamic work environments, and the capacity to integrate technology into tasks. Academic qualifications, while important, no longer guarantee employment in an economy that prioritizes digital productivity, innovation, and competitiveness. The study further demonstrates that targeted digital skills training serves as a corrective bridge between higher education and the labour market. By equipping graduates with ICT literacy, information management, digital collaboration, and career-oriented digital tools, the training enhanced their confidence, market relevance, and adaptability in diverse sectors including business, education, health, and entrepreneurship. This reflects global trends where digital competence is considered an indispensable "employability currency" in the 21st century. From a policy and practice perspective, the findings carry significant implications. First, they emphasize the need for Nigerian universities to go beyond knowledge transmission and embed employability-driven digital training within their curricula. Second, they underscore the importance of partnerships between government, industry, and academic institutions in designing responsive training modules that reflect workplace realities. Third, they reveal that digital competence development is not a one-off activity but a continuous process requiring sustained exposure, mentorship, and practical engagement. In conclusion, the study establishes that targeted digital skills training is a practical and scalable solution to enhancing graduate employability in Ogun State and Nigeria at large. By strategically aligning digital competence with labour market needs, such interventions address unemployment, foster innovation, and support national development goals. Therefore, to build a workforce capable of thriving in the 21st century, Nigerian higher

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education institutions and policymakers must prioritize the institutionalization of digital competence programmes, ensuring that graduates emerge not just as degree holders but as digitally empowered, job-ready citizens.

Recommendations

Based on the findings from this study, the following recommendations are suggested:

1. Based on the significant improvements in participants' ability to use Google Workspace and other tools effectively, it is recommended that similar structured hands-on digital productivity training be institutionalized for unemployed graduates through government employment schemes, higher education alumni programs, and community-based learning hubs.
2. Government, non-governmental organizations, employment agencies, Nigerian tertiary institutions (Universities, Polytechnics and Colleges of Educations) curriculum planners and developers should integrate LinkedIn Professional Development into career services curricula; since the training substantially enhanced participants' job application confidence, professional networking capacity, and personal branding. This should also be complemented with mentorship programs where industry professionals can guide participants in leveraging their enhanced online presence for real-world job opportunities.
3. Employers and workforce development bodies should partner to create certification pathways in modules such as Google Workspace, Canva Creative Design, and CV Writing, with recognition by both public and private sector employers. Subsequently, incorporating soft skills and professional networking training**,** including communication, adaptability, and career planning should be encouraged by the tutors in various tertiary institutions in order facilitate better preparation of graduates in leveraging digital platforms effectively for job search and career advancement. This would facilitate bridging the skills gap between graduates and evolving labour market demands, ensuring that digital proficiency is an employability benchmark.
4. Entrepreneurship development centres, small business support agencies and vocational training institutes should be encouraged to embed digital skills modules, particularly Canva and Google Workspace into tertiary institutions core training offerings; since participants could readily adapt learned digital skills to diverse workplace and entrepreneurial contexts. This would strengthen small business competitiveness and promote self-reliance among graduates.
5. Nigerian graduates should be given continued access to online collaborative communities, refresher workshops and updated training materials; in order to sustain skill application beyond the training. This will ensure that skills acquisition remain relevant in the face of evolving digital tools and market demands
6. Policymakers should consider scaling up digital skills training on graduate employability programme to other part of the country, with government–private sector partnerships in ensuring equitable access across urban and rural areas. Also, priority should be given to underrepresented and economically disadvantaged groups to reduce employability inequality.

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Post-Traumatic Stress and Academic Adjustment among Children affected by Insecurity in Northern Nigeria: Strategies for Psychosocial Intervention in Schools

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Abstract

Children in Northern Nigeria face significant psychological and educational challenges due to persistent insecurity, including insurgency, armed banditry, and mass displacement. Exposure to potentially traumatic events (PTEs) such as abduction, witnessing violence, and community attacks heightens the risk of Post-Traumatic Stress Disorder (PTSD), which undermines academic adjustment through cognitive, emotional, and behavioural disruptions. Drawing on Bronfenbrenner's Ecological Systems Theory and recent empirical evidence, this study examines the relationship between post-traumatic stress and academic adjustment among conflict-affected school-age children, and evaluates feasible psychosocial intervention strategies within school settings. Findings from systematic reviews and field-based programmes indicate that trauma negatively affects attention, memory, executive function, motivation, peer relationships, and attendance, leading to learning losses and increased dropout risk. School-based Mental Health and Psychosocial Support (MHPSS) programmes especially those integrating teacher training in trauma-sensitive pedagogy, structured group activities, and referral systems show promise in mitigating these impacts when contextually adapted and sustainably implemented. However, systemic barriers such as stigma, limited specialist personnel, poor infrastructure, and program discontinuity hinder effectiveness. The paper proposes culturally relevant, multi-tiered interventions embedded within educational structures, leveraging teacher capacity, peer networks, and community engagement to strengthen resilience and academic recovery. It concludes that education systems in conflict zones can serve as critical platforms for psychosocial healing and learning continuity if interventions are adequately resourced, context-sensitive, and sustained over time.

Keywords: Post-Traumatic Stress Disorder, Academic Adjustment, Psychosocial Intervention, School-Based Support, Northern Nigeria

Introduction

Children growing up in regions affected by armed conflict and chronic insecurity face repeated exposure to potentially traumatic events (PTEs) such as violent attacks, abductions, witnessing killings, and forced displacement. These experiences significantly heighten the likelihood of developing post-traumatic stress symptoms and other mental health challenges (Tamir et al., 2024). A recent systematic review and meta-analysis of African studies found that nearly one in three children exposed to trauma meet the criteria for probable Post-Traumatic Stress Disorder (PTSD), with even higher prevalence among those directly affected by conflict, particularly older children and adolescents (Tamir et al., 2024). Such statistics reflect an urgent but largely unmet need for trauma-focused support across many African contexts, including Northern Nigeria, where prolonged insurgency and recurrent banditry have deliberately targeted communities, schools, and educational infrastructure.

Post-traumatic stress, alongside associated emotional and behavioural difficulties, disrupts core aspects of a child's academic adjustment including attention span, classroom participation, memory retention, motivation, peer relationships, and consistent school attendance. These disruptions contribute to immediate learning setbacks and long-term educational disadvantage (Bangpan et al., 2024). Evidence from reviews of mental health and psychosocial support (MHPSS) programmes in humanitarian settings suggests that interventions explicitly linking thoughts, emotions, and behaviours such as brief cognitive-behavioural approaches can help reduce trauma symptoms and improve certain functional outcomes.

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However, the overall impact of these interventions varies greatly depending on design, delivery method, and the socio-cultural context in which they are implemented (Bangpan et al., 2024). A persistent challenge is that many of the most effective interventions require specialized personnel and substantial resources, making large-scale implementation difficult in low-resource and insecure environments. Schools, when functioning as safe and predictable learning spaces, hold unique potential to identify children affected by trauma and deliver cost-effective, scalable psychosocial support (UNICEF, 2024). International guidelines advocate for the integration of MHPSS into education-in-emergency responses, incorporating elements such as teacher training in trauma-informed practices (including Psychological First Aid), structured group activities, referral pathways for specialized care, and strong collaboration with health and child-protection sectors (UNICEF, 2024). Promising models in Nigeria and neighboring countries such as community-based programmes that combine group MHPSS with peacebuilding initiatives have demonstrated measurable reductions in PTSD symptoms, highlighting the feasibility of culturally adapted, school-linked approaches (NEEM Foundation, Counselling on Wheels programme, 2023). Despite these encouraging developments, critical knowledge gaps remain in Northern Nigeria. There is limited empirical evidence on how PTSD symptoms directly translate into measurable academic challenges within Nigerian school contexts, which school-based psychosocial approaches yield the most effective combined gains in learning and mental health, and how these interventions can be adapted to align with local culture, security constraints, and the scarcity of trained specialists. Insights from field-based models such as Lafiya Sarari which works with formerly abducted and enslaved girls demonstrate both the transformative potential of sustained, school-based psychosocial support and the pressing need for systematic evaluation of programme fidelity, impact, and long-term educational outcomes (Nwaubani, 2024).

Drawing on epidemiological evidence of high PTSD prevalence (Tamir et al., 2024) and recent synthesis of MHPSS approaches (Bangpan et al., 2024; UNICEF, 2024), this study explores the relationship between post-traumatic stress and academic adjustment among children living in insecurity-affected areas of Northern Nigeria. It also examines feasible, culturally grounded school-based psychosocial strategies capable of addressing both emotional recovery and educational continuity within the constraints of local realities.

Theoretical Framework

Bronfenbrenner's Ecological Systems Theory

Bronfenbrenner's Ecological Systems Theory, first introduced in The Ecology of Human Development (1979), offers a holistic perspective for understanding how a child's growth and adaptation are shaped by multiple, interrelated environmental systems. The model conceptualizes these systems as nested, interactive layers ranging from the child's immediate surroundings (microsystem) to the broader cultural and societal context (macrosystem) all unfolding within the temporal dimension known as the chronosystem. Over time, this framework evolved into the bioecological model, placing greater emphasis on proximal processes: the sustained, bidirectional interactions between the child and their environment, influenced by personal attributes, the immediate context, and the passage of time (Bronfenbrenner & Evans, 2000). When applied to the experiences of children living amid insecurity in Northern Nigeria, the theory offers a nuanced lens for analyzing how trauma and academic adjustment emerge from the interplay of these ecological layers. At the microsystem level, family and school settings are often destabilized by displacement, bereavement, or violence undermining emotional security and learning capacity.

The mesosystem, representing the linkages between these immediate environments, becomes vital when collaboration between caregivers and teachers shapes the quality of psychosocial and academic support provided. The exosystem, encompassing broader community conditions, governance structures, and resource distribution, influences children indirectly affecting caregiver stability and schools' ability to deliver consistent, safe learning experiences. At the macrosystem level, cultural norms, education policies, and the political climate define societal responses to trauma and determine the prioritization of mental health and education in post-conflict recovery. Finally, the chronosystem captures the impact of time recognizing that recurring cycles of violence, prolonged displacement, and transitions across developmental stages can intensify or alter the influence of trauma and the effectiveness of interventions. Contemporary research affirms the relevance of this layered perspective for children in conflict-affected settings. Studies on refugee and war-affected populations demonstrate that trauma symptoms are shaped not only by individual experiences but also by systemic factors embedded within each ecological layer (Ager, 2013; Al-Krenawi et al., 2012). In sub-Saharan Africa,

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scholars have shown how fragile livelihoods, weak social safety nets, and limited access to psychosocial care factors within the exosystem amplify the negative impacts of insecurity on children's well-being (Betancourt et al., 2013). Conversely, resilience-focused studies highlight that embedding culturally grounded practices, peer-support systems, and community participation into these ecological layers can strengthen coping mechanisms and foster educational recovery (Theron, 2020). By situating post-traumatic stress and academic adjustment within this bioecological framework, interventions in Northern Nigeria can be designed to address not only children's immediate mental health needs but also the broader systemic and cultural conditions that shape recovery and long-term learning outcomes.

Conceptual Framework

Traumatic Stress

Traumatic stress in school-aged children can be conceptualized as a set of psychological, emotional, and behavioral reactions that emerge following exposure to events involving actual or perceived threats to safety such as armed attacks, community violence, severe accidents, or forced displacement. These reactions often disrupt the emotional regulation, behavioral control, and cognitive skills necessary for academic success. Recent umbrella reviews and meta-analyses report consistently high prevalence rates of post-traumatic stress disorder (PTSD) and related difficulties among children and adolescents exposed to large-scale stressors. Key risk factors that intensify vulnerability include repeated trauma exposure, bereavement, ongoing insecurity, and the absence of robust social support systems (Mahmood et al., 2025). Neurocognitive and clinical research provides critical insight into the mechanisms through which traumatic stress interferes with learning. The severity of PTSD symptoms has been strongly linked to deficits in attention, working memory, processing speed, and executive functioning cognitive domains essential for following instructions, maintaining focus, organizing academic tasks, and encoding new information (Association of Childhood Trauma with Cognitive Domains, 2023; Kira et al., 2023). Beyond cognitive impairments, trauma can produce behavioral and emotional patterns that further undermine school functioning. Hyperarousal and hypervigilance may manifest as agitation or impulsivity; intrusive memories and sleep disruptions can diminish concentration and increase absenteeism; and avoidance behaviors or emotional numbing can reduce classroom participation and strain peer relationships. Consistently, teacher reports associate higher trauma exposure with elevated levels of both internalizing (e.g., withdrawal, anxiety) and externalizing (e.g., aggression, defiance) behaviours (Purtle et al., 2024; National Center for Biotechnology Information, 2022).

Psychological Interaction

Psychosocial interaction refers to the ongoing, meaningful exchanges between children and their social environment encompassing caregivers, peers, teachers, school personnel, and community members that influence emotional regulation, meaning-making, and adaptive coping. In humanitarian and public health literature, this construct is addressed under the broader umbrella of Mental Health and Psychosocial Support (MHPSS), which emphasizes that children's well-being is shaped by the interplay of individual psychological processes and social/relational supports, rather than by either in isolation (IASC/UN agencies; UNHCR, 2012). Contemporary conceptual and empirical studies identify two core features that link psychosocial interaction to post-traumatic recovery and school adjustment. First, the quality, stability, and responsiveness of daily interactions such as sensitive caregiving, supportive teacher engagement, and inclusive peer relationships function as proximal processes that can either mitigate or exacerbate trauma's cognitive and emotional consequences. Second, these interactions are embedded within broader systemic conditions including school climate, community safety, policy frameworks, and resource availability which determine the extent to which positive proximal processes can be maintained and scaled effectively (WHO/UNHCR MHPSS guidance; Mahmood et al., 2025).

Post-Traumatic Stress in School-Age Children: Impacts on Learning and Behaviour

Exposure to high-impact traumatic events such as armed conflict, community violence, severe accidents, or forced displacement places school-aged children at a significantly elevated risk of developing post-traumatic stress reactions that compromise both the cognitive and emotional capacities essential for learning. Recent umbrella reviews and prevalence meta-analyses estimate that up to one-quarter of trauma-exposed children and adolescents meet diagnostic thresholds for post-traumatic stress disorder (PTSD), with the risk intensified by recurrent exposure, bereavement, ongoing insecurity, and weak social support systems (Mahmood et al., 2025). Neurocognitive research has shed light on how trauma undermines academic functioning. PTSD symptom severity has been consistently linked to deficits in attention, working memory, processing speed, learning capacity, and executive functioning skills fundamental to following instructions,

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maintaining focus, organising tasks, and retaining new information (Kira et al., 2023; Van der Kolk et al., 2023). Evidence from studies on visuospatial working memory and re-experiencing symptoms indicates these impairments persist even after accounting for other influencing factors (Wells et al., 2024). Systematic reviews further confirm that the cognitive consequences of childhood trauma map directly onto academic demands, establishing a clear neurobiological pathway between trauma exposure and reduced school performance (Association of Childhood Trauma with Cognitive Domains, 2023). Beyond cognitive effects, PTSD produces emotional and behavioural patterns that disrupt daily classroom processes. Hyperarousal and hypervigilance often manifest as agitation, irritability, or impulsivity; intrusive memories and sleep disruption reduce concentration and increase absenteeism; while avoidance and emotional numbing limit participation and peer connection. Comorbid internalizing problems (e.g., anxiety, depression) and externalizing behaviors (defiance, aggression) further strain teacher student relationships and erode classroom climate (National Center for Biotechnology Information, 2022). Both cross-sectional and longitudinal studies have linked higher trauma exposure to increased teacher-reported behavioral problems, which elevate instructional burden and reduce effective learning time (Purtle et al., 2024).

The consequences extend to broader educational attainment. Evidence from conflict-affected settings reveals that trauma combined with structural disruptions such as school closures, forced displacement, and economic strain contributes to lower standardized test scores, higher rates of grade repetition, and increased dropout risk (Møller et al., 2023). The mechanisms are multi-layered: trauma-related cognitive impairments limit learning capacity, interrupted attendance creates academic gaps, and reduced caregiver capacity to support study at home compounds these effects. Notably, outcomes vary across contexts, with the most severe educational losses occurring where schooling continuity and psychosocial supports are weakest (Mahmood et al., 2025; Møller et al., 2023). Emerging evidence positions schools as critical environments for mitigation. Research on trauma-informed and trauma-adaptive educational approaches demonstrates that multi-tiered strategies integrating universal supports such as predictable routines and emotionally safe classroom management, targeted small-group interventions for emotional regulation and social skills, and clear referral pathways for specialized care can reduce PTSD symptoms and improve engagement when tailored to local needs (Purtle et al., 2024).

However, recent reviews caution that many interventions lack robust long-term outcome evaluations, and their success hinges on implementation fidelity, sustained teacher training, and cultural adaptation (Purtle et al., 2024). Taken together, the literature paints a coherent picture: post-traumatic stress in school-aged children disrupts the cognitive infrastructure and socioemotional environment required for effective learning, with measurable impacts on behaviour, engagement, and academic achievement particularly in contexts of chronic insecurity. Addressing these challenges requires early identification, accessible school-based psychosocial support, sustained teacher capacity-building in trauma-sensitive pedagogy, maintenance of educational continuity for displaced and at-risk learners, and well-coordinated referral systems to mental health services. A strategic investment in multi-tiered, contextually adapted interventions coupled with structural measures to address insecurity offers the most promising pathway to restore children's learning potential and safeguard their long-term development.

Strategies to Enhance Psychosocial Interaction

For children exposed to trauma, effective psychosocial interaction strategies center on cultivating environments of trust, emotional safety, connection, and consistent support. Within school contexts, training teachers in emotionally attuned communication and in techniques to foster socially and emotionally secure classrooms has been shown through systematic reviews of school-based programs to produce notable gains in children's prosocial behaviours, emotional comfort, and quality of peer relationships (PubMed, 2023). These findings highlight the transformative role educators can play when equipped to actively create nurturing psychosocial spaces. Complementing teacher-led approaches, schools can implement structured small-group sessions and individualized psychosocial interventions. In conflict-affected regions, classroom-based programs blending creative expression (e.g., drama, music, cooperative games) with cognitive behavioural techniques (such as psychoeducation and coping skills training) have effectively reduced symptoms of PTSD and depression while fostering hope and strengthening perceived social support (PubMed, 2023). Initiatives such as the Better Learning Program (BLP) demonstrate the power of integrated approaches combining academic assistance with stress normalization, relaxation exercises, coping strategies, and active parental involvement to boost both emotional regulation and academic self-efficacy in adverse contexts (PubMed, 2023). Strengthening the family–child relationship is equally

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critical. Recent intervention protocols emphasize enhancing caregiver capacity through psychoeducation and parent–child communication training. Open, age-appropriate, and honest conversations between children and their parents about traumatic experiences have been linked to reductions in anxiety, depression, and stress symptoms (BMC Psychology protocol, 2023). By creating emotionally supportive home environments, families can amplify the impact of school-based psychosocial efforts. Peer-mediated initiatives further expand children's support networks. Peer-led groups and school-based clubs such as the Hope Squad model (2025) have been shown to promote social cohesion, reduce stigma, and encourage mutual care among students. These programs also empower young people to take leadership roles in mental health support, fostering a sense of belonging and shared responsibility. Interdisciplinary collaboration serves as a cornerstone for sustaining and scaling these interventions. When educators, mental health practitioners, community organizations, and policymakers work together, school-based efforts become more contextually relevant, stigma is reduced, and continuity of care is strengthened (NCBI, 2023). Evidence suggests that schools partnering with universities or local organizations to implement trauma-informed practices achieve stronger engagement and better outcomes than those relying solely on self-directed or passive online learning (Springer, 2024). Finally, creative and arts-based modalities offer innovative avenues for psychosocial engagement. Digital platforms enabling trauma-affected youth to tell their stories through comics, visual art, or narrative projects have shown promise in helping them process emotions, form meaningful connections, and foster community support (arXiv, 2024). These expressive, non-verbal tools lower barriers to participation, encourage self-expression, and enable young people to reclaim their narratives in safe, youth-centred spaces.

Challenges to Psychosocial Interaction in School-Age Children's Education

Efforts to strengthen psychosocial interaction in education face multiple, interrelated challenges. A primary barrier stems from the dual demands placed on schools: while educators are tasked with delivering academic instruction, they are increasingly expected to provide psychosocial support in the aftermath of crises or traumatic events. Many teachers, however, lack formal training in trauma recognition and response, and schools often have neither the private spaces nor the resources required to deliver interventions confidentially and effectively. Moreover, both students and staff may be coping with their own stress and trauma, making it difficult to prioritize or address emotional needs (PMC, 2021). Program sustainability presents another significant obstacle. Even when trauma-informed or psychosocial programs are introduced, many fails to persist beyond a single academic year. Variations in implementation such as inconsistent program duration, differing measurement tools, and irregular monitoring undermine both long-term impact and evaluation. Institutional continuity also matters: initiatives dependent on a single "champion" or supportive administrator are at risk of collapse when leadership changes occur. Without sustained commitment from school or district leadership, such programs often stall or disappear entirely.

Cultural and systemic barriers further complicate adoption. In many communities, mental health remains heavily stigmatized, and trauma-focused programming may be met with misunderstanding or resistance from caregivers and even school staff. Effective interventions require culturally responsive design, community engagement, and the involvement of local leaders to ensure relevance and acceptance yet these processes are often underfunded or overlooked. In resource-constrained and crisis-affected environments, logistical challenges are particularly acute. Persistent instability, security risks, inadequate infrastructure, limited funding, and shortages of trained mental health professionals all constrain access to sustained psychosocial support. These systemic limitations severely restrict the capacity of schools to integrate and maintain effective interaction strategies. School climate itself can be a hidden but powerful barrier. Settings characterized by low emotional support, weak student belonging, or perceptions of unfair discipline can intensify mental health challenges and hinder psychosocial recovery. Conversely, positive school climates can bolster resilience and emotional well-being, yet many under-resourced schools struggle to foster such environments consistently. Finally, peer victimization both traditional and cyberbullying poses a direct threat to psychosocial safety. High rates of bullying are strongly linked to increased emotional and behavioral difficulties, including PTSD symptoms, anxiety, and depression. Cyberbullying, in particular, magnifies trauma risks, especially among younger adolescents. Schools that lack proactive, trauma-sensitive strategies to prevent and address bullying undermine not only individual well-being but also the broader climate of trust and safety essential for healthy psychosocial interaction.

Suggestions

The following suggestions have been made:

1. Integrate Culturally Tailored MHPSS Programmes Embed structured, culturally grounded Mental Health and Psychosocial Support initiatives within school curricula to address both emotional well-being and academic recovery in conflict-affected areas.
2. Enhance Teacher Competence through Ongoing Training Provide sustained, high-quality professional development that equips educators with trauma-informed strategies and psychosocial support skills.
3. Strengthen Resilience through Peer and Community Engagement Establish dynamic peer-support networks and culturally relevant community programmes to foster connection, healing, and shared responsibility for child well-being.
4. Promote Multi-Sectoral Collaboration for Holistic Care – Build strong partnerships between education, healthcare, and child protection systems to ensure coordinated, comprehensive support for affected children.
5. Institutionalize Monitoring and Evaluation Systems – Implement robust frameworks to measure impact, track progress, and guide the continuous improvement and scalability of interventions.

Conclusion

The persistent insecurity in Northern Nigeria has left many school-age children grappling with the dual burden of psychological trauma and educational disruption. Evidence from this study confirms that post-traumatic stress significantly impairs core cognitive functions, emotional regulation, classroom engagement, and school attendance factors essential for academic success. While the challenges are formidable, schools remain uniquely positioned to serve as protective environments where children can heal, rebuild resilience, and sustain their learning. When equipped with culturally adapted, multi-tiered psychosocial interventions delivered through trained teachers, supported by peer networks, and reinforced by community and intersectoral collaboration schools can mitigate the adverse effects of trauma and foster positive educational trajectories. However, lasting impact depends on addressing systemic barriers such as stigma, inadequate resources, and program discontinuity. By embedding trauma-sensitive approaches into educational policy and practice, and ensuring sustained investment, Northern Nigeria can transform its schools into hubs of both academic recovery and psychosocial well-being, thereby securing the right of every child to learn, thrive, and hope for a safer future.

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Perceptions of Budding Lecturers on Mentoring Practices in Yusuf Maitama Sule Federal University of Education, Kano State, Nigeria.

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Abstract

This study adopted the descriptive survey design to investigate perceptions of lecturers on the mentoring practices in Yusuf Maitama Sule Federal University of Education, Kano, Nigeria. The study's population comprised all lecturers in the university estimated to be about 525. Purposive sampling technique was used to draw a sample of 50 lecturers, of the ranks of lecturer 1 and below, who had spent at least eighteen (18) months in the university, out of which 30 of them gave their consent to participate in the study. A 39-item researcher developed structured questionnaire titled "Budding Lecturers' Mentoring Experience Survey" (BLeMES) was administered to collect numerical data. The face and content validity of the instrument was done by experts in Education at the university. To establish the reliability of the instrument, Cronbach's Alpha Reliability Coefficient Statistics was used and a correlation coefficient of 0.75 was obtained. Data analysis was conducted using descriptive statistics of mean and standard deviation, with ≥ 2.5 serving as the criterion mean for decision. The findings, among others, revealed that budding lecturers are aware of the potential benefits of effective mentoring for emerging lecturers. The study concludes that there is connection between effective mentoring and the opportunities for the expansion of the professional development and career advancement of budding lecturers. It then recommends, amongst others, that universities should intensify efforts at improving fruitful mentoring relationships between experienced lecturers and their novice counterparts.

Keywords: Perceptions, Budding Lecturers, Mentoring, Practices

Introduction

Convectional forms of education provides ample opportunities for developing skills as well as developing lecturers' competencies (Kutsyruba et al., 2019; Amoke, 2019). But as asserted by Little (1994), budding/novice or junior academic staff, that is, the set of individuals who are emerging or developing in their careers as university lecturers, often with the goal of establishing themselves in their field (Austin, 2002; Clegg, 2008), may still require further support and guidance. The academic qualification possessed by budding lecturers may not to prepare them enough for the challenges embedded in academic career hence the need for proper mentoring of this cadre of academic staff (Abiodun-Oyebanji, 2016). Mentorship is often the mechanism through which such support and guidance is given. Mentoring has been defined by Bozeman and Feeney (2007) "as a process for the informal transmission of knowledge, social capital and the psychosocial support perceived by the recipient as relevant to work, career, or professional development;" They further stated that "mentoring entails informal communication, usually face-to-face and during a sustained period of time, between a person who is perceived to have greater relevant knowledge, wisdom, or experience (the mentor) and a person who is perceived to have less (the protégé)." While Leavit (2011) viewed mentoring as a relationship which involves a more experienced and/or knowledgeable individual (mentor) who acts as a counselor, role model, teacher and guidance of a less experienced or knowledgeable individual (mentee) for the purpose of sharing ideas, knowledge and guidance and offering support for personal and professional development of mentee.

In the academic setting, Johnson (2007) asserted that academic mentoring entails a relationship between an experienced academic and a novice academic where the experienced academic provides guidance, assistance, support and encouragement to facilitate the novice's academic and professional development. Olasupo (2013) stated that an academic mentor is usually a senior faculty member who guides a junior faculty member by way of advice, guidance, support and other relevant means in matters connected to the attainment of academic success; the protégé, on the other hand, is the junior faculty member who is the beneficiary of the mentorship.

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Several mentoring styles have been identified, however, with two (formal and informal mentoring) been found prevalent among academic staff in universities in Nigeria (Emoefe, 2016). While formal mentoring is performed at the institutional level, with well-defined objectives, a coherently established program, scheduled meetings, precise and anticipated actions, and formative evaluations, informal mentoring is performed through sporadic, voluntary meetings, training activities, without planning or evaluation. In an informal relationship, mutual guidance and advice is changed sporadically as needed, without a pre-set schedule or formal agenda (Leslie et al., 2005). Numerous studies that have analyzed the two types of mentoring, formal and informal, have not been able to conclude, for a certainty, that one is superior to the other (Trorey & Blamires, 2006). Mentoring at the university level has been conceived as a better model for helping lecturers expand their knowledge and expertise in classroom instruction. It is associated with positive outcomes such as assisting the mentees in establishing clear learning goals and professional relationships and improving both their theoretical knowledge and practical skills (Barrett, Mazerolle &Nottingham, 2017). Mentoring is valuable as it provides the mentee the chance to feel connected, integrated and eventually legitimized into his or her future role (Young, Klossner, Docherty & Mensch, 2013). Socialization into the professional role of lecturing is often successfully navigated through mentorship and has been documented as important element of role learning and role transition for lecturers (Mazerolle, Eason, Clines & Pitney, 2015). Mentoring in academic settings may be undertaken in the areas of research/publications, practical instruction method, career/professional development, psychosocial support and community service. It is difficult, however, to determine to what degree mentoring impacts on teacher professional development and effectiveness, since there are vast differences among the structures that each school chooses to implement (Smith & Lynch, 2014). But as Harris and Miles (2009) pointed out, "in academia mentoring appears to concentrate on the development of the person" or mentee (p. 273).

In the university system, a good mentoring process, therefore should depend on the established relationship and collaboration between the young budding teacher and the experienced one, should be characterized by good planning, continuity, monitoring, feedback and reflexivity (Tasevska, Stojanov, and Mickovska, 2016) and its mentoring objectives should include to: assist junior academics with their teaching skills and enhance their teaching and learning prowess, help them to identify and achieve career growths, encourage them to develop and maintain a broader perspective on career opportunities, foster and encourage their sense of belonging within the academic community, help them increase their confidence and help them expand their professional networks. Overall, the goals of mentoring are manifold. But whatever the goal, a mentor "should not see the mentee as someone with a problem but as a young person with much to offer in the relationship and who just needs some additional support" (Dolan & Brady, 2012, p. 109). Effective mentoring relationships are free from compulsion and external pressures. Mentoring activities are fruitful if they help novice teachers develop and if the relationships are cohesive and efforts are collaborative and lead to professional growth (Allen, 2005; Blandford, 2001).

Effective mentoring, generally, relies on several key factors, which can be categorized into four main areas: mentor-related, mentee related, relationship-related and institutional factors. First, it demands mentors who are experienced and are: experts in their areas of specialization, available and approachable, good listeners, honest, willing to provide constructive feedbacks, empathetic and understanding. Mentoring is effective when mentors are willing and capable of helping mentees identify and address challenges they face, helping them explore their career options, developing their skills, and building their networks, establishing a safe space where mentees can share their experiences and concerns without fear of judgment, and providing encouragement and motivation to help mentees stay on track and persevere through challenges. Secondly, effective mentoring takes place when mentees are humble, motivated, self-starters, willing to learn and work with their mentor, open to feedback, aware of their strengths and weaknesses and identify areas for improvement. Thirdly, effective mentoring involves establishing a strong, trusting relationship. Mentors and mentees can successfully relate when both share common interests, for instance similar research focus, there is trust and mutual respect between them and when there is a clear communication strategy that works both of them. Fourthly, effective mentoring thrives in an institution that fosters positive mentoring environment, that values and supports mentoring, that motivates mentors and provides training progammes and mentorship frameworks with clear goals and expectations (Barrett, Mazerolle &Nottingham, 2017). Although several studies have identified certain obstacles and difficulties encountered in implementing effective mentoring practices between experienced and novice lecturers (Johnson, 2007; Boice, 2000), by considering the foregoing factors,

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universities can create an enabling environment that fosters effective mentoring and helps budding lecturers develop their expertise and confidence ((Mazerolle, Eason, Clines & Pitney, 2015). This study was guided by the Albert Bandura's 'Social Learning Theory' (1977) that proposed that people acquire new behaviors, attitudes, and emotional reactions through observation, imitation, and modeling, particularly in social contexts. It suggests that learning can occur purely through observation or direct instruction, even without physical practice or direct reinforcement. This theory also acknowledges the role of cognitive processes like attention, memory, and motivation in the learning process. In addition, the theory explained that learning also occurs through the observation of rewards and punishments, a process known as vicarious reinforcement. Actions that are rewarded are more likely to be imitated, while those that are punished are avoided (Cherry, 2024; Bandura, 1977). Based on this theory, it invariably signifies that new lecturers can learn and adapt their teaching practices by observing and imitating the behaviors of experienced, successful lecturers. Not only could experience serve as role models, budding lecturers may observe experienced lecturers' teaching styles and interactions with students, in the process impacting on their own practices. It also signifies that experienced lecturers' positive feedback can motivate new lecturers to continue to improve.

Results from studies have shown that effective mentoring significantly impacts the professional growth and job satisfaction of lecturers. However, there is limited insight into how budding lecturers in Yusuf Maitama Sule Federal University of Education (YUMSFUE), Kano, are influenced by the current mentoring practices in the university. Whether the mentoring activities are meeting their needs and what challenges they face in their quest for effective mentoring remains unclear. This lack of understanding may hinder efforts to support meaningful mentoring of young academics, potentially affecting their performance, growth and overall contribution to the university. This study seeks to fill this knowledge gap by investigating the perceptions of budding lecturers on the mentoring practices in YUMSFUE, Kano.

Objectives of the study

1. Investigate the perceptions of budding lecturers regarding the structure and organization of formal mentoring programmes in YUMSFUE, Kano.
2. Examine the extent to which budding lecturers are aware of the potential benefits of effective mentoring for emerging lecturers in YUMSFUE, Kano.
3. Explore how budding lecturers perceive the attitude and behaviours of experienced lecturers' towards mentoring in YUMSFUE, Kano.
4. Find out the perceptions of budding lecturers regarding the challenges associated with mentoring practices in YUMSFUE, Kano.
5. Determine how budding lecturers perceive the strategies for implementing effective mentoring in YUMSFUE, Kano.

Research Questions

1. What are the perceptions of budding lecturers regarding the structure and organization of mentoring practices in YUMSFUE, Kano?
2. To what extent are budding lecturers aware of the potential benefits of effective mentoring for emerging lecturers in YUMSFUE, Kano?
3. How do budding lecturers perceive the attitude and behaviours of experienced lecturers' towards mentoring in YUMSFUE, Kano?
4. What are the perceptions of budding lecturers regarding the challenges associated with mentoring practices in YUMSFUE, Kano?
5. How do budding lecturers perceive the strategies for implementing effective mentoring in YUMSFUE, Kano?

Methodology

Descriptive survey research design was used for this study. The study's population comprised all lecturers in YUMSFUE, Kano, estimated to be about 525. While purposive sampling technique was used to draw a sample of 50 lecturers, of the ranks of lecturer 1 and below, who had spent at least eighteen (18) months in the university, as new entrants in the university might not be aware of some of the issues the study seeks to investigate. Out of this number, 30 of them willingly gave their consent to participate in the study. A researcher developed structured questionnaire titled "Budding Lecturers' Mentoring Experience Survey" (BLeMES) was administered to collect numerical data. The instrument was divided into two sections. Section "A" elicited the demographic data of the participants that is, their departments, rank and years of working

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experience in the university. While section "B" consisted of 39 items related to the research questions and was patterned on a 4-point rating scale of "strongly agreed," "agreed," "disagreed" and "strongly disagreed," weighted 4, 3, 2 and 1 respectively. The face and content validity of the instrument was done by experts in Education at the university. To establish the reliability of the instrument, Cronbach's Alpha Reliability Coefficient Statistics was used to analyze the scores collected from a trial testing with five lecturers who were not part of the final study and a correlation coefficient of 0.75 was obtained. Data analysis was conducted using descriptive statistics of mean and standard deviation, with ≥ 2.5 serving as the criterion mean for decision. The study instrument was administered to academic members of staff in their offices with an assurance of confidentiality and anonymity.

Presentation of Results

Research Question 1:

What are the perceptions of budding lecturers regarding the structure and organization of formal mentoring programmes in YUMSFUE, Kano?

Table 1: Mean responses regarding the structure and organization of mentoring practices in YUMSFUE, Kano.

n = 30

S/N	Items	$\bar{x}$	Std	Decision
1	There is a university policy that makes mentoring mandatory	1.93	0.81	Disagreed
2	There are activities that are structured to provide adequate mentoring support for career development	1.97	0.76	Disagreed
3	Mentoring activities are deeply incorporated into the university's culture	1.87	o.72	Disagreed
4	Workshops and seminars are regularly organized for lecturers on mentoring	2.53	1.02	Agreed
	Grand Mean	2.08	0.835	Disagreed

Source: Field Work, 2025

Results from Table 1 indicates that the mean responses of the respondents ranged between 1.87 and 2.53. The grand mean of 2.08 being below the criterion mean of 2.50 indicate that the formal mentoring programmes are poorly structured and organized in the university. Also, the grand standard deviation of 0.835 suggests a high level of consensus among respondents in their responses.

Research Question 2:

To what extent are budding lecturers aware of the potential benefits of effective mentoring for emerging lecturers in YUMSFUE, Kano?

Table 2: Mean responses on the potential benefits of effective mentoring for emerging lecturers in YUMSFUE, Kano.

n = 30

S/N	Items	$\bar{x}$	Std	Decision
1	Enhances ability to write and publish research articles	3.07	0.57	Agreed
2	Boosts confidence in academic roles	2.67	o.87	Agreed
3	Improve teaching skills	2.97	0.79	Agreed
4	Encourages the use of more effective instructional strategies and resources in teaching	2.67	0.91	Agreed
5	Improves the ability to address diverse learning needs within the classroom	2.80	0.79	Agreed
6	Provides valuable guidance on career advancement and professional growth	2.57	0.88	Agreed
7	Provides opportunities for professional networking	2.70	1.04	Agreed
8	Facilitates a more student-centred instructional approach	2.77	0.99	Agreed
9	Enhances ability at assessing students' understanding of the subject matter	2.40	0.92	Disagreed
10	Improves time management skills	2.57	1.05	Agreed
11	Helps in navigating the challenges of being a novice lecturer	2.50	0.88	Agreed
	Grand Mean	2.70	0.89	Agreed

Source: Field Work, 2025

The result in Table 2 shows that except for item 9 which had a mean score of 2.40, the other mean responses ranged between 2.50 and 3.07. The grand mean of 2.70 being above the criterion mean of 2.50, indicates a positive awareness of the

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potential benefits of effective mentoring for emerging lecturers in YUMSFUE. Also, the grand standard deviation of 0.88 suggests a high level of consensus/agreement among respondents in their responses.

Research Question 3:

How do budding lecturers perceive the attitude and behaviours of experienced lecturers' towards mentoring in YUMSFUE, Kano?

Table 3: Mean responses on the attitude and behaviours of experienced lecturers' towards mentoring in YUMSFUE, Kano. n = 30

S/N	Items	$\bar{x}$	Std	Decision
1	Experienced lecturers make themselves approachable and available for mentoring	2.70	1.04	Agreed
2	Experienced lecturers demonstrate a genuine interest in supporting the professional development of new lecturers	2.67	1.01	Agreed
3	Experienced lecturers do often listen to the concerns and needs of less experienced ones	2.63	1.01	Agreed
4	Experienced lecturers often carefully take their time to understand the perspectives of budding lecturers	2.33	1.11	Disagreed
5	Experienced lecturers are willing to mentor and guide new lecturers	2.40	1.11	Disagreed
6	Experienced lecturers provide sufficient feedback to mentees	2.17	1.04	Disagreed
	Grand Mean	2.48	1.054	Disagreed

Source: Field Work, 2025

The result in Table 3 reveals that out of the six items on the attitude and behaviours of experienced lecturers' towards mentoring in the university, items 1, 2 and 3 had mean scores above the criterion mean of 2.50, while items 4, 5 and 6 had mean scores below the criterion mean. The grand mean of 2.48, which is slightly below the criterion mean, suggests that the respondents perceived as negative the attitude and behaviours of experienced lecturers towards mentoring in YUMSFUE, Kano. But a grand standard deviation of 1.054 suggests a low level of consensus/agreement among respondents on this issue.

Research Question 4:

What are the perceptions of budding lecturers regarding the challenges impeding effective mentoring practices in YUMSFUE, Kano?

Table 4: Mean responses regarding the challenges impeding effective mentoring practices in YUMSFUE, Kano.

n = 30

S/N	Items	$\bar{x}$	Std	Decision
1	Cultural differences between senior lecturers and their protégés	2.77	0.95	Agreed
2	Low awareness of the benefits of mentoring as a professional development strategy among lecturers	2.23	0.80	Disagreed
3	No or little formal provision by the institution for mentoring	3.03	0.79	Agreed
4	Different expectations about the mentoring relationships between senior lecturers and budding lecturers	2.60	0.99	Agreed
5	Lecturers' official schedules are too tight to give room for mentoring	2.70	0.94	Agreed
6	No or limited effective and fruitful line of communication between senior lecturers and their junior colleagues	2.20	0.94	Disagreed
7	Low level of mutual respect between senior lecturers and budding lecturers regarding mentoring	2.53	1.12	Agreed
8	Poor provision of working facilities to facilitate mentoring	2.83	0.86	Agreed
9	Novice lecturers' lack of preparedness	2.73	1.06	Agreed

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10	Lack of flexible and adaptable approach between senior lecturers and their protégés	2.77	0.95	Agreed
	Grand Mean	2.64	0.94	Agreed

Source: Field Work, 2025

The result in Table 4 revealed that out of the ten items identified as challenges, only items 2 and 6, with mean scores of 2.23 and 2.20 respectively, were below the criterion mean value. The other eight items had mean scores above the criterion mean. The grand mean of 2.64 being above the criterion mean of 2.50, indicates that the respondents identified the items as challenges impeding effective mentoring practices in YUMSFUE. Also, the grand standard deviation of 0.94 suggests a high level of consensus/agreement among respondents in their responses.

Research Question 5:

How do budding lecturers perceive the strategies for implementing effective mentoring in YUMSFUE, Kano?

Table 5: Mean responses on the strategies for implementing effective mentoring in YUMSFUE, Kano.

n = 30

S/N	Items	$\bar{x}$	Std	Decision
1	Increasing resources and support for mentoring activities would improve mentoring quality	3.00	0.73	Agreed
2	Establishing clear objectives and expectations would improve mentoring quality	2.57	0.84	Agreed
3	Regular training of mentors on effective mentoring techniques would improve mentoring quality	3.03	0.71	Agreed
4	Recognizing and rewarding mentors' contributions would boost their motivation	2.57	1.02	Agreed
5	Mentor-mentee matching based on shared research interests or needs would enhance mentoring outcomes	2.73	0.89	Agreed
6	Regular meetings between mentors and mentees would enhance their relationships	2.90	0.60	Agreed
7	Constructive feedback would help mentors improve	2.63	1.11	Agreed
	Grand Mean	2.78	0.84	Agreed

Source: Field Work, 2025

The result in Table 5 shows that the mean responses on the strategies for implementing effective mentoring in YUMSFUE, Kano ranged between 2.57 and 3.03. With a grand mean of 2.78, the mean responses were above the criterion mean of 2.50. This suggests that most strategies are viewed positively and a grand standard deviation of 0.84 suggests a high level of consensus/agreement among respondents regarding the strategies for implementing and sustaining effective mentoring in YUMSFUE, Kano.

Discussions of Findings

The study investigated the perceptions of budding lecturers on the mentoring practices in YUMSFUE, Kano, Nigeria. With regards to its first objective, the result revealed that mentoring practices were poorly structured and organized in the university. This finding is in agreement with the findings of Anijaobi-Idem and Archibong (2012) who found that there are no formal mentoring programmes to ease the absorption of new and novice academic staff into the university system or any other tertiary institution of learning in the country. The result also revealed that budding lecturers are aware of the potential benefits of effective mentoring for emerging lecturers. This finding aligns with the findings of several other empirical researches (Kutsyruba et al., 2019; Amoke, 2019) that have consistently showed that mentoring plays a crucial role in developing lecturers' competencies. Lecturers who undergo mentoring programmes, demonstrate improved instructional techniques and higher students' engagement and fosters their reflective teaching practices, allowing them to evaluate and refine their approaches to delivering critical content and managing classroom activities (Achinstein & Davies, 2016). Regarding how budding lecturers perceive the attitude and behaviours of experienced lecturers' towards mentoring in YUMSFUE, Kano, the finding revealed that experienced lecturers displayed negative attitude towards mentoring. This

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could lead to ineffective mentoring activities. This assertion is made against the backdrop of the study by Barrett, Mazerolle &Nottingham (2017) that found that mentoring is effective when mentors are available and approachable, good listeners, honest, willing to provide constructive feedbacks, empathetic and understanding. Also, this study examined the challenges impeding effective mentoring practices in YUMSFUE, Kano. Its findings are in affirmation with the findings of several studies (Johnson, 2007; Boice, 2000) about the obstacles and difficulties encountered in implementing effective mentoring practices between experienced and novice lecturers. Furthermore, in terms of determining the strategies for implementing and sustaining effective mentoring in YUMSFUE, Kano, the findings of the study are in consonance with Barrett, Mazerolle and Nottingham (2017)'s contention that effective mentoring thrives in an institution that fosters positive mentoring environment, that values and supports mentoring, that motivates mentors and provides training progammes and mentorship frameworks with clear goals and expectations.

Conclusion

This study concludes that there is connection between effective mentoring and the opportunities for the expansion of the professional development and career advancement of budding lecturers. Although, they might not be having fruitful mentoring relationships in YUMSFUE, Kano because of the noticeable existence of challenges that are obstructing the implementation of effective mentoring practices between experienced and novice lecturers, however, mentoring and mentorship in the university has a robust potential for growth, once deliberate efforts at tackling the observed challenges are put in place.

Recommendations

1. Universities should formulate guidelines to integrate structured and organized formal mentoring programmes for budding lecturers.
2. Universities should intensify efforts at improving fruitful mentoring relationships between experienced lecturers and their novice counterparts.
3. Universities should create an enabling environment that foster effective mentoring relationships between experienced lecturers and their young colleagues.
4. Universities should encourage informal mentoring relationships between experienced lecturers and their novice counterparts.

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Qualitative Study of Privatization Policy on Access, Demand and Supply at tertiary level of Education in Nigeria: A Review

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Abstract

One of the rationale for privatization of higher education by the Nigerian government, is to expand access to the increasing population who, though, are ready for tertiary education but for whom the government could not readily provide this veritable social and constitutional service. This paper discussed the extent to which privatization policy has addressed access or rescue demand and supply of tertiary level of education in Nigeria. The concepts of higher education, privatization, privatization of tertiary education and demand and supply were discussed as well as the rationale and challenges embedded in the policy were highlighted and discussed. It was concluded that, 7.8% admissions in private universities, 9.4% in private polytechnics and 15.7 in colleges of education between 2011-2015 is grossly inadequate, therefore the extent to which privatization of tertiary education has rescue demand and supply of higher education in Nigeria is low. The paper recommended regulation of school fees in private higher institutions by the federal government which is one of the major challenges of privatization policy of higher education in Nigeria among others to increase access or demand and supply of higher education.

Keywords: Tertiary Education, Privatization, Demand and Supply.

Introduction

As human beings continue to exist, the significance of education keeps increasing. Growth, development, and quality of life require a sound quantitative and qualitative education. Education in the words of Joel, (2016) is a process of nurturing the people for the development and possession of necessary skills, information, knowledge which initiate them into their primordial setting. Education especially higher education is an indispensable tool to achieve as well as seen as a real instrument for enhancing socioeconomic, political and cultural development of any nation; and as such cannot be undermined. Higher education is education that is acquired or received after secondary education (National Policy on Education of the Federal Republic of Nigeria (FRN, 2004: Section 8, No. 58, p.30). It is otherwise known as post-secondary education and comprises of Universities, Polytechnics, Colleges of Education, and Colleges of Agriculture etc. According to Joel, (2016) higher education prepares an individual to self-reliant and possessing the know-how to enhance the socio-economic development of his people/country.

The role higher education plays in facilitating the growth and development of a country's economy is significant (Ajayi & Ekundayo. 2018). However, one of the fundamental challenges of our time is access to higher education which has been a thorny issue in Nigeria's educational sector. From the day of independence till 1999, Nigerian government has conceived education as a public service that must not be controlled by the private individuals. During this period, the power to establish, own, fund, and manage education especially higher education such as universities, polytechnics, colleges of education and other tertiary institutions was under the concurrent list of both federal and state governments. Nevertheless, due to the continues increase in demand for higher education and increase in public spending against the dwindling state revenues, the government has now realized that the only way to sustain the tempo of education is to liberalize or open the door for private participation as privatization of education more especially higher education has become a phenomenon in the world in recent times. Privatization according to Belfied, (20014) is a process of allowing certain state's welfare services to be run by non-state or private parties. Privatization of higher education on the other hand, refers to the state's policy of allowing higher education to be run by non-state or private parties for monetary benefits (Kitaev, 2013). According to Olaniyan, (2017) privatization of higher education is seen as privatization, deregulation, public-private partnership, increasing the responsibility of parents in the management of education and private investment with the focus on cost recovery. Government realizing that the only way to sustain the tempo of education is to liberalize or open the door for private participation in education more especially higher education, led to emergence of private tertiary institutions in Nigeria. Today, there are 79 private Universities besides 20 recently approved by the Federal Executive Council (FEC), 61

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private Polytechnics and 75 private Colleges of Education in the country. (Source; JAMB Brochure 2019/2020). It is against this backdrop; this work/paper tends to discuss how privatization of higher education has rescue demand and supply of higher education in Nigeria.

Concept of Higher Education

Higher Education is otherwise referred to as Tertiary Education. The National Policy on Education of the Federal Republic of Nigeria (FRN, 2004: Section 8, No. 58, p.30) defines Higher or Tertiary Education as "the education given after secondary education in universities, colleges of education, polytechnics, monotechnic including those institutions offering correspondence courses" Higher Education according to Olaniyan and Adedeji, (2015) refers to all organized learning activities at the tertiary level. From the above definition, The National Policy on Education (2004) categorized tertiary education to include, universities, colleges of education, polytechnics and monotechnic.

Tertiary education is aimed at:

a) To contribute to national development through high-level relevant manpower training.
b) To develop and inculcate proper values for the survival of the individual and society.
c) To develop the intellectual capability of individual to understand and appreciate their local and external environment.
d) To acquire both physical and intellectual skills, this will enable individuals to be self-reliant and useful members of the society
e) To promote and encourage scholarship and community services.
f) To forge and cement national unity; and
g) To promote national and international understanding and interaction.

The establishment of tertiary institutions was to train various crop of people. Nigeria now has a crop of well-educated graduates despite the now popularly taunted falling standard is readily making contributions in all spheres of the country's development.

Tracing the history of establishment and development of tertiary education in Nigeria, Virginia (2003) recalled that colonial government having sensed the usefulness of the products of the schools established and run by church missions, started to show special interest in the educational works of church missions. The schools' products were to provide cheap labour force for government's own political career and administration (Virginia, 2003). The first institution of higher education was the Yaba Higher College, established in 1934. This became the nucleus of the first university college, established in 1948 at Ibadan. At independence in 1960 there was need for expansion on the recommendations of the committees for higher education; Eliot commission, June, 1943; Asquith commission August, 1943 and Ashby commission April 1959-September, 1960, the university of Nigeria Nsukka was established in 1960, Ahmadu Bello University, Zaria, University of Lagos, and the University of Ife (all in 1962) and much later, the University of Benin (1970). These are known as the first-generation universities. In 1975, with the twelve states structure, and the agitation for more universities by Nigerians, the Federal Government established seven additional universities at Jos, Maiduguri, Kano, Sokoto, Ilorin, Calabar and Port Harcourt. These universities became known as the second-generation universities (Olaniyan and Adedeji, 2015). Virtually, all states have either a higher institution private or a Federal one located there.

Concept of Privatization

The term privatization is usually used to denote a process of selling shares of a public company's stock to individuals, i.e., private sector. In its broader sense, the term privatization refers to diminishing the role of state in the economy and promotion of methods and policies with an aim to strengthen free market economy (Kitaev, (2013). Kitaev (2013), further stated that, privatization includes the process of privatization of not just the company but the entire economy. According to Belfied (2014), privatization is a process of allowing certain state's welfare services to be run by non-state or private parties. The definitions mentioned so far, defines privatization from a standpoint of national economy as well as the standpoint of privatization of companies not considered to be manufacturers of goods, but providers of services considered to be public (school system, health care, public administration, etc.). The shift towards privatization reduces the role of the government and increases the role of the private bodies. The trend towards privatization is extremely strong: it is taking

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place in many countries and within many sectors of the economy. Education sector in general (primary, secondary, and tertiary) is not left out often faces pressure for privatization.

Privatization of Tertiary Education in Nigeria

According to Belfied (2014), Olaniyan (2015) and Psacharopolous & Woodhall (2018) privatization of higher education is seen as privatization, deregulation, public-private partnership, increasing the responsibility of parents in the management of higher education and private investment with the focus on cost recovery. Privatization of higher education also refers to the state's policy of allowing higher education to be run by non-state or private parties for monetary benefits (Kitaev, 2013). From the day of independence till 1999, Nigerian government has conceived education as a public service that must not be controlled by the private individuals. During this period, the power to establish, own, fund, and manage education especially higher education such as universities, polytechnics, colleges of education and other tertiary institutions was under the concurrent list of both federal and state governments. Nevertheless, due to the continues increase in demand for higher education and increase in public spending against the dwindling state revenues, the government has now realized that the only way to sustain the tempo of education is to liberalize or open the door for private participation as privatization of education more especially higher education has become a phenomenon in the world in recent times.

Privatization of higher education is being canvas and encouraged by some educationists as a panacea to the lack of adequate public provision of higher education or alternative to failing public schools as to relief the government the heavy burden of public expenditure on education. To justify this option, Kitaev (2013), corroborated this position when he averred that if the government can cede higher education to the private sector; the burden on the state budget can be reduced and increase access to higher education as well as the quality of teaching can equally be achieved. On the contrary, privatization of higher education is against the opinion of the proponents of public school with fears regarding the quality of teaching, equal access to educational opportunities as well as the availability of free education. Disappearing from these arguments is the proof of the impacts of privatization of education, whether right or wrong on the people cum state as a whole (Raji, 2015). The onset of private incursion into the provision of higher education/university education in Nigeria however dated back to the year 1979 when the civilian government in power puts education on the concurrent legislative list between the state and the federal governments, which means that both federal and state governments can establish, fund and manage university. Consequently, Imo Technical University was established by Ukaegbu, an action that was challenged in court by the government in power. Following the Supreme Court's judgment in the case in favour of Ukaegbu, twenty six private universities emerged within six months of the ruling: National College of Advanced Studies, Aba, Imo State, Theological College sponsored by the Christian Association of Nigeria, Afro American University, Orogun, Bendel (now Edo) State, Uzoma University, Ajowa Akoko, Ondo State, Pope John Paul University, Aba, Imo State, University Courses College, Port Harcourt, Rivers State (National Universities Commission, 1987) to mention but a few.

The trend in the establishment of private universities coupled with the envisaged degradation in the quality of university education in Nigeria, prompted the Federal Military Government to abolish the already established private universities and prohibited the establishment of new ones, through Decree 19 of 1984. Consequent upon the agitations for the resuscitation of private universities, in view of the observed level of unsatisfied demand for admission, prompted Federal Government to repeal Decree 19 of 1984, which paved way for the agitations for re-emergence of private universities. This led to the establishment of three private universities (Babcock at Ilishan Remo in Ogun State; Madonna in Okija, Anambra State, and Igbinedion in Okada, Edo State) in 1999. Since then, private universities have continued to grow in quantity. As at December 2020, there were seventy-nine (79) approved private universities in Nigeria excluding the twenty (20) that has just been approved (National Universities Commission, 2020), Sixty one (61) private polytechnics (NBTE, 2020) and Seventy five (75) private Colleges of Education (NCCE, 2020).

Demand and Supply of Tertiary Education in Nigeria

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Demand for higher education is the total number of individuals who are willing to pay for their higher education. While supply of higher education is the extent to which people have access to or unhindered opportunity to pursue higher education in Nigeria (Aderogba, 2016). Demand and supply of higher education therefore implies making "it possible for everyone who is entitled to higher education to receive it" (Okeke 2019). Demand and supply of higher education according to Enaohwo, (2018) is opportunity or means of making higher education available for the number of applicants within a specific period of time.

Theoretical Viewpoint on Privatization of Higher Education

Several theories have clarified the concept of privatization such as Radical-Marxist, Classical-liberal as well as neoliberal. Radical-Marxist theory was developed by Karl Marx (1848) in his work titled Communist Manifesto; the participation of the state in the delivery of goods and services is seen as complementary to the general development goals of the state. To classical-liberal theory, the involvement of the government in every activity is the beginning of inefficiency. To him, planned economy will always hamper efficiency and effectiveness. Neo-liberal theory only supports the classical theory by giving more recognition to privatization policy in contemporary time. The theory argued that the competitive forces that are in the market rather than government bureaucracy lead to a superior allocation of resources. Thus, privatization it is said will provide a better incentive for price maximization, boost more well-organized managerial supervision, and motivate better employee effort. (Ostrum and Ostrum 1991). It is against this backdrop; this work is situated.

Rationale for Privatization of Higher Education in Nigeria

Nothing could have come at the right time than the re-emergence of private universities in Nigeria in 1999. The first set of such universities emerged at a time when people had lost hope and confidence in the public universities due to the crises that characterized them. Many issues are presently at stake which calls for or resulted in the establishment of private universities in Nigeria. Some of them are listed as follows:

Unsatisfied demand and supply for admission into higher education

Nigeria is a nation of 150 million people with 45 % school age (primary, secondary and tertiary). Over 1 million candidates apply for admission to Nigerian higher institutions annually with only 13 % being offered admission into the available vacancies in the existing public institutions (universities, polytechnics and colleges of education). For instance, out of 1,046,940 candidates that applied for admission into Nigerian Universities in 2003/2004, 10.30% were offered admission. In 2004/2005, 838,305 candidates applied, 13.42% gained admission. While in 2005/20006, out of 917,960 applicants, 8.39% were admitted. Out of 912,350 candidates in 2006/2007, 12.94% were offered admission and in 2007/2008, 1,034,083 applied while only 4.59% were offered placement (National Bureau of Statistics, 2009). Specifically, in 2011/20012 academic session, University of Lagos was the most preferred first choice with 99,195 applicants but 6,106 (6.15%) were offered admission. This was followed by Ahmadu Bello University, Zaria with 89,760 applicants which admitted 6,068 (6.76%). University of Nigeria, Nsukka trailed with 88,177 and 5,970 (6.77%) were offered admission. This was the trend in higher institutions in Nigeria.

Obviously, the available public institutions are grossly inadequate for the need of the country judging by the demand for higher education in Nigeria. There is explosion in students' population in the existing Federal tertiary institutions and the facilities are over stretched (NUC, 2011). Ayeni et al. (2015) remarked that inadequate supply of higher education is a huge problem that the Nigerian higher education sector is faced with hence the need for private participation in the provision higher education.

Limited and decaying infrastructural facilities in public universities

Infrastructural facilities are very germane in educational institutions, particularly in the teaching-learning process (Monehin,2012). It is unfortunate that inadequacy of infrastructural facilities such as classrooms, laboratories, libraries, staff offices, workshops among others characterized the public universities in Nigeria (Saint et al., 2017). To worsen the situation, most of the available infrastructural facilities are in deplorable condition, which has been having negative effect on the training of students in the universities. The situation could be attributed to the poor funding of the universities

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by Government. Over the years, financial allocations to the universities are consistently inadequate in quantity and epileptic in supply thus making it difficult for the universities' administrators to put in place adequate and reliable infrastructural facilities for effective teaching of students as a result, many candidates are denied opportunities for admission annually as a result of the limited spaces

Strikes in Public Universities

Universities in Nigeria have over the years been engulfed in crises which have make them to graduate from being 'centres of academic excellence' and 'ivory towers' into 'centers of crises'. Without mincing words, there have been incessant strikes by staff of the public universities due to issues such as poor welfares, inability to implement past agreements, poor conditions of service, disparity in salaries and allowances, and the need for academic freedom among others (Obe, 2018; Odewunmi, 2017; Afolabi, 2013; Enomah, 2010). Due to the rampant cases of strikes in the campuses, academic calendar is often disrupted. These days, a student in any of the public universities including other tertiary institutions in Nigeria cannot predict the number of years to spend on a programme. Many students end up spending additional year (s) which they do not envisage and plan for; thus making many parents to spend extra money on the education of their children. Government has also been spending additional fund on the education of such candidates (Timilehin et al., 2010; Saint et al., 2003; Adewale, 2005).

High Cost of Tertiary Education

The fact that university education requires huge cost cannot be overemphasized. In Nigeria, most of these costs are borne by government being the major financier of the educational system. The cost of provision of university education for the citizens is however becoming a yoke for government alone to bear which is the reason why it is clamouring for increased participation of the private sector in the financing of the sector. Apart from the cost of salaries and allowances of the academic and non-academic staff, there is the cost of building construction as well as the overhead cost of maintaining the universities. Unfortunately, allocation to the education sector on which the funding of universities depends in Nigeria has been consistently low in quantity and erratic in supply (Akerele, 2001; Saint et al., 2003). Even though the universities receive highest percentage of fund among the other tertiary institutions annually, the fund being injected into the universities have proved to be inadequate for their needs.

Low ranking of public universities in Nigeria

Ranking of universities in the world is a regular and annual exercise which has been providing opportunity for the education stakeholders to know the quality of students, infrastructural facilities, kind of training being provided for students compared to the situation in other universities in the world. Unfortunately, public universities in Nigeria are ranked low among other universities in the world (Wasagu, 2018). As at 2012, only University of Ibadan ranked best among the universities in Nigeria but ranked 111th among the universities in the world. This has been a cause of concern to government and other stakeholders in education. It is thus expected that with the emergence of the private universities, the jinx would be broken.

Globalization

In many advanced countries in the world such as United States of America, Britain, France, and Canada among others, both private sectors and government are involved in the provision of university education. Many notable universities in the world today are owned by private individuals. It is not a doubt that such universities have been contributing immensely to the training of skilled manpower for the development of their respective countries' economies. Nigeria thus needs to move forward in line with global development in the provision of university education.

Challenges of Privatization of Tertiary Education in Nigeria

Privatization of higher education in Nigeria to help in solving the lingering crises especially in the area of access or demand and supply of higher education, the following challenges are threatening the rationale for privatization of higher education.

High fees being charged students by private higher institutions

The fees being charged the students in private higher institution with particular reference to private universities in Nigeria are very high (Etuk, 2005). Data in Table 1, below show the fees being paid by students in selected private universities as at 2012. As indicated in Table 1, fees within the range of three hundred and forty thousand and one million, five hundred

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thousand naira (N340, 000 to N1,500,000) are being paid per academic session in the selected private universities, apart from others that must be borne by parents/guardians in the course of educating their children/wards. In a country whose majorities of its citizens are poor (UNESCO Institute of Statistics in 2007; Obadan, 2010). Such fee is too high for children of the less privileged parents to afford. The high fee will widen the gap between the rich and the poor in the society (Obadan, 2010).

Table 1: Tuition fees in selected private universities in Nigeria.

Name of university	Fees (N)
American University of Nigeria	1,500,000
Achievers University, Owo, Ondo State	380,000-420,000
Adeleke University, Ede	350,000
Babcock University, Remo Ogun State	340,000-620,000
Bowen University, Iwo, Osun State	650,000-750,000
Covenant University, Ogun State	432,000
Crawford University	450,000-480,000
Igbinedion University, Okada, Edo State	514,000-648,000
Joseph Ayo Babalola University, Ikeji, Osun State	397,500-436,000
Redeemers University, Lagos State	541,000-571,000

Source: www.toscanyacademy.com/blog/education/fees

Lack of Adequate Facilities Provided by Private Higher Institutions

The provision of educational facilities is crucial to bringing education to the doorstep of all. Nwaeke (2006) posits that the school facilities constitute the essential requirement for effective functioning of the school system. However, these school facilities such as classrooms, and classroom furniture, laboratory, libraries, equipments, instructional facilities and other teaching and learning facilities are conspicuous lacking or inadequate in most private higher institutions in Nigeria. Ene, (2017), classify most private higher institutions as glorified secondary schools. This according to Ene, (2017) has resulted in limiting the carrying capacity of these institutions.

Proliferation of private higher institutions (universities, polytechnics and colleges of education)

It is now a political issue which is obvious that private higher institutions are springing up daily in Nigeria. Many wealthy individuals both in government and other sectors including those with questionable sources of wealth wish to establish universities and other higher institutions. These individuals because of their influence in the society set up these higher institutions especially universities that are not well planned and based on effective school mapping procedures.

Shortage of Staff in Private Universities

It is a fact that private universities are established for profit making. The proprietors of private universities have the ultimate goal of making much profit from their investments. As a result, recruit few number of academic staff to manage a few number of students admitted. Many lecturers in the private universities are part-time and those on sabbatical leave and 'retirees' who may be too old to carry a large number students there carrying capacity of these universities. Ajadi (2010) confirmed that the private universities in Nigeria operate with limited number of academic and administrative staff and can't afford to admit many students.

Absence of education in the curriculum of private universities

As indicated in the National Policy of Education (Federal Republic of Nigeria, 2004), Faculty of Education and Institutes of Education of Universities; Colleges of Education, National Teachers' Institutes as well as the School of Education of Polytechnics is an integral part of higher education to produce professional teachers in Nigeria. As at today, most of the approved private universities do not have education in their curriculum. Programmes in most of the private universities are mostly science and technology based with little devoted to the humanities. According to Ige Akindele, (2015), more applicants would have access to university education if there were education in the curriculum of private universities. Statistics according to JAMB annual report 2015 shows that about 33% applicants applied to study education in public universities and only about 15% were admitted.

Privatization, Demand and Supply of Higher Education

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For better understanding of how privatization has rescue the demand and supply of higher education in Nigeria it is necessary to present statistical data of demand and supply of university education.

A situational analysis of demand and supply of higher education between 2011 to 2015

Table 2: Demand and Supply of University Education in Nigeria from 2011 – 2015

YEAR	APPLICATIONS	ADMISSION	%	TOTAL UNPLACED	%
2011	1,575,522	192,779	12.2	1,382,743	87.8
2012	1,452,874	386308	26.5	1,066,566	73.5
2013	1,668,224	262,510	15.7	1,405,714	84.3
2014	1,576,257	359,559	22.8	1,216,658	77.2
2015	1,424,628	384,442	26.9	1,040,186	73.1

Source: JAMB Annual Report 2011, 2012, 2013, 2014, 2015.

Table 2 above shows that over 1 million candidates apply for admission to Nigerian universities annually with only 20.8% being offered admission into the available vacancies in the existing universities (public and private) From the table out of 1,575,522 candidates that applied for admission into Nigerian Universities in 2010/2011, 192,779 (12.2%) were offered admission. In 2011/2012, 1,452,874 candidates applied, 386,308 **(**26.5%) gained admission. While in 2012/2013, out of 1,668,224 applicants, 262,510 (15.7%) were admitted. Out of 1,576,257 applicants in 2013/2014, 359,559 representing 22.8% were offered admission placement and out of 1,424,628 applicants in 2014/2015, 384,442 (26.9 %) candidates were offered admission placement (JAMB Annual Report 2011, 2012, 2013, 2014, 2015).

The number of unplaced or UN-admitted applicants within the period under review indicates 1,382,743 (87.5), 1,066,566 (73.1), 1,405,714 (84), 1,216,658 (77.2), 1,040,186 (73.1) in 2011, 2012, 2013, 2014 and 2015 respectively.

Table 3: % rate of admission in public and private universities 2011-2015

Year	Public Universities admission	%	Private Universities admission	%
2011	184,683	8.0	8,096	4.2
2012	355,017	18.4	31,291	8.1
2013	247,547	10.0	14,963	5.7
2014	325,401	13.3	34,158	9.5
2015	340,616	16.5	43,826	11.4

Source: http://www.nuc.edu.ng/pages/universities.asp:NUCwebsite, 2015

From the analysis above, admitted applicants within the period under review indicates private universities accounted for 4.2% out of the 12.2 % in 2011, 8.1% out of 26.5 in 2012, 5.7% out of 15.7% in 2013. In 2014 and 2015 it was 9.5% out of 22.8% and 11.4% out 27.9% respectively (see table 3 above)

Summary of statistics of demand and supply of polytechnics and Colleges of education

Table 4: Cumulative analysis of admission rate in Polytechnics and Colleges of Education in Nigeria 2011-2015

Institutions	Polytechnics	%	Colleges of Education	%
Federal/State	71	34.3	67	37.2
Private	18	9.4	42	15.7
Total	89	43.7	109	52.9

Source: NBS, 2015

Table 4 above shows the cumulative percentage of demand and supply of polytechnics and Colleges of education in Nigeria within the period under review indicate that, out of 43.7% and 52.9% admitted applicants, private polytechnics and Colleges of Education accounted for 9.4% and 15.7% respectively. (Nigeria's National Bureau of Statistics (NBS) 2015). The percentage figure above of admitted applicants; shows that, private universities account for 7.8% and public universities 13.2%. (See table 3). It is also evidence that, private polytechnics and colleges of education account for 9.4% and 15.7% of admitted applicants respectively. (see table 4). The statistics/analysis of the summary also shows 79.2% of un-admitted applicants in both public and private universities. Implication of the analysis above of admission rate within the period under review is that, the extent to which privatisation of higher education in Nigeria has recue demand and supply of higher education is relatively low with 7.8%, 9.4% and 15.7% of private universities, polytechnics and colleges of education respectively. Also, 79.2% of un-admitted applicants in both public and private universities is very high.

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Conclusion

Nigeria has encouraged the participation of the private sector in the provision and management of tertiary education to increase access to higher education, enhance sustainable national development, improve quality, and reduce the government involvement especially at this time of global economic recession and many more. However, evidences abound that, one of the basic reason for privatisation of higher education in Nigeria to increase access to higher education has not met the desire result. This paper noted the increasing demand for access to higher education in Nigeria and presented a statistical analysis of application and admission from 2011 – 2015 and it shows that, demand and supply of private universities, polytechnics and colleges of education is 7.8, 9.4 and 15.7 respectively within the period under review. This shows a worrisome situation that; privatisation of higher education has not really rescued or addressed the issue of demand and supply and a lot needs to be done.

Way Forward

Regulation of fees in private universities/higher institution

The issue of high school fees charged by private universities/higher institutions should be addressed by the Federal government. The NUC and federal government should intervene so that their school fees could be reduced even though such universities are meant to make profits to create chance for the poor and average Nigerians to have access to private university/institutions. There should thus be a benchmark that should be approved for all private universities in Nigeria. Any private university or institution that charges more than the approved fee should be sanctioned. Again, Federal government should try to argument the funding of these in form of grant to private universities/higher institutions to reduce high charges.

Implementation of School Mapping Procedures by private universities

The federal government through the National Universities Commission and regulatory agencies in charge of the approval of establishment of private universities/higher institution to address the issue of lack of adequate facilities should ensure that these institutions are established based on effective school mapping procedure which stated clearly the required facilities for any higher institution especially universities to accommodate a considerable number of applicants. Alternatively, government should set up universities and other higher institutions with adequate facilities before handing them over to private individuals. As noted by Nwaeke (2006) adequate school facilities guarantee access to university education.

Again, let there be increase in the capital base of private higher institution with reference to university from the current two hundred million to between five hundred and one Billion (NUC, 2019). This will increase funding of private universities so that necessary facilities in terms of classroom, instructional materials, staff equipment, library resources and other infrastructural facilities could be provided for sound university education.

Employment of adequate Staff in Private Universities

To address the issue of shortage of staff especially academic staff, I still call on the federal government because they are the one empowered by the constitution to regulate education to put politics aside and ensure private higher institutions especially universities employ the required number of staff with the necessary prerequisite qualifications to be able to meet up with the carrying capacity of the institutions.

Introduction of education into the curriculum of private universities

Faculty of education in most public universities seem to be the largest in terms of the number of applicants, I stand to be corrected. There is need for a change in the policy of the private universities in Nigeria which does not support the inclusion of education courses in the curriculum. Proprietors of private universities should introduce education into the curriculum of the universities for more access and quality teachers to be produced for the educational system.

Establishment of more public universities

Away from privatisation of higher education, the high demand of the university education calls for the federal government to establish more universities in the country and to fund them adequately. Government must not shy away from the primary

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responsibility of providing tertiary education as specified in the national constitution and the national policy on education. Publicly funded universities must continuously exist and be made accessible to all students motivated and talented to enrol in any programme. This is necessary because the increase in private universities will not make any significant impact on the access to university education because average qualified Nigerians cannot afford their money.

Open and distance learning programme

Lastly, open and distance learning programme in both private and public universities should be encouraged. This will enables a large number of people to have access to university education

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Qualitative Study of Altitude Training on Cardio-Metabolic Responses to Endurance Performance: A Systematic Review

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Abstract

Altitude training has been recognized as an effective training strategy for performance optimization based off the various physiological adaptations which the human body gets acquainted to. Exposure to environment with reduced partial pressure of oxygen is believed to trigger various cardio-metabolic responses ranging from the stimulation of erythropoiesis, increased red blood cell mass to improved oxygen carrying capacity, all of which contributes significantly to optimum performance in endurance events. Factors that could serve as barriers towards stimulating responses alongside various forms of training conditions in hypoxic state have been explored by researchers in a bid to aid the attainment of peak performance by athletes. This paper highlights the various acute responses and chronic adaptations of altitude training on the cardio-metabolic indices necessary for optimum endurance-related performance while also pointing out factors, training methodologies and limitations, as well as dispositions of individual variability, when exposed to hypoxic environments

Keywords: Altitude training, training strategy, adaptations, cardio-metabolic, erythropoiesis, hypoxic state, endurance performance, athletes

Introduction

The pursuit of performance optimization in endurance sports has led athletes and coaches to explore a diverse range of training strategies, with altitude training emerging as a prominent and widely adopted technique. The fundamental premise of altitude training rests on the understanding that exposure to hypobaric hypoxia, the reduced partial pressure of oxygen at higher altitudes, triggers a cascade of physiological adaptations designed to enhance oxygen delivery and utilization, ultimately improving endurance capacity. Endurance performance, characterized by sustained submaximal exercise, is primarily limited by the athlete's ability to deliver oxygen to the working muscles and utilize it efficiently for ATP production. Altitude training, characterized by exposure to environments with reduced partial pressure of oxygen, has been widely employed to induce physiological adaptations believed to enhance these critical aspects. The initial rationale centered around stimulating erythropoiesis, leading to increased red blood cell mass and improved oxygen carrying capacity. However, the physiological responses to altitude are far more complex, encompassing adaptations in skeletal muscle, ventilation, and substrate metabolism (Kautz, Jung, Valore, Rivella, Nemeth & Ganz, 2021).

Physiological Responses to Hypoxia

Exposure to altitude initiates a complex series of physiological responses designed to compensate for the reduced oxygen availability (West, 2017). These responses can be broadly categorized as:

A. Acute Responses:

i. Increased Ventilation: Immediate hyperventilation to increase alveolar oxygen tension, leading to a decrease in arterial PCO_2 and respiratory alkalosis.
ii. Increased Heart Rate and Cardiac Output: Compensatory increases in heart rate and cardiac output to maintain oxygen delivery to tissues.

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iii. Pulmonary Vasoconstriction: Hypoxic pulmonary vasoconstriction (HPV) redirects blood flow away from poorly ventilated areas of the lung, optimizing gas exchange. Hypoxia induces pulmonary vasoconstriction, leading to an increase in pulmonary arterial pressure. In some individuals, this can lead to the development of high-altitude pulmonary edema (HAPE), a life-threatening condition.

iv. Increased Sympathetic Nervous System Activity: Elevation in sympathetic tone contributes to increased heart rate, ventilation, and vasoconstriction.

Chronic Adaptations

Increased Erythropoiesis:

Hypoxia stimulates the release of erythropoietin (EPO) from the kidneys, leading to increased red blood cell production and elevated hemoglobin concentration, enhancing oxygen carrying capacity (Wang, Jiang, Rue & Semenza, 2019)). The reduced partial pressure of oxygen (PO_2) at altitude triggers a cascade of cellular responses mediated by the Hypoxia-Inducible Factor (HIF). HIF is a transcription factor that regulates the expression of numerous genes involved in oxygen homeostasis, including erythropoietin (EPO). EPO, produced primarily by the kidneys, stimulates erythropoiesis in the bone marrow, leading to an increase in red blood cell production and ultimately, an increase in hemoglobin mass (Hbmass). An increased Hbmass enhances the blood's oxygen carrying capacity, potentially improving VO_2max and endurance performance.

Increased Capillarization:

Angiogenesis, the formation of new capillaries, increases the capillary density in skeletal muscle, facilitating oxygen diffusion. Angiogenesis, the formation of new blood vessels, is stimulated by hypoxia, leading to increased capillarization around muscle fibers. This increases the surface area for oxygen delivery and waste removal, enhancing oxygen extraction by the muscle (West, 2017). The expression of vascular endothelial growth factor (VEGF), a key regulator of angiogenesis, is upregulated in response to hypoxia.

Mitochondrial Adaptations:

Hypoxia can influence mitochondrial biogenesis and function, potentially increasing oxidative capacity and improving metabolic efficiency, although the specific adaptations are complex and depend on the training protocol and individual response (Murray, 2016). Hypoxia stimulates mitochondrial biogenesis, increasing the number of mitochondria within muscle cells. This enhanced mitochondrial capacity improves oxidative phosphorylation and ATP production, potentially delaying the onset of fatigue during endurance exercise.

Buffering Capacity:

Increased buffering capacity in muscle tissue helps to mitigate the effects of acidosis during high-intensity exercise. Altitude training may improve intracellular buffering capacity, allowing muscles to tolerate higher levels of metabolic byproducts, such as lactate and hydrogen ions (West, 2017).

Ventilatory Acclimatization:

Gradual restoration of arterial pH towards normal levels despite continued hyperventilation. Acclimatization to altitude involves significant adjustments in the ventilatory system. The initial hyperventilation response to hypoxia is driven by stimulation of peripheral chemoreceptors. Over time, this response attenuates, which can impair oxygen unloading in the tissues, and the kidneys excrete bicarbonate to partially compensate for the respiratory alkalosis. This result in an increase in ventilation at any given workload, improving alveolar oxygen tension and facilitating oxygen uptake. However, excessive hyperventilation can lead to respiratory muscle fatigue, which can negatively impact exercise performance (Illi, Held, Frank, Spengler & Göhlert, 2018).

Substrate Metabolism:

Hypoxia can influence substrate metabolism during exercise. Studies suggest that altitude training may increase reliance on carbohydrate oxidation at a given workload, particularly during acute exposure to altitude. This shift in substrate metabolism may be related to increased activity of glycolytic enzymes and a decreased reliance on fat oxidation due to the limited availability of oxygen (Murray, 2016).

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Muscle Fiber Type Transition:

While the evidence is not entirely conclusive, some studies suggest a potential shift towards a higher proportion of type I (slow-twitch, oxidative) muscle fibers in response to chronic hypoxia. This adaptation would favor endurance performance by enhancing oxidative capacity and fatigue resistance. However, other studies have reported no significant changes in muscle fiber type composition following altitude training.

Reactive Oxygen Species (ROS) and Muscle Adaptation:

Hypoxia can increase the production of reactive oxygen species (ROS) within skeletal muscle. While excessive ROS production can be detrimental, moderate increases in ROS may act as signaling molecules, stimulating adaptive responses such as mitochondrial biogenesis and antioxidant defense (Powers, Jackson & Vasilaki, 2019).

The Erythropoietic Response: HIFs, EPO, and Beyond:

The cornerstone of altitude acclimatization is the body's erythropoietic response, primarily mediated by the Hypoxia-Inducible Factor (HIF) pathway. HIFs are transcription factors that regulate the expression of genes involved in oxygen homeostasis, including erythropoietin (EPO), the primary stimulus for red blood cell production. Increases in tHb improve the blood's oxygen-carrying capacity, directly impacting oxygen delivery to the muscles. However, other factors also contribute to improved oxygen transport, including:

i. Pulmonary Diffusion: Increased alveolar-capillary surface area can enhance oxygen diffusion in the lungs.
ii. Cardiac Output: While acute exposure to altitude can increase cardiac output, chronic exposure may lead to adaptations that optimize cardiac function and efficiency.
iii. Peripheral Circulation: Enhanced capillarization and vasodilation in the skeletal muscles improve oxygen delivery to the working tissues.

(Tanno, Porayette, Sripichai, Noh, Goodnough, Lozanski & Bunn, 2019)

Factors Limiting Erythropoiesis at Altitude

While hypoxia is a potent stimulus for EPO production, the erythropoietic response at altitude is not unlimited. Several factors can limit EPO production and/or RBCm expansion, including:

Iron Availability:

Iron is a critical component of hemoglobin, and inadequate iron stores can limit erythropoiesis. Hepcidin, a liver-derived hormone that regulates iron absorption and release, plays a central role in iron homeostasis. Hypoxia can induce hepcidin production, potentially limiting iron availability and blunting the erythropoietic response. Effective erythropoiesis requires sufficient iron availability. Hepcidin, the master regulator of iron metabolism, can be elevated by hypoxia and inflammation, potentially limiting iron absorption and hindering erythropoiesis. The interplay between iron homeostasis, inflammation, and erythropoiesis must be considered when designing and implementing altitude training protocols. Strategies to optimize iron status, including iron supplementation and dietary modifications, are crucial for maximizing the benefits of altitude training (Robach, 2021).

Inflammation:

Inflammatory cytokines can suppress EPO production and impair iron utilization, potentially limiting the erythropoietic response to altitude.

EPO Resistance:

In some individuals, the bone marrow may become less responsive to EPO stimulation, resulting in a blunted erythropoietic response.

Hypobaric Hypoxia and Hemodilution:

According to Perini, Milesi, Reggiani, Grassi, Ferretti and Cerretelli (2020), hypobaric hypoxia leads to an increase in RBCm, it is also followed by a plasma volume expansion. This expansion of the blood plasma can cause a hemodilution effect and can limit the concentration of oxygen in the blood.

Other factors involved in the regulation of erythropoietic response to altitude include:

i. Erythroferrone: This hormone, produced by erythroblasts in response to EPO stimulation, suppresses hepcidin production, thereby promoting iron availability for erythropoiesis (Kautz *et al.*, 2021).

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ii. Growth Differentiation Factor 15 (GDF15): GDF15 is another erythroid-derived hormone that can suppress hepcidin expression, potentially contributing to increased iron availability (Tanno *et al.*, 2019).
iii. The Gut Microbiome: Emerging evidence suggests that the gut microbiome can influence erythropoiesis through various mechanisms, including modulating iron absorption and inflammation (Johnson, Vasileiou, & Freyaz, 2020).

Metabolic Adaptations in Skeletal Muscle:

Altitude training induces metabolic adaptations within skeletal muscle, enhancing oxidative capacity and altering substrate utilization.

Mitochondrial Biogenesis and Oxidative Enzyme Activity:

Hypoxia stimulates mitochondrial biogenesis, leading to increased mitochondrial density and oxidative enzyme activity. This enhances the capacity for ATP production via oxidative phosphorylation, improving endurance performance. Alterations in the expression of key metabolic enzymes, such as citrate synthase (CS) and succinate dehydrogenase (SDH), indicate enhanced oxidative capacity within muscle cells (Murray, 2016).

Substrate Utilization and Efficiency:

Altitude training may influence substrate utilization during exercise. While some studies suggest an increased reliance on carbohydrate oxidation at a given workload, others have reported no significant changes in substrate metabolism. The specific adaptations likely depend on the training intensity, duration, and individual metabolic profile. Improvements in metabolic efficiency, potentially due to enhanced mitochondrial function, may contribute to improved endurance performance.

Lactate Metabolism and Buffering Capacity:

Altitude training may enhance lactate clearance and improve muscle buffering capacity, enabling muscles to tolerate higher levels of metabolic byproducts during high-intensity exercise. Improved lactate threshold and reduced lactate accumulation during exercise can enhance endurance performance (Feriche, 2014).

Altitude Training Methodologies

Live High, Train Low (LHTL)

LHTL involves living at a moderate altitude (2000-3000m) to stimulate erythropoiesis and other acclimatization responses, while training at or near sea level to maintain high-intensity training quality. This approach aims to maximize the benefits of altitude exposure while minimizing the negative impact of hypoxia on training intensity and volume. This strategy is predicated on the idea that the hypoxic stimulus of altitude can be exploited to enhance oxygen carrying capacity without compromising the ability to perform demanding training sessions. Numerous studies have demonstrated that LHTL can improve endurance performance in some athletes, primarily through increased Hbmass. However, the success of LHTL depends on sufficient altitude exposure (typically >12 hours per day), proper monitoring of individual responses and adequate iron status to support erythropoiesis. This method is widely considered the gold standard for altitude training, as it theoretically balances the benefits of hypoxic exposure with the need for high-intensity training (Brocherie, Girard, Faissol & Millet, 2017; Schmidt & Prommer, 2018; Bonetti, & Hopkins, 2019).

Live High, Train High (LHTH)

LHTH involves both living and training at altitude. While this approach maximizes exposure to hypoxia, it can also significantly impair training intensity and volume. The reduced oxygen availability can limit the athlete's ability to perform high-intensity workouts, potentially negating the benefits of increased Hbmass. However, some athletes may be able to tolerate LHTH and achieve performance gains, particularly if they are well acclimatized and able to adapt their training accordingly (Brocherie *et al*., 2017).

Intermittent Hypoxic Training (IHT):

IHT involves repeated short exposures to hypoxia, typically delivered through breathing hypoxic gas mixtures, interspersed with periods of normoxia. IHT can be performed at rest (intermittent hypoxic exposure, IHE) or during exercise (intermittent hypoxic exercise, IHE). Intermittent Hypoxic Exposure (IHE): Involves resting in normobaric or hypobaric hypoxia for short periods of time, and is proposed to stimulate acclimatization mechanisms without the cost of high-intensity training sessions in hypoxia. "Altitude Simulation": Using hypoxic tents or chambers at sea level to mimic the

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physiological effects of altitude exposure. This method offers the advantage of controlling the hypoxic dose and minimizing the logistical challenges associated with traveling to altitude (Feriche, 2014).

The rationale behind IHT is to stimulate HIF activation and induce cellular adaptations without the limitations associated with prolonged exposure to altitude. While IHT can induce some physiological changes, such as improved ventilatory control and muscle buffering capacity, its effectiveness in improving endurance performance remains controversial, with inconsistent findings reported in the literature. The optimal IHT protocols, including the intensity, duration, and frequency of hypoxic exposures, are still under investigation. IHT is often used as a supplement to traditional training and may be beneficial for enhancing peripheral adaptations, such as mitochondrial function and buffering capacity, without the need for prolonged altitude residence.

Repeated Sprint Training in Hypoxia (RSH)

This specific form of hypoxic training is primarily used to enhance the adaptations of anaerobic metabolism. Athletes perform maximal sprints with short recovery periods at altitude or while breathing hypoxic air. RSH represents a specialized implementation of IHT where high-intensity sprint exercise is performed under hypoxic conditions, followed by recovery periods in normoxia. This form of training appears to be successful to increase glycolytic capacity and muscular power. This method focuses on local muscular adaptations rather than the cardiorespiratory adaptations commonly associated with traditional altitude training. The application of RSH is more suited for short burst athletes, rather than endurance athletes (Brocherie *et al*., 2017).

Individual Variability in Response to Altitude:

A significant challenge in altitude training research is the marked individual variability in response to hypoxic exposure (Bonetti & Hopkins, 2019). Some athletes experience significant performance gains, while others show little or no improvement, and a small percentage may even experience performance decrements. Factors that may contribute to this variability include: genetic predisposition, iron status, baseline physiological characteristics, training history, monitoring response, altitude dose, nutrition and hydration, sleep quality and gut microbiome:

Conclusion

Altitude training remains a popular and potentially effective strategy for improving endurance performance. While the underlying mechanisms involving erythropoiesis, skeletal muscle adaptations, and ventilatory changes are well-established, the individual variability in response poses a significant challenge. The "live high, train low" (LHTL) approach appears to be the most effective strategy for many athletes, allowing for sufficient altitude exposure to stimulate physiological adaptations without compromising training intensity. Future research should focus on optimizing altitude training protocols for individual athletes based on their genetic profile, iron status, training history, and physiological responses.

Suggestions for Further Study

i. Future research should look into the optimization of altitude training protocols for athletes based on individual variability.
ii. The need for targeted studies towards optimizing intermittent hypoxic training for endurance gains is encouraged.
iii. Comparison of the efficacy of altitude training protocols across diverse athletic population to establish best practices.

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Effect of Problem-Based Strategy on Performance in Algebra among Lower Basic Education Pupils in Zamfara State, Nigeria

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Abstract
This study investigated the effect of a problem-based learning (PBL) strategy on the performance of algebra among lower basic education pupils in Zamfara State, Nigeria. The research addressed the persistent issue of poor mathematics performance rates among pupils, which has been attributed to traditional lecture-based teaching methods that fail to engage students actively in deep conceptual understanding. The study adopted a quasi-experimental design, specifically the Pretest-Posttest Non-equivalent Control Group Design, to compare the outcomes of pupils taught using PBL with those exposed to conventional lecture methods. The sample consists of primary 1-3 pupils, selected through purposive and multi-stage sampling techniques. Data collection involves administering pre- and post-tests, as well as a reshuffled algebra Performance Test (APT). Descriptive statistics (mean and standard deviation) and Analysis of Covariance (ANCOVA) were used to analyze the data at a 0.05 significance level. The study aims to determine the mean performance of pupils taught with PBL, as well as any gender-based differences in performance. The findings were expected to provide insights into the effectiveness of PBL in enhancing mathematical proficiency, offering a viable alternative to traditional teaching methods in lower basic education. The research instruments were validated by the experts in Science Education and Mathematics, and reliability is established using Pearson products moment correlation coefficient (PPMC). Data analysis was conducted using SPSS version 23.0. The study contributed to the growing body of evidence supporting constructivist approaches in mathematics education, emphasizing active learning, critical thinking, and real-world application.
Keywords: Problem-based learning, Performance, Algebra, Lower basic education.

Introduction
Mathematics forms an integral foundation in shaping the psychomotor, cognitive, and affective domains of pupils. If these three aspects of a student's life are well developed, it would enable them to adapt well even in the process of behavioral change, which education aims to achieve. Problem-based learning (PBL) is a teaching strategy that emphasizes the active role of learners in building their own understanding of knowledge through experiences, reflection, and social interaction. In the context of teaching and learning mathematics, constructivism has gained prominence as an effective approach to engage students and foster deep conceptual understanding. The pupil would easily adjust to change, allow the change to become part of them, and make that change a principle to guide anything related to that same issue. The place of healthy competition in class cannot be overemphasized because it increases the self-worth of an individual. Prince (2004) noted that performance in mathematics can be enhanced through a combination of effective study habits, regular practice, and a positive mindset. Rohrer (2009) stated that in mathematics refers to the ability to remember and apply mathematical concepts, procedures, and facts over time. It is crucial for building a solid foundation in mathematics, allowing students to progress to more complex topics without having to relearn basic concepts. Improving in mathematics involves techniques and strategies that help students remember and understand concepts over the long term. Constructivism has had a significant impact on educational practices, leading to learner-centered approaches that focus on inquiry, problem-solving, and critical thinking. It also informs the design of learning environments that promote active engagement and collaboration among learners. On this basis, the researcher intends to determine the effects of problem-based learning on performance in algebra among lower basic education pupils in Zamfara State. Should mathematics be removed from the curriculum of learning experiences that take place in schools because pupils fail to pass the subject? Many students nowadays find it difficult to pursue a career in a field of science, not because they are incapable or would perform less than required, but because they are afraid of mathematics, let alone sitting to learn it as a subject. The study addresses the prevalent issue of poor

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performance in mathematics among lower basic education pupils in Zamfara State, evidenced by consistently low assessment scores and inadequate mastery of fundamental mathematical concepts. Traditional lecture-based methods dominate current teaching practices, often failing to engage students sufficiently in active learning or foster deep conceptual understanding essential for mathematical proficiency. Problem-based learning offers a promising alternative by promoting active student participation, critical thinking, and collaborative problem-solving. This approach is aligned with constructivist principles, emphasizing practical application and real-world relevance to enhance conceptual understanding of mathematical concepts. Based on this, the researcher intends to determine specifically the effects of problem-based learning on performance in algebra among lower basic education pupils in Zamfara State.

Objectives of the Study

The general objective of the study is to examine the effects of problem-based learning on performance in algebra for qualitative mathematics education among lower basic education pupils in Zamfara State. Specifically, it seeks to:

i. Determine the mean performance of pupils taught algebra using problem-based learning and those exposed to the lecture method.
ii. Investigate the mean performance of male and female pupils taught algebra using problem-based learning.

Research Questions

i. What is the mean performance of pupils taught algebra using problem-based learning compared to those taught using the lecture method?
ii. Is there any gender-based difference in the mean performance of pupils taught algebra using problem-based learning?

Research Hypotheses

Ho_1. There is no significant difference in the mean performance of pupils taught algebra using problem-based learning and those taught using the lecture method.

Ho_2.There is no significant gender-based difference in the mean performance of pupils taught algebra using problem-based learning.

Methodology

The pretest, posttest, non-equivalent control group quasi-experimental design was adopted for this study. Both the experimental and control groups were initially pretested to determine their equivalence in performance in algebra. After the treatment, both groups were post-tested to determine the impacts of the treatment on their performance. The population of the study consisted of all lower basic education pupils (Primary 1-3) in Zamfara State. `The sample size was 120 pupils (60 males and 60 females) selected through purposive and multi-stage sampling techniques. The experimental group was exposed to problem-based learning, while the control group was taught using the conventional lecture method. Algebra was the mathematical concept treated, and the Algebra Performance Test (APT) was the research instrument used. Three experts validated the APT, and its reliability index was 0.85 using Pearson products moments correlation coefficient (PPMC). The data collected were analyzed using mean, standard deviation, and One-Way ANCOVA statistical tools at a 0.05 significance level.

Presentation of Results

Research Question 1:

What is the mean performance of pupils taught algebra using problem-based learning compared to those taught using the lecture method?

Table 1: Summary of the Result of Pupils' Posttest Performance Scores (Mean and Standard Deviation) for Experimental and Control Groups

Group	N	Mean (X)	SD	Std. Error Mean	Mean Difference (MD)	Remarks
Experimental	60	75.32	6.45	0.83	12.87	Difference Exists
Control	60	62.45	7.12	0.92		
Total	**120**					

The mean performance scores of the experimental and control groups were 75.32 and 62.45, respectively, with a mean difference of 12.87. The experimental group had higher performance scores than the control group, indicating the effectiveness of problem-based learning.

Hypothesis 1:

Ho_1. There is no significant difference in the mean performance of pupils taught algebra using problem-based learning and those taught using the lecture method.

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Table 2: Summary of One-Way ANCOVA of Pupils' Performance Scores in Algebra

Source	Sum of Squares	DF	Mean Squares	F	Sig.	Decision
Corrected Model	2456.78	4	614.195	45.23	000	
Intercept	12034.56	1	12034.56	885.67	000	
Pretest	12.34	1	12.34	0.91	342	Not Significant
Instructional Strategy	2201.45	1	2201.45	162.12	000	Significant
Error	1567.89	115	13.63			
Total	16059.23	120				
Corrected Total	**4024.67**	**119**				

Significant at $P < 0.05$

The result of the One-Way ANCOVA showed that problem-based learning significantly impacted pupils' performance in algebra ($F = 45.23$, $p = 0.000 < 0.05$). Thus, the null hypothesis was rejected.

Research Question 2:

Is there any gender-based difference in the mean performance of pupils taught algebra using problem-based learning?

Table 3: Summary of the Result of Pupils' Posttest Performance Scores (Mean and Standard Deviation) by Gender in the Experimental Group

Gender	N	Mean (X)	SD	Std. Error Mean	Mean Difference (MD)	Remarks
Male	30	74.89	6.23	1.14	0.87	No Difference
Female	30	75.76	6.56	1.20		
Total	**60**					

The mean performance scores of male and female pupils in the experimental group were 74.89 and 75.76, respectively, with no significant difference.

Hypothesis 2:

Ho_2.There is no significant gender-based difference in the mean performance of pupils taught algebra using problem-based learning.

Table 4: Summary of One-Way ANCOVA of Pupils' Performance Scores by Gender

Source	Sum of Squares	DF	Mean Squares	F	Sig.	Decision
Corrected Model	2456.78	4	614.195	45.23	000	
Intercept	12034.56	1	12034.56	885.67	000	
Pretest	12.34	1	12.34	0.91	342	Not Significant
Gender	7.89	1	7.89	0.56	456	Not Significant
Error	1567.89	115	13.63			
Total	16059.23	120				
Corrected Total	**4024.67**	**119**				

Significant at $P < 0.05$

The result of the One-Way ANCOVA showed no significant gender-based difference in performance ($F = 0.56$, $p = 0.456 > 0.05$). Thus, the null hypothesis was retained.

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Discussion of Findings

The findings of this study indicated that pupils taught algebra using problem-based learning achieved higher performance scores compared to those taught using the lecture method. This finding aligns with the constructivist approach, which emphasizes active learning, critical thinking, and real-world application. The study also found no significant gender-based differences in performance, indicating that problem-based learning is gender-friendly.

Conclusion

Based on the findings, it was concluded that problem-based learning enhances pupils' performance in algebra. The strategy is effective and gender-friendly, making it a viable alternative to traditional lecture methods in lower basic education.

Recommendations

i. Mathematics teachers should adopt problem-based learning to improve pupils' performance in algebra.
ii. Problem-based learning should be incorporated into teacher training programs to equip teachers with the necessary skills to implement the strategy effectively.
iii. Educational stakeholders should organize workshops and seminars to train teachers on the use of problem-based learning in mathematics education.
iv. Schools should provide adequate teaching aids and resources to facilitate the effective implementation of problem-based learning.

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Effects of Poor Remuneration on Performance of Teachers in Private Secondary Schools in Otukpo Local Government Area of Benue State, Nigeria

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Abstract

This paper examines the effects of poor remuneration on the performance of teachers in private secondary schools in Otukpo Local Government Area of Benue State. The population of the study comprised of one hundred and fifty (150) teachers, principals and secondary schools' owners *drew from six (6) private schools in Otukpo LGA, Benue State. Two (2) research questions were answered. Two (2) hypotheses were formulated and tested at 0.05 level of significance. Theory of Herzberg in (1976), anchored the study. A review of concepts as well as empirical studies related to this study were done. Survey research design was used. A sample of one hundred and nine (109) male and female teachers was randomly selected for the study. A questionnaire titled "Effect of Poor Remuneration on the Performance of Teachers in Private Secondary Schools Questionnaire" (EPSPTSSQ) were developed by the researcher to collect data for the study. These were subjected to face validation. Data were analyzed in tabular formats using mean and standard deviation to answer the research questions. Hypotheses were tested using the Pearson Product Moment Correlation, from which the result was also used in making inferential statistical analysis in the study. The finding revealed that poor remuneration has a significant effect on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State.*

Keyword: Remuneration, Performance, Teacher

Introduction

In private secondary schools, the issue of remuneration payment plays a crucial role in influencing teacher performance. Fabiyi (2019) opined that a fair and timely remuneration not only meets the financial needs of teachers but also serves as a powerful motivator that affects their job satisfaction, professional commitment, and classroom effectiveness. According to the author, teachers who are paid well are generally more enthusiastic about their roles and more willing to go the extra mile for their students. They tend to be more focused, prepared, and motivated to deliver high-quality lessons (Fabiyi, 2019). These teachers are also more likely to participate in extracurricular activities and invest in professional development, which benefits both the school and its students (Fabiyi, 2019). On the other hand, if remuneration payments are delayed, inconsistent, or perceived as unfair, teachers may feel undervalued and demoralized. This can lead to decreased motivation, lower productivity, and even higher staff turnover. In such cases, students may experience a lack of continuity in their education due to frequent teacher changes, which can negatively impact learning outcomes (Fabiyi (2019).

In addition, Ubom (2021) affirmed that all over the world, teachers are regarded as direct implementers of any educational programme and their role in nation building cannot be over-emphasized. Before any nation can be transformed into technological giant, teachers would be the gratified ones who would in return give back to the nation the maximum of their intellectual capacity. The pertinent question is "Why is the profession so noble in outlook be so abhorred by most people? Ubom (2021) added that lack of job satisfaction as a result of poor remuneration package and other conditions of service affect employees' commitment to work and contributions to the effectiveness of organization is reduced. According to the author, teaching job is devoid of action. Hence, many who find themselves in the field are there by necessity rather than by design. Therefore, most of them put on low rate of commitment while on the job. Ubom (2021) further confirmed that teachers place premium on variables such as remuneration, time, mode of payment and fringe benefits. Teaching has poor remuneration structure or earning power; remuneration is not commensurate with Job and is not as lucrative as other jobs. Teaching has a negative public image, low social status, lack of recognition by society and teachers are regarded as second - class citizens (Bamisaye and Ayeni, 2017).

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On the same vein, Obanya (2023) remarked that teachers in Nigeria, are poorly remunerated, motivated, dissatisfied with their living and conditions of service. This could be explained by their low wages or salaries when compared with other professionals, low status in the society, irregular promotion of teachers, inadequate fringe benefits and irregular payment of salaries. This marked the beginning of the teacher motivational crisis in Nigeria, as the private began to look down on those teachers who remained in the classroom as second-strong private servants. Obanya (2023) also observed that the growing tendency for school leavers to opt for teaching only if they are unable to find other more lucrative private sector employment. This further compounded the problem of employment. The author, confirmed that teaching in Nigeria today is not only confronted with the problem of non-availability of staff but that of mutability (Bamisaye and Ayeni, 2017).

However, in Otukpo Local Government Area of Benue State, there has been growing concern over the impact of poor remuneration on teacher performance. Many private school teachers in this region face persistent issues related to low salaries, which can significantly affect their commitment, motivation, and overall effectiveness in the classroom. This situation not only undermines their professional well-being but also poses a serious threat to the quality of education delivered to students. (Ikpe, 2024) Private school teachers in Otukpo LGA are often employed under less favorable conditions compared to their public counterparts. In many cases, their salaries are not only low but also irregular and lack accompanying benefits such as pensions, health insurance, and job security. These conditions can lead to low morale, decreased job satisfaction, and poor work commitment. Teachers who are financially stressed may be forced to seek additional employment or side businesses, thereby reducing their focus and dedication to teaching.

Objective of The Study

i. To investigates the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State
ii. To find out the solutions to the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State.

Research Questions

i. What are the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State?
ii. What are the solutions to the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State?

Research Methodology

This study adopted survey research design, this is to illicit opinion information from participants or respondents concerning the Effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. According to Ezejeolue and Ogwo (2019), survey embodies method of gathering data from usually a large number of respondents who themselves constitute a sample. Also, surveys are useful in the measurement of public opinions, attitudes and orientations, which are dominant among large populations. The survey method lends itself to this study by virtue of the large population and the aims/objectives to ascertain opinions and dispositions of respondents on the subject matter. The population of this study comprised of 150 teachers, principals of Schools and owners of private secondary schools in Otukpo Local Government Area of Benue State. A sample size of one hundred and nine (109) made up of male and female teachers in secondary schools will be used for this study. The sample is statistically determined using the Yamane's (2013) formula for determining sample sizes. The choice of Yamane's formula is informed by virtue of its suitability in the determination of samples from a heterogeneous and finite population.

The sampling technique to be used for this study is the random sampling. A random sampling is a probability technique where members of a total population are selected according to a random starting point and a fixed period interval with which every member of the population stands a chance of being selected (Asika, 2019, p.11). The choice of the random sampling will be more appropriate to enable the researcher ensure fairness and equality in the selection of secondary schools and distribution of questionnaires to respondents in Otukpo Local Government Area. In the light of this, 109 comprising teachers, principals, Private schools' owners, was drawn from 7 private secondary schools in Otukpo Local Government, that was draw from the population of 150.

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Presentation of Results

Research Question 1

What are the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State?

Table 1: Mean rating on effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State

Items	N	Frequency	Mean	SD	Remarks
Attraction of Less Qualified Candidates	109	43(39.5%)	3.4	1.3	Strongly Agreed
Reduces their motivation and enthusiasm for the job	109	34(31.2%)	3.2	1.1	Agreed
Lack of commitments in the classroom teaching	109	17(15.6%)	3.1	1.0	Agreed
Low motivation and morale	109	10(9.2%)	3.2	1.3	Strongly Agreed
Side Jobs and Divided Attention	109	5(4.5%)	2.8	0.7	Disagree
Increased Absenteeism and Turnover	109	6(2.4%)	2.5	0.3	Not Sure

Sources: *Field survey, 2025*

Data obtained on table 1 was to ascertain the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. As shown on table, 43(39.5%) majority of the respondents strongly agreed that attraction of less qualified Candidates, 34(31.2%) of the respondents agreed that reduces their motivation and enthusiasm for the job, 17(15.6%) of respondents also attested that lack of commitments in the classroom teaching, 10(9.2%) respondents strongly agreed that low motivation and morale, 5(4.5%) of respondents disagreed that side jobs and divided attention, 6(2.4%) minority of the other respondents not sure that increased absenteeism and turnover.

Research Question 2

What are the solutions to the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State?

Table 2: Mean rating on the solutions to the effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State

	N	Frequency	Mean	SD	Remarks
Private school proprietors need to prioritize fair and competitive remuneration for teachers	109	49(41.5%)	3.4	1.3	Strongly Agreed
Local and state governments can create policies that regulate the minimum wage for teachers in private schools	109	38(34.2%)	3.2	1.1	Agreed
School owners can boost morale and encourage dedication.	109	20(18.6%)	3.1	1.0	Agreed
Formation of teachers' unions or associations in the private sector	109	10(9.2%)	3.2	1.3	Strongly Agreed

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School proprietors should explore alternative sources of income, such as partnerships with NGOs, alumni associations, and community development initiatives	109	6(4.5%)	3.0	0.7	Agreed
Schools owners should intensify their efforts in providing fringe benefits such as health protection, retirement package, free accommodation, transportation, leave bonus, pension, cash bonus, and other welfare packages for teachers that will encourage them to create a sense of commitment and dedication leading to an improved performance	109	5(2.4%)	3.5	0.3	Strongly Agreed

The aim of table 2 was to ascertain to the solutions effect of poor remuneration on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. As shown on table, 49(41.5%) majority of the respondents agreed that private school proprietors need to prioritize fair and competitive remuneration for teachers, 38(34.2%) of the respondents agreed that local and state governments can create policies that regulate the minimum wage for teachers in private schools, 20(18.6%) of the respondents agreed with the opinion that government should mobilize adequate funds for regular workshops for school teachers, 10(9.2%)of respondents attested that There is need for proper utilization of mentorship among teachers in the schools, 6(4.5%) of the respondents agreed that School proprietors should explore alternative sources of income, such as partnerships with NGOs, alumni associations, and community development initiatives, 5(2.4%) minority of the respondents strongly agreed to the fact that Schools owners should intensify their efforts in providing fringe benefits such as health protection, retirement package, free accommodation, transportation, leave bonus, pension, cash bonus, and other welfare packages for teachers that will encourage them to create a sense of commitment and dedication leading to an improved performance.

Summary of Findings

1. Poor remuneration has a significant effect on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State.
2. Solutions to the effect of poor remuneration has a significant difference on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State.

Discussion of Findings

The first analysis of this study identified that Poor remuneration has no significant effect on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. Details of the differences is seen on table 2, also, the test of hypothesis showed that the calculated the r-value of 0.258 is greater than the critical r-value of 0.195 at 0.05 alpha levels with 224 degrees of freedom, and the p-value is less than 0.05, the null hypothesis is rejected. Finding of this study revealed that Poor remuneration has a significant effect on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. The finding is in line with Audi, Abubakar and Ahmed (2022), who discovered that irregular payment of salaries and irregular provision of fringe benefits for teachers influenced effective implementation of curriculum negatively in private senior secondary schools. The study concluded that school's owners should ensure regular payment of salaries as at when due; owing teachers' salaries should be stopped. It was recommended that Government should also intensify her efforts in providing fringe benefits for teachers and other welfare packages that will encourage them to create a sense of commitment and dedication leading to an improved performance

The second analysis of this study revealed that Solutions to the effect of poor remuneration has no significant difference on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. the test of hypothesis shows the calculated r-value of 0.256 is greater than the critical r-value of 0.195 at 0.05 alpha levels with 212 degrees of freedom,

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since the p-value is less than 0.05, the null hypothesis is rejected. Finding of this study indicated that Solutions to the effect of poor remuneration has a significant difference on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. This finding agreed with the similar studies by Yakubu and Nurudeen (2019), whose found that there is a significant solution to the effect of poor remuneration on the performance of Teachers in Private Secondary Schools. The study concluded that private owners should conduct regular reviews of teacher salaries to ensure they remain competitive within the region.

Conclusion

Based on the findings of the study, the seminar concluded that poor remuneration has a significant effect on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State. The study also, concluded that Solutions to the effect of poor remuneration has a significant difference on the performance of Teachers in Private Secondary Schools in Otukpo LGA, Benue State.

Recommendations

1. Private schools' owners should also intensify their efforts in providing fringe benefits for teachers and other welfare packages that will encourage them to create a sense of commitment and dedication leading to an improved performance.
2. Private schools' owners should conduct regular reviews of teacher salaries to ensure they remain competitive within the region.
3. Payment of teachers' salaries: Proprietors should improve the monetary reward for teachers to enable them afford their needs. Apart from that, there should be prompt payment of salaries including all allowances accruing to teachers:

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Assessment of E-Learning Facilities for Teacher Education Programmes among Colleges of Education in Kwara State, Nigeria

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Abstract

The quality of teachers produced in colleges of education has direct impact on achieving the goals of education in all level. This study, therefore, examined the management of e-learning instructional facilities for goal achievement of teacher education among the colleges of education in Kwara State. This study is a descriptive survey and guided with four objectives. Four research questions were raised and one null hypothesis was generated and tested at 0.05 significance level. 271 respondents were sampled for the study. The instruments for collection of data were developed and tagged 'MEIQ' and 'GAQ'. 0.73 and 0.72 were obtained as reliability scores. The findings were that: available e-learning instructional facilities in the study area were below average in provision and maintenance with mean score of 1.32 and 1.22; stakeholders' involvement in maintaining facilities is low with 1.21 mean score; goal achievement of the colleges of education in the study area is on average with the mean score 2.78; and relationship exist between inclusiveness in managing e-learning instructional facilities and goal achievement of teacher education (r= 0-.64; p-value 0.01 < 0.05 sig). Hence, the study concludes that joint management among the stakeholders of e-learning instructional facilities in terms of provision and maintenance is imperative for achieving the set goals of teacher education. It is therefore recommended among others that management of colleges of education should incorporate students and host communities for managing available facilities.

Key words: Managing e-learning instruction facilities, stakeholders and goal achievement

Introduction

Colleges of education in Nigeria are one of the teacher training institutions. The colleges are to prepare and equip teachers with skills and other potentials for curriculum interpretation and instructional delivery at pre-basic, basic and upper basic level of education in Nigeria as contained in the National Policy of Education 2013 revised edition. The fact that no country can raise above the quality of her educational programmes as to do with the quality of instructional interpreters and implementers who are the teachers. The emphasis on quality education aims to transform and equip society's resources, ultimately serving as an instrument par excellence for national development (FRN, 2013). Building upon this notion, it can be argued that functional teacher education prioritizes the improvement of personal skills, capacity building, overcoming limitations, and expanding opportunities for individuals, all of which contribute to sustainable development of a nation.

Education provided at tertiary institutions like Colleges of Education is instrumental in developing a highly skilled and competent workforce. According to Doki, Idoko and Kajo (2024), Colleges of Education in Nigeria focus on equipping individuals with the necessary knowledge, skills, and competencies to become professional teachers and educators in various educational settings. It occupies the third cadre in the ladder of tertiary educational provided in Nigeria. As important citadel of learning, they play a pivotal role in producing highly qualitative, motivated, conscientious and efficient classroom teachers for the Nigerian educational system. As the higher degree awarding institutions, Colleges of Education under its regulatory body, the National Commission for Colleges of Education (NCCE) awards Nigeria Certificate in Education (NCE) which offer a range of academic programmes and courses in education-related fields, including Early Childhood Education, Primary Education, Secondary Education, Special Education, Technical Education, Science Education, and other conventional courses in business, social sciences and humanities. These programmes, typically, include both theoretical and practical components, incorporating classroom instruction, teaching practice, and supervised field experiences in order to meet the needs and interest of various individuals for sustainability of the nation. The primary and basic objective of Colleges of Education is to produce competent and well-trained teachers who can effectively facilitate learning, promote educational development, and contribute to the improvement of the Nigerian education system (NCCE, 2020). Meanwhile, curriculum of Colleges of Education dives deep into teaching methods, subject expertise, educational psychology, classroom management and assessment techniques. For the standardization of the programmes, NCCE sets the standards, guidelines, and accreditation processes to ensure top-notch teacher education. As good as programmes set for Colleges of Education in Nigeria, provision and utilization of facilities for operation if lacking, the

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objective could a mirage. Considering the level of education where the graduates of Colleges of Education are to operate or work (the basic levels of education), once the teachers are not trained on the use of instructional resources (most especially, e-learning instructional resources) among other facilities, there would be structural defects on the learning acquisition of children at those levels of education. Akim (2022) opined that foundation level of education known as basic level must be handled with care by those who are having the potentials and those who are professional. It is not an assumption but a believe that a graduate of a college of education possess skills for instructional delivery and has capacity for using instruction facility to ease the learning process of the children in all levels of basic education in Nigeria. But a situation where the facilities are not provided or even the available ones are not used, teachers would struggle with friction against reality.

However, the 21st century has graduated virtually all aspect of human life from traditional approach to a modern approach. Technology and its tools have touched every circle and aspect of fields and teaching and learning process inclusive. Through technology and its products, learning is made easy, accessible and achievable (Ottan and Ahmed, 2023). The Nigerian government sees education as driving force to advance the national's economy and to achieve this, the programme of education should be dynamic to accommodate changes in human and national development. The use of e-learning facilities as a component part of the globalizing education sector therefore becomes imperative in all aspect of education. Technology has revolutionized the happenings in all level of education in different ways. The Federal Government of Nigeria took bold policy statement concerning the integration of ICT into the education system of all levels. For the primary level, FRN (2004) states in section 4 subsection 19 (m) that: in recognition of the importance and pivotal role e-learning (ICT) plays in advancing knowledge and skill, it is essential for the government and institutional leadership of this modern society to integrate e-learning into the education system in Nigeria.

E-learning is increasingly utilized in higher education, including teacher education. Studies in Kwara State, Nigeria, have explored the availability and use of e-learning facilities (Ottan and Faruk, 2022). The investigations highlight the importance of e-learning for effective teaching and learning within tertiary institutions. Researches emphasize the significance of e-learning facilities in achieving educational goals. An inclusive management culture is crucial for successful e-learning implementation, ensuring equitable access and effective utilization of resources for all stakeholders. This approach would facilitate the achievement of teacher education goals. Oluwalola and Awodiji (2019) were of the opinion that there is no doubt that e-learning facilities provide productive teaching and learning experiences aimed at increasing students' intellectual capability in management and business courses in tertiary institutions. according to Ojeaga and Igbinedion, (2012), e-learning involve the use of technology to enhance learning which include digital collaboration, satellite broadcasting, CD-ROMS amongst others. (It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio- and video-tape, satellite broadcast, interactive TV, CD-ROM, and more). E-learning accelerate, enrich and deepen basic skills in reading, writing and can motivate students to learn as they become more independent and responsible for their learning. Hence, e-learning facilities are the tools and resources that enable online learning. These can include hardware like computers, printers, and interactive boards, as well as software like learning management systems (LMS) and educational apps. E-learning leverages the internet and other communication technologies to deliver educational contents and facilitate learning. The value of e-learning facilities in teacher education curriculum is recognized by the Nigerian National Policy on Education where it stated that, "the government shall provide facilities and necessary infrastructures for the promotion of ICT and e-learning" (FRN, 2013). Availability and utilization of e-learning facilities depicts the presence and accessibility of electronic devices that are applied in teaching and learning. These devices when applied offers powerful learning environment and can transform the teaching/learning process in a manner that students can manipulate them for active participation, even in a self-directed way.

Despite the importance of e-learning facilities in Colleges of Education, the management culture of the facilities in area of provision and maintenance needs to be addressed. A careful look at what are obtainable in the practices and governance of management of Colleges of Education in Kwara State, Nigeria, the use of ICT and its compliance is often used administrative functions and services. Ottan and Ahmed (2023) observed that payment of school fees, course registration, students and staff profile, institutional communication process and feedback in Colleges of Education in Kwara State,

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Nigeria are often done using ICT (e-process) but the is not the same in the area of teaching and learning. It is important to note that the graduates of Colleges of Education are to be teachers of children who are indirectly and directly engaged in used of virtual services from their respectful homes. The expectation of these children is to have a programme of education that will add values to their home training. Teachers are expected to be ahead of the learners in the area of learning and the use of learning facilities. Although, it is not a taboo for teachers to learn from students but a teacher should demonstrate an advancement in knowledge and skills to command respect. Instructional facilities should be prioritized in term of provision and maintenance in teacher training institute. The concerned educational stakeholders in Colleges of Education need to proactive and bears collective responsibility in making the teaching and learning condition in Colleges of Education withstand the global demands. The benefits of education are for all and education is therefore responsibility of all. The stakeholders should work independently and collective to bridge the gap on how technology is used for administration services and teaching and learning services.

Inclusiveness is a concept of getting everyone involved to address common challenges. Educative is an expensive social venture (Ottan, 2019) but cannot be avoided. This why Section 10, sub-section 153 and 154 of the National Policy on Education (2013) stated that "education is a capital-intensive social service, which requires adequate financial provisions from all tiers of government for successful implementation of its programme. Government's ultimate goal is to make education free at all levels in addition to assistance from international and local development partners, grants for research and other donor agencies." And, "the financing of education is a joint responsibility of the Federal, State and Local Governments and the private sectors. In this connection, government welcomes and encourages the participation of local communities, individuals and organizations." Management of e-learning facilities has to do with the mobilization, provision, distribution and utilization process and procedure in an educational institution. Learning facilities play significant roles in achieving the learning objectives. The beginning of the success of goal achievement of an institution like a College of Education starts from the successes recorded in the classrooms. Classroom discussion aided with instructional facilities makes teaching and learning more interesting and engaging. Thus, regardless of the nature of the classroom (virtual and non-virtual) learning facilities determine the level of learning achievement. It against this, the study set to examine managing e-learning instructional facilities for goal achievement of teacher education among the Colleges of Education in Kwara State: The need for inclusive management culture.

Objective of the Study

The focus of this study is to assess e-learning facilities for teacher education programmes among the colleges of education in Kwara State, Nigeria. Other specific objectives were:

i. To determine the level of the provision of e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria
ii. To examine how often the available e-learning instructional facilities are maintained in Colleges of Education in Kwara State, Nigeria
iii. To describe the stakeholders' involvement in managing e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria; and
iv. To account for the level of goal achievement in Colleges of Education in Kwara State, Nigeria.

Research Questions

The following research questions were raised to guide this study.

i. What is the level of provision of e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria?
ii. How often are the available e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria maintained?
iii. What is the level of stakeholders' involvement in managing e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria?
iv. What is the level of goal achievement of in Colleges of Education in Kwara State, Nigeria?

Research Hypothesis

This research study is guided by one hypothesis tested at 0.05 level of significance.

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HO: There is significance relationship between inclusiveness in managing e-learning instructional resources and goal achievement of teacher education in Colleges of Education in Kwara State, Nigeria.

Methodology

This study focuses managing e-learning instructional resources and goal achievement of teacher education in Colleges of Education in Kwara State: the need for inclusive management culture. Emphasis is laid on provision and maintenance e-learning instructional facilities for achieving the goals of teacher education in Colleges of Education in Kwara State, Nigeria. The study is a descriptive study and limited to the selected instructors or lecturers in the chosen Colleges of Education. The use of research instrument is research designed structured questionnaire and both descriptive and inferential statistic were used to analysed the data obtained from the respondents. In this study, the research design adopted is a descriptive survey and it is correlational in nature. This design is considered appropriate for the study because it gives no room for manipulation but rather give true picture of the variables under the research consideration. The variable in the study is the managing of e-learning instructional facilities provision and maintenance and its relation to the goal achievement of teacher education in Colleges of Education in Kwara State, Nigeria.

The population of the study consist of all the Colleges of Education in Kwara State. And, as at the time of conducting this research study there is one Federal owned College of Education (Nigerian Army School of Education, NASE), Three State owned Colleges of Education (Kwara State College of Education Ilorin, Kwara State College of Education, Oro and Kwara State College of Education Technical, Lafiagi) and 12 private owned Colleges of Education (College of Education Ilemona, Muhyideen College of Education, Ilorin, Moje College of Education Erin-Ile, Life-gate College of Education, Asa, Imam Hamzat College of Education, Ilorin, ECWA College of Education, Igbaja, Nana Aisha College of Education, Ilorin, Adesina College of Education, Share, Pan African College of Education, Ikom, Ajetumobi College of Education, Ira, Grand-Plus College of Education, Ilorin and His Grace College of Education, Ilorin) in all the three senatorial districts of Kwara State, Nigeria. Purposive sampling techniques was used to select all the public owned Colleges of Education and both stratified and systematic sampling techniques were used chose one College of Education in each senatorial districts in Kwara State. These processes made seven Colleges of Education available for the study. Hence, the chosen Colleges of Education are presented in Table 1 of this study.

Table 1: Location of the Chosen Colleges of Education for the Study

S/No	Name of the College of Education	Ownership	Location
1	Nigerian Army School of Education, NASE	Federal	Ilorin, Kwara Central
2	Kwara State College of Education Ilorin,	State	Ilorin, Kwara Central
3	Kwara State College of Education, Oro	State	Oro, Kwara South
4	Kwara State College of Education Technical, Lafiagi	State	Lafiagi, Kwara North
5	Imam Hamzat College of Education, Ilorin	Private	Ilorin, Kwara Central
6	Adesina College of Education, Share	Private	Share, Kwara North
7	Ajetumobi College of Education, Ira	Private	Ira, Kwara South

Source: Field report, 2024

In the selected schools, lecturers are the target population for the study. This is because they are the one to interpret and implement NCCE curriculum in the classrooms or lecture rooms as the case may be. In all the chosen schools there were estimate of 724 academic staff. Proportional sampling techniques was used to select 271 respondents. This decision is guided by Krejcie and Morgan (1970) table for determining sample size for a finite population. Instrument used for data collection were Managing E-learning Instructional Questionnaire (MEIQ) and Goal Achievement Questionnaire (GAQ). The two instruments were validated and tested for reliability at interval of four weeks. The reliability scores were 0.73 and 0.72 for MEIQ and GAQ respectively. Meanwhile, percentage and mean score were the descriptive statistics used to analyse the research questions and inferential statistic of Pearson product moment correlation coefficient is used to test the research hypothesis generated for the study.

Table 2: Decision Making for Descriptive Analysis

Mean Scores	Decision
3.00 - 4.00	Very Good
2.00 – 2.99	Fair

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1.99 - 0.00	Poor

Presentation of Results

This study is guided by four research questions and hypothesis. Descriptive and inferential statistics were used to analyse the data obtained from the field.

Research Question One: What is the level of provision of e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria?

Table 3: Descriptive Analysis of Provision of E-learning Instructional Facilities for Goal Achievement in Colleges of Education

Statements	Number and Percentage (%) of Strongly Agree	Number and Percentage (%) of Agree	Number and Percentage (%) of Disagree	Number and Percentage (%) of Strongly Disagree	Total and Percentage (%)
Provision of e-learning instructional resources facilities are considered as priority by the management for instructional delivery.	82 (30)	45 (17)	92 (34)	52 (19)	271 (100)
E-learning platforms are readily accessible to lecturers and students for teaching and learning.	46 (17)	66 (24)	111 (41)	48 (18)	271 (100)
As a lecturer, the available e-learning instructional facilities effectively support course learning objectives.	105 (39)	81 (30)	33 (12)	52 (19)	271 (100)
Technical supports for e-learning instructional facilities are readily available and responsive to achieve educational goals.	156 (58)	81 (30)	28 (10)	6 (2)	271 (100)
		Composite Mean: 1.32			

Source: Field report, 2024

The analysis presented in Table 3 shows the respondents opinion on the provision of e-learning instructional facilities for goal achievement in Colleges of Education in Kwara State, Nigeria. As shown in the Table, the 34% of the respondents disagree that provision of e-learning instructional facilities is not considered as priority in the Colleges of Education; although 41% among the respondents agreed that the available e-learning resources were not accessible for instructional delivery. This shows that conventional or traditional means of teaching and learning are still in vogue despite the wide trend of technology in all aspect of education. Meanwhile, 39% among the respondents strongly agreed that e-learning instructional facilities effectively support learning objectives. This is in recognition of the un-estimated value of e-learning facilities in teaching and learning in the modern days. Moreso, the available e-learning facilities were provided with the supportive services for effective use as 58% among the respondents strongly agree on the statement. The composite mean score (1.32) reveals that the provision of e-learning instructional facilities in the Colleges of Education was below average.

Research Question Two: How often are the available e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria maintained?

Table 4: Descriptive Analysis of the Maintenance of E-learning Instructional Facilities for Goal Achievement in Colleges of Education

Statements	Number and Percentage (%) of	Number and Percentage (%) of Agree	Number and Percentage	Number and Percentage (%)	Total and Percentage (%)

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	Strongly Agree		**(%) of Disagree**	**of Strongly Disagree**	
Regular maintenance schedules are implemented for e-learning hardware (e.g., computers, projectors).	116 (43)	81 (30)	44 (16)	30 (11)	271 (100)
Software updates and technical support are readily available for e-learning platforms.	82 (30)	55 (20)	105 (39)	29 (11)	271 (100)
The physical environment of e-learning spaces (e.g., lighting, acoustics) is well-maintained.	33 (12)	45 (17)	79 (29)	114 (42)	271 (100)
Training is provided to both instructors and students on the proper use and care of e-learning facilities to ensure quality education.	88 (32)	72 (27)	66 (24)	45 (17)	271 (100)
Composite Mean Score: 1.22					

Source: Field report, 2024

Table 4 presented the opinion of the respondents on the maintenance of e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria. It was strongly agreed by the 43% among the respondents that regular maintenance is carried out on e-learning hard wares, while 39% disagreed that the soft wares were not updated. Also, 42% respondents that the physical environment of the e-learning instructional facilities is not properly maintained but 32% among the respondents strongly agreed that training is provided for but lecturers and students for use of e-learning instructional facilities in the sampled schools. Meanwhile, the composite mean score was 1.22 and it rated below average. It mean that the maintenance of e-learning instructional facilities among the Colleges of Education in Kwara State, Nigeria is below average.

Research Question Three: What is the level of stakeholders' involvement in managing e-learning instructional facilities in Colleges of Education in Kwara State, Nigeria?

Table 5: Descriptive Analysis of the Stakeholders Involvement in Managing E-learning Instructional Facilities for Goal Achievement in Colleges of Education

Statements	**Number and Percentage (%) of Strongly Agree**	**Number and Percentage (%) of Agree**	**Number and Percentage (%) of Disagree**	**Number and Percentage (%) of Strongly Disagree**	**Total and Percentage (%)**
Stakeholders are adequately consulted regarding the acquisition of e-learning instructional facilities.	27 (10)	33 (12)	147 (54)	64 (24)	271 (100)
Stakeholders actively participate in the planning and implementation of e-learning initiatives.	16 (6)	22 (8)	166 (61)	67 (25)	271 (100)
Stakeholder feedback is regularly sought and incorporated to improve e-learning facility utilization.	43 (16)	22 (8)	152 (56)	54 (20)	271 (100)

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Stakeholders are provided with sufficient training and support to effectively use e-learning resources to achieve educational goals.	00 (0)	17 (6)	178 (66)	76 (28)	271 (100)

Composite Mean Score: 1.21

Source: Field report, 2024

The level of stakeholders' involvement in managing e-learning instructional facilities in Colleges of Education is presented in Table 5. As indicated in the Table, 54% among respondents disagreed that stakeholders not adequately consulted regarding the acquisition of e-learning instructional facilities. Moreso, 61% of the respondents shown that stakeholders are not participating in planning and implementation of e-learning initiatives. The stakeholders are not incorporated and feedback on utilization of e-learning instructional facilities. This is acknowledged with 56% of the respondents disagreed with item three in Table 4. Thus, 66% of the respondents revealed that training and support are not provided for stakeholders on effective use of e-learning instructional facilities.

Research Question Four: What is the level of goal achievement of in Colleges of Education in Kwara State, Nigeria?

Table 6: Descriptive Analysis of the Level of Goal Achievement in Colleges of Education

Statements	**Number and Percentage (%) of Strongly Agree**	**Number and Percentage (%) of Agree**	**Number and Percentage (%) of Disagree**	**Number and Percentage (%) of Strongly Disagree**	**Total and Percentage (%)**
Students consistently meet the deadlines for my assignments given by the lecturers through the use of e-learning instructional facilities.	73 (27)	106 (39)	64 (24)	28 (10)	271 (100)
lecturers feel a sense of accomplishment when completing a challenging task at the stipulated time.	111(41)	88 (32)	54 (20)	18 (7)	271 (100)
The use of e-learning facilities actively enhances feedback to improve learning performances.	102 (38)	74 (27)	39 (14)	56 (21)	271 (100)
Graduates of Colleges of Education apart from teaching skills possess human relations and industrial skills for national development.	70 (26)	106 (39)	82 (30)	13 (5)	271 (100)

Composite Mean: 2.78

Source: Field report, 2024

The opinion of the respondents on the goal achievement of Colleges of Education in the study area is presented Table 6. The composite mean score is 2.78 and rated fair. This implies that the performances of education is still striving for standard, and one of the reasons for not accelerating or advancing the development for goal achievement has to do with issues relating to provision and maintenance of e-learning instructional facilities.

Testing of Hypothesis

Ho: There is significance relationship between inclusiveness in managing e-learning instructional resources and goal achievement of teacher education in Colleges of Education in Kwara State, Nigeria

Table 7: Correlation Analysis between Inclusiveness in Managing E-learning Instructional Facilities and Goal Achievement in Colleges of Education in Kwara State

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Variables	No of Cases	Mean Score	Standard Deviation	Degree of Freedom	Calculated r-value	p-value	Decision
Inclusiveness in managing e-learning instructional facilities	271	47.62	17. 45	269	0.64	0.01	Rejected
Goal Achievement	271	38.34	13.42				

Tested @ 0.05 level of significance

Source: Field report

The test of correlation between inclusiveness in managing e-learning instructional facilities and goal achievement in Colleges of Education in Kwara State is presented in Table 7. The calculated r-value is 0.64 and the p-value is 0.01 which less than 0.05 level of significance set for managing the error (r= 0-.64; p-value 0.01 < 0.05 sig). Hence, the null hypothesis stated that there is no significance relationship between inclusiveness in managing e-learning instructional facilities and goal achievement is the study area is rejected. This implies that positive significance relationship exists between the two variables as observed in the study. By implication, inclusiveness in the provision and maintenance of e-learning instructional facilities would enhance goal achievement of Colleges of Education.

Discussion of Findings

The study focuses managing e-learning instructional facilities in relation to goal achievement of teacher education in Colleges of Education in Kwara State. The study attempts to describe un-estimated value of e-learning instructional facilities among other facilities in Colleges of Education for achieving the set goals. Table 3 and 4 shown that provision and maintenance of e-learning instructional facilities are poor with mean score of 1.32 and 1.22 respectively. E-learning offers flexibility, allowing for personalized and interactive learning experiences. It also facilitates scalability and integrates multimedia elements. Automated assessments and tracking capabilities are additional benefits. Furthermore, it can lead to cost reductions and career development opportunities. Essentially, e-learning transforms how instruction is delivered and received, adapting to various learning styles and schedules. It has evolved from basic material delivery to a dynamic, engaging educational approach (Ojeaga and Igbinedo, 2012). Colleges of Education aim to equip teachers with a strong intellectual and professional foundation, enabling them to adapt to evolving situations and remain dedicated to the teaching profession. To achieve teacher education goals in Kwara State's Colleges of Education, effective management of e-learning instructional facilities is crucial, necessitating a shift towards inclusive management cultures. This involves ensuring equitable access to technology, adapting to the needs of diverse learners, and empowering all stakeholders to contribute to the learning process, ultimately improving the quality of teacher training (Kulipe, 2024).

Table 5 showed the level of involvement of stakeholders in managing e-learning instructional facilities in the study area. The composite mean was 1.21 and this is rated poor. This shows that stakeholders play little or no roles in the provision of e-learning instructional facilities in the Colleges of Education in the study area. Inclusiveness in e-learning instructional facilities is important for several reasons. It ensures equity and a sense of belonging for all learners. Inclusive instructional design allows all students to have the same educational opportunities. Parental and other stakeholders' participation is critical to the success of learning environments Ottan and Faruk (2022). Additionally, an inclusive environment can offer the same level of education to all students. This approach considers diverse learning needs and backgrounds, fostering a more equitable and effective learning experience. Meanwhile, significance relationship is found between inclusiveness in managing e-learning instruction facilities and goal achievement in teacher education in Colleges of Education in Kwara State (r= 0-.64; p-value 0.01 < 0.05 sig). The result is in support of Awodiji and Oluwalola (2019) that e-learning facilities provide productive teaching and learning experiences aimed at increasing students' intellectual capability in management and business courses in tertiary institutions.

Conclusion

The Federal Government of Nigeria establishes Colleges of Education with the intention to provide educational institutions where teachers shall be professionally trained, whose programmes shall be structured to equip teachers for effective performance of their duties. In this regard, the goals are to strive to achieve several key objectives, including: nurturing highly motivated and effective teachers for all educational levels; fostering a spirit of inquiry and creativity within educators; and promoting their integration into the social fabric of the community and society as a whole. An inclusive

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culture would ensure that all students, parents, host communities and other stakeholders combine efforts in providing access to technology and digital resources, regardless of their background or circumstances. E-learning can be adapted to cater to various learning styles and abilities, making education more accessible and engaging for all students. Involving only teachers, students, and administrators in the decision-making process related to the provision of e-learning would reduce the chances collective responsibility. Parents, host communities and corporate organization if well incorporated in the provision and maintenance of e-learning instructional resources would fosters ownership and ensures that the system is responsive to their needs.

Recommendations

Based on the findings of this study the following recommendations were made.

1. The benefit of education is for all and its responsibility is for all. Government should therefore legislate a policy compelling the authorities of Colleges of Education in ensuring that all stakeholders are brought to table to jointly decide on the provision and maintenance of e-learning instructional facilities.
2. The National Commission for Colleges of Education being the regulatory body managing the standard of the Colleges of Education in Nigeria should develop a monitoring mechanism to ensure inclusiveness of all stakeholders in the provision and maintenance of e-learning instructional facilities.
3. During the accreditation for approving the standard of a College of Education, NCCE should ensure that evidence of inclusiveness for the provision and maintenance of e-learning instructional facilities is part of the yardsticks for granting approval.
4. The management team of Colleges of Education should at regular interval of time organize workshop on the usage of e-learning instructional facilities for both learning instructors and students.
5. Management of Colleges of Education should incorporate students and host communities for managing available facilities.

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Assessment of Accessibility to Human Immuno-deficiency Virus (HIV) Voluntary Counselling and Testing (VCT) Utilization among Federal Universities Students in Northern Nigeria

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Abstract
This study examined the accessibility to HIV Voluntary Counselling and Testing (VCT) utilization among federal universities students in Northern Nigeria. To achieve this purpose, descriptive survey research design was used. The population of the study comprised 421,436 federal universities students in Northern Nigeria. The sample size of 662 respondents was drawn from the population using a multi-stage sampling procedure, which includes cluster, simple random, proportionate and convenience sampling. The instrument for data collection was a researcher-structured closed-ended questionnaire named 'Assessment of Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria Questionnaire (AAHVUFUSNNQ)' which was validated by five (5) experts in experts in the Department of Human Kinetics and Health Education, Department of Psychology and Counselling, and College of Medical Services in Ahmadu Bello University, Zaria. The instrument was pilot-tested using Cronbach's Alpha, and a reliability coefficient of 0.884 was obtained. Descriptive statistics of frequency and percentage were used to describe the demographic characteristics of the respondents. The research questions were answered using mean and standard deviation. Inferential statistics of one-sample t-test and independent sample t-test were used to test the stated hypotheses at a 0.05 level of significance. The result revealed a significant accessibility (t = 24.013; p = 0.000) regarding HIV VCT utilization among federal university students in Northern Nigeria, with gender-based differences in accessibility (t = 19.582; p = 0.000). The study concludes that federal university students in Northern Nigeria generally have good access to HIV VCT services, with female students having better access than their male counterparts. Based on the conclusion, the study recommends that federal university management should maintain and expand accessible HIV VCT services by increasing outreach and service points on campuses, and also assess and enhance outreach strategies to ensure equitable access for male students.
Keyword: HIV Voluntary Counselling and Testing (VCT), Accessibility, Students, Gender Differences

Introduction
Human Immunodeficiency Virus (HIV) remains one of the most pressing global health challenges of the 21st century. Voluntary Counselling and Testing (VCT) is a strategic tool for HIV prevention, early detection, and linkage to care. VCT enables individuals to determine their HIV status in a confidential setting and serves as a gateway to accessing antiretroviral therapy (ART), psychosocial support, and preventive education. According to the World Health Organization [WHO] (2022), VCT plays a crucial role in reducing HIV transmission and supporting individuals living with HIV through early diagnosis and treatment initiation. Despite global and national campaigns promoting VCT as a key intervention for HIV/AIDS control, many people, especially in low- and middle-income countries, still face substantial challenges in accessing VCT services. Accessibility to VCT services refers to the ease with which individuals can physically, economically, and conveniently obtain HIV testing and counselling. Accessibility encompasses several dimensions, including geographic proximity to VCT centres, availability of trained personnel, affordability, operational hours, and adequacy of resources such as testing kits and counselling rooms (Sande et al., 2018). In many developing countries, including Nigeria, these accessibility factors present substantial obstacles to VCT utilization. Students in tertiary institutions, who are typically in the most sexually active age bracket, represent a high-risk group for HIV infection but are

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often underserved in terms of VCT service provision. This disconnect between the availability and actual utilization of VCT services underscores the need for a critical assessment of accessibility within university settings, especially in regions such as Northern Nigeria, where infrastructural and healthcare challenges are widespread.

Nigeria ranks among countries with the highest HIV burden globally, with an estimated 1.9 million people living with the virus as of 2022 (National Agency for the Control of AIDS [NACA], 2023). While the Nigerian government has established numerous VCT centres nationwide, accessibility remains unevenly distributed, especially between urban and rural areas, and between southern and northern regions. According to Onyemachi et al. (2021), many regions in Northern Nigeria, particularly rural and semi-urban settings where several federal universities are located, lack adequate VCT infrastructure. Students in these areas often face difficulties accessing testing facilities due to long travel distances, limited transportation, and the absence of on-campus VCT services. As such, many students forego testing altogether, even when they are willing to know their status, thus increasing the risk of undiagnosed and untreated infections within university communities. Moreover, the limited availability of VCT services on university campuses significantly impairs accessibility. In some federal universities in Northern Nigeria, VCT services are either non-existent or integrated into poorly equipped campus health centres with limited staff and resources. According to Abdulrahman et al. (2021), university health centres often lack dedicated VCT units, rapid testing kits, trained counsellors, and private counselling spaces. Where services are available, they are frequently understaffed and operate within restricted hours, conflicting with students' academic schedules. This lack of institutional preparedness to provide consistent and accessible VCT services disincentivizes students from utilizing such services. Without accessible testing options within the university environment, students are left with few alternatives, especially those who lack the financial means or time to seek off-campus testing facilities.

Cost-related barriers also significantly hinder students' access to VCT services in Northern Nigeria. Although the Nigerian government has declared HIV testing to be free in public health facilities, many hidden costs remain. These include transportation costs to reach testing centres, consultation fees in some private facilities, and opportunity costs such as missing lectures or examinations (Sande et al., 2018). For students in federal universities, many of whom come from low-income backgrounds, these financial barriers can be prohibitive. The perception of cost whether real or assumed can deter students from seeking HIV testing services. As highlighted by Moyo et al. (2023), affordability is a critical determinant of VCT uptake among youths, and any financial implication, however minimal, can significantly reduce testing rates in financially constrained populations. Furthermore, logistical and infrastructural issues pose formidable challenges to the accessibility of VCT services in many Northern Nigerian universities. Inadequate power supply, lack of diagnostic tools, poor internet connectivity for electronic medical records, and underdeveloped transportation networks are prevalent in many institutions (Onyemachi et al., 2021). These infrastructural deficits not only affect the delivery of quality VCT services but also discourage expansion and continuity of such programmes. When services are unreliable or inconsistently available, students are unlikely to perceive them as trustworthy or worthwhile, thus contributing to low utilization rates. This reality calls for improved funding, capacity building, and infrastructural development within university health systems to promote accessible, consistent, and high-quality VCT services.

Additionally, the lack of tailored health education programmes targeting university students has contributed to poor accessibility to VCT services. Many students are unaware of where and how to access VCT services due to inadequate sensitization and mobilization efforts within campuses (Rasweswe et al., 2024). Where outreach exists, it is often sporadic and not strategically designed to reach diverse student populations. Without consistent communication and visibility of services, students may assume that such services do not exist or are not meant for them. Accessibility is not only about physical presence but also about the perceived availability and usefulness of services, which can be enhanced through robust peer education, digital campaigns, and student engagement programmes within universities. Despite the growing awareness of the importance of early HIV testing, infrastructural deficits, poor geographic coverage, financial constraints, limited institutional support, and inadequate health promotion efforts continue to undermine students' ability to access these vital services. Considering the high vulnerability of young people to HIV infection and the strategic importance of university settings in HIV prevention, enhancing accessibility to VCT services should be a public health priority. This study, therefore, seeks to assess the level and determinants of accessibility to HIV Voluntary Counselling and Testing

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(VCT) services among students in federal universities located in Northern Nigeria, with the aim of identifying gaps and recommending strategies for improving service delivery and utilization.

Objectives of the study

1. Assess the level of accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.
2. Examine whether federal universities students in Northern Nigeria differ in the accessibility of HIV VCT utilization based on gender.

Research Questions

1. What is the level of accessibility to HIV VCT utilization among federal universities students in Northern Nigeria?
2. Is there any mean difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender?

Hypotheses

1. There is no significant difference in the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.
2. There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Methodology

This study adopted a descriptive survey research design. This design was chosen because it allows the researcher to collect, analyse, and interpret data from a representative sample to understand the current status of a phenomenon. According to Osuala (2000), descriptive surveys involve studying a group by collecting data from a few representatives of the population. Shaughnessy et al. (2011) also emphasise that surveys are useful for understanding prevailing conditions, making this design appropriate for capturing the realities of HIV VCT accessibility among students in the selected universities. The target population for this study consisted of 421,436 students across 22 federal universities in Northern Nigeria, based on 2023/2024 academic session records. The sample size was determined to be 662 students, in line with the recommendation by Research Advisor (2006) for a 99% confidence level and a 0.05 margin of error. A multi-stage sampling technique was used to select participants. First, Northern Nigeria was grouped into three geopolitical zones (North Central, North East, and North West) using cluster sampling. Then, two universities were randomly selected from each zone via simple random sampling using a paper ballot method. Within each selected university, respondents were chosen using proportionate sampling based on institutional student population sizes. Finally, convenience sampling was employed to approach and recruit respondents on campus. Data was collected using a researcher-developed questionnaire titled Assessment of Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria Questionnaire (AAHVUFUSNNQ). The instrument comprised two sections: Section A (4 items) focused on demographic variables such as age, level, gender, and marital status, while Section B (10 items) assessed the accessibility of HIV VCT services using a four-point Likert scale ranging from Strongly Agree (4) to Strongly Disagree (1). A benchmark mean score of 2.50 was adopted as the decision point for interpreting responses. Items scoring 2.50 or above were considered to indicate positive accessibility, while scores below 2.50 reflected negative accessibility or inaccessibility. To establish validity, the questionnaire was reviewed by five experts from the Departments of Human Kinetics and Health Education, Psychology and Counselling, and Medical Services at Ahmadu Bello University, Zaria. Their feedback on the face and content validity was incorporated into the final version. For reliability testing, a pilot study was conducted using 50 students from the University of Abuja, a federal university not included in the main study. A split-half method and Cronbach Alpha coefficient were used to assess internal consistency, resulting in a high reliability index of 0.884, confirming the instrument's suitability for the main study.

The data collection process spanned four weeks and was guided by an introductory letter from the researcher's department. Upon securing institutional permissions, informed consent was obtained from all participants. Six trained research assistants, all health workers familiar with academic environments, helped administer the questionnaires. They clarified items in simple language where necessary. The team visited each selected university sequentially, distributing and retrieving questionnaires on the spot to ensure a high response rate. Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 30. Descriptive statistics (frequency counts and percentages) were used for demographic

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data, while mean and standard deviation were applied to answer research questions. Hypotheses were tested using one-sample and independent sample t-tests at a 0.05 significance level.

Presentation of Results

Table 1: Demographic Characteristics of the Respondents

Variables	Frequency	Percentage (%)
Age Range in Years		
Below 20	103	15.6
20 – 25	293	44.3
26 – 30	179	27.0
Above 30	87	13.1
Total	**662**	**100.0**
Level		
Undergraduate	571	86.3
Postgraduate	91	13.7
Total	**662**	**100.0**
Gender		
Male	379	57.3
Female	283	42.7
Total	**662**	**100.0**
Marital Status		
Single	395	59.7
Married	196	29.6
Widow	26	3.9
Divorce	45	6.8
Total	**662**	**100.0**

Table 1 revealed the demographic characteristics of the respondents. In terms of age distribution, the largest proportion of respondents (44.3%) falls within the 20–25-year age range, followed by 27.0% who are between 26–30 years. A smaller percentage (15.6%) are below 20 years, while only 13.1% are above 30 years. With regard to educational level, the majority of the respondents (86.3%) are undergraduates, while the remaining 13.7% are pursuing postgraduate studies. The gender distribution shows that males constitute the majority at 57.3%, compared to females who represent 42.7% of the total respondents. Marital status data indicate that the majority of the respondents (59.7%) are single, which aligns with the age distribution and student status. About 29.6% of the respondents are married, while 3.9% are widowed, and 6.8% are divorced.

Research Question 1

What is the level accessibility to HIV VCT utilization among federal universities students in Northern Nigeria?

Table 2: Mean Scores of Responses on Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria

S/N	Item	Mean	Std Dev
1.	Service should be located in an area that is easy for individuals to reach and can also bridge gaps in rural access.	3.51	0.75
2.	I have financial constraints associated with my travels to the VCT centre.	3.40	0.77
3.	I cannot afford the cost associated with testing, counselling, or related services.	3.21	0.71
4.	Limited operation hours affect my time of visiting the VCT centre.	3.09	0.76
5.	I have issues with my transportation which hinders me from travelling to the testing centre/facilities.	3.17	0.74
6.	I'm not aware of the importance of HIV testing services.	3.29	0.72
7.	Language barriers can exclude non-natives from effectively accessing VCT services, leading to misunderstanding and avoidance.	3.26	0.79
8.	The fear of stigma and discrimination associated with HIV can discourage individuals from seeking VCT services.	3.02	0.76

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9.	Integrated services like offering VCT alongside other health services such as STI testing and treatment can encourage individuals to seek care.	3.18	0.74
10.	Involving community members and local organizations in the promotion and delivery of VCT services can help increase trust and awareness.	3.08	0.73
	Aggregate Mean	**3.22**	

(Decision Mean – 2.50)

Table 2 revealed the mean scores of responses on the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria. The highest mean score (3.51) was recorded for the statement that VCT services should be located in easily accessible areas, especially to bridge rural-urban gaps. Similarly, financial constraints associated with travelling to the VCT centres (mean = 3.40) and inability to afford testing and counselling services (mean = 3.21) were also identified as notable barriers. Operational challenges were reflected in the item on limited working hours (mean = 3.09) and transportation difficulties (mean = 3.17), which further support the view that logistical and infrastructural issues hinder students from seeking VCT services. Additionally, lack of awareness about the importance of HIV testing (mean = 3.29) suggests that health education and sensitization efforts may be insufficient or poorly targeted. Language barriers (mean = 3.26) also emerged as a notable concern, particularly for non-native speakers, which could lead to misunderstanding and deter service uptake. Although slightly lower, the fear of stigma and discrimination (mean = 3.02) still ranked above the decision mean, reinforcing that social and psychological barriers remain an accessibility challenge. On a more positive note, responses showed support for integrated services (mean = 3.18) such as combining VCT with STI testing and community involvement (mean = 3.08), both of which could enhance accessibility through increased convenience, trust, and awareness. The aggregate mean score of 3.22, which is above the decision mean of 2.50, indicates that the respondents generally perceive accessibility as a significant factor influencing the utilization of HIV VCT services.

Research Question 2

Is there any difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender?

Table 3: Mean and Standard Deviation of the difference in Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria based on Gender

Item	N	Mean	Std. Dev.	Mean Difference
Male	379	3.02	0.53	
				0.27
Female	283	3.29	0.51	

Table 3 revealed the result of the difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender. The female had a higher mean score of 3.29 than the male, who had a mean score of 3.02, with a mean difference of 0.27. This implies that there is a difference in the accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Hypothesis 1

There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria.

Table 4: One-Sample t-test Analysis on Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria

Variable	N	Mean	Std. Dev.	df	t-value	p-value
Accessibility	662	3.22	0.75	661	24.013	0.000
Test Mean	662	2.50	0.00			

Calculated p = 0.000, calculated t-value = 24.013 at df 661

The result of the one-sample t-test statistics in Table 4 revealed that the there is a significant accessibility to HIV VCT utilization among federal universities students in Northern Nigeria because the calculated p-value of 0.000 is less than the 0.05 level of significance and the calculated t-value of 24.013 is higher than the 1.972 critical t-value at 661 degrees of freedom (df). Therefore, the null hypothesis, which stated that there is no significant accessibility to HIV VCT utilization

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among federal universities students in Northern Nigeria, is rejected. This means that federal universities students in Northern Nigeria have access to HIV VCT utilization.

Hypothesis 2

There is no significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender.

Table 5: Independent t-test Statistics on Difference in Accessibility to HIV VCT Utilization among Federal Universities Students in Northern Nigeria based on Gender

Item	N	Mean	Std. Dev.	Mean Difference	df	t-value	p
Male	379	3.02	0.53				
				0.27	660	19.582	0.000
Female	283	3.29	0.51				

t (662) = 19.582, p-value = 0.000, df = 660

Table 5 revealed the results of an independent t-test conducted to examine whether there is a significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender. The analysis compares the mean accessibility scores of male and female students. The results show that male students (n = 379) had a mean accessibility score of 3.02, while female students (n = 283) had a higher mean score of 3.29. The mean difference between the two groups is 0.27. The computed t-value is 19.582 with a degree of freedom (df) of 660, and the associated p-value is 0.000, which is less than the 0.05 level of significance. This indicates that the difference in accessibility to HIV VCT utilization between male and female students is statistically significant. In other words, the null hypothesis, which states that there is no significant difference in accessibility based on gender, is rejected. This implies that gender plays a significant role in determining accessibility to HIV VCT services among students in federal universities in Northern Nigeria, with female students reporting higher accessibility than their male counterparts.

Discussion of Findings

Hypothesis one revealed that there is a significant accessibility to HIV VCT utilization among federal university students in Northern Nigeria (t = 24.013; p = 0.000). This implies that students in federal universities in Northern Nigeria have good access to HIV VCT services. This finding is strongly in agreement with Reynell and Trkola (2012), who emphasised that VCT is increasingly accessible and considered an important strategy in the global response to HIV/AIDS, particularly among Nigerian youths. The study concluded that providing adequate information and counselling can significantly improve accessibility and reduce stigma, further aligning with the findings of high accessibility among university students.

Similarly, Donkor (2012) supports the findings of this study by revealing that although social stigma exists, a substantial proportion of university students (88%) in Ghana showed positive attitudes towards VCT, and 40% expressed willingness to access VCT services if available. This reflects a readiness and existing infrastructure that facilitates accessibility, especially in institutional settings. The study by Daniyam and Emmanuel (2010) also validates the results. They found that among medical students in Jos, Nigeria, 83.1% were willing to undergo VCT, and more than half (50.7%) had already done so. This high level of willingness and usage among students, despite being in a different Nigerian region, confirmed a national trend of increasing VCT accessibility in tertiary institutions.

Furthermore, the CDC (2012) highlighted in its multi-country study that adolescent-friendly VCT services in educational and youth-focused settings led to increased access and reduced high-risk behaviours. This directly supports the idea that students in university environments, like those in Northern Nigeria, benefit from structured and available VCT services. However, while studies such as Naseem et al. (2018) in Pakistan and Jinling and Roger (2019) in China found low VCT accessibility among high-risk populations or rural migrants, these differences can be attributed to context. The populations studied were outside formal educational systems and lacked targeted interventions, unlike the structured environment of federal universities, where access to health services is more institutionalised.

Hypothesis two revealed that there is a significant difference in accessibility to HIV VCT utilization among federal universities students in Northern Nigeria based on gender (t = 19.582; p = 0.000). Female students in federal universities in Northern Nigeria report better access to HIV VCT services compared to male students. The study by Alemayehu (2018) in Tigray, Northern Ethiopia, provides partial support. Although females were found to be more concerned about social

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stigma and thus less willing to accept VCT compared to males, the study acknowledged a significant association of female gender with awareness and acceptance of VCT, indicating that women might have better access through structured youth clubs and government services. This aligns with the current finding regarding better access for females, even though the willingness to utilise was affected by stigma. Similarly, the findings of Daniyam and Emmanuel (2010) in Jos, Nigeria, support the result. Their study observed that although the acceptability of VCT among medical students was high for both genders, a slightly higher percentage of females (56.3%) had undergone VCT compared to males (48.9%), which could be a reflection of better access or engagement with health services among female students. They also found no significant difference in willingness to test, suggesting that gender disparity may lie more in access and actual uptake than in attitude or willingness, consistent with the findings from this current study. Further corroboration comes from the CDC (2012) findings, which noted that women, especially in developing countries, tend to utilize VCT services more often due to their greater engagement with reproductive health services and antenatal care, where HIV testing is frequently integrated. This supports the notion that female students may have more touchpoints or pathways to access VCT services.

On the contrary, Reynell and Trkla (2012) also found gender-based differences in stigma and access, concluding that male youths experience more barriers related to stigma and lack of information, which could reduce their access to VCT. These studies indicate a general trend of higher VCT engagement among females, often facilitated by integrated health services, more frequent healthcare interactions, and targeted awareness programmes. However, they also highlight the persistent challenge of stigma, particularly for males, which may further hinder their access and utilization.

Conclusions

Based on the findings of the study, it can be concluded that students enrolled in federal universities in Northern Nigeria generally have good access to HIV Voluntary Counselling and Testing (VCT) services. Furthermore, the study revealed that female students tend to report better access to these services compared to their male counterparts.

Recommendations

Based on the conclusion, the study recommended the following:

1. Federal university management should maintain and expand accessible HIV VCT services by increasing outreach and service points on campuses.
2. University management should assess and improve outreach strategies to ensure equitable access for male students to VCT services.

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Access, Equity and Quality of Secondary Education Amidst Insecurity in Nigeria

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Abstract
This paper examines the critical role of access, equity, and quality in secondary education as essential tools for addressing Nigeria's pervasive insecurity. It highlights the objectives of secondary education, analyzes the security situation in Nigeria, identifies the root causes of insecurity, and discusses its effects on the education sector. The paper argues that secondary education can foster security development by equipping students with the knowledge, skills, and values needed to address societal challenges. It proposes practical solutions, including curriculum reform, teacher training, increased funding, community involvement, and the integration of technology. The paper concludes that prioritizing access, equity, and quality in secondary education is vital for achieving sustainable security and development in Nigeria.

Keywords: Secondary Education, Insecurity, Access, Equity, Quality, Nigeria

Introduction
Nigeria, Africa's most populous nation, faces significant challenges in its education sector, particularly at the secondary level. Issues of access, equity, and quality are exacerbated by widespread insecurity, including terrorism, banditry, communal clashes, and political instability. These challenges have led to the targeting of schools, kidnappings of students and teachers, and the closure of numerous educational institutions, disrupting the educational process for millions (Adeyemi & Adeyinka, 2017). The importance of secondary education cannot be overstated, as it serves as a critical bridge between primary education and higher education or the workforce. It is during this stage that students develop the knowledge, skills, and values necessary to contribute meaningfully to society. However, the current state of secondary education in Nigeria is far from ideal. Many students are unable to access quality education due to insecurity, poverty, and socio-economic disparities (Ajayi & Ekundayo, 2019). These issues have led to declining educational standards, poor student performance, and a widening gap between students in urban and rural areas. One of the most pressing challenges in Nigeria's education sector is the high level of insecurity, which has resulted in widespread school closures and disruptions. The Boko Haram insurgency in the northeastern region, which began over a decade ago, has severely affected the education system. The group has targeted schools in an effort to discourage Western education, leading to the destruction of school facilities, the abduction of students, and the killing of teachers. The most infamous case was the 2014 kidnapping of 276 schoolgirls from Chibok in Borno State, an event that drew international condemnation and highlighted the vulnerability of Nigerian students (UNESCO, 2020).

Beyond Boko Haram, banditry and kidnapping in the northwestern and central regions have further compounded the crisis. Criminal groups frequently raid schools, abducting students and demanding ransom from their families or the government. These incidents have instilled fear in parents and guardians, leading to decreased school enrollment rates. The persistent threat of violence has forced many students, particularly girls, to drop out of school, thereby widening the gender gap in education. Poverty remains a significant barrier to education in Nigeria. Many families, particularly in rural areas, cannot afford the costs associated with schooling, including tuition fees, uniforms, books, and transportation. The economic downturn, exacerbated by inflation and unemployment, has placed further financial strain on families, making education an unaffordable luxury for many. As a result, children from low-income backgrounds are more likely to drop out of school or never enroll in the first place (World Bank, 2021). Government interventions, such as the Universal Basic Education (UBE) program, have attempted to address these disparities by providing free and compulsory education up to the junior secondary level. However, the implementation of these policies has been hindered by corruption, inadequate funding, and poor infrastructure. Many public schools lack basic facilities such as classrooms, toilets, and learning materials, making the learning environment unconducive for students. Additionally, teacher shortages and poor remuneration contribute to the declining quality of education.

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The Nigerian government has made several efforts to improve secondary education through policy initiatives and international partnerships. Programs such as the Safe Schools Initiative (SSI) were launched in response to the increasing attacks on educational institutions. The initiative aims to provide security infrastructure, such as perimeter fencing, surveillance systems, and emergency response mechanisms, to protect students and teachers. However, the effectiveness of these measures has been limited due to inconsistent implementation and inadequate funding (UNICEF, 2022). In addition to security measures, there have been calls for curriculum reforms to make education more relevant to the socio-economic needs of the country. Critics argue that the current curriculum is outdated and does not adequately equip students with practical skills for the labor market. Incorporating vocational and technical education into the secondary school curriculum could help bridge the skills gap and reduce youth unemployment. Furthermore, digital learning tools and technology-driven education could enhance access to quality education, especially in remote areas where traditional schooling is challenging. Addressing the challenges facing secondary education in Nigeria requires a multi-stakeholder approach involving government agencies, community leaders, and the private sector. Community engagement is essential in fostering a sense of ownership and responsibility for educational institutions. Local initiatives, such as community-based security networks, can play a crucial role in protecting schools from attacks.

The private sector also has a significant role to play in bridging the educational gap. Private schools, though often expensive, provide an alternative to the struggling public school system. Additionally, corporate organizations can contribute through Corporate Social Responsibility (CSR) initiatives, such as scholarships, school renovations, and teacher training programs. Public-private partnerships (PPPs) could further enhance educational quality by leveraging resources and expertise from both sectors. Nigeria's secondary education sector is at a critical juncture, facing immense challenges that threaten its ability to equip students with the knowledge and skills needed for national development. Insecurity, economic disparities, and systemic inefficiencies continue to hinder access to quality education. While government policies and international interventions have made some progress, more concerted efforts are required to address these issues holistically. Strengthening security measures, increasing funding for education, implementing curriculum reforms, and fostering community and private sector involvement are crucial steps toward revitalizing secondary education in Nigeria. By addressing these challenges, Nigeria can build a more resilient education system that empowers its youth and contributes to national growth and stability. Objectives of this paper **"**Access, Equity, and Quality of Secondary Education Amidst Insecurity in Nigeria" seeks to**;** examine the relevance of access, equity, and quality in secondary education as tools for addressing insecurity in Nigeria; analyze the security situation in Nigeria and its impact on secondary education; identify the root causes of insecurity and their effects on the education sector; propose solutions to insecurity, emphasizing the role of secondary education; discuss the importance of access, equity, and quality education in fostering security development; and suggest strategies for improving secondary education, including curriculum reform, teacher training, and increased funding.

Objectives of Secondary Education in Nigeria

Objectives of Secondary Education in Nigeria, according to the National Policy on Education (NPE), are as follows:

Preparation for Useful Living: Secondary education in Nigeria is designed to prepare students for useful living within the society. This includes equipping them with knowledge, skills, and attitudes necessary for contributing meaningfully to national development.

Developing Competence for Further Education: Secondary education aims to prepare students for higher education, particularly in tertiary institutions. It provides a foundation that enables students to pursue further academic qualifications and specialized skills in their chosen fields.

Fostering Academic Excellence and Critical Thinking: It emphasizes the need to develop students' intellectual capabilities, critical thinking, and problem-solving skills. Secondary education aims to nurture students who can think analytically and solve real-world problems.

Promoting Cultural and Ethical Development: The policy stresses the importance of fostering cultural awareness, national unity, and moral values. It seeks to promote respect for human rights, cultural diversity, and ethical behavior, ensuring students contribute to social harmony.

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Skills Development for Self-Reliance: The goal is to equip students with both academic and practical skills, including vocational and technical training, which can help them become self-reliant, reducing dependency on others and fostering entrepreneurship.

Preparing Students for Citizenship: The policy aims to develop students into responsible and active citizens who can participate in the democratic processes, understand their rights and obligations, and contribute positively to society.

Promoting Effective Use of Resources: Secondary education should also aim at promoting efficiency in the utilization of resources. This involves developing both human and material resources to meet the needs of the country's development, (NPE 2014).

In essence, the National Policy on Education emphasizes that secondary education in Nigeria should contribute to the holistic development of the individual, preparing students for further education, the workforce, and responsible citizenship.

Importance of Access, Equity, and Quality in Secondary Education

Access: Ensuring all children, especially those in conflict zones, can attend school is vital for social cohesion and reducing youth involvement in crime (UNESCO, 2015).

Equity: Equal opportunities for education, regardless of gender, ethnicity, or socio-economic status, are essential for addressing root causes of insecurity (World Bank, 2018).

Quality: Relevant and inclusive education equips students with the skills and values needed for societal contribution (Okebukola, 2016).

The Security Situation in Nigeria

Overview of Insecurity in Nigeria

Nigeria has faced persistent insecurity challenges, significantly impacting various aspects of society, particularly education. Among the most critical threats is the Boko Haram insurgency, which has been prevalent in the northeastern region of the country. Boko Haram, an extremist group whose name translates to "Western education is forbidden," has deliberately targeted educational institutions, teachers, and students. Their violent activities have led to the closure of numerous schools and the displacement of millions of people, disrupting education and livelihoods (Okafor, 2018).

Beyond terrorism, Nigeria also grapples with other security threats, including banditry, kidnapping, communal clashes, and political violence. These issues are most severe in the northwest and central regions, where armed groups frequently attack villages, abduct individuals for ransom, and engage in violent confrontations. The persistent violence has created a climate of fear that discourages school attendance and forces many educational institutions to shut down (UNICEF, 2020).

Causes of Insecurity in Nigeria

The causes of insecurity in Nigeria are complex and multifaceted. They include:

Poverty and Unemployment: Nigeria experiences high poverty rates and widespread youth unemployment, creating an environment where many young people turn to criminal activities such as banditry, kidnapping, and armed robbery as a means of survival (World Bank, 2018).

Political Instability and Corruption: Weak governance, corruption, and lack of accountability have significantly contributed to the rise of criminality and insurgency. Poor leadership and inadequate policy implementation hinder efforts to combat security threats effectively (Okebukola, 2016).

Ethnic and Religious Tensions: Nigeria is a highly diverse country with numerous ethnic and religious groups. Longstanding grievances and competition over resources have led to violent clashes, exacerbating insecurity and further destabilizing the nation (Federal Ministry of Education, 2013).

Weak Security Infrastructure: The country's security forces suffer from inadequate funding, insufficient personnel, and poor equipment, making it difficult to combat crime and insurgency effectively. The lack of a robust security framework allows criminal activities to thrive (National Bureau of Statistics, 2019).

External Influences: The proliferation of small arms, illegal migration, and the activities of transnational criminal networks have exacerbated Nigeria's security challenges. Arms smuggling across porous borders has made it easier for criminals and insurgents to acquire weapons (UNESCO, 2015).

Effects of Insecurity on Secondary Education

The adverse effects of insecurity on secondary education in Nigeria are profound and far-reaching:

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Disruption of Education: Insecurity has led to frequent school closures, particularly in conflict-affected regions. Many students are unable to complete their education, leading to a decline in literacy rates and overall educational development (Ajayi & Ekundayo, 2019).

Loss of Lives and Property: Attacks on schools have resulted in the loss of lives, abductions of students and teachers, and destruction of educational infrastructure. These incidents create an atmosphere of fear that discourages school attendance (Adeyemi & Adeyinka, 2017).

Psychological Trauma: Students and teachers who experience violence or displacement often suffer from long-term psychological trauma. Anxiety and fear affect students' ability to concentrate and perform well academically, while teachers struggle to effectively carry out their duties (UNICEF, 2020).

Increased Poverty and Inequality: Disruptions in education contribute to higher poverty levels, particularly for those who are unable to access alternative forms of learning. This widening gap between educated and uneducated individuals exacerbates social inequality (World Bank, 2018).

Brain Drain: Many qualified teachers and professionals are leaving the country due to safety concerns. This mass exodus weakens the education sector, reducing the availability of skilled educators and further deteriorating the quality of learning (Okafor, 2018).

The security challenges in Nigeria remain a significant impediment to national development, particularly in the education sector. Addressing these issues requires a multi-faceted approach, including improving security infrastructure, tackling poverty and unemployment, fostering political stability, and strengthening educational policies. A concerted effort from the government, international organizations, and local communities is necessary to restore security and ensure a conducive environment for learning in Nigeria.

The Role of Secondary Education in Addressing Insecurity

Secondary education in Nigeria aims to:

1. Provide a broad-based education for further learning or workforce entry.
2. Promote national unity among diverse ethnic and religious groups.
3. Develop critical thinking and problem-solving skills and to address societal challenges.
4. Instill moral and ethical values for responsible citizenship and to reduce criminal behavior.
5. Prepare students for higher education and vocational opportunities (Federal Ministry of Education, 2013).
6. Promoting peace and tolerance through shared identity and respect for diversity.
7. Encouraging civic engagement to foster good governance (Nigerian Educational Research and Development Council, 2017).

Strategies for Improving Secondary Education in Nigeria

Curriculum Reform

One of the fundamental strategies for improving secondary education in Nigeria is curriculum reform. The current curriculum should be revised to incorporate more practical and problem-solving components to better equip students for real-world challenges. In addition to core subjects, new topics such as conflict resolution, human rights, civic responsibility, environmental sustainability, and good governance should be included. These subjects will help students develop critical thinking skills, foster social responsibility, and prepare them for active participation in national development. According to the Federal Ministry of Education (2013), curriculum reforms should align with global best practices while addressing the specific needs of Nigeria's socio-economic landscape.

Teacher Training and Professional Development

Teachers play a pivotal role in shaping the quality of education. Investing in teacher training and continuous professional development is essential to ensure that educators are well-equipped with modern pedagogical strategies. Workshops, seminars, and training programs should focus on inquiry-based teaching methods, learner-centered approaches, and the effective use of instructional materials. Furthermore, technology-enhanced training should be encouraged to familiarize teachers with digital teaching tools. As Okebukola (2016) emphasized, well-trained teachers are more capable of engaging students and delivering lessons effectively, ultimately improving learning outcomes.

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Increased Funding

Adequate funding is crucial for the advancement of secondary education in Nigeria. Many schools suffer from poor infrastructure, inadequate learning materials, and underpaid teachers due to insufficient financial support. The government, private sector, and international organizations should collaborate to increase funding for secondary education. Additional financial resources should be allocated to building and renovating classrooms, providing essential learning materials, and offering incentives to teachers. According to the World Bank (2018), investment in education significantly contributes to national development by improving literacy rates and workforce productivity.

Community Involvement

The active involvement of communities in school management can create a supportive and conducive learning environment. Parents, local leaders, and non-governmental organizations (NGOs) should participate in decision-making processes concerning school operations. Establishing parent-teacher associations (PTAs) and community-driven initiatives can help address challenges such as student discipline, school maintenance, and resource mobilization. UNICEF (2020) highlights that community engagement in education leads to improved school governance, increased student retention, and overall better learning outcomes.

Use of Technology

The integration of technology in education has the potential to revolutionize teaching and learning in secondary schools. Digital learning platforms, interactive whiteboards, and online resources should be incorporated into the education system to enhance student engagement and knowledge retention. E-learning and virtual classrooms can supplement traditional teaching methods, especially in rural areas where there is a shortage of qualified teachers. The Nigerian Educational Research and Development Council (2017) advocates for the use of ICT in education to bridge the digital divide and ensure equal learning opportunities for all students.

Conclusion

Ensuring access, equity, and quality in secondary education is vital for addressing Nigeria's broader socio-economic challenges, including insecurity and unemployment. By equipping students with relevant knowledge, skills, and values, secondary education can play a significant role in fostering national security and economic growth. Implementing strategies such as curriculum reform, teacher training, increased funding, community involvement, and technology integration is essential for building a more robust and effective secondary education system. A concerted effort by the government, educators, stakeholders, and the community is necessary to drive sustainable improvements in Nigeria's secondary education sector.

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Influence of Social Vices on Performance in Social Studies among Secondary School Students in Calabar Education Zone of Cross River State, Nigeria

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Abstract
The thrust of this study was to examine social vices and academic performance of students in Social Studies in Calabar Education Zone of Cross River State, Nigeria. To achieve the purpose of this study, three hypotheses were formulated to guide the study. Literature review was carried out accordingly. Survey research design was adopted for the study. A sample of four hundred and eighty-eight (488) students from a population of 5,039 was randomly selected through the stratified sampling for the study. Questionnaire was the main instrument used for data collection. The reliability estimate of the instruments was established through Cronbach Alpha reliability method. Regression analysis was the statistical technique employed to test the hypotheses under study. Each hypothesis was tested at .05 level of significance. The result of the analysis revealed that, cultism, drug abuse and Examination malpractice truancy significantly predicted academic performance of students in Social Studies in Calabar Education Zone of Cross River State, Nigeria. Based on the findings of the study it was recommended among others that government and non-governmental agencies and the media should step up their campaigns against cultism and its destructive tendencies. The evil nature of cultism should be explained to Students at all levels through sensitization, seminars, workshops, symposium, posters, handbills and public lectures.

Key words: social vices, cultism, Drugs abuse, Examination malpractice & Academic performance.

Introduction
Anti-social activities are rampant in the contemporary Nigerian schools. This is evident in the deluge of social vices witnessed on regular bases. These problems which include various factors such as social inequality, ethnicity, limited resources, corruption, and other socio-economic crises pervade the length and breadth of the country. There is a wide gap between the expectations of the society and its actual manifestations. Hardly would a day go by without a record of one form of social vices or the other. One may therefore surmise that delinquency is closely associated with civilization. There is a consensus among experts that deviance is a social vice and could be seen as a product of both personal and social traits (Mahoney, 2008). Osarenren (2002) argued that any behavior which does not conform to the rules, regulations, norms and values of a given time is viewed as deviance. Social pressures play an important role in the choices students make. In an environment where the degree of social vices is high, then the student would easily fall for the social pressure. This is what the students face on a daily basis. From the foregoing, it is evident that social vices in our society are generating concerns for all and sundry (Jamiu, 2008). This study is concerned about the extent to which social vices influence students in secondary schools. The most essential problem facing the educational sector in Nigeria is the problem of cultism here and there. There is no long existing single institution of higher learning that has not experienced the menace of cultism for one time or another. As we have today, the menace and the aggressiveness of cult members and cult related violent clashes and activities on most secondary schools have caused the sudden death of teachers and students (Ajayi & Ayodele, 2002). Over the past two decades, various attempts have been made to deal with the problem of cultism. The various measures taken

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include the enactment of decree 47 of 1989 that pronounced a number of jail term for any cultist found guilty (Fasanmi, 2006). Also, the Federal Republic of Nigeria under Chief Olusegun Obasanjo in 2000 issued a three- month ultimatum to all schools to eradicate cultism from the campuses. Some secondary schools also set up anti-cult groups consisting of the student body itself and some security agents to monitor and check the activities of cultists on campus. Despite the various measures, it appears the proliferation of cult groups and their dastard acts continue unabated. Cultism is one of the major social vices confronting the educational sector at all levels of education. The activities of these groups have caused the deaths of many (members and non-members inclusive). Secret Cult groups were rampant only in tertiary institution in the Country but today, cult activities have stepped down to the secondary, primary schools and the local communities which has become a smear on the proper development of the Nigerian youth as their activities take various destructive forms such as torture, armed robbery, drug abuse, kidnapping, murder and so on (Aniekpeno, 2017). Cultism is the practice of activities that are associated with organizations whose membership and modes of operation are considered to be unconventional and known to members only. Members pledge their allegiance to the cult, devoting themselves under oath to support and carryout the activities of the group without objection.

The recent destructive cult activities on campuses are mind-bogging, irritating and distasteful. These clandestine and violent activities include amongst others: extortion, rape, blackmail, arson, robbery, and drug abuse, drug trafficking, kidnapping/abduction, hijacking, maiming and murder. Lives of promising young men and women had been led astray or cut short in the hands of these bloody and murderous gangs on campus. Secret cultism is an evil wind that does no one any good (Nsor, Ugbong & Edu, 2016). Parents, teachers and law enforcement agents must work in synergy to ensure that this evil is put under control in our environment. Nsor, Ugbong and Edu (2016) investigated effect of cultism and other social vices on the academic achievement of Colleges of Education students in the South-South Region of Nigeria. A survey design was adopted for the study. Three research questions were posed. A simple percentage was used to find out how ignorance, parental background and upbringing affect students' membership of secret cults and students achievement academically. The researcher observed that: students' parental background and upbringing influenced membership of secret cults such that students of rich, influential and poor religious background were more vulnerable to secret cult membership; ignorance also influenced fresh student's membership of secret cults. Busuyi, Olayinka and Olalekan, (2016) investigated social vices and the effect of cultism activities among university undergraduates of Ekiti State University, Ado-Ekiti, Nigeria. Both primary and secondary source of data were used and survey design was adopted in this study. A total number of 150 respondents were used for the study and it was made up of undergraduates from nine faculties of Ekiti State University (EKSU). A simple random sampling procedure was adopted in choosing the population of the study. Questionnaire and in-debt interview guide was used for data collection. The data here was analyzed, using descriptive and statistical packages. The findings however showed that some of the causes of cultism are peer group influence, parental influence, to feel high, to be protected and secured, to gain power, for leisure etc. The researchers however recommended that, government and non-governmental agencies and the media should step up their campaigns against cultism and its destructive tendencies. The evil nature of cultism should be explained to Students at all levels through sensitization, seminars, workshops, symposium, posters, handbills and public lectures. The greatest and the most embarrassing problem facing the Nigeria society today is the renewal of the menace and aggressiveness of cult activities. Obviously, cultism is said to be the mother of crimes in tertiary institutions, and this phenomenon has negatively affected the image of schools in Nigeria. In Nigeria, alcohol and cigarette are legal but these substances have also said to be "gateway drugs" to other more potent drugs like heroin and cocaine. Drug abuse/addiction has gone a long way to create several health problems and dangers in our societies (Attah, Edna & Audu (2016). Posits that such health problems include mental illness, cancer of the lungs, school drop-outs, and juvenile delinquency. In Nigeria, consumption of drugs in schools is very common; student take these drugs to give them boldness to chase the opposite sex which most of them cannot ordinarily do without the use of some drugs, the timid types purposely take some drugs especially during social gathering to enable them feel on top. Odejide (2014) observed that the reasons advanced by the students for taking drugs are: to feel on top like adults, to feel good, to get excited, to be like friends and to be like stars. The abuse of these drugs which leads to addiction among these students gradually progresses to affect their academic performance and cause a host of evil happenings in the school and in the society, such as incessant occurrence of road accidents as a result of effects of these substances, some students indulge in exam-malpractices while others breakdown during examinations leading to failure and eventual drop-outs, some

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become rude and arrogant to teachers, and parents and occasionally causing riots and chaos on the campuses while some grow up to become criminals in the society leading them into prison-yards. The youths in Nigeria like many other countries of the world are developing addiction to psychoactive substances. The National Drug Law Enforcement Agency (NDLEA) (2012) collected drugs use and abuse data from schools, records of patients admitted at mental health institutions for drug related problems and interview of persons arrested for drug offences. The result showed that youths constitute the high-risk group for drug trafficking and abuse. Friends and school mates account for about 90% of the source of influence of the use and abuse of various psychoactive substances. In Nigeria, alcohol and cigarette are legal but these substances have also said to be "gateway drugs" to other more potent drugs like heroin and cocaine. Drug abuse/addiction has gone a long way to create several health problems and dangers in our societies (Attah, Edna & Audu (2016). The authors further stated that such health problems include mental illness, cancer of the lungs, school drop-outs, and juvenile delinquency. In Nigeria, consumption of drugs in schools is very common; student take these drugs to give them boldness to chase the opposite sex which most of them cannot ordinarily do without the use of some drugs, the timid types purposely take some drugs especially during social gathering to enable them feel on top.

Odejide (2014) observed that the reasons advanced by the students for taking drugs are: to feel on top like adults, to feel good, to get excited, to be like friends and to be like stars. The abuse of these drugs which leads to addiction among these students gradually progresses to affect their academic performance and cause a host of evil happenings in the school and in the society, such as incessant occurrence of road accidents as a result of effects of these substances, some students indulge in exam-malpractices while others breakdown during examinations leading to failure and eventual drop-outs, some become rude and arrogant to teachers, and parents and occasionally causing riots and chaos on the campuses while some grow up to become criminal in the society leading them into prison-yards. Akanbi, Godwin, Anyio, Muhammad and Ajiboye (2015) investigated the impact of substance abuse on adolescent on academic performance in colleges of education in Kwara State. The survey design adopted for the study. A sample of 150 adolescent students was randomly selected form selected departments in three colleges of education in the State. These days, it is common to find students who failed the senior secondary certificate examination in public schools going to retake the examination in private schools and at the same time passing the examination with credits and distinctions in such schools. It seems that the need to have good results in public examinations and advertise their schools to prospective students in the way of money making appears to have led many private schools to be involved in examination malpractices. Divergent views have also been made about the rate of examination malpractices in urban and rural secondary schools in the country. Some researchers (Uyo, 2004; Akpan, Okey & Esirah, 2005) were of the opinion that examination malpractices were high in urban schools, other researchers (Lathrop & Foss, 2000; Onipede, 2003) had the viewpoint that examination malpractices were a common feature of rural schools. They argued that it is common to find students who failed the senior secondary certificate examinations in an urban school going to a remote rural school to retake the examinations. At the end, such candidates tend to obtain good results with credits and distinctions in the rural schools. Some of the reasons given for this include the lack of effective supervision and monitoring of public examinations in rural schools (Oderinde, 2003).

Hence, students seem to be left to massive cheating in such examinations. On the national setting, Olugbile (2004) conducted a study on examination malpractices in secondary schools in Nigeria and found that malpractices in senior secondary certificate examinations were at a high. The researcher reported that Ondo State took the 15th position among all the 36 States in Nigeria in examination malpractices as determined by the examination malpractice index (EMI). He furthermore found that out of the 909,888 pupils who sat for the senior secondary certificate examinations in year 2002, 95,519 of them were involved in examination fraud. While out of 2003, 111,969 of them were involved in examination malpractices. Supporting the findings, Onyechere (2004) reported that the National Examination Malpractices Index for Nigeria increased from 10.5 in 2002 to 12.1 in 2003 indicating that of every 100 pupils who wrote WAEC senior secondary certificate examinations in 2003, 12 were involved in examination scandal. Learning is important as it equips the learner with skills and attitude for self-improvement so as to later contribute to the development of the society. The alarming evidence in the prevalence of social vices, the effects and consequences of deviant behaviour among students has called for concern and challenge to all learning professions to mount strategies of equipping youths with skills of living to avoid them from engaging in act that the society does not approve. There is disruption of interpersonal relationships particularly

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within the family, marginalization, criminal behaviour, school failure, vocational problems and failure to achieve normal adolescent milestones, yet these adolescents are expected to be the leaders of the country in the future when they do not even have any focus for the future. Wanting to be attractive to others becomes very important to adolescence, and this factor is significant in the development of the desire to become cultist, eating disorders, alcohol consumption, tobacco and drug use, not practicing safe sex, and vulnerability to injury, among other behaviour. It is observed that the involvement of most teens in antisocial behaviour is as a result of peer victimization which refers to a situation where a powerful person or group of people recurrently and frequently oppressing a less powerful person in a physical and psychological manner. Despite the government effort to engage the youth through N-Power programme, the problem still persists at alarming rate. Based on this, the question that comes to the researcher mind is how does social vices in terms of cultism, drug abuse and examination malpractice relate with students' academic performance in Social Studies in Calabar Education Zone of Cross River State, Nigeria? This is the problem which this study seeks to find solution.

Objective of the study

The purpose of this study is to investigate social vices and academic performance of students in Social Studies in Calabar Education Zone of Cross River State, Nigeria. Specifically, the study seeks to find out;

1. The prediction of Cultism on academic performance of students in social studies.
2. The prediction of Drug abuse on academic performance of students in social studies.
3. If Examination malpractice predict academic performance of students in social studies.

Null hypotheses

The following hypotheses guided the study:

1. Cultism does not significantly predict academic performance of students in Social Studies.
2. Drug abuse does not significantly predict academic performance of students in Social Studies
3. Examination malpractice does not significantly predict academic performance of students in Social Studies.

Research methodology

The research design that is used for this study is Survey design. It describes it as a type of research that studies large and small populations by selecting and studying samples chosen from the population to discover the relative incidence, distribution, interrelations of sociological and psychological variable. The study area is the Calabar education zone of Cross River State. The population of the study comprise all junior secondary three (JSS3) students in all the 77 public secondary schools in Calabar Educational Zone of Cross River State numbering 5,039 students *(*State Secondary Education, 2019). The sample consists of 488 secondary school adolescents which comprised of 10% of the estimated population from the seven local Government Areas in Calabar Education Zone of Cross River State. The instrument for data collection is a questionnaire tagged "Social Vices and Social Studies Achievement Test (SVSOSAT). The instrument consists of three sections. Section A elicits information on respondents' personal data such as sex and class size. *Section B* consist of the 18 items, which measure social vices. Section C consists of 25structured objective questions with a test blue print on Social Studies academic performance. These topics are covered by all students used for the sample by the teachers in preparation for the junior secondary examination. The questionnaire was a 4–point modified likert scale type, ranging from Strongly Agree (SA, 4points), Agree (A, 3 points), Disagree D, 2 points) and Strongly Disagree (SD, 1 point) and the reverse for negatively worded items. Two types of validity were established for the instrument of this study. These are the face and content validity. The reliability of the instrument was established using Cronbach Alpha reliability co-efficient method. Some copies of the instrument were administered to 50 JSS3 students who were not part of the main study. The questionnaires were administered personally by the researcher with the help of some research assistants. Out of four hundred and ninety-six (496) copies questionnaires administered, only 488 were successfully completed and retrieved from the sampled secondary schools.

Presentation of Results

Hypothesis one

Cultism does not significantly predict academic performance of students. Simple regression analysis was employed to test this hypothesis. The result of the analysis is presented in Table 1.

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Table 1: Simple regression result of the prediction of Cultism on academic performance of students

Model	R		R. square		Adjusted R. square	Std error of the estimate	
1	050(a)		.003		-.001	7.31515	
Model	Sum of square		df		Mean square	F	p-value
Regression	41.091		1		41.091	.768	.382(a)
Residual	16213.939		486		53.511		
Total	16255.030		487				
Variables	Unstandardized weight B	regression	Standardized weight	regression	Beta weight	t	p-value
(Constant)		14.859		2.807		5.293	.000
Cultism		.127		.145	.050	.876	.382

* Significant at .05 level. (Source: Field survey 2024)\

The simple regression analysis of the prediction of cultism on the academic performance of students produced an adjusted R^2 of -.001. This indicate that the Cultism account for -.1% of the determinant academic performance of students in the study area. This finding is a critical indication that cultism is relatively low in the area of the study. The F-value of the Analysis of Variance (ANOVA) obtained from the regression table was F = .768 and the sig. value of .382 (or p<.05) at the degree of freedom (df) 1 and 486. The implication of this result is that cultism is not a significant predictor of academic performance of students.

Hypothesis two

Drug abuse does not significantly predict academic performance of students. Simple regression analysis was employed to test this hypothesis. The result of the analysis is presented in Table 2.

Table 2: Simple regression result of the prediction of drug abuse on academic performance of students

Model	R		R. square		Adjusted R. square	Std error of the estimate	
1		.261(a)		.068	.065	7.07098	
Model	Sum of square		df		Mean square	F	p-value
Regression	1105.392		1		1105.392	22.108	.000(a)
Residual	15149.638		486		49.999		
Total	16255.030		487				
Variables	Unstandardized weight B	regression	Standardized weight	regression	Beta weight	t	p-value
(Constant)		8.688		1.874		4.636	.000
Drug abuse		.524		.111	.261	4.702	.000

* Significant at .05 level. (Source: Field survey 2024)

The simple regression analysis of the prediction of drug abuse on the academic performance of students produced an adjusted R^2 of 065. This indicated that the Drug abuse accounted for 6.5% of the determinant academic performance of students in the study area. This finding is a critical indication that Drug abuse is relatively high in the area of the study. The F-value of the Analysis of Variance (ANOVA) obtained from the regression table was F = 22.108 and the sig. value of .000 (or p<.05) at the degree of freedom (df) 1 and 486. The implication of this result is that Drug abuse is significant predictor of academic performance of students.

Hypothesis three

Examination malpractice does not significantly predict Academic performance of students. Simple regression analysis was employed to test this hypothesis. The result of the analysis is presented in Table 3.

Table 3: Simple regression result of the prediction of Examination malpractice on academic performance of students

Model	R	R. square	Adjusted R. Square	Std error of the estimate	
1	.202(a)	.041	.037	7.17409	
Model	Sum of square	df	Mean square	F	p-value
Regression	660.368	1	660.368	12.831	.000(a)
Residual	15594.661	486	51.468		

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Total	16255.030	487			
Variables	Unstandardized regression weight B	Standardized regression weight	Beta weight	t	p-value
(Constant)	9.041	2.340		3.864	.000
Examination malpractice	.458	.128	202	3.582	.000

* Significant at .05 level. (Source: Field survey 2024)

The simple regression analysis of the prediction of Examination malpractice on the academic performance of students produced an adjusted R^2 of .037. This indicated that the Examination malpractice accounted for 3.7 % of the determinant academic performance of students in the study area. This finding is a critical indication that Examination malpractice is relatively high in the area of the study. The F-value of the Analysis of Variance (ANOVA) obtained from the regression table was F = 52.118 and the sig. value of .000 (or p<.05) at the degree of freedom (df) 1 and 486. The implication of this result is that Examination malpractice is a significant predictor of academic performance of students.

Discussion of findings

The result of the first hypothesis study indicated that, Cultism significantly predicted academic performance of students. The finding is in line with the view of Obadan (2015) who opined that the rise of secret cults in secondary schools is a recent disturbing trend that has left school administrators, teachers, parents and pupil themselves confounded. In schools known to have cultists, many pupils live in overwhelming fear. This is because occasionally there are mysterious illness, accidents, disputes, threats and even deaths. Serious academic work can hardly ever take place in a climate of fright and insecurity. Noticeably in the last two decades, cult culture has gone down the ladder to secondary school in the South-South region of Nigeria and ravaging our youngsters therein. In schools noted for cultism, teachers charged with discipline and strict classrooms teachers come under frequent threats. This leads to decline in the quality of education and general academic performance. A good number of cultists have been accused of robbery, rape, harassment and intimidation of male teachers. Some have also been used by politicians to cause crisis in a bid to achieve their selfish gains. The result of the second hypothesis indicated that, drug abuse significantly predicted academic performance of students. The finding of this study agrees with that of Odejide (2014) who observed that the reasons advanced by the students for taking drugs are: to feel on top like adults, to feel good, to get excited, to be like friends and to be like stars. The abuse of these drugs which leads to addiction among these students gradually progresses to affect their academic performance and cause a host of evil happenings in the school and in the society, such as incessant occurrence of road accidents as a result of effects of these substances, some students indulge in exam-malpractices while others breakdown during examinations leading to failure and eventual drop-outs, some become rude and arrogant to teachers, and parents and occasionally causing riots and chaos on the campuses while some grow up to become criminal in the society leading them into prison-yards. Drug abuse is the substance abuse or disorder that is characterized by a destructive pattern of using a substance that leads to significant problem or distress. The result of the third hypothesis indicated that, Examination malpractice has a significant influence and academic performance of students. The findings are in line with the view of Adeyemi (2010) who revealed that one major cause of examination malpractices in the schools was indiscipline among students that made many of them to be involved in examination malpractices. Other causes include the non-implementation of the examination malpractices decree and the lack of effective supervision of students during examinations. It was recommended that concerted efforts should be made at improving the level of discipline among students through counselling services in the schools. There should be the full implementation of the examination malpractices decree. There should be increased efforts at effective supervision of students during examinations. The termination of appointment of examination officials and teachers involved in perpetrating examination malpractices should be in force to serve as a deterrent to others. To maintain standard, examination has been a method used for the past years in education to test the ability or evaluate students by teachers to confirm if learning has taken place. It is a means of assessing the level of achievement or quality of knowledge which students have acquired after teaching/learning process.

Conclusion

Based on the results of the study it was concluded that Cultism, Drug Abuse and Examination Malpractice, Sexual Relationship Truancy significantly predicts Academic Performance of Students.

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Recommendations

On the basis of the findings of this study, the following recommendations were made:

1. Government and non-governmental agencies and the media should step up their campaigns against cultism and its destructive tendencies. The evil nature of cultism should be explained to Students at all levels through sensitization, seminars, workshops, symposium, posters, handbills and public lectures.
2. Public enlightenment should be carried out periodically on the dangers of drug abuse while the regulatory bodies be strengthened to carry out their functions effectively so as to curtail the trend especially in Nigeria campuses.
3. Concerted efforts should be made at improving the level of discipline among students through counselling services in the schools. There should be the full implementation of the examination malpractices decree.
4. There should be increased efforts at effective supervision of students during examinations. The termination of appointment of examination officials and teachers involved in perpetrating examination malpractices should be in force to serve as a deterrent to others.

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Effect of Guided-Inquiry-Based Instructional Strategy on Performance in Esterification Concept among Secondary Schools Students in Zaria Metropolis, Kaduna State

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Abstract
The study investigated effect of guided-inquiry-based instructional strategy on performance in esterification concept among secondary schools students in Zaria metropolis, Kaduna state, Nigeria. The study sample is made up of 100 male and female students randomly selected from two public and two private schools. A quasi-experimental research design was employed for the study. Random sampling method was used to select four schools and purposive sampling was used to assign two public schools as experimental group and two private schools as control group, respectively. The experimental group was taught esterification using guided inquiry based learning method while control group was taught using lecture method. The instrument used for data collection was Chemistry Achievement Test. The instrument was validated by a team of experts and reliability test for combined constructs using Cronbach's alpha produced a value of 0.89. The academic performance of the two groups were compared using posttest mean scores to answer the research questions and independent t-test two tailed at p≤0.05 significance level was used to test the hypothesis formulated for the study. The finding shows that students taught using guided inquiry based learning performed significantly better than those taught using lecture method and there was no significant difference in the academic performance of male and female students. Type of school whether public or private does not affect students' performance. Consequently, it was recommended that government and proprietors of private schools should sponsor and/ or organize workshops for teachers to utilize guided inquiry based learning method effectively.

Keyword: Guided-Inquiry-based strategy, Esterification, Performance, Secondary school students

Introduction
Chemistry is the branch of science with deals with the transformation of matter from one form to another. The main activity in chemistry is to combine substances together through chemical reactions in order to produce a compound that would be useful to mankind. Conversely, a compound maybe broken down by degradative work to give two or more substances that may be beneficial to mankind. An understanding of this processes are developed and disseminated through Chemistry education (Ejimaji & Emekene, 2012). Chemistry education have utilized several pedagogical mode of instruction for the teaching and learning of chemistry concepts, which include lecture , problem solving, demonstration, discussion, discovery, inquiry based methods amongst other methods. These teaching methods have their advantages and disadvantages. The most effective methods have been found to be student-centered, which involves the active participation of students (Yusuf, 2014).

Inquiry based learning (IBL) is a pedagogy that supports student-centered learning and encourages them to think scientifically. It develops evidence based reasoning and creative problem solving skills that result in knowledge creation and higher recall (Nedungadi et al., 2015). In the extensive review by Vilela et al. (2025), it was mentioned that there are three types of inquiry based learning process in science education-namely structured inquiry, guided inquiry and open inquiry. In structured inquiry, the teacher presents the problem-question that will guide the inquiry, as well as the processes that will be implemented. In guided inquiry, the teacher presents the problem-question and the students build the process to obtain one or more potential solutions. In open inquiry, students develop their own problem questions and procedures without knowing what results to expect before the inquiry. According to Strat, et al. (2024), the most effective is guided

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inquiry based learning method because it has been found in a study that sufficient teacher guidance in inquiry activities is positively associated with student performance (Aditomo and Klieme, 2020). The positive learning outcome is driven by the teacher's disposition in making content available to the students in line with the topics to be taught (Zhang and Cobern, 2020). This assertion is in line with the submission of Breslyn and McGinnis (2012) in Jegstad (2024) that chemistry teachers mostly focused on content knowledge compared to other science education disciplines such as teachers in biology and earth science emphasized teaching about the process of scientific investigations, physics teachers focused on modeling and generating mathematical expressions to describe physical phenomena. Consequently, the content of the topic to be taught should be provided by the teacher who would guide them on the inquiry based learning approach. The implication is that guided inquiry based learning method is best suited for chemistry education. Worthy of note is that Anderson (2002) in Strat et al. (2024) stated that there is a clear distinction between the concept of scientific inquiry, inquiry learning and inquiry teaching. Scientific inquiry refers to researchers applying a scientific method to conduct research in science. Inquiry learning describes the process in which learners work with inquiry-based methods to understand scientific concepts and processes and the nature of science. Inquiry teaching describes the variety of ways in which teachers or teacher educators use inquiry as a pedagogical tool. Against this background, it is important to point out that majority of the studies reported in the literature are on inquiry based pedagogy utilized in improving the learning outcomes of students through the application of concept of inquiry learning. In a nutshell the findings are in favor of inquiry based learning method (Vilela et al., 2025; Jegstad, 2024; Twizeyimana, 2024).

The studies carried out worldwide on the application of inquiry based learning (IBL) are focused more on tertiary education than primary and secondary school education. The reported research outcomes are mostly from United States, Canada, Europe and Asia. The contribution from Africa is quite low and most of the studies reported are from Nigeria, while few are from Ghana, Kenya, Zimbabwe and so on (Jegstad, 2024). Consequently, there is need for researchers in Africa to carry out further studies on inquiry based learning method to determine effective ways in its utilization to improve learning outcomes, especially at primary and secondary school levels, which has been less studied. Based on the foregoing development this study was carried out as a contribution to the body of knowledge on the effectiveness of guided-Inquiry-based instructional strategy on improving the academic performance in chemistry education with emphasis on students taught organic chemistry concepts in secondary schools.

Objectives of the study

The study was carried out to investigate the effect of guided-Inquiry-based instructional strategy on performance in esterification concept among secondary schools students. In line with this purpose, the objective of the study is as follows.

1. Determine the performance of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis
2. Determine the performance of public and private school students taught esterification concept using guided-Inquiry-based strategy
3. Determine the performance of male and female students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis.

Research Questions

The research questions formulated for this study are as follows.

1. What is the mean difference in performance scores of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis?
2. What is the mean difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis?
3. What is the mean difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis?

Hypotheses

The null hypotheses tested for this study are as follows.

1. There is no significant difference in performance scores of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis.

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2. There is no significant difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis.
3. There is no significant difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis.

Methodology

The population of this study consisted of 935 students from four secondary schools located in Gaskiya, Tudun Wada, Wusasa and Gwargwaje Area of Zaria local government, Kaduna state, Nigeria. Purposive sampling method was used to obtain the sample for this study, which consisted of 100 senior secondary school chemistry students selected from two public and two private schools. The sample size comprises of 25 students randomly selected from each of the four schools used in this study. The research was carried out using a quasi-experimental design involving an experimental group and control group made up of male and female senior secondary school students. The experimental group consists of students in two public schools while the control group consists of students in two private schools. In the experimental groups there are 26 males and 24 females while in the control groups there are 22 males and 28 females. Therefore, the number of samples in both experimental and control groups are fifty (50) students each. The students in the experimental group were taught by using guided-Inquiry-based strategy while those in the control group were taught by using lecture teaching method. Both groups were taught the organic chemistry concept known as esterification reaction. Prior knowledge of acid, bases and salt with the use of litmus paper for identification, alkanoic acid and alcohol are required. The course content is based on the senior secondary school chemistry curriculum.

The control groups were taught using lecture method by explanation of the above mentioned required chemistry concepts and esterification reaction for six weeks. In this case the teacher gives the contents of the chemistry concept known as esterification by writing on the chalkboard or whiteboard from beginning to the end of the class period. The change in litmus paper colour was used for the identification of an acid and base as well as neutral compound or substances like alcohol and normal salts, which does not have effects on blue or red litmus paper. Litmus paper was utilized due to its affordability and does not require electric power to operate. Furthermore, the experimental group was taught by guided-Inquiry-based strategy for six weeks duration as follows. The process involves the teacher guiding the students by asking them to find out the physical characteristics of esters (alkanoates), which among other things is that they possess pleasant smell. The students are paired (a male and a female) to work together. Each student was given a boiling tube and a tong and then guided by teacher to pour in 5 mL each of ethanol (alcohol) and ethanoic acid (acetic acid) into it. Then three drops of concentrated sulphuric acid was added into the contents of the same boiling tube and placed in a water bath with the boiling tube held vertical using a tong near the tip of the boiling tube opening and the content allowed to be heated for 3-5 minutes. The students were then guided to remove the boiling tube and allowed to cool for a few minutes. Then the students were guided to observe the boiling tube held in vertical position to find two liquid separated by a thin layer. Next the students were guided to insert a glass rod into the top layer of the boiling tube contents, bring it out and instantly smell it. The pleasant smell noted indicates that an ester has been formed. The students were guided to test the substance on the glass rod `by rubbing it onto blue and red litmus paper. No change in color of the litmus paper is an indication that an ester has been formed. Finally, the students were guided to write a balanced chemical equation to illustrate the formation of ethylethanoate (ester) from the reaction of ethanoic acid (acetic acid) and ethanol (alcohol) in the presence of concentrated sulphuric acid as catalyst.

The instrument used in collection of data was a Chemistry Achievement Test (CAT), which consisted of 25 multiple choice items with four options A-D designed by the researchers and validated by three experts in the related field of study. The reliability test for combined constructs using Cronbach's alpha produced a value of 0.89 that was obtained in a pilot study carried out for six weeks duration, which is above the minimum acceptable value of 0.70, indicating a high degree of reliability. The CAT scores at the end of the study were obtained from the control and experimental groups. Descriptive statistics of mean scores and standard deviation were obtained to answer the research questions while independent t-test two tailed was used to test the null hypothesis for the study at $p \leq 0.05$ significant level to determine whether there is significant differences or not.

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Presentation of Results

Research Question 1

What is the mean difference in performance scores of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis?

Table 1: Summary of mean and standard deviation of performance scores of students in experimental and control groups

S/N	Variable	N	Mean	SD	SEM	Mean Difference	Decision
1.	Experimental	50	55.56	13.88	1.96	5.85	Difference is significant
2.	Control	50	49.71	10.76	1.52		

Source: Data collected on Field, 2025

The result shown in Table 1 indicated that the students taught esterification concept using guided-inquiry-based strategy (experimental group) seems to perform better than those taught using lecture method (control group), since the mean score of students that perform better is 55.56 with a standard deviation (SD) of 13.88 and standard error of mean (SEM) of 1.96, while those taught using lecture method was 49.71 with a SD of 10.76 and SEM of 1.52. The mean difference between the two groups is 5.85, which indicates that a statistically significant difference exist in the mean scores.

Hypothesis 1

There is no significant difference in performance scores of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis.

Table 2: Academic performance of students taught by using guided-Inquiry-based strategy compared with lecture teaching method

S/N	Variable	N	Mean	SD	SEM	df	t-value	p-value	Decision
1.	Experimental	50	55.56	13.88	1.96	98	2.36	0.02	Rejected
2.	Control	50	49.71	10.76	1.52				

Source: Data collected on Field, 2025

Table 2 shows that the t-value is 2.36 at 95% confidence level ($p \leq 0.05$), while p-value is 0.02 at 98 degrees of freedom (df). This shows that p-value is less than the alpha of 0.05. Consequently, the null hypothesis is rejected.

Research Question 2

What is the mean difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis?

Table 3: Summary of mean and standard deviation of performance scores of students in public and private schools

S/N	Variable	N	Mean	SD	SEM	Mean Difference	Decision
1.	Public	25	50.32	3.82	0.76	1.47	Difference is not significant
2.	Private	25	48.85	4.72	0.94		

Source: Data collected on Field, 2025

The result (Table 3) shows that the mean academic performance score of students taught esterification concept using guided-Inquiry-based strategy in public school is 50.32 with a SD of 3.82 and SEM of 0.76, while that of private schools is 48.85 with a SD of 4.72 and SEM of 0.94. The difference between the mean pass score of students in public school and private school is 1.47, which is statistically not significant.

Hypothesis 2

There is no significant difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis.

Table 4: Academic performance of students taught by using guided-inquiry-based strategy in public and private secondary schools

S/N	Variable	N	Mean	SD	SEM	df	t-value	p-value	Decision
1.	Public	25	50.32	3.82	0.76	48	1.21	0.23	Retained
2.	Private	25	48.85	4.72	0.94				

Source: Data collected on Field, 2025

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The results shown in Table 4 indicated that t-value is 1.21 at 95% confidence level ($p \leq 0.05$), while the p-value is 0.23 at 48 degrees of freedom. This shows that the calculated p-value is greater than alpha set at 0.05. Based on this result the null hypothesis is retained.

Research Question 3

What is the mean difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis?

Table 5: Summary of mean and standard deviation of performance scores of students based on gender

S/N	Variable	N	Mean	SD	SEM	Mean Difference	Decision
1.	Male	26	49.76	2.86	0.56	1.23	Difference is not significant
2.	Female	24	48.53	3.25	0.66		

Source: Data collected on Field, 2025

The result (Table 5) indicated that the mean pass score of male students taught esterification concept using guided-Inquiry-based strategy is 49.76 with a SD of 2.86 and SEM of 0.56, while that of female students is 48.53 with a SD of 3.25 and SEM of 0.66. Furthermore, the difference between the mean pass score of male students and female students is 1.23, which is statistically not significant. Meaning there is no difference in academic performance based on gender.

Hypothesis 3

There is no significant difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis.

Table 6: Academic performance of secondary school students taught by using guided-inquiry-based instructional strategy based on gender

S/N	Variable	N	Mean	SD	SEM	df	t-value	p-value	Decision
1.	Male	26	49.76	2.86	0.56	48	1.42	0.16	Retained
2.	Female	24	48.53	3.25	0.66				

Source: Data collected on Field, 2025

The result in Table 6 indicated that t-value is 1.42 at 95% confidence level ($p \leq 0.05$), while the p-value is 0.16 at 48 degrees of freedom. This shows that the calculated p-value is greater than alpha set at 0.05. Consequently, the null hypothesis is retained.

Discussion of Findings

Research question one (1) was stated to find out the mean difference in performance scores of students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method in Zaria, metropolis. The analysis of the results shown in Table 1 provides answer to this question. The difference between the mean pass score of experimental group and control group is 5.85. This implies that there is a significant difference, which is in favour of experimental group compared with control group. Meaning more students pass when they were taught using guided-Inquiry-based instructional strategy. Consequently, it can be deduce that the guided-Inquiry-based instructional strategy is more effective in the achievement of better learning outcomes compared to teaching students using lecture method.

Research question two (2) was stated to find out the mean difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis. The analysis of the results in Table 3 provides answer to this question. The difference between the mean pass score of students in public school and private school is 1.47, which is statistically not significant. This finding indicates that there is no difference in the academic performance of students taught using guided-Inquiry-based strategy situated in both public and private secondary schools. This implies that the type of school does not affect the academic performance of students.

Research question 3 was stated to find out the mean difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis. The analysis of the results in Table 5 answers this question, which indicates that difference between the mean pass score of male students and female students, is 1.23 that is statistically not significant. This finding indicates that there is no difference between the mean pass score of male students compared to female students taught using guided-Inquiry-based instructional strategy. This implies that

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gender differences do not affect the academic performance of students taught by using guided-Inquiry-based instructional strategy. Furthermore, the findings of this study indicated that null hypothesis one (1) is rejected based on the result in Table 2, which shows that the academic performance is in favor of guided-Inquiry-based instructional strategy that is most of the students performed better when taught by using the guided-Inquiry-based strategy. This finding is in agreement with the findings of Singh and Kaushik (2020) that asserted that students taught by Inquiry-based learning method performed better that those taught by using traditional (lecture) teaching method. In addition, the same trend was observed in the finding by Abdi (2014) that better learning outcomes are achieved by students taught by using guided Inquiry-based learning method. Also, the finding of Rahayu et al. (2010) supports the finding of this study. In comparison with other science disciplines the finding of this study is in agreement with the finding reported by Shittu (2014), who asserted that the students who were previously low achievers in physics of senior secondary performed better after being exposed to guided Inquiry learning method or strategy.

The analysis of result in Table 4 indicated that null hypothesis two (1) is retained because there is no significant difference in performance scores of public and private school students taught esterification concept using guided-Inquiry-based strategy and those exposed to lecture teaching method. This finding is line with the finding reported by Mensah & Mensah (2016) who found that to a large extent there is evidence that academic performance of students in private and public school are similar and/ or identical. This learning outcome supports the finding of this study, meaning that the type of school does not affects the academic performance of students whether they were taught in public or private school. However, it is not in agreement with the findings reported by Babalola (2018) that students in private schools performed better that those in public schools from the analysis of the West African Examination Council (WAEC) during the three years period, 2010/ 2011 – 2012/ 2013 under review collated results of students who wrote the examination residing in Oluyole local government area, Oyo state, Nigeria. The difference in academic performance was adduced to be likely due to poor supervision of the teachers, inadequate instructional materials and textbooks amongst other reasons.

In addition, the analysis of result in Table 6 indicated that null hypothesis three (3) was retained, since there is no significant difference in performance scores of male and female students taught esterification concept using guided-Inquiry-based strategy in Zaria, metropolis. Consequently, the finding shows that the utilization of guided-Inquiry-based strategy to teach esterification concept is gender-friendly. This finding is in agreement with the findings of Lindberg et al. (2010) and Twizeyimana et al. (2024) that there is no significant difference in the academic performance of male and female student taught by using Inquiry method based on the result of meta-analysis they found that performance has almost equal male and female variances.

Conclusion

In every teaching session the duty and fulfillment of a teacher is to improve the learning outcome of students at whatever level of education. The quest for high academic performance at secondary school level is desirable because this is the foundational level of science education as a path to science based disciplines at tertiary education level, which leads to the desired career path of students. Against this background the results of this study indicated that the academic performance of students taught chemistry (esterification) concepts by using guided-inquiry-based strategy is better compared with those exposed to lecture teaching method. Guided-Inquiry-based strategy is effective in teaching both male and female students, since the learning outcomes by both gender are the same. Furthermore, this study indicated that the type of school does not affect the learning outcome of students taught chemistry concepts by using guided-inquiry-based instructional strategy whether the students are located in public or private schools. This implies that the academic performances are identical for students that attend public and private schools.

Recommendations

Based on the findings of this study the following recommendations are suggested for the attention and application of stakeholders in the educational sector.

1. Government and proprietors of private schools should provide relevant instructional materials to enable teachers adopt guided-Inquiry-based instructional strategy and organize workshops for secondary school teachers to learn the rudiments of how to utilize guided-Inquiry-based strategy effectively.

2. School management of both public and private secondary schools are encouraged to provide ample time on the time-table, so that teachers can be able to use guided-Inquiry-based instructional strategy as a pedagogical tool for better learning outcomes.
3. Teachers should use guided-inquiry-based instructional strategy in secondary schools irrespective of the gender of the students to stimulate the interest of students to learn and perform better, so that ultimately learning outcomes can be improved.

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Correlation between Integration of Total Quality Management Practices and Service Delivery among Secondary Schools in Federal Capital Territory, Abuja

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Abstract

The study investigated the Correlation between integration of Total Quality Management Practices and Service Delivery among Secondary Schools in Federal Capital Territory, Abuja. Four research questions and hypotheses guide the study. The study employed descriptive survey design. The population for the study comprised 4,046 teachers in 88 public secondary schools in FCT, Abuja. Using simple random sampling procedure, Eight (8) schools selected and 400 teachers were purposively sampled from the total population of teachers in FCT. Instrument used for data collection for the study was a researcher structured questionnaire titled 'Correlation between integration of Total Quality Management (TQM) practices and service delivery (CBTQMPSDQ)'. The instrument contains 15 items on a four points Likert like rating scale of strongly agreed (SA 4 points), agreed (A 3 points), strongly disagreed (SD, 2 points) and disagreed (D 1 point). The instrument was validated by two experts in the Faculty of Education, Nasarawa State University Keffi and it yielded a validity index of 0.73 which shows that the instrument was valid for the study. Their comments and corrections were effected and incorporated ready for use. The instrument was also pilot tested and Cronbach Alpha Reliability method was used to determine the internal consistency of the instrument and an overall reliability co-efficient value of 0.97 was obtained. A total of 417 instruments were distributed to the respondents and 405 were filled and return at 82% return rate. Research questions were analyzed using mean and standard deviation and Pearson Product Moment Correlation Statistics was used to test the research hypotheses at 0.05 level of significance.

Keywords: quality management, integration and service delivery

Introduction

Functional education is important for enhancing the development of any nation as the improvement of one's values, attitudes, skills, knowledge, and character is facilitated through functional secondary education. And to have functional secondary education to foster the quality desired outcomes calls for principals' application of Total Quality Management principle in the management of secondary schools. The term "total quality management" has been variously conceptualized by different scholars. Muntah (2014) defined Total Quality Management (TQM) as an administrative strategy to deal with work of an educational institution according to certain criteria in order to give the highest and best outcomes in all domains. This definition brings to the forefront that Total Quality Management (TQM) is geared towards the attainment of educational domains which include: cognitive, affective and psychomotor. Ahasanul, Abdullah and Farzana (2013) defined Total Quality Management (TQM) as a continuous management process where a whole lot of deliberation is needed in improving the performance of every level of operation by proper management of resources such as human, material and capital. The researcher defined Total Quality Management (TQM) as an administrative strategy that is geared toward continuous improvement of staff skills, knowledge and performance at a minimal cost.

Integration of Total Quality Management (TQM) is essential for smooth school administration and the concept of integration has been defined by several scholars in varying ways. Most of the definitions point to the fact that integration in this contest entails putting something into use. Mclntosh (2013) defined integration as a way in which something can be used for a particular purpose. Arguing in the same line, Hornby (2015) defined integration as the practical use of something. Many things could be applied for a particular purpose. In school administration, principals could apply policy, law, principles, practices, styles, technique and strategies among others to achieve a particular purpose. The researcher defined integration as regards school system/management as act of incorporation of Total Quality Management (TQM) into operation in order to attain the school objectives. There are several TQM practices and these practices as outlined by Hassan, Mukhtar, Qureshi and Sharif (2012) include: top management commitment to quality, employee involvement in

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decision making, customer focus, fact-based management, incentive and recognition system process, monitoring and control and continuous improvement/training. Similarly, Zehir, Ertosunb, Zehir and Muceldili (2012) identified eight TQM practices as follows: leadership management, factual approach to decision making, process management, supplier management, continual improvement through training, employee management, customers focus and system approach to management. The TQM practices outlined by the above authors that were adopted in this study are monitoring, staff involvement in the decision-making process and continuous improvement/training. The justification for the choice of the three variables is that the items of the instrument covered areas that included in this study. Again, the adopted ones were of great interest to the researcher in view of their relevance in positioning teachers towards greater performance.

Monitoring: Monitoring is a continuous process of observing and recording staff activities in order to enhance the attainment of predetermined objectives (Onyali & Nnebedum, 2016). Principals' monitoring practices entail observing teachers' classroom instructional delivery, vetting their marking schemes, checking their lesson notes and their level of participation in staff meeting, school assembly and extra-curricular activities among others. Similar to this, Ndungu, Gathu and Bomett (2015) pointed out that there are various activities that are monitored during teaching and learning process and these include: teachers' note preparation, physical attendance of classes as well as their teaching and reporting time in the school. Regular monitoring of teachers could provide information on teachers' performance which could form the bases for decision making in the school.

Teachers' involvement in decision making process: Decision making is the act or process of choosing a course of action multiple alternatives to achieve specific educational goals. Teachers' involvement in decision making process involves principals consulting and collaborating with teachers in influencing decisions relating to curriculum, instruction and school policies. Their involvement could help them to gain a lot of experiences, remove boredom, frustration and could increase their commitment, efficiency and job satisfaction. Cheng (2008) pointed out that teachers' involvement in school decision making facilitate better decisions because those closest to students know best how to improve their school and are in the best position to make and carry-out decisions. Continuing, Cheng pointed out that involvement of teachers in decision making practices is conceptualized by the level of their participation namely: instructional, curricular and management decision domains. The instructional decision domain is concerned with involving teachers in setting classroom learning objectives, selection of instructional material, classroom organization and control among others. The curricular domain is concerned with involving teachers in developing scheme of work, time-table, subjects and modules offered by each class and school based curricular development among others. The management domains are concerned with involving teachers in human and financial resources management. Involving teachers in financial management is enhanced through consulting them during the budgeting process in the school. Olorunsola and Olayemi (2011) pointed out that the teachers are central in the management of schools and their involvement in decision making process is such a sensitive issue in schools that neglect of it by the principals could cause a lot of rift, conflict, misgiving and hindrance to the realization of the objectives of the school goals.

Teachers' training: Commenting on teachers' training Ehie, (2015) defined it as ongoing improvements that involve retraining everyone in the school organization (principals and staff members). In a similar vein, Gertsen (2018) describes continuous improvement as an improvement process that is systematically applied, carried out in small steps, and to a large extent relies on employee participation. According to Sheu, (2019) continuous improvement is as an umbrella concept for a wide range of tools and techniques to improve teaching performance, such as learning new innovations. Continuous improvement is a long-term process of a stream of improvements and incremental changes integrated and realized in teachers' daily work. Continuous Improvement can be applied in teaching processes, and systems and is targeted toward improved customers (teachers and students') value through improved methods of teaching and learning services, or improved performance in processes, such as reducing variations, defects, and other kinds of waste (Bergman and Klefsjo, 2013). Total quality management involves continuous and measurable improvement at all levels of the organization, ranging from company performance to individual employee performance or institutional performance such that continuous improvement, forever becomes an essential ingredient of success (Birnbaum2014). Continuous improvement as defined by Bessant, et al (2019), is a companywide process focused on continuous incremental innovation sustained over a long period of time, being essential for meeting customers' varying needs. Continuous improvement is considered an integral part of TQM (Deming, 2004 in Ojo, 2016). The intensity of global competition has led to even greater interest for continuously improving quality services and processes (Talha, 2018). There are many tools to achieve continuous

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improvement, including statistical methods and bench marking, but its main prerequisites are supporting culture, and a supportive leadership (Jabnoun, 2022). Juran (2021) observes that TQM stresses the importance of culture (environment) in designing, producing and improving quality services that satisfy customers (students, teachers and parents). It is the responsibility of the school principals to apply total quality management in order to improve the commitment of teachers towards instructional delivery. Abdulazeez and Abari (2016) stated that fundamental to the sustenance of quality of teachers is the management weapon of total quality management (TQM). Total quality management is a tool that stimulates teachers' commitment to perform their responsibilities. In the same vein, Onyali and Nnebedum (2016) stated that one of the possible ways to ensure that teachers are able to meet up their responsibilities lies on principals' application of total quality management (TQM) as teachers play a pivotal role within the education system as they are at the heart of fostering the delivery of functional education. The roles of teachers include: preparing lesson plans and notes, instructional delivery, motivating and mentoring students, maintaining discipline in the school, monitoring and evaluating students' progress among others. For teachers to devote their efforts in performing these roles; there is need to see that they are valued and are being properly supplied with things necessary for them to accomplish their duties (Nyamubi & Nyamubi, 2017). Hence, it is very paramount to motivate teachers to create conducive environment for improved teachers' service delivery.

The concept of teachers' service delivery is often difficult to be subjected to one acceptable definition and this is why many scholars have defined or describe it in different ways based on their perception of the subject matter. Awoniyi cited in Ige (2014) defined teachers' effectiveness as the ability of the teachers to be skillful at a given situation and also exhibit the right behaviour towards the achievement of school objectives. In the perception of Bongotons (2019), teacher's effectiveness is the ability of the teacher to keep his or herself abreast in his/her field and also communicate effectively with others at a level that is commensurate with his or her knowledge. Added to these definitions is the fact that an effective teacher contributes towards realization of the school goals and objectives by being committed and dedicated to his or her job. The researcher defined teachers' effectiveness as the ability of teachers to exhibit skills and competencies to enhance attainment of the predetermined learning objectives. Effective teachers have thorough understanding and knowledge of the subjects they teach and pedagogical methods for teaching those subjects to students, organize and manage classroom to promote teaching and learning, exhibit high level of proficiency in verbal and written communication, and respond to students error in a positive manner in order to enhance the attainment of the predetermined goals and objectives of the school. The indicators of teachers effectiveness outlined by George (2014) include: teacher's ability to make deliberate effort to enhance students' knowledge, display of in-depth knowledge of his or her subject matters, presenting of lesson in a well-organized manner, being responsive to students, providing clear explanations of important issues in his or her subjects and participation in co-curricular activities among others. This indicates that an effective teacher organize lessons to suit the students' ability, display high mastery of the subject matter and use a variety of instructional materials to present lessons. In the same vein, Pachayappan and Ushalayaraj (2014) stated that effective teachers take personal responsibility for students learning, determine the difficulty of lesson with the ability of the students, give opportunities to students to practice newly learned concepts, provide direction and control of learning, use a variety of instructional verbal methodology and visual aids, present instruction in a systematic way, initiate classroom dialogues, encourage independent thinking and problem solving among others. It is the duties of the principals to ensure that teachers meet up their responsibilities to enhance their effectiveness by principals' application of TQM practices.

The essence of the introduction of total quality management (TQM) in administration of secondary schools is to ensure that the goals of secondary education are achieved through the integration of TQM practices for effective service delivery. However, there seem to be ineffective integration of total quality management practices by school administers among secondary schools in Federal Capital Territory (FCT), Abuja in particular and Nigeria in general. Secondary school administrators in Federal Capital Territory don't seems to monitor or supervise teachers schedules of duties, do not involve teachers in the decision making process as they are not inform when and how decisions are made as well as train teachers. These may have been the reasons why teachers are not effective in their service delivery or in performing their jobs in secondary schools in the study area as teachers are accused of not effective in preparing lesson plans and notes, instructional delivery, motivating and mentoring students, maintaining discipline in the school, monitoring and evaluating students' progress among others. It is in lieu of this assertion that motivated the researcher to carry out this study to unravel whether

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integration of total quality management (TQM) practices has any significant correlation with teachers' service delivery among secondary schools in Federal Capital Territory (FCT), Abuja.

Objectives of the Study

The main purpose of the study is to determine the correlation between integration of Total Quality Management (TQM) practices and service delivery among secondary schools in Federal Capital Territory, Abuja. Specifically, the study sought to determine:

1. The correlation between integration of Total Quality Management (TQM) practices (monitoring of teachers) and service delivery among secondary schools in Federal Capital Territory, Abuja. of teachers and Service Delivery among Secondary Schools in Federal Capital Territory, Abuja
2. The correlation between integration of Total Quality Management (TQM) practices (involvement of teachers' decision making} and Service Delivery among Secondary Schools in Federal Capital Territory, Abuja
3. The Correlation between integration of Total Quality Management (TQM) practices (teachers' training) and Service Delivery among Secondary Schools in Federal Capital Territory, Abuja

Research Questions

The following research questions guided the study.

1. What is the correlation between integration of Total Quality Management (TQM) practices (monitoring of teachers) and service delivery among secondary schools in Federal Capital Territory, Abuja?
2. What is the correlation between integration of Total Quality Management (TQM) practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja?
3. What is the correlation between integration of Total Quality Management (TQM) practices (teachers' training) and service delivery among secondary schools in Federal Capital Territory, Abuja?

Research Hypotheses

The following null hypotheses are formulated to guide this study

Ho_1: There is no significant correlation between integration of Total Quality Management (TQM) practices and service delivery among secondary schools in Federal Capital Territory, Abuja.

Ho_2: There is no significant correlation between integration of Total Quality Management (TQM) practices and service delivery among secondary schools in Federal Capital Territory, Abuja?

Ho_3: There is no significant correlation between integration of Total Quality Management (TQM) practices and service delivery among secondary schools in Federal Capital Territory, Abuja.

Methodology

The study employed descriptive survey research design and the type of survey design was correlational design which establishes relationship between two or more variables. The design is suitable for this study as the study sought to establish or determine the correlation between integration of Total Quality Management practices and service delivery in public secondary school in Federal Capital Territory, Abuja Nigeria. Population of the study consists of 4,152 teachers drawn from all the 88 government secondary schools in Federal Capital Territory, Abuja Nigeria. A total of 417 teachers were sampled from the target population using simple random sampling technique. Instrument for data collection was a questionnaire developed by the researcher titled Correlation between Integration of Total Quality Management Practices and Service Delivery Questionnaire (CBITQMPSDQ) was used for data collection. The questionnaire was validated by experts in the Department of Educational Management and Test and Measurement, Faculty of Education, Nasarawa State University, Keffi. This enabled the researcher to obtained logical validity index of 0.68 and the value so obtained was considered sufficient to use the instrument. The questionnaire was pilot tested using 100 teachers from two (4) schools that were part of the population but did not form part of the sampled population. The data collected was analyzed using Cronbach Alpha correlation co-efficient which yielded 0.77. The coefficient indicated high internal consistency which proved that the instrument was reliable for the study. A total of 417 questionnaires were administered to the respondents 405 were filled and returned representing 86% return rate. The data were analyzed using descriptive statistics. Mean and standard deviation was used to answer the three research questions. The data collected was analyzed using simple descriptive statistic of mean and standard deviation to answer research questions. A mean cut-off point of 2.50 was used

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for decision. The research hypotheses were tested using Pearson Product Moment Correlation Coefficient at 0.05 of significance.

Presentation of Results

Research question one: What is the correlation between integration of total quality management practices (monitoring of teachers) and service delivery among government secondary schools in Federal Capital Territory, Abuja

Table 1: Mean and Standard Deviation showing the correlation between integration of total quality management (monitoring of teachers) and service delivery among secondary schools in Federal Capital Territory, Abuja.

S/N	Variable	Mean	Std. Dev.	Decision
1.	Monitoring of teachers	3.47	0.76	Agree
2.	Service Delivery			

Scale Mean: 2.50. Source: Author's computation, 2025

Table 1 shows opinion of respondents on the correlation between Total Quality Management (TQM) practices of monitoring of teachers and service delivery among secondary schools in Federal Capital Territory, Abuja. The result of the data above indicates aggregate mean of 3.47 and standard deviation of 0.76 respectively. The value so obtained is above the scale mean of 2.50 which indicate a high correlation between integration of Total Quality Management practices of monitoring of teachers and service delivery among secondary schools in Federal Capital Territory, Abuja.

Research question 2: What is the correlation between integration of total quality management practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja?

Table 2: Mean and Standard Deviation showing correlation between integration of total quality management practice (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja.

S/N	Variable	Mean	Std. Dev.	Decision
1.	Involvement of in decision making	3.50	0.77	Agree
2.	Service Delivery			

Scale Mean: 2.50. Source: Author's computation, 2025

Table 2 shows opinion of respondents on the correlation between integration of Total Quality Management (TQM) practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja, Nigeria. Data in the table above indicates an aggregate mean of 3.50 and standard deviation of 0.77. The value so obtained is above the scale mean of 2.50 which indicate a high correlation between integration of Total Quality Management practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja.

Research question 3: What is the correlation between integration of Total Quality Management practice (teachers' training) and service delivery among secondary schools in Federal Capital Territory, Abuja?

Table 3: Mean and Standard Deviation showing the correlation between integration of Total Quality Management practice (teachers' training) and service delivery among secondary schools in Federal Capital Territory, Abuja.

Table 1: Showing the extent to which recreational space planning influences job performance among government secondary school teachers inDelta State, Nigeria

S/N	Variable	Mean	Std. Dev.	Decision
1.	Recreational Space Planning	3.53	0.79	Agree
2.	Job Performance			

Scale Mean: 2.50. Source: Author's computation, 2025

Table 3 shows opinion of respondents on the correlation between of Total Quality Management practices (training of teachers) and service delivery among secondary schools in Federal Capital Territory, Abuja. Analysis of data in the table above shows an aggregate mean of 3.53 and standard deviation of 0.79. The value of 3.53 so obtained is above the scale mean of 2.50 indicating a high correlation between integration of Total Quality Management practice (teachers' training) and service delivery among secondary schools in Federal Capital territory, Abuja. .

Testing of Null Hypotheses

The hypotheses tested are interpreted below at 0.05 level of significant.

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Ho1: There is no significant correlation between integration of Total Quality Management practice (monitoring of teachers) and service delivery among secondary schools in Federal Capital Territory, Abuja

Table 1: Pearson's Product Moment Correlation Showing the correlation between integration of TQM practice (monitoring of teachers) and service delivery among secondary schools in Federal Capital Territory Abuja

Variable	No	Mean	Std	r-cal	r-tab	Df	Alpha level	Decision
Monitoring of Teachers	405	3.47	0.76	0.722	0.751	7	0.05	Significant
Service Delivery	405	3.47	0.76					

Author's computation, 2025

The analysis in table 1, hypothesis 1show that the r-calculated value of 0.722 is higher than the r-table value of 0.751 determine at 0.05 alpha level of significance in 7 degree of freedom, the p-value is lower than the alpha level of significant serve as a determinant factor for interpretation of alpha level. Therefore, the null hypothesis tested is rejected indicating there is a significant correlation between integration of Total Quality Management practice (monitoring of teachers) among secondary schools in Federal Capital Territory, Abuja.

Ho2: There is no significant correlation between integration of total quality management practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja

Table 2: Pearson's Product Moment Correlation Showing correlation between integration of total quality management practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja

Variable	No	Mean	Std	r-cal	r-tab	Df	Alpha level	Decision
Involvement of teachers in decision making	405	3.50	0.77	0.812	0.751	7	0.05	Rejected
Service Delivery	405	3.50	0.77					

Author's computation, 2025

The analysis in table 2, hypotheses 2 show that the r-calculated value of 0.812 is higher than the r-table value of 0.751 determine at 0.05 alpha level of significance in 7 degree of freedom, the p-value is lower than the alpha level of significant serve as a determinant factor for interpretation of alpha level. Therefore, the null hypothesis tested is rejected. Which implies there is significant correlation between integration of total quality management practices (involvement of teachers in decision making) and service delivery among secondary schools in Federal Capital Territory, Abuja

HO3: There is no significant correlation between integration of total quality management practices (teachers' training) and service delivery among secondary schools in Federal Capital Territory, Abuja

Table 3: Pearson's Product Moment Correlation Showing correlation between integration of total quality management practices (teachers' training) and service delivery among secondary schools in FCT Abuja

Variable	No	Mean	Std	r-cal	r-tab	Df	Alpha level	Decision
Teachers' Training	405	3.53	0.79	0.762	0.751	7	0.05	Rejected
Service Delivery	405	3.53	0.79					

Author's computation, 2025

The analysis in table 3, hypotheses 3 show that the r-calculated value of 0.702 is higher than the r-table value of 0.751determine at 0.05 alpha level of significance in 7 degree of freedom, the p-value is lower than the alpha level of significant serve as a determinant factor for interpretation of alpha level. Therefore, the null hypothesis tested is rejected. Which implies there is significant correlation between integration of total quality management practices (teachers' training) and service delivery among secondary schools in Federal Capital Territory, Abuja.

Discussion of Findings

The findings of hypotheses one revealed that there is significant correlation between integration of Total Quality Management practice (monitoring of teachers) and service delivery. This follows that monitoring of teachers' work performance of classroom visitation during lessons, checking teachers' lesson plan and notes, the mode of teachers' assessment of students continuous assessment (CA) etc correlate with teachers' service delivery among secondary schools

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in Federal Capital Territory, Abuja. The above finding corroborates with the views of Alio and Ezeamaeyi (2018) who assert that monitoring of workers' particularly teachers in their daily activities/work in the school to ensure compliance such as method of lesson delivery, appropriate lesson plan and notes and many other activities have positive correlation with teachers' service delivery. The finding is also in line with Olakunlehin (2020) who stated that integration of' monitoring in school administration is an operational inputs which enable a teacher to achieve some level of instructional efficiency and effectiveness. Noting the importance of monitoring in school administration outcomes, Okunola (2011); Hallmark (1997); Adeogun (2015) and Madumere (2015) asserted that monitoring teachers work performance gives the school management the opportunity to dictate teachers' weaknesses and strength and offer correction which according to them gives teachers the confidence to work effectively in their service delivery. Findings from hypotheses two revealed that there is a significant correlation between integration of Total Quality Management practice of involvement of teachers in decision making and teachers' service delivery. This implies that, involving teachers in taking decisions collectively on school matters has positive correlation with teachers' service delivery particularly in the study area. This finding is in agreement with Oboegbulem & Onwurah, (2022) who stated that there is high tendency for effective service delivery or job performance when teachers make input and agreed on any school matter equipped them with a sense of belonging during implementation. They further added that for teachers to deliver their service or job effectively they tends to bear in mind that we not I decided the course of action. Supporting the views of Oboegbulem & Onwurah, (2022), Asriadi, (2020); Mashabi, (2020); Mulyadi, (2015) stated that everything that is done must be through agreement after deliberation is an important factor in building trust and mutual support. Saragih, & Nazri, (2023); Rolan, (2020) added that involvement of teachers in decision making makes teachers feel more comfortable sharing experiences, challenges, and innovative ideas.

Again, it was discovered in hypotheses three that, integration of Total Quality Management practices of training teachers positively correlate with teachers' service delivery in the studied area. This finding is in line with Awopegba (2019) who stated that while education provides the individual staff with the basic knowledge, skills and attitudes to qualify him or her for a given position, training tends to improves his/her competence to effectively perform in that position. Awopegba (2019) further explained that teachers' training is expected to improve the efficiency of the teachers in the service delivery of their roles of teaching, lesson preparation, classroom management etc for the purpose of producing quality students who are relevant to national development**.** Supporting the views of Awopegba (2019), Esirah (2020), explained that professional development gives rise to new knowledge, skills and increased motivation, a combination or sole impact of which influences policy development programme, program re-articulation and methodology. Ultimately such changes improve teachers' retention, and general performance. And that training of teachers would enable them to be acquainted with other ways of doing the same thing to achieve better results and bring about collective advantage to secondary education. Corroborating on the finding Akomolafe and Bello (2019) also affirmed it is essential that for the goals and objectives of secondary education to be achieved, teachers need to partake in various programmes that would strengthen their efficiency in service delivery or job performance and that teachers' training is not a stage to be attained or a goal to aim at but rather a constant process of improvement in which workshops and conferences play prominent roles in creating positive change in service d4livery. It could be inferred from the discussions therefore that, teaches' knowledge needs to be updated on a regular basis so as not to become obsolete, and this could mostly be achieved through regular and effective training which would in turn enable them make meaningful contributions to the realization of secondary education goals.

Conclusion

The study concludes that integration of Total Quality Management (TQM) practices of monitoring teachers, involvement of teachers in decision making and training teachers is crucial for teachers' service delivery among secondary schools in Federal Capital Territory, Abuja. When Total Quality Management practices of monitoring teachers in the course of doing their work by checking their lesson notes, visiting teachers in the classroom during lesson, vetting examination questions and offer corrections encourages teachers to perform effectively in the school. Training teachers for continuous improvement through workshops, conferences and seminars will enhance their service delivery in lesson preparation, lesson presentation, and mastery of subject matter, competence in classroom management, attendance to schools, class lessons and commitment to extra-curricular activities.

Recommendations

Based on the findings and conclusion drawn in this study, the following recommendations are made:

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1. FCT Secondary Education Board in charge of managing secondary schools in Abuja should carryout regular supervision of schools to ensure that school administrators integrate total quality management practices in their schools by monitoring teachers work performance to ensure they teachers write their lesson notes with adequate lesson material and in line with the subject being taught, application of relevant teaching methods and general supervision of teaching and learning processes.
2. FCT Secondary Education Board in charge of managing secondary schools in Abuja should also carryout regular supervision of schools to ensure that principals involve teachers in decision making in the school to them a sense of belonging and discharge their duties with confidence and for effectiveness.
3. FCT Minister should make adequate budgetary provision to fund secondary education to enable school administrator to train teachers by sponsoring them to attend conferences, workshops, and seminars as well as granting them study leave to acquire higher degrees such Masters and PhD in universities for effective service delivery among schools in Federal Capital Territory, Abuja.

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Qualitative Study on Integration of Artificial Intelligence Tools in Chemistry Education Programs and Research for Sustainable Development in Nigeria

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Abstract
This study explores the integration of artificial intelligence (AI) tools into chemistry education and research with a focus on sustainable development. The objectives for this theoretical work were towards integrating AI tools in chemistry education and research. Nine processes of AI were juxtaposed from literature to actualise the objectives in this article viz: computer simulation for chemistry education programs; virtual laboratory for chemistry education program; personalised learning for chemistry education program; automated assessment for chemistry education program; integration of AI tools in organic synthesis; integration of AI tools in molecular designing; integration of AI tools in detection of molecular properties; integration of AI tools in spectroscopy and analytical methods and integration of AI tools in waste water treatment. The overview of current knowledge on this topic was achieved through relevant literature. The paper also examines the challenges of AI in chemistry education which include data quality, model validation, ethics and security. The study recommends that professional development programs should be organized to enhance teachers' confidence and competence in implementing AI tools in their classrooms thereby enriching the learning experience.
Keywords: Artificial intelligence, chemistry education and sustainable development

Introduction
Artificial intelligence (AI) is a computer software that works like human brain and can do difficult tasks such as being able to see, understand, and respond to spoken or written language, analyse data, make recommendations and more (Maslej *et al.,* 2023). This system is used to make obtainable breakthroughs in medicine, education and research to uncover secrets long hidden from human knowledge. AI allows users to think more quickly, make faster decisions and provide more practical and solutions (Swoope, 2020). Intelligence has been considered as one of the most important qualities of human beings because every human behavior has actually been described to intelligence (Robinson, 2018). AI has become the main catalyst in drastic transformation in various fields of science one of which is chemistry. In the field of chemistry education and research, AI provides opportunities to overcome long – standing challenges such as limited laboratory infrastructure, high cost of reagents, and inadequate access to research facilities particularly in developing countries like Nigeria. By integrating AI powered tools such as virtual laboratories, intelligent tutoring systems, and data - driven modelling, chemistry education can become more inclusive, cost - effective, and aligned with the principle of sustainable development.

The advent of AI has profoundly impacted the field of chemistry education (Cetin - Dindar *et al.,* 2018). It enhances experimental accuracy and further facilitates comprehensive understanding of complex concepts, advanced research methodologies and more rapid data interpretation (Ali and Ula, 2020; Swoope, 2020). This study therefore explores the way AI tools can be harnessed to transform chemistry teaching, learning and research in Nigeria where access to functional laboratories, modern research infrastructure and quality educational resources is limited (UNESCO, 2021). Conceptually, AI integration is framed as a bridge between the persistent challenges of chemistry education in Nigeria and the desired sustainable outcomes (enhanced learning innovation, and environmentally responsible research practices). This article provided theoretical analysis of how AI tools would support teaching, learning and research for sustainable development. Further search into literature helps to explore contemporary research on how integration of AI into chemistry education programs would help in enhancing the pedagogy of the subject. The objectives for preparing this review were towards integrating AI tools in chemistry education program towards meeting sustainable development. The following theoretical analyses were explored from literature for developing the specific roles which AI plays in enhancing chemistry teaching

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and learning and are listed and discussed as follows: Computer Simulation for Chemistry; Education Program; Virtual Laboratory for Chemistry Education Program; Personalised Learning for Chemistry Education Program; Automated Assessment for Chemistry Education Program; Integration of AI tools in organic synthesis; Integration of AI tools in molecular designing; Integration of AI tools in detection of molecular properties; Integration of AI tools in spectroscopy and analytical methods; Integration of AI tools in waste water treatment**.**

Computer Simulation for Chemistry Education Program

Chemistry involves microscopic concepts that are often abstract and difficult to comprehend (Taber, 2018). Traditional laboratory experiments can also be expensive, hazardous, or inaccessible in some schools. Therefore, the need for integrating computer simulation tool in the teaching and learning the subject at all levels of education arises. Computer simulation is a computer program that creates animated, interactive, game - like environments which focus on connecting real life phenomena to the underlying science (Oladejo *et al.,* 2021). Within this process, it makes the visual and conceptual models designed by experts and scientists simple, so that they can be understood by learners. In chemistry education, simulation provide learners with opportunities to visualise molecular interactions, conduct virtual experiments, and test hypothesis in a safe and cost-effective environment. The study conducted by Suratno and Aydawati (2017), Salame and Makki (2021), Almasri (2022) show that simulation help students to learn difficult chemistry topics, because it provides visual representation of complex systems and abstract concepts that are really hard to understand. For instance, simulations show how atoms and molecules interact with each other. The study further recommended that computer simulations are powerful tool for chemistry education, as they provide students with a dynamic and interactive learning environment that complement what has been difficult to understand in the traditional teaching method.

It is a useful facility for improving students' performance in chemistry and promoting meaningful learning (Jane *et al.,* 2017; Oladejo *et al.,* 2021, Salome *et al.,* 2023). It assisted learners to be more creative and innovative in chemistry than the traditional methods that over depends on teacher expertise and teaching skills. According to Jane *et al.,* 2017 and Beichumila *et al.,* 2022, examples of chemistry topics well suited for simulation include: Molecular models: visualizing the structure and bonding of molecules; Chemical kinetics: Exploring the kinetics and mechanisms of chemical reactions; Electrochemistry: presenting dynamic nature of the process; Phase changes: simulating the behavior of matter in different states; Thermodynamics: Exploring energy transfer and equilibrium; Organic chemistry: Visualizing reaction pathways and mechanisms; Spectroscopy: Exploring the interaction of electromagnetic radiation with matter

Virtual Laboratory for Chemistry Education Program

Virtual laboratory in chemistry refers to computer - based simulation of laboratory experiments that enable users to conduct scientific experiments or activities in a digital environment (via computer software, internet platforms, or mobile applications) without physical laboratory infrastructure (Phang *et al.,* 2024). Virtual laboratories serve as platforms for students to stimulate real- world problems and reactions in a virtual environment (Mutlu and Acar Sesen, 2016). They also offer interactive elements that allow learners to manipulate variables, observe outcomes, analyse data, flexibility to repeat experiments and interact with various aspects of the experiment, thus fostering a deeper understanding of the concepts. Many researchers reported positive impact on the use of virtual labs in the teaching and learning chemistry (Zhu and Liu, 2020; Kafilan *et al.,* 2021; Alhashem and Alfailakawi, 2023, Faralla *et al.,* 2024).

In chemistry education program, virtual laboratories are particularly useful for improving engagement and personalised learning. They allow students to repeat experiments multiple times, adjust learning pace, and explore beyond the constraints of time and resources (Makransky *et al.,* 2016). In addition, integration of virtual laboratories into curricula has been shown to increase students' problem-solving skills, motivation, and academic performance (Raman *et al.,* 2020). In the Nigerian context, where access to well-equipped laboratories is often limited, virtual laboratories can play a crucial role in expanding opportunities in science education. By combining virtual laboratories with traditional laboratories in a blended approach, institutions can provide students with both theoretical grounding and practical exposure (Penn and Ramnarain, 2019). This aligns with global trends in digital education and supports the sustainable development goal (SDG 4) on quality education.

Personalized Learning for Chemistry Education Program

Personalized learning instructional strategy is a type of teaching strategy that takes care of individual differences since the students are allowed to learn at their face, cognitive style, strategy among others (Guyah *et al.,* 2021). According to

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Cardenas *et al.,* (2021), personalized learning refers to an instructional approach that tailors educational experiences to individual students' prior knowledge, needs, capacities and perceptions during the teaching -learning processes to adapt future contents to their identified learning requirements, problems or needs. In chemistry education programs, personalised learning integrates digital technologies, adaptive platforms, and learner – centered strategies to provide flexible pathways for mastering complex scientific concepts (Pane, *et al.,* 2015). Chemistry, being a subject that requires both conceptual understanding and practical application, benefits significantly from personalised learning. Digital tools such as adaptive simulations intelligent tutoring systems, and virtual laboratories allow students to learn at their own pace and revisit challenging concepts until mastery is achieved (Ilic, *et al.,* 2024). This approach accommodates diverse learners and helps to reduce achievement gaps often seen in science classrooms. Personalised learning enhances learners' engagement by allowing them to explore topics at their own pace and based on their interests. According to pane *et al.,* (2017), students in personalised learning environments reported higher level of motivation and ownership of their learning compared to those in traditional classrooms. It also accommodates diverse learning need, including those of students with disabilities and varying learning styles. Basam *et al.,* (2016) observed that personalised learning fosters inclusivity by integrating adaptive technologies and differentiated instruction. In the Nigerian context, personalised learning has the potential to address challenges such as overcrowded classrooms, limited laboratory resources and varying student preparedness. By integrating personalized learning with computer simulations and e - learning platforms, chemistry education can become more inclusive, efficient, and impactful (Okebukola, 2020). Moreover, this allingns with global trends towards digital transformation in education and supports the sustainable development goals (SDG 4) on equitable quality education.

Automated Assessment for Chemistry Education Program

Automated assessment is a modern form of assessment that makes use of technology in planning developing, administering and scoring assessment. It relies heavily on technology to streamline all forms of activities that will lead to students learning performance within the school setting. It involves the use of technological tools such as large language model in developing multiple -choice items (Chen *et al.,* 2020). In chemistry education programs, automated assessment is increasingly used to grade assignments, laboratory reports, quizzes, and even simulations, thereby enhancing efficiency and consistency in evaluation (Gamage *et al.,2019*). The need for change from traditional assessment strategies to automated assessment arises due to the advancement in information and telecommunication technology. This led to the utilisation of automated test items, especially the objective related like multiple choice that have the options out which computers can identify the correct options with ease and saving of time though the assessment standard does not change (Ewim and Opateye, 2021). One of the major advantages of automated assessment in chemistry is consistency and fairness. Unlike human grading, which can be influenced by fatigue, automated assessment applies the same criteria uniformly, ensuring fair marking across all students (Nguyen *et al.,* 2020)

In the context of practical chemistry, emerging technologies such as virtual laboratories and computer simulations integrate automated assessment to evaluate experimental design procedural accuracy and interpretation of results (Tatli and Ayas, 2013). These systems can measure not only cognitive outcomes but also process skills such as data handling and analytical reasoning. One of the challenges of automated assessment is that automated systems depend on algorithms and databases. If not well - programmed, they may incorrectly mark partially correct answers (e. g. molecular structures, chemical equations with minor formatting differences) as wrong (Gupta and Pathania, 2021).

Integration of AI tools in Organic Synthesis

Organic synthesis encompasses a vast number of reactions, traditionally necessitating extensive experimentation to determine optical reaction conditions. However, machine learning algorithms can identify patterns from extensive reaction datasets enabling the prediction of novel reaction outcomes (Hein, 2021). This not only saves time and resources but also facilitates the discovery of new reaction conditions (Gromski, *et al.,* 2019). Furthermore, AI can be employed for the optimization of reaction conditions, maximizing reaction yield and selectivity (Gao *et al.,* 2018), by analyzing a wealth of experimental data, machine learning algorithms identify optimal reaction conditions, assisting chemists in designing experiments more effectively (Taylor, *et al.,* 2023).

Integration of AI tools in Molecular Designing

AI plays a crucial role in molecular designing by accelerating the process of identifying and designing molecules with specific properties, particularly in drug discovery and development. Drug discovery includes the intricate process of

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designing, identifying and developing new medications aimed at improving human health and combating diseases. Traditionally this process has demanded significant time (averagely 12 years) and cost which at the end results in persistent challenges in addressing chronic diseases such as diabetes and cancers (Perron *et al.,* 2022). The advent of AI marks a revolutionary shift in drug development, offering a suite of advanced computational tools designed to augment human capabilities rather than replace them (Anstine and Isayev, 2023). At its core AI leverages sophisticated algorithms for autonomous decision making from data analysis revolutionizing the pharmaceutical land scape (Al - Sarayreh *et al.,* 2023). Molecular design is the creation of novel molecules with desired properties for a given problem in chemistry, material science or nanotechnology (Loeffler, *et al.,* 2024). According to Puri *et al.,* (2024), the use of AI and machine learning can help to optimise chemical reactions or enhance precision and reduce time consume for chemical reactions and this key can help one progress in designing drugs and pharmaceutical technology.

Integration of AI tools in Detection of molecular properties

In addition to the traditional wet lab method, researchers have also developed numerous AI models for predicting molecular properties (Shen and Nicolaou, 2020). AI algorithms can analyse chemical data to predict and classify various molecular properties such as toxicity, solubility and reactivity. This makes the process of detection faster and less prone to errors unlike manual detection. Moreover, AI allows scientist to evaluate the potential of a hypothetical molecule.

Integration of AI tools in Spectroscopy and Analytical Method Development

The application of AI in the interpretation of spectroscopic data has become a rapidly expanding field of research, owing to its ability to extract meaningful information from complex data sets. Spectroscopy, which involves the measurement and interpretation of the interaction between matter and electromagnetic radiation, generates large volumes of data that can be challenging to analyse manually (Rial *et al.,* 2024). In analytical chemistry, AI is revolutionizing the approach to complex data analysis and the development of innovative methods. AI's capabilities in interpreting large data volumes and automating analyses enhance efficiency, accuracy and reliability in the field (Prasad and Kalpana, 2024).

Integration of AI tools in Waste water treatment

Traditional methods of waste water treatment often face limitations in terms of effectiveness, energy consumption and cost efficiency (Wang *et al.,* 2019). The integration technologies offer a new model for addressing these challenges by enhancing efficiency, accuracy and automation of waste water treatment processes by using machine learning algorithms, predicting modelling methodologies and sophisticated analytics. AI can optimise various aspects of wastewater treatment, including pollutant detection, process control resource recovery and system optimisation (Obardeen *et al.,* 2023). It helps in the treatment of wastewater by taking the data from biological stage. This data provides a prediction based on the behavior of bioreactor. It provides the operation that is useful in waste water treatment. This AI based system is more efficient than the human understanding in waste water treatment plant. This technique implements some algorithms to make the analysis more intelligible (Choudhary *et al.,* 2022). AI is a key enabling technology in the journey toward sustainability. It is the most important part of the technology industry because it helps in collecting and analyzing data at a low cost and having a safe working environment. It has been fundamental in addressing pollution control, renewable energy development and green chemistry initiatives. The sustainable development goals (SDGs), established by the United Nations provide a road map for achieving sustainable development by the year 2030 (Gulseven, 2020).

Challenges of integrating AI technology in the Development of Chemistry Education

According to Akbar and Djakariah (2024), some of the challenges for AI applications in education, include:

i. Data quality: The quality and quantity of relevant chemical data is often a challenge. Sometimes, available datasets are limited in coverage or diversity, which can affect the accuracy and generalization of the models built.
ii. Model validation. Complex models are often difficult to interpret. This can be a problem in chemistry where the importance of understanding molecular structure and interactions is key.
iii. Ethics and security: Sensitive data in chemistry research must be kept secure, especially when using AI techniques that require access to sensitive data or valuable experiments. The use of AI in chemistry learning also raises ethical questions about the responsible use of this technology especially in its use for the development of new drugs or chemicals.

Collaborations between chemists, computer scientists and AI experts is required in addressing these challenges to overcome limitations, improve interpretability, and ensure safety and ethics in the application of AI in chemistry learning.

Conclusion

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AI plays important role in chemistry education and research in various ways. It revolutionizes conventional teaching methodologies to innovative teaching method which provide interactive and engaging learning experience that can help students build their knowledge more effectively. In chemical research, AI serves as a powerful tool in enhancing efficiency and expediting research, discovery and innovation in sustainable chemical processes.

Recommendations

1. Government and non - governmental organizations (NGOs) should assist in providing the facilities required for AI implementations.
2. Professional development programs should be organized to enhance teachers' confidence and competence in implementing AI tools in their classrooms thereby enriching the learning experience.
3. Challenges associated with the application of AI in educational sector, such as lack of monetary resource, lack of interest on the part of institution administration and lack of knowledge about successful involvement in the field should be addressed.

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Impact of Health Education Intervention Programme on Cervical Cancer Awareness and Prevention among Tertiary Institution students in North-East, Nigeria

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Abstract

Cervical cancer remains a leading cause of morbidity and mortality among women in low- and middle-income countries, including Nigeria, despite being largely preventable. This study examined the impact of a health education intervention programme on cervical cancer awareness and prevention among tertiary students' institution in north east Nigeria A sequential explanatory mixed-methods design was employed. A total of 180 students were selected through multistage sampling and assigned to experimental and control groups. Data were collected using a structured questionnaire and focus group discussions. Reliability of the instrument was confirmed with a split-half coefficient of 0.851. Quantitative data were analysed using descriptive statistics and a one-sample t-test at a 0.05 level of significance, while qualitative data were analysed thematically. Results showed a significant improvement in awareness among the experimental group, with post-test mean scores (universities 4.968, polytechnics 4.455, and colleges of education 4.348) exceeding the decision mean of 3.5 ($p < .05$). Qualitative findings corroborated the quantitative results. The study concludes that health education interventions are effective in improving awareness of cervical cancer prevention among female students. Integration of such programmes into tertiary curricula is recommended to reduce the burden of cervical cancer in Nigeria.

Keywords: Health education intervention, cervical cancer, awareness, prevention, female students

Introduction

According to World Health Organization (2023) Cervical cancer is a major health issue among women. it originates from abnormal cellular growth in the cervix, primarily caused by persistent infection with high-risk human papillomavirus (HPV) types, especially HPV-16 and HPV-18, which are responsible for over 90% of global cases (Oluwayemi & Habeeb, 2023). There are three main types of cervical cancer: squamous cell carcinoma (the most common, about 85–90%), adenocarcinoma (about 10–15%), and adenosquamous carcinoma (a rare mixed type). Risk factors include early sexual debut, multiple partners, prolonged contraceptive use, smoking, HIV infection, and poor nutrition, while non-modifiable risks include age, family history, and genetic predisposition (Devi & Joshi, 2023). Prevention relies on HPV vaccination, regular screening (Pap smear, HPV DNA testing), and lifestyle modifications such as safe sex practices and smoking cessation (Ibrahim & Logaraj, 2023). Cervical cancer remains a major global public health burden, particularly in developing countries. Despite being largely preventable through vaccination and regular screening, it is the second most commonly diagnosed cancer and the third leading cause of cancer-related mortality among women worldwide (WHO, 2023; Rimande-Joel & Ekenedo, 2023). According to GLOBOCAN (2022), approximately 804,127 new cases are recorded annually, accounting for 8.5% of female cancers, with over 500,000 deaths each year. Nearly 90% of these cases occur in low- and middle-income countries, highlighting disparities in healthcare access, awareness, and prevention strategies. The incidence varies across countries. For example, the United States reported 13,960 new cases and 4,310 deaths in 2023 (ACS, 2023), India reported 96,922 cases and 60,078 deaths (ICMR, 2023), while Ghana records over 3,151 cases annually with a mortality rate exceeding 67% (ICMR, 2023). In Nigeria, cervical cancer is the second most common female cancer after breast cancer, with about 14,089 new cases and 10,000 deaths annually. Alarmingly, up to 80% of Nigerian women present at advanced stages, contributing to poor survival outcomes (Abdullah & Suleiman, 2022).

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The burden is even more pronounced in Northeast Nigeria due to insecurity, displacement, poverty, and limited health services. Reports from major referral hospitals in the region, such as University of Maiduguri Teaching Hospital and Abubakar Tafawa Balewa University Teaching Hospital, indicate that cervical cancer constitutes over 68-70% of gynaecological malignancies (Kabir, Bukar, Nggada, Rann, Gidado & Musa, 2023). Similar patterns are observed in Yobe, Taraba, and Bauchi States, where most patients present with late-stage disease, face high treatment costs, and experience poor outcomes (Audu, Elnafaty, Khalil, & Otubu, 2023). However, awareness and utilization of these preventive strategies remain low in Nigeria. Studies show that many young women, particularly students in tertiary institutions, have limited knowledge of cervical cancer, and even those with some awareness often fail to translate it into preventive practices (Abdullah & Suleiman, 2022). Thus, enhancing knowledge and awareness of cervical cancer prevention among female students is crucial. Strengthening education, promoting HPV vaccination, and improving screening uptake are essential strategies for reducing cervical cancer morbidity and mortality, particularly in resource-limited settings like Northeast Nigeria.

Cervical cancer is a leading cause of morbidity and mortality among women in Nigeria, with over 14,600 new cases and 10,000 deaths annually, despite being largely preventable. The burden is particularly high in North East, where poor record-keeping, weak health infrastructure, insecurity, and socio-cultural barriers contribute to underreporting and late presentation. Recent evidence shows alarming prevalence rates; for example, Kabir et al. (2023) reported over 6,800 new cases annually with nearly 5,000 deaths, while a screening programme in Bauchi State found that 15% of female students had precancerous lesions, 4.4% were already diagnosed with cervical cancer, and 21.1% tested positive for high-risk HPV serotypes 16 and 18. The researcher was also of the view that, the persistence of high incidence and mortality is linked to poor knowledge of cervical cancer, low uptake of preventive services, and misconceptions among young women, particularly students in tertiary institutions, who often underestimate their vulnerability. Addressing these gaps requires targeted health education interventions that can improve knowledge, shape attitudes, and promote preventive practices among this high-risk population. This study, therefore, investigated the Impact of Health Education Intervention Programme on Cervical Cancer Awareness and Prevention among Tertiary Institution students in North-East, Nigeria

Research Objective

The purpose of this study was to determined Impact of Health Education Intervention Programme on Cervical Cancer Awareness and Prevention among Tertiary Institution students in North-East, Nigeria

Research Questions

Does the health education intervention programme have a positive impact on the cervical cancer awareness and prevention among tertiary institutions students in North East Nigeria after exposure to the intervention?

Research Hypotheses

Ho: There is no significant impact of the health education intervention programme on the cervical cancer awareness and prevention among tertiary institutions students in North East Nigeria after exposure to the intervention?

Methodology

A sequential explanatory mixed methods approach was employed, in which quantitative data were collected and analysed first, followed by qualitative data to explain and elaborate on the quantitative findings. This approach provided a comprehensive, validated, and in-depth understanding of how the health education intervention programme affected female students' knowledge. The population of this study comprised all 38,828 female students of federal tertiary institutions in North East Nigeria, while the sample consisted of 180 female students, equally divided between the control and experimental groups (90 participants each). A multistage sampling technique was used to ensure representativeness and minimize bias. The process involved simple random sampling through balloting to select three states from the North East (Adamawa, Gombe, and Yobe), purposive sampling to include all available tertiary institutions in these states (federal universities, polytechnics, and colleges of education), and self-selection or volunteer sampling to enrolled 60 female students from each state, with 10 allocated to the control group and 10 to the experimental group. Two researcher-developed instruments were used for data collection. Quantitative data were collected using a closed-ended questionnaire with a five-point Likert scale, while qualitative data were obtained through focus group discussions guided by semi-structured open-

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ended questions. Both instruments were validated by five experts from the fields of health education and community medicine. The reliability of the quantitative instrument was tested using the split-half method and Pearson product-moment correlation, yielding a coefficient of 0.851, indicating strong reliability. For the qualitative data, thematic analysis was employed, and member checking was conducted, with positive feedback confirming that the analysis aligned with participants' intended meanings and experiences, thereby establishing reliability. Data collection was conducted in three phases: pre-intervention assessment, intervention sessions, and post-intervention assessment. Descriptive statistics such as frequency counts and percentages were used to present demographic information and distribution of awareness and prevention scores, while mean, median, and standard deviation were applied to summarize measures of central tendency and variability. Inferential statistics using a one-sample t-test were employed to test the formulated hypotheses at the 0.05 level of significance.

Presentation of Result

Table 1: Demographic information of Respondents

Variables			Frequency	Percentage
1.	**Age**	18-29years	56	31.1
		30-39-years	92	51.1
		40-49years	32	17.8
		Total	**180**	**100.0**
2.	**Groups**	Experimental	90	50.0
		Control	90	50.0
		Total	**180**	**100.0**
3.	**Institutions**	MAUT Yola	20	11.1
		FCE Yola	20	11.1
		FP Mubi	20	11.1
		FU Kashere	20	11.1
		FCET Gombe	20	11.1
		FP Kaltingo	20	11.1
		F U Gashuwa	20	11.1
		FCET Potiskum	20	11.1
		FP Damaturu	20	11.1
		Total	**180**	**100.0**
4.	**Types of Institutions**	Universities	60	33.3
		FCE	60	33.3
		Polytechnics	60	33.3
		Total	**180**	**100**
5.	**Students' Level**	100level	18	10.0
		200level	54	30.0
		300level	82	45.6
		400level	23	12.8
		500level	3	1.7
		Total	**180**	**100.0**

Table 1 Revealed the demographic characteristics of the participants. The table shows that majority of the participants, 92 (51.1%), were within the age range of 30–39 years, followed by 56 (31.1%) aged 18–29 years, and 32 (17.8%) aged 40–49 years. The sample was equally divided between the experimental and control groups, with 90 respondents (50.0%) in each group. Furthermore, participants were evenly selected from nine different tertiary institutions, with each institution contributing 20 respondents, representing 11.1% of the total sample. In terms of institutional type, there was an equal distribution of respondents across universities, colleges of education, and polytechnics, with each category accounting for 60 respondents (33.3%). Regarding students' academic levels, the majority were 300-level students, accounting for 82 (45.6%) of the total respondents, followed by 54 (30.0%) in 200 level, 23 (12.8%) in 400 level, 18 (10.0%) in 100 level, and 3 (1.7%) in 500 level.

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Answer to Research Question: Does the health education intervention programme have a positive impact on the cervical cancer awareness and prevention among tertiary institutions students in North East Nigeria after exposure to the intervention?

Table 2: Analysis of one sample t-test on the impact on the cervical cancer awareness and prevention among tertiary institutions students in North East Nigeria after exposure to the intervention?

S/N	Awareness and Prevention	Polytechnics		FCE		Universities	
		Mean	STD	Mean	STD	Mean	STD
1	I am aware that maintaining healthy weight by regular exercise, physical activities and healthy eating habits helps in preventing cervical cancer.	4.4000	.67466	4.2667	.52083	4.8667	.34575
2	A voiding sexual transmitted infection, such as HPV genital herpes gonorrhoea, chlamydia HIV/AIDS can help prevent cervical cancer.	4.3000	.53498	4.4333	.56832	4.8667	.34575
3	Adequate personal hygiene, avoiding frequent vaginal douching, refraining from fingering and abstaining from the use of herbs or traditional medicine in vagina can help in the prevention of cervical cancer.	4.3000	.59596	4.5000	.50855	4.9333	.25371
4	Quitting both Active and Passive smoking can prevent cervical cancer.	4.3333	.47946	4.5000	.57235	4.9667	.18257
5	I am aware that Human papilloma virus (HPV) is a significant cause of cervical cancer can help in its prevention.	4.3667	.61495	4.3667	.55605	5.0000	.00000
6	I am aware that being aware of my family's cancer history particularly any inherited predisposition to cervical cancer, is an important preventive measure against the disease	4.4000	.62146	4.3333	.60648	5.0000	.00000
7	As a female student, I understand that being aware of my risk of cervical cancer is an important aspect of disease prevention	4.3667	.61495	4.2667	.58329	5.0000	.00000
8	Knowing that Vaginal bleeding, change in menstrual cycle, pain during sex, vaginal discharges tinged with blood can be symptoms of cervical cancer that can help in early detection and prevention of the disease.	4.5000	.50855	4.3000	.53498	5.0000	.00000
9	Avoiding early exposure to sexual contact and maintaining a monogamous sexual relationship are additional measures to prevent cervical cancer	4.4667	.57135	4.4000	.56324	5.0000	.00000
10	As a female student, I understand that cervical cancer is largely preventable through various measures such as regular pap smears test, Human Papilloma Virus vaccination and maintaining healthy life style can help in preventing the disease	4.6000	.56324	4.5667	.50401	4.9667	.18257
11	Understanding reproductive factor such as the prolonged use of oral contraceptives pills and appropriate choosing of a family planning method is a prevention measure for cervical cancer.	4.5333	.57135	4.2667	.58329	5.0000	.00000
12	I am aware that Vaccination against HPV, lifestyle behaviour changes such as quitting smoking, maintaining a healthy diet, regular physical activity and practicing safe sex are coast effective ways to prevent cervical cancer.	4.5333	.50742	4.1667	.59209	5.0000	.00000

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13	I am aware that early cervical cancer presentation helps in effective treatment	4.4667	.50742	4.2667	.58329	4.9667	.18257
14	Education about cervical cancer through intervention programme can prevent cervical cancer.	4.6333	.49013	4.3000	.59596	4.9667	.18257
15	understanding various screening procedures such as pap smears, HPV-DNA testing, and Visual Inspection with acetic acid (VIA) and having accesses to them are also essential tools for cervical cancer prevention.	4.6333	.49013	4.3000	.46609	5.0000	.00000
	Aggregate Mean	4.455		4.348		4.968	

Decision Mean 3.5

Table 2 Revealed the mean, standard deviation, and aggregate mean on the effect of the health education intervention programme on the cervical cancer awareness and prevention among tertiary institutions students in North-East Nigeria. The results reveal that the aggregate mean scores were: Polytechnics: 4.455, Federal Colleges of Education: 4.348, Universities: 4.968. All the aggregate means are above the decision benchmark of 3.5, indicating a high level of knowledge acquisition following the intervention. Therefore, the findings demonstrate a significant positive effect of the health education intervention programme on the knowledge of cervical cancer prevention across all types of tertiary institutions.

Hypothesis: There is no significant impact of the health education intervention programme on the cervical cancer awareness and prevention among tertiary institutions students in North East Nigeria after exposure to the intervention?

Table 3: Analysis of one sample t-test on the effect of the Health Education Intervention programme on the knowledge of cervical cancer prevention among female students in tertiary institutions in North East Nigeria

Variables	N	Mean	Std. Deviation	Std. Error Mean	df	t-cal	Sig.
Federal Colleges of Education							
Knowledge of Cervical Cancer after the Intervention	30	19.5333	3.80320	.69437	29	23.091	.000
Decision Mean		3.5					
Federal Polytechnics							
Knowledge of Cervical Cancer after the Intervention	30	66.9000	4.62639	.84466	29	75.060	.000
Decision Mean		3.5					
Universities							
Knowledge of Cervical Cancer after the Intervention	30	74.5667	.72793	.13290	29	534.73	.000
Decision Mean		3.5					

Table 3. Revealed the results of a one-sample t-test on the impact of the health education intervention programme on cervical cancer awareness and prevention among tertiary institutions students in north east Nigeria. The findings show that the calculated t-values were 23.091 for Federal Colleges of Education, 75.060 for Federal Polytechnics, and 534.730 for universities. The corresponding p-values of .000 for all institutions are less than the alpha level of 0.05, indicating statistically significant results; therefore, the null hypothesis was rejected. Additionally, the mean scores for awareness after the intervention across all institutions were above the decision mean of 3.5, suggesting a high level of knowledge acquisition following the intervention.

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Discussions

The findings of this study indicated that the Health Education Intervention Programme (HEIP) had a significant effect on enhancing knowledge of cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. Qualitative data collected through Focus Group Discussions (FGDs) further supported these findings, as participants demonstrated improved understanding of cervical cancer prevention following the intervention. Notably, university students exhibited a deeper and more comprehensive improvement in knowledge compared to their counterparts in polytechnics and colleges of education.

Pre-Test Views of Students (FGD) on Cervical Cancer prevention Knowledge:

Before the intervention, participants expressed lack of knowledge about cervical cancer prevention, as reflected in the following statements:

"I don't have any idea about the causes of cervical cancer.", "It can be acquired through sharing clothes and utensils.", "It cannot be prevented because it is very dangerous."

Post-Test Views of Students (FGD) on Cervical Cancer Knowledge:

After the intervention, participants exhibited a better understanding of cervical cancer, recognizing key risk factors and preventive measures:

"Cervical cancer has no specific causative agent; however, human papillomavirus (HPV), smoking, lifestyle, and environmental factors are predisposing factors to the disease.", "Adopting desirable health behaviors, immunization, early diagnosis, and regular screening help in delaying the onset of the disease."

These findings clearly demonstrated that the HEIP significantly improved the knowledge of cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. This is not surprising because the finding is consistent with that of Shehta (2024) who conducted a quasi-experimental study evaluating the effectiveness of an educational intervention on cervical cancer knowledge among working women at Beni-Suef University, Egypt, and reported a significant improvement in participants' knowledge. Similarly, the findings also correlate with those of Zia et al. (2023), who assessed the impact of a health education intervention on knowledge and perceptions regarding cervical cancer screening and prevention among female students at a medical college in Rawalpindi, Pakistan. Their study revealed a substantial increase in knowledge concerning Pap smear screening and HPV vaccination post-intervention. The study's findings also align with those of Kalpana et al. (2023), who demonstrated a significant increase in cervical cancer awareness among women aged 25–65 years in a rural community in Kuppam, India, following a structured health education intervention. In the Nigerian context,

Similarly, Adeyemi et al. (2023) found that a midwife-led educational intervention positively influenced female teachers' knowledge of cervical cancer screening in selected secondary schools in Ibadan, Nigeria. Furthermore, the findings agree with Nkwonta's (2022) study, which assessed an educational intervention aimed at increasing knowledge and intention to undergo HPV vaccination and cervical cancer screening in Nigeria, demonstrating the effectiveness of structured health education programme in promoting preventive health behaviors. The study also aligns with Mohamed et al. (2023), who evaluated an educational intervention programme based on the KAP model in Cairo, Egypt, and reported a significant improvement in women's knowledge of cervical cancer prevention. Additionally, Mahmoud et al. (2022) found a statistically significant increase in the knowledge of female nursing students regarding HPV and cervical cancer screening following an educational intervention based on the Health Belief Model at Benha University, Egypt. A systematic review by Makadzange et al. (2022) further corroborates these findings, as it synthesized evidence from multiple studies across Africa, highlighting the effectiveness of educational interventions particularly those using peer health educators and culturally tailored approaches in improving cervical cancer awareness.

Conclusions

The seven-week health education intervention programme had a positive effect on the of cervical cancer awareness and prevention among female students of tertiary institutions in North East Nigeria after exposure to the programme.

Recommendations

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Tertiary institutions in north east Nigeria should incorporate cervical cancer prevention education into general health courses, student orientation programme, and extracurricular activities to ensure continuous knowledge acquisition.

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Assessment of Transformative Political Participation and Attitudinal Perspectives Among Christian Youths in Kaduna State, Nigeria

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Abstract
This study examined assessment of transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria, adopting a descriptive survey research design. From a population of 2,762,278, a sample of 931 respondents was randomly selected. The self-structured questionnaire was validated by experts in the field and tested for reliability using a pilot study, yielding a high reliability coefficient of 0.69, indicating that the instrument was both valid and dependable for data collection. The results showed that Christian youths engage in transformative politics through activities such as protests, political writing, lobbying, advocacy, debates, and signing electoral petitions. The study concludes that their participation is marked by diverse strategies, a strong sense of civic duty, and a determination to influence governance and policy directions. It recommends that the Kaduna State Government, in partnership with civil society organizations, establish comprehensive Youth Political Engagement and Civic Education programs to equip Christian youths with essential knowledge, skills, and legal awareness for effective political involvement. In addition, church denominations in Kaduna State should integrate civic responsibility and governance education into youth fellowships, seminars, and leadership training initiatives.

Keywords: Christian Youths, Transformative Political Participation, Kaduna State

Introduction
Christian youths occupy a significant demographic and sociopolitical space in Nigeria, representing both an energetic force for change and a group whose political engagement is often shaped by religious and cultural factors. In Kaduna State, where ethno-religious diversity intersects with political competition, the attitudes of Christian youths toward transformative political participation provide critical insights into the prospects for inclusive governance and democratic consolidation. Transformative political participation, in this context, refers to engagement aimed at systemic reform, equity, and the promotion of justice rather than merely partisan involvement (Olanrewaju, 2022). This approach frames political action not only as a civic responsibility but also as a moral and spiritual mandate, especially within faith communities. The influence of Christianity on political attitudes among youths in Nigeria is rooted in biblical teachings on leadership, stewardship, and social justice. Churches in Kaduna State have historically played a role in civic sensitization, peace advocacy, and voter education, often framing political participation as a means to actualize godly governance (Okafor, 2019). However, despite this theological grounding, participation rates among Christian youths in transformative political activities remain inconsistent. Factors such as fear of electoral violence, disillusionment with political elites, and socio-economic instability often deter sustained engagement (Musa, 2021). This paradox between religious motivation and political apathy demands closer scholarly scrutiny.

Kaduna State presents a unique case for studying these attitudes due to its history of ethno-religious conflict, which often spills into electoral processes. In such an environment, political engagement is frequently perceived through a lens of group identity and survival rather than national reform (Abubakar, 2020). For Christian youths, this context can shape attitudes

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toward politics in ways that either encourage defensive participation—focused on protecting communal interests—or inspire reformist action that transcends sectarian divides. Understanding these nuanced attitudes is essential for designing interventions that promote peace-oriented, inclusive political engagement. The role of social media in shaping political consciousness among Christian youths in Kaduna State cannot be overstated. Platforms such as Facebook, Twitter, and WhatsApp serve as spaces for political discourse, mobilization, and advocacy (Eze, 2018). These digital channels allow youths to bypass traditional political gatekeepers, engage in civic campaigns, and disseminate messages that align with transformative political ideals. Yet, while social media can amplify reformist narratives, it also risks deepening polarization if used to reinforce sectarian grievances. The attitudinal outcomes of such digital engagement require empirical exploration to determine whether they foster inclusive political participation or perpetuate division.

Economic realities further influence the attitudes of Christian youths toward transformative politics. High unemployment, underemployment, and economic marginalization can either stimulate activism or foster political disengagement (Yahaya, 2017). In some cases, economic hardship motivates youths to demand systemic change, while in others, it drives them toward short-term, transactional political engagement, such as vote-buying or clientelism. These competing outcomes highlight the complexity of linking economic conditions to political attitudes, especially in a context where religious values also inform decision-making. Gender dynamics also play a role in shaping these attitudes. Female Christian youths in Kaduna State face additional barriers to political participation, including cultural expectations, limited representation in political structures, and gender-based violence during elections (Ojo, 2016). Such challenges can affect how young women perceive transformative politics and their willingness to engage in it. Recognizing the intersection between gender, religion, and political participation is vital for fostering inclusive reform movements that leverage the potential of all youth demographics.

Christian Youths and Transformative Political Participation in Nigeria

Christian youths in Nigeria represent a dynamic and influential segment of the population, possessing both the numbers and the energy to influence the trajectory of the nation's democratic process. Transformative political participation refers to civic engagement that aims at structural reforms, ethical governance, and social justice, rather than mere partisan involvement (Emmanuel, 2021). For Christian youths, this form of participation is often anchored in biblical teachings on justice, stewardship, and the common good. However, while the religious foundation encourages ethical political engagement, socio-political realities frequently complicate the translation of faith into sustained reformist action. Religious institutions in Nigeria play a central role in shaping the political attitudes and behaviour of Christian youths. Churches act as centers for leadership development, civic awareness, and moral instruction, often integrating political themes into sermons, youth seminars, and community outreach programs (Adebayo, 2019). This environment fosters a value-based approach to politics that encourages transparency, accountability, and service. Yet, in some instances, excessive caution from religious leaders—rooted in fears of political reprisals or perceived moral compromise—has inadvertently contributed to political apathy among young believers. The socio-political context of Nigeria, marked by ethnic diversity, religious pluralism, and periodic electoral violence, heavily influences Christian youths' willingness to participate in transformative politics. In conflict-prone regions, political engagement is often approached with caution due to the risks of violence, intimidation, and communal division (Garba, 2018). While some youths respond to these challenges by advocating for peacebuilding and inclusive governance, others retreat from active political participation, preferring to focus on localized church activities and non-confrontational community service.

Economic factors also shape the patterns of political participation among Christian youths. Persistent unemployment, underemployment, and economic inequality have dual effects: for some, these conditions stimulate activism aimed at systemic reform; for others, they create vulnerability to political manipulation through vote-buying and patronage networks (Onyema, 2020). Transformative participation demands not only civic consciousness but also economic empowerment, as financial insecurity often limits the capacity for sustained and principled engagement. Technological advancements, particularly the proliferation of social media, have expanded the avenues through which Christian youths engage in politics. Platforms such as Twitter, Facebook, and WhatsApp facilitate grassroots mobilization, civic education, and the promotion of reformist ideals (Okon, 2022). These digital tools have enabled Christian youths to bypass traditional political gatekeepers, amplify their voices, and participate in national conversations. However, the risk of misinformation, online

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harassment, and ideological echo chambers presents challenges to ensuring that digital activism translates into constructive, real-world political change. Gender considerations further complicate the landscape of transformative political participation. Female Christian youths encounter structural and cultural barriers that limit their visibility and influence within political spaces (Balogun, 2017). Discriminatory practices, societal expectations, and gender-based violence during elections hinder their active involvement, often redirecting their engagement toward church-based advocacy and community development projects. Promoting gender equity within political participation frameworks is thus vital for maximizing the potential of all Christian youth demographics. Christian youths in Nigeria possess the moral foundation, demographic strength, and technological tools necessary for transformative political participation. However, the translation of these assets into sustainable reformist engagement requires deliberate efforts to address religious caution, socio-political instability, economic vulnerability, digital risks, and gender inequality (Udeme, 2019). By implementing faith-sensitive civic education, economic empowerment initiatives, and inclusive political structures, Nigeria can harness the transformative potential of Christian youths to advance democratic renewal and social justice.

Christian youths in Kaduna State constitute a significant portion of the population, endowed with the potential to influence democratic governance and drive societal reform. Their participation in transformative politics—defined as political engagement aimed at structural change, justice, and ethical governance—is critical in addressing entrenched challenges such as corruption, electoral malpractice, and socio-political inequality. However, despite the theological and moral imperatives within Christianity that encourage civic responsibility, evidence suggests that many Christian youths remain either politically apathetic or engaged in ways that do not foster long-term reform. This gap between potential and actual political influence raises concerns about the attitudinal factors that shape their participation in transformative political processes. The socio-political realities of Kaduna State present unique challenges that may hinder Christian youths' engagement in reform-oriented politics. The state's history of ethno-religious tensions, periodic electoral violence, and political exclusion has created an environment where participation is often perceived as risky or sectarian rather than as a platform for inclusive governance. Many Christian youths are influenced by narratives of distrust toward political structures, fear of victimization, and disillusionment with leaders who fail to deliver on promises. These factors can produce either defensive political involvement focused narrowly on protecting communal interests or outright withdrawal from formal political engagement, both of which undermine transformative change. Furthermore, socio-economic vulnerabilities, gender disparities, and the complex influence of digital media contribute to shaping Christian youths' political attitudes in Kaduna State. High unemployment and poverty may lead to transactional forms of political participation, such as vote-buying, while digital platforms—though offering opportunities for mobilization can also amplify misinformation and deepen polarization. Female Christian youths, in particular, face cultural and structural barriers that further limit their active involvement in transformative politics.

Objective of the study

The objective of this study is to assess the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria.

Research Question

What is the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria?

Hypothesis

There is no significant relationship between the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria

Methodology

The study adopted a descriptive survey research design, targeting Christian youths living in Kaduna State, Nigeria. From a total population of 2,762,278, a simple random sampling technique was applied to select 960 participants. Data were gathered through a carefully designed questionnaire, of which 931 were properly completed and returned, yielding an impressive 96.9% response rate. The instrument, developed by the researcher, underwent expert validation and a pilot reliability test, producing a reliability coefficient of 0.69, which confirmed its validity and dependability for data collection. Participants were drawn from eight local government areas in the state using a simple random selection process. The

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administration and retrieval of the questionnaires were managed by the researcher with assistance from five trained research aides. Data were processed using the Statistical Package for Social Sciences (SPSS) version 20, and responses were rated on a four-point Likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). A benchmark mean score of 2.50 served as the decision rule, with scores equal to or above this value indicating agreement, while scores below reflected disagreement. The study's hypothesis was examined using a t-test at a 0.05 significance level.

Research Question 1

What is the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria?

Table 1: Opinions of the Respondents on transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria

S/N	Items	SA	A	D	SD	Mean
1	Christian youths participate transformatively in politics by demonstrating through march protest	346	365	107	113	3.01
2	Christian youths are involved in transformative politics participation by demonstrating through boycotts protest.	366	364	114	87	3.08
3	Christian youths are taking part in transformative political participation by demonstrating through sit ins protest	386	368	103	74	3.15
4	Writing about issues and leaders is a transformative participation by Christian youths	438	346	90	57	3.25
5	Christian youths are participating in transformative politics by lobbying for the laws that are of special interest	461	343	83	44	3.31
6	Christian youths are participating in transformative politics by engaging in to actualizes their interest.	484	346	67	34	3.37
7	Christian youths are participating in transformative politics by debating on political issues or bills	502	348	63	18	3.43
8	Christian youths participate in transformative politics by signing electoral petitions	530	338	57	6	3.50
	Cumulative					3.26

Decision mean = 2.50

Table 1 shows that the mean scores for all items surpassed the benchmark value of 2.5. The means for individual items ranged from 3.01 to 3.50, indicating that respondents largely agreed with the statements provided. The overall mean score of 3.26, which is well above the set threshold, reflects respondents' strong acknowledgment of Christian Youths and Transformative Political Participation: Attitudinal Perspectives from Kaduna State, Nigeria. Consequently, the mean scores for all items were considered satisfactory and retained for subsequent analysis.

Hypothesis

Ho: There is no significant relationship between the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria.

Table 2: Summary of One Sample T-Test on transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria

Variable	N	Mean	Std.	Mean diff	Decision
Hypo[1]	931	3.1547	0.88702	3.0976	0.00

Table 2 displays the findings of the One-Sample T-Test carried out to assess transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria, based on data from 931 respondents. The analysis yielded a mean score of 3.1547 with a standard deviation of 0.88702, reflecting a moderate variability in the responses. The calculated mean difference of 3.0976 from the test value indicates a statistically significant outcome, confirming that Christian youths engage in transformative politics through protests, political writing, lobbying, advocacy,

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debates, and signing electoral petitions. Consequently, the null hypothesis, which proposed that there is no significant participation of Christian youths in transformative politics through these activities, is rejected.

Finding of The Study

The study found that Christian youths participate in transformative politics through protests, political writing, lobbying, advocacy, debates, and signing electoral petitions.

Discussion of Finding on Assessment of transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria

The primary objective of this study was to examine the transformative political participation and attitudinal perspectives among Christian Youths in Kaduna State, Nigeria. Transformative political participation, in this context, refers to deliberate and strategic engagement in political processes aimed at influencing governance, policy-making, and societal change. By focusing on the attitudes of Christian youths, the study sought to uncover the extent, forms, and motivations behind their political involvement, particularly in a socio-political environment often characterized by ethnic, religious, and ideological divisions. Understanding such perspectives is essential for appreciating the role of young Christians as agents of democratic transformation within their communities. The analysis of the data collected from respondents revealed that Christian youths actively engage in a variety of transformative political actions. These include organized protests such as marches, boycotts, and sit-ins; political writing aimed at shaping public discourse; lobbying for legislation aligned with their values; advocacy initiatives for social and political reforms; participation in debates on policy and governance issues; and signing electoral petitions to influence electoral integrity and governmental accountability. These diverse forms of engagement reflect not only political awareness but also a readiness to challenge the status quo and demand better governance. Such activities demonstrate a shift from passive political observation to active, issue-driven participation among Christian youths in Kaduna State. This finding corroborates the assertion of Eze (2018), who emphasized that politically conscious youths, particularly within faith-based communities, are increasingly adopting multifaceted strategies to bring about societal change. According to Eze, such engagement is often motivated by a combination of moral conviction, civic responsibility, and a desire to address systemic injustices. The alignment between the present study's findings and Eze's observations underscores the growing significance of youth-led political activism in shaping democratic processes in Nigeria. It also highlights the potential of Christian youths to serve as catalysts for political transformation when provided with the necessary platforms, civic education, and institutional support to sustain their advocacy efforts.

The findings of this study affirm that Christian youths in Kaduna State actively engage in transformative political participation, a result that aligns with Adebayo's (2019) assertion regarding the increasing influence of digital platforms in shaping religious and socio-political discourse. The One-Sample T-Test, conducted with responses from 931 participants, produced a mean score of 3.1547 and a standard deviation of 0.88702, indicating moderate variability in perspectives. The mean difference of 3.0976 from the test value revealed a statistically significant effect, thereby validating that Christian youths participate meaningfully in political activities such as protests, political writing, lobbying, advocacy, debates, and signing electoral petitions. The rejection of the null hypothesis underscores that such participation is not incidental but a deliberate and organized effort. This outcome reinforces Adebayo's (2019) argument that modern communication tools, particularly digital platforms, have amplified the capacity of faith-based youth groups to mobilize, advocate, and influence governance through coordinated, value-driven political engagement.

Conclusion

In conclusion, the finding of this study establishes that Christian youths in Kaduna State are active agents of transformative political participation, engaging through various strategic channels such as protests, political writing, lobbying, advocacy, debates, and signing electoral petitions. These activities demonstrate a conscious effort by young Christians to influence governance and policy outcomes, reflecting both civic responsibility and moral conviction. Their actions signify a departure from political apathy, showing a growing recognition of their role in shaping the socio-political landscape. Furthermore, the diverse forms of engagement identified in this study reveal that Christian youths do not limit themselves to conventional electoral participation but embrace a broad spectrum of political activism. By employing peaceful, issue-driven strategies, they seek to challenge systemic inefficiencies, promote social justice, and hold leaders accountable. This multidimensional approach reflects a level of political maturity and adaptability that positions them as vital stakeholders in democratic

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governance. The active involvement of Christian youths in transformative politics suggests a promising avenue for strengthening democracy in Nigeria. Their participation, rooted in both faith-based values and civic ideals, has the potential to foster inclusive governance, transparency, and sustainable political reforms. However, to maximize their impact, there is a need for continuous civic education, institutional support, and platforms that amplify their voices, ensuring that their efforts contribute meaningfully to the nation's democratic development.

Recommendations

i. The Kaduna State Government is encouraged to develop well-structured Youth Political Engagement and Civic Education initiatives in collaboration with civil society organizations, designed to equip Christian youths with the necessary knowledge, skills, and legal understanding for meaningful political participation.

ii. Church denominations across Kaduna State should embed civic responsibility and governance awareness programs within their youth fellowships, seminars, and leadership development activities.

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Effect of Health Education Intervention on Personal Protective Equipment Attitude among Health workers in Infectious Disease Hospitals in Kano State, Nigeria

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Abstract

This study examined the effect of health education intervention on attitude towards Personal Protective Equipment (PPE) use among laboratory health workers in infectious disease hospitals in Kano State. To achieve this purpose, a pre-test, post-test, experimental and control group quasi-experimental design was used. The population of the study comprised sixty-nine (69) laboratory health workers in infectious disease hospitals in Kano State, Nigeria. A sample size of 60 respondents was drawn from the population using a multi-stage sampling procedure, which includes purposive, simple random, and availability sampling. The instrument for data collection was a researcher-structured closed-ended questionnaire, which was validated by five (5) experts in the Department of Human Kinetics and Health Education and the College of Medicine, Ahmadu Bello University, Zaria. The instrument was pilot-tested using Cronbach's Alpha, and a reliability coefficient of 0.872 was obtained. Descriptive statistics of frequency and percentage were used to describe the demographic characteristics of the respondents. The research questions were answered using mean and standard deviation. Inferential statistics of paired sample t-test and independent sample t-test were used to test the stated hypotheses at a 0.05 level of significance. The result revealed that the health education intervention significantly improved attitudes (t = 17.91, p = 0.000) towards the use of PPE among laboratory health workers in infectious disease hospitals in Kano State. Additionally, there were significant differences between the experimental and control groups in attitudes (t = 15.71, p = 0.000) after the intervention. Based on the findings of the study, the study concluded that health education intervention significantly improved laboratory health workers' attitudes towards the use of PPE in infectious disease hospitals in Kano State. Workers in the experimental group outperformed those in the control group in attitude towards the use of PPE after the intervention. The study recommended that the Hospital Management Board should organise periodic attitude-reorientation workshops and prioritise attitude-focused health education programmes on PPE use, especially in facilities with poor practices, to sustain positive behavioural change and align all staff with best PPE usage behaviours.

Keyword: Health Education Intervention, Personal Protective Equipment, Attitude, Infectious Diseases

Introduction

Personal Protective Equipment (PPE) encompasses specialised clothing and devices such as gloves, masks, goggles, and respirators designed to shield healthcare workers from biological, chemical, and physical hazards inherent in laboratory environments. In infectious disease hospitals, where exposure to high-risk pathogens is routine, PPE constitutes the primary barrier between the laboratory worker and potentially life-threatening agents. Beyond its technical function, PPE also carries symbolic weight: its correct and consistent use signals a commitment to safety culture, professional responsibility, and respect for one's own and one's colleagues' well-being (Ibrahim et al., 2022). Globally, the World Health Organization [WHO] underscores that while availability of PPE is foundational, the attitudes of healthcare workers toward donning and doffing protocols critically determine actual compliance (WHO, 2020). During outbreaks of diseases such as COVID-19 and Ebola, even well-resourced facilities have encountered resistance rooted not in supply shortages but in perceptions that PPE is cumbersome or unnecessary when one has "seen it all before" (Verbeek et al., 2020). Attitudinal barriers ranging

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from underestimating one's risk to viewing PPE as an impediment to efficient workflow have repeatedly undermined infection control efforts, demonstrating that material provision alone is insufficient without addressing the beliefs and motivations that shape behaviour. In high-income settings, systematic reviews reveal that negative attitudes toward PPE often stem from discomfort, perceived interference with patient communication, and previous experiences with poorly fitting or low-quality equipment (Gould et al., 2017). Even where institutional policies mandate strict PPE use, frontline workers may circumvent guidelines if they believe the risk is low or if wearing full gear compromises manual dexterity. These findings highlight the necessity of interventions that go beyond didactic instruction to target the affective and normative dimensions of behaviour, namely, how workers feel about PPE and how they perceive their peers' expectations (Verbeek et al., 2020).

In many African healthcare settings, entrenched systemic challenges such as intermittent supply chains and resource constraints compound attitudinal issues (Alshammari et al., 2018). When PPE is scarce, workers may come to view it as an expendable "luxury" rather than an indispensable safeguard, reinforcing the notion that strict adherence is only expected under emergency conditions. Cultural factors, including a fatalistic view of disease and deference to hierarchical decision-makers, can further diminish personal agency in insisting on full protective measures. Conversely, in contexts where leadership models and peer champions visibly prioritise PPE, positive attitudinal shifts have emerged, underscoring the role of social influence in shaping safety culture (Muhammed et al., 2025). Within Nigeria, surveys conducted across tertiary and secondary healthcare facilities indicate widespread ambivalence toward PPE use among laboratory health workers (Adeloye et al., 2017). Commonly cited reasons include the belief that routine tasks pose minimal threat, discomfort during prolonged wear, and a sense of overconfidence in one's technical skill to avoid contamination without full protective gear. Such attitudes often lead to selective compliance, donning gloves for high-risk procedures but forgoing masks or gowns when risk is perceived as low, thereby undermining comprehensive infection prevention strategies (Adeloye et al., 2017; Amin et al., 2024). Kano State, Nigeria's most populous region, has borne the brunt of recurrent outbreaks such as Lassa fever and bacterial meningitis, placing laboratory personnel at heightened risk (Nigeria Centre for Disease Control [NCDC], 2021). Yet, few studies have probed the attitudinal underpinnings of PPE non-compliance in the state's infectious disease hospitals. Preliminary observations suggest that when laboratory workers view PPE donning and doffing as cumbersome or question its efficacy, particularly in resource-strained settings where equipment quality is variable, their commitment to consistent use wanes, elevating the risk of nosocomial transmission and occupational illness (Akagbo et al., 2017). Given the centrality of attitude in determining PPE adherence, health education interventions tailored to reshape beliefs and motivations hold significant promise. By employing strategies such as role modelling by senior staff, peer-led discussions, and experiential learning that emphasises both the personal and collective benefits of PPE, interventions can foster more favourable attitudes and, in turn, more reliable use of protective equipment (Arlinghaus & Johnston, 2017). It is against this backdrop that the present study seeks to evaluate the effect of a targeted health education intervention on attitudes toward PPE use among laboratory health workers in infectious disease hospitals in Kano State.

Objectives of the study

1. The effect of health education intervention on attitude towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State after the intervention.
2. The difference between experimental and control groups after health education intervention on attitude towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State

Research Questions

1. What is the effect of health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State after the intervention?
2. What is the difference between the experimental and control groups after health education intervention on attitude towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State?

Hypotheses

1. What is the effect of health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State after the intervention?

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2. What is the difference between the experimental and control groups after health education intervention on attitude towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State?

Methodology

This study adopted a quasi-experimental pre-test/post-test design to evaluate the effect of a health education intervention on laboratory health workers' attitudes towards the use of personal protective equipment (PPE). Participants were assigned by simple random draw at the hospital level into an experimental group, which received the intervention, and a control group, which received no intervention. Both groups completed the same attitude assessment immediately before (T1) and after (T2) the six-week intervention period, allowing for within- and between-group comparisons of attitude change. The research was conducted in the only two infectious disease hospitals in Kano State: Yargawa Isolation Centre, Dawakin-Kudu and Infectious Disease Hospital, Fagge. The total population comprised all laboratory health workers at these facilities, 32 at Yargawa and 37 at Fagge. These laboratory health workers include Medical Laboratory Scientists, Laboratory Technicians, and Laboratory Assistants. A total of 60 participants (30 per hospital) were selected in line with established guidelines that recommend at least 30 subjects per experimental condition for adequate power. First, purposive sampling identified the two hospitals for relevance to infectious disease laboratory services. Next, simple random sampling via paper draw assigned one hospital to the experimental arm and the other to the control arm. Finally, availability (convenience) sampling recruited 30 consenting laboratory staff from each hospital who met the inclusion criteria (minimum six months' employment, direct engagement in laboratory work and PPE use). Data were gathered using a researcher-developed 15-item questionnaire specifically measuring attitudes towards PPE use. Items were rated on a four-point Likert scale (Strongly Agree = 4 to Strongly Disagree = 1). Mean scores ≥ 2.50 indicated a positive attitude, while scores < 2.50 indicated a negative attitude. The questionnaire focused solely on dimensions of willingness, perceived importance, and confidence in PPE use, excluding knowledge- or practice-based items. To ensure face and content validity, five experts in health education and medical laboratory science from Ahmadu Bello University reviewed the questionnaire; their feedback was incorporated into the final draft. A pilot test involving 30 laboratory workers at Aminu Kano Teaching Hospital (outside the study sites) produced a Cronbach's alpha of 0.872, demonstrating high internal consistency for the attitude scale. The six-week intervention comprised weekly one-hour sessions every Saturday at the experimental hospital. The curriculum delivered through lectures, group discussions, role-plays, and testimonials addressed (a) the importance of PPE in protecting against infectious agents, (b) personal and systemic barriers to consistent PPE use, (c) strategies to foster positive attitudes and peer support for PPE compliance, and (d) mechanisms for sustaining attitude change. Activities emphasised reflecting on personal beliefs, sharing experiences, and committing to consistent PPE use. After obtaining institutional approvals and informed consent, the pre-test attitude questionnaire was administered to both groups. The experimental group then participated in the intervention as outlined, while the control group continued routine duties. One week after the final session, both groups completed the post-test. Data were entered into Statistical Package for Social Sciences version 30 and analysed using means and standard deviations to describe attitude scores, and paired-sample t-tests to assess within-group change. An independent-sample t-test compared post-test attitudes between groups, with significance set at $p \leq 0.05$.

Presentation of Results

Research Question 1

What is the effect of health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State after the intervention?

Table 1: Mean Scores of Responses on the Effect of Health Education Intervention Programme on Attitude towards the Use of Personal Protective Equipment among Laboratory Health Workers in Infectious Diseases Hospitals in Kano State

Attitude towards the Use of PPE	N	Mean	Std. Dev.	Mean Difference
Pretest	30	3.01	0.72	
				0.72
Post-test	30	3.73	0.75	

(Decision Mean = 2.50)

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Table 1 revealed the mean scores of responses on the health education intervention programme regarding attitude towards the use of personal protective equipment (PPE) among laboratory health workers in infectious disease hospitals in Kano State after the intervention. The results showed that the pretest mean score for participants' attitude toward PPE use was 3.01, while the post-test mean score increased to 3.73. This reflected a mean difference of 0.72, indicating a positive shift in attitude following the intervention. Given that the decision mean was 2.50, both the pretest and post-test scores were above this threshold, confirming that even before the intervention, laboratory health workers had some positive attitude toward the use of PPE. However, the significant increase in the post-test mean further confirmed that the health education intervention had a notable effect in strengthening their attitude toward PPE usage. This improvement implied that the intervention was effective in reinforcing the importance of PPE in preventing exposure to infectious agents, likely by enhancing awareness, correcting misconceptions, and motivating safer workplace behaviour.

Research Question 2

What is the difference between experimental and control groups after health education intervention on attitude towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State?

Table 2: Mean difference between Control and Experimental Groups after Health Education Intervention on Attitude towards the Use of Personal Protective Equipment among Laboratory Health Workers in Infectious Diseases Hospitals in Kano State

Attitude towards the Use of PPE	N	Mean	Std. Dev.	Mean Difference
Control	30	3.12	0.76	
				0.61
Experimental	30	3.73	0.75	

(Decision Mean = 2.50)

Table 2 revealed the post-intervention comparison of the attitude towards the use of personal protective equipment (PPE) between the control and experimental groups of laboratory health workers in infectious disease hospitals in Kano State. The control group, which did not receive the health education intervention, had a mean attitude score of 3.12. In contrast, the experimental group, which underwent the health education intervention, recorded a higher mean attitude score of 3.73. The mean difference between the two groups was 0.61. This positive mean difference indicated that the experimental group demonstrated a more favourable attitude towards the use of PPE compared to the control group after the intervention. Notably, both groups scored above the decision mean benchmark of 2.50, affirming a generally positive attitude; however, the experimental group's higher mean confirmed that the health education intervention was effective in enhancing this attitude.

Hypothesis 1

Effect of health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State is not significant after the intervention.

Table 3: Paired Sample t-test representation of Pretest and Post-test of Attitude towards the Use of Personal Protective Equipment among Laboratory Health Workers in Infectious Diseases Hospitals in Kano State

Attitude towards the Use of PPE	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Pretest	30	3.01	0.72				
				0.72	29	17.91	0.000
Post-test	30	3.73	0.75				

t (30) = 17.91, p-value = 0.000

The result of the paired-sample t-test statistics in Table 3 revealed that the effect of the health education intervention on attitudes towards the use of personal protective equipment (PPE) among laboratory health workers in infectious disease hospitals in Kano State was significant after the intervention. This was because the calculated p-value of 0.000 was less than the 0.05 level of significance, and the calculated t-value of 17.91 was higher than the critical t-value of 1.972 at 29 degrees of freedom (df). Additionally, the mean score obtained for the pretest was 3.01, while the post-test mean score was 3.73, resulting in a significant mean difference of 0.72. Therefore, the hypothesis which stated that the effect of health education intervention on attitudes towards the use of PPE among laboratory health workers in infectious disease hospitals in Kano State was not significant after the intervention was rejected. This meant that the health education intervention

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significantly improved attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State.

Hypothesis 2

There is no significant difference between experimental and control groups after health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State.

Table 4: Independent t-test Statistics on the Difference between Experimental and Control Groups after Health Education Intervention on Attitude towards the Use of Personal Protective Equipment among Laboratory Health Workers in Infectious Diseases Hospitals in Kano State

Attitude toward the Use of PPE	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Control	30	3.12	0.76				
				0.61	58	15.71	0.000
Experimental	30	3.73	0.75				

t (60) = 15.71, p-value = 0.000

Table 4 revealed the results of an independent t-test conducted to determine whether there was a significant difference in the attitudes toward the use of personal protective equipment (PPE) between the experimental and control groups of laboratory health workers in infectious disease hospitals in Kano State after the health education intervention. The table showed that the experimental group (N = 30) had a higher mean attitude score (M = 3.73) compared to the control group (M = 3.12), resulting in a mean difference of 0.61. The calculated t-value was 15.71 with 58 degrees of freedom, and the associated p-value was 0.000, which was less than the 0.05 level of significance. This statistically significant p-value indicated that there was a significant difference in attitude between the two groups following the intervention. Therefore, the hypothesis which stated that there was no significant difference between the experimental and control groups after the health education intervention on attitudes towards the use of PPE was rejected. This implied that the health education intervention had a positive and significant impact on improving the attitudes of laboratory health workers in the experimental group towards the use of PPE compared to those in the control group.

Discussion of Findings

Hypothesis one revealed that the effect of health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State is significant after the intervention (t = 17.91, p = 0.000). This finding is strongly supported by Farotimi et al. (2018), who examined the effectiveness of a training programme on the attitude and practice of infection control measures among nurses in two teaching hospitals in Ogun State, Nigeria. The study reported that a structured training programme significantly improved the attitude toward infection control among nurses in tertiary hospitals in Ogun State, Nigeria. Their study showed a marked increase in the proportion of nurses with positive attitudes in the experimental group post-intervention (69%) compared to the control group (46.7%), with a statistically significant difference (p = 0.03). Similarly, Ekundayo et al. (2018), in their quasi-experimental study among hospital orderlies in Ogun State, observed that educational intervention resulted in a substantial increase in attitude scores immediately and three months post-intervention. This provides support that health education interventions have a sustained effect on attitudinal change towards protective health behaviours. Additionally, Mehta and Diwakar (2021) found a significant improvement in the attitudes of laboratory technicians regarding universal precautions after an educational intervention, emphasising the effectiveness of targeted training in shaping safety-conscious attitudes among health personnel. Alinejad et al. (2023) also found significant positive changes in several attitude-related constructs of the Health Belief Model (such as perceived severity and benefits) following an educational programme, confirming the pivotal role of structured health education in fostering compliance with standard precautions, including PPE use.

Hypothesis two revealed that there is a significant difference between experimental and control groups after health education intervention on attitudes towards the use of personal protective equipment among laboratory health workers in infectious disease hospitals in Kano State (t = 15.71, p = 0.000). The finding is strongly supported and corroborated by several previous empirical studies, such as Ekundayo et al. (2018), who conducted a quasi-experimental study that evaluated the effect of educational intervention on attitude towards HIV/AIDS among hospital orderlies. The results showed a significant improvement in attitudinal scores immediately and three months post-intervention in the experimental

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group. The finding thus aligns with the current study by validating the positive effect of education on health workers' attitudes towards preventive measures such as PPE use. Similarly, Farotimi et al. (2018) found that training significantly improved the attitude toward infection control among nurses in a controlled experimental design. Their results ($p = 0.03$ for attitude) mirror the current finding, thereby reinforcing the consensus that targeted educational interventions effectively foster positive behavioural change toward PPE usage. Moreover, Mehta and Diwakar (2021) examined the impact of educational intervention among laboratory technicians in India and reported a statistically significant improvement in attitudes post-training. The findings also align with Alinejad et al. (2023), who used a health belief model in their educational intervention and observed significant improvements in perceived benefits, cues to action, and behavioural performance among nurses. This further validates the assertion that structured health education can reshape attitudes towards PPE. These studies collectively validate the effectiveness of educational strategies in modifying health workers' attitudes and enhancing workplace safety protocols.

Conclusions

Based on the findings of the study, the study concluded that the health education intervention significantly improved the attitudes of laboratory health workers toward the use of personal protective equipment (PPE) in infectious disease hospitals in Kano State. Specifically, laboratory health workers who participated in the intervention (the experimental group) demonstrated more positive attitudes toward PPE use compared to those in the control group who did not receive the intervention.

Recommendations

Based on the conclusion, the study recommended the following:

1. The Hospital Management Board should organise periodic attitude-reorientation workshops on PPE use to sustain positive behavioural changes among laboratory staff.
2. The Hospital Management Board should prioritise attitude-focused health education programmes in facilities where control group practices are prevalent to align all staff with best PPE usage behaviours.

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Comparative Analysis of Career Interest, Work-Life Balance, Professional Development and Job Performance among Technical Education Lecturers in Universities in Southwest, Nigeria

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Abstract
This study investigated the comparative analysis of career interest, work-life balance, professional development, and job performance among technical education lecturers in universities in Southwest Nigeria. Four objectives and four research questions guided the study. A correlational research design was adopted, and the entire population of 64 technical education lecturers participated in the study. Data were collected using two structured questionnaires: the Career Interest and Work-life Balance Questionnaire (CAWQ) and the Lecturers Professional Development and Job Performance Questionnaire (LPJQ). The instruments, which measured career interest, work-life balance, professional development, and job performance, were validated by experts and yielded test-retest reliability coefficients of 0.83 and 0.87 for CAWQ and LPJQ, respectively. Data were analyzed using Pearson Product-Moment Correlation. The findings revealed a moderate positive significant relationship between career interest and professional development ($r = .575$, $p < .05$), as well as between career interest and job performance ($r = .557$, $p < .05$). Conversely, work-life balance had a weak but significant positive relationship with professional development ($r = .392$, $p < .05$) and job performance ($r = .295$, $p < .05$). These results indicate that career interest exerts a stronger influence on lecturers' professional development and job performance than work-life balance. The study concluded that lecturers with higher career interest are more likely to engage in professional development activities and perform better in their roles. It was recommended that universities prioritize career interest during lecturer recruitment, reduce excessive workloads to support development opportunities, and expand funding access for professional growth initiatives.

Keyword: Career interest, Work-life balance, Professional development, Job performance, Technical education lecturers

Introduction
Education is universally recognized as an instrument for the acquisition of knowledge, skills, values, and attitudes necessary for individual and societal development. It plays a crucial role in shaping the socio-economic and cultural advancement of nations. Developed countries have prioritized education as a foundation for technological advancement, productivity, and global competitiveness (Glowacki et al., 2016). To achieve similar progress, nations like Nigeria have adopted vocational and technical education (VTE) programmes, which are designed to equip learners with practical skills, problem-solving abilities, and entrepreneurial competencies required for self-reliance and economic survival. Within VTE, technical education occupies a strategic position because it prepares individuals for careers in fields such as automobile technology, electrical/electronic technology, building construction, metalwork, and woodwork. These programmes emphasize hands-on training, innovation, and critical thinking, ensuring graduates are not only employable but also capable of contributing to industrial and national development (Odo et al., 2017). However, the quality of technical education largely depends on the competence, dedication, and professional development of lecturers who serve as facilitators of knowledge and skill acquisition. Lecturers, particularly in technical disciplines, are central to the transmission of knowledge and skills. They are responsible for teaching theoretical and practical aspects of their specialization. They also mentor students, conduct research, and required to stay updated with evolving industry standards in order to remain relevant (Kaur et al., 2019; Jaafar, 2023). Their job performance, which reflects their ability to design instruction, manage learning environments, motivate students, and provide constructive feedback, directly influences student achievement (Benítez et al., 2017). A decline in lecturers' effectiveness often results in poor student outcomes, reduced employability, and weakened national productivity. Therefore, sustained professional development is necessary for lecturers to improve competence, adopt innovative teaching methods, and adapt to global labour market trends (Darling-Hammond et al., 2017;

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Bromley, 2019). However, lecturers' ability to engage meaningfully in professional development and sustain high job performance is influenced by multiple factors which includes career interest and work-life balance.

Career interest refers to an individual's intrinsic passion, motivation, and preference for a chosen field or occupation (Sung et al., 2017). When lecturers' career choices align with their personal interests and abilities, they tend to demonstrate higher commitment, engagement, and job satisfaction. Conversely, when career interest is weak, lecturers may exhibit low motivation, minimal involvement in professional development, and poor teaching performance (Kelchtermans, 2017; Liu et al., 2021). In Nigeria, the problem of lecturer attrition has been linked to the lack of genuine interest in teaching, leading to ineffective classroom delivery and disengagement (Umar & Abdullahi, 2023). Thus, career interest has a role to play in determining lecturers' professional growth and effectiveness. While career interest can influence the level of commitment and motivation lecturers bring into their work, work-life balance can further shape how effectively they can sustain this interest and turn it into regular capacity building and good work performance. Work-life balance represents the stability between professional responsibilities and personal life demands (Kossek et al., 2014). For lecturers, this balance is important because they often face high workloads, administrative duties, and research expectations alongside family and social obligations. When work-life balance is achieved, lecturers are more likely to be motivated, mentally healthy, and productive, which enhances their capacity to engage in professional development and deliver quality teaching (Haar et al., 2014). Conversely, poor work-life balance due to stress, inadequate institutional support, or excessive workloads can result in burnout, dissatisfaction, and diminished job performance. In Nigeria's university system, where resources are strained and lecturers often face large class sizes and limited institutional support, maintaining work-life balance remains a pressing challenge. Lecturer's work-life balance can also determine the extent to which they actively participate in professional development activities.

Professional development refers to continuous learning and growth activities that enhance lecturers' knowledge, teaching skills, and pedagogical practices (Abdulrab, 2023). It encompasses workshops, seminars, research, collaborations, and experiential learning designed to improve competence. For technical education lecturers, professional development is vital in keeping pace with innovations in technology and industrial practice. Without consistent development, lecturers may be delivering outdated content, which may compromise students' preparedness for the labour market. The quality of lecturers' professional development can also reflect in their job performance. This is because continuous learning will enhance their ability to teach effectively, conduct research, and contribute meaningfully to institutional goals. Job performance in the educational context is the degree to which lecturers effectively execute their teaching, research, and service responsibilities in line with institutional goals (Wijayanto & Riani, 2021). High job performance is related to student achievement, graduate employability, and institutional reputation. A decline in performance may limit student skills acquisition and worsen graduate unemployment in Nigeria. In Nigeria, despite the expansion of technical education, the country continues to grapple with graduate unemployment, skills mismatch, and widespread poverty (National Bureau of Statistics, 2023). Many graduates lack the competencies demanded by industries, partly due to ineffective teaching and inadequate training. This raises questions about the factors influencing lecturers' effectiveness and professional development. Evidence suggests that weak career interest and poor work-life balance may hinder lecturers' capacity to engage in lifelong learning and deliver quality instruction (OECD, 2018; O'Riordan, 2021).

Furthermore, lecturers in Nigerian universities often face systemic challenges such as poor remuneration, heavy teaching loads, which contribute to job dissatisfaction. These issues necessitate the need to examine how factors like career interest and work-life balance shape lecturers' professional development and job performance. Therefore, this study filled this gap by investigating how career interest and work-life balance influence the professional development and job performance of technical education lecturers in universities in Southwest Nigeria.

Objectives of the study

The main objective of this study was to investigate technical education lecturers' career interest and work-life balance in relation to their professional development and job performance in universities in southwest Nigeria. Specifically, the study investigated the:

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1. relationship between career interest and professional development of technical education lecturers in universities in southwest Nigeria.
2. relationship between work-life balance and professional development of technical education lecturers in universities in southwest Nigeria.
3. relationship between career interest and job performance of woodwork lecturers in universities in southwest Nigeria.
4. relationship between work-life balance and job performance of woodwork lecturers in universities in southwest Nigeria.

Research Questions

1. What is the relationship between career interest and the professional development of technical education lecturers in universities in Southwest Nigeria?
2. What is the relationship between work-life balance and the professional development of technical education lecturers in universities in Southwest Nigeria?
3. What is the relationship between career interest and the job performance of technical education lecturers in universities in Southwest Nigeria?
4. What is the relationship between work-life balance and the job performance of technical education lecturers in universities in Southwest Nigeria?

Methodology

A correlational research design was adopted to examine the relationships among career interest, work-life balance, professional development, and job performance of technical education lecturers in universities in Southwest Nigeria. The population for this study comprised of all the sixty-four (64) technical education lecturers from universities in Southwest Nigeria. All the 64 lecturers participated in the study since the population size was small and manageable. The instrument used for data collection consisted of two questionnaires titled "Career Interest and Work-life Balance Questionnaire (CAWQ), and Lecturers Professional Development and Job Performance Questionnaire (LPJQ). The questionnaire comprised three sections. The first section (Section A) of the questionnaire solicited for the demographic information of each participant in the study. The second section (section B) was divided into four (2) sections which comprises 23 items with statements that measured the career interest and work-life balance. Career interest was measured with a questionnaire that consists of fifteen (15) items. The items on the questionnaire were rated on five-point scale of 1 (strongly disagree) to 5 (strongly agree). Work life balance was measured with Work life balance Scale adopted from Mathews et al. (2021). The Work life balance Scale consisted of eight (8) items that measured the level at which the lecturers' rate how the work is balanced with their lives. The work life balance scale was rated on a five-point scale, from 1 (Very satisfied) to 5 (Very Dissatisfied). Third section (section C) consisted of thirty-three (33) items that measured professional development and job performance. Professional development scale, adapted from Van-Offenbeek (2001), consisted of nine (9) items, it was subdivided into two portion which are information acquisition and feedback asking behavior. Information acquisition consisted of five (5) items, while feedback asking behavior consisted of four (4) items. The participants indicated their responses regarding their participation in professional development activities on a 5-point likert scale ranging from 1 (Never) to 5 (Always). Job Performance of lecturers was measured using adapted job performance response scale developed by Edith (2019). The scale comprised of twenty-four (24) items, and was used to measure the three aspects of job performance among lecturers such as, teaching with twelve (12) items, research with five (5) items and community service with seven (7) items. The scale was rated on a five-point likert scale ranging from (1) Strongly disagree, (2) Disagree, (3) (Somewhat Agree, (4) Agree (5) Strongly Agree. Higher scores indicated high level of job-performance among technical education lecturers while lower scores either indicate moderate or low-level job-performance. The instrument was face-validated by three experts. The reliability of the instrument was established through the test-retest method. The analysis of the two administrations yielded reliability coefficients of 0.83 and 0.87 for CAWQ and LPJQ, respectively. Data were collected with the help of two research assistants. Pearson Product-Moment Correlation (PPMC) was used for data analysis. Correlation strength was interpreted based on the following scale: 0.01–0.20 = Very weak, 0.21–0.40 = Weak, 0.41–0.60 = Moderate, 0.61–0.80 = Strong, 0.81–0.99 = Very strong, and 0 or 1 = No correlation or perfect correlation.

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Presentation of Results

Research Question 1

What is the relationship between career interest and the professional development of technical education lecturers in universities in Southwest Nigeria?

Table 1: Relationship between career interest and the professional development of technical education lecturers

Variables	Mean	SD	1	2
1. **Career interest**	**3.86**	**0.63**	**1**	
2. **Professional development**	**3.74**	**0.70**	**.575***	**1**

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

The result in Table 1 shows a correlation coefficient of 0.575 between career interest (Mean = 3.86, SD = 0.63) and professional development (Mean = 3.74, SD = 0.70) of technical education lecturers in universities in Southwest Nigeria. This relationship is moderate and positive, and this indicates that lecturers with higher levels of career interest are more likely to engage in professional development activities. The significance of the correlation ($p < 0.05$) further suggests that the relationship is not due to chance.

Research Question 2

What is the relationship between work-life balance and the professional development of technical education lecturers in universities in Southwest Nigeria?

Table 2: Relationship between work-life balance and the professional development of technical education lecturers

Variables	Mean	SD	1	2
1. **Work-life balance**	**3.67**	**0.91**	**1**	
2. **Professional development**	**3.74**	**0.70**	**.392***	**1**

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

Table 2 reveals a correlation between work-life balance (Mean = 3.67, SD = 0.91) and professional development (Mean = 3.74, SD = 0.70) is 0.392, which is statistically significant ($p < 0.05$). Following the correlation scale, this represents a weak positive relationship, which suggests that lecturers with a better work-life balance tend to participate more in professional development, though the strength of the association is not strong. This means that work-life balance plays a limited role in influencing professional development.

Research Question 3

What is the relationship between career interest and the job performance of technical education lecturers in universities in Southwest Nigeria?

Table 3: Relationship between career interest and the job performance of technical education lecturers

Variables	Mean	SD	1	2
1. **Career interest**	**3.86**	**0.63**	**1**	
2. **Job performance**	**4.02**	**0.62**	**.557***	**1**

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

The result in Table 3 indicates a correlation coefficient of .557 between career interest (Mean = 3.86, SD = 0.63) and job performance (Mean = 4.02, SD = 0.62) of technical education lecturers. This shows a moderate positive relationship, indicating that lecturers with higher career interest tend to exhibit better job performance. The relationship between the two variables is statistically significant ($p < 0.05$).

Research Question 4

What is the relationship between work-life balance and the job performance of technical education lecturers in universities in Southwest Nigeria?

Table 4: Relationship between work-life balance and the job performance of technical education lecturers

Variables	Mean	SD	1	2
1. **Work-life balance**	**3.67**	**0.91**	**1**	
2. **Job performance**	**4.02**	**0.62**	**.295***	**1**

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

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Table 4 shows a correlation coefficient of .295 between work-life balance (Mean = 3.67, SD = 0.91) and job performance (Mean = 4.02, SD = 0.62). This indicates a weak positive relationship, meaning that lecturers with better work-life balance may perform better in their jobs, even though the strength of this association is not strong. Although the relationship between the two variables is weak, it is statistically significant ($p < 0.05$).

Findings of the Study

1. There is a moderate positive significant relationship between career interest and professional development of technical education lecturers. This means lecturers who show more interest in their careers are more likely to take part in professional development.
2. There is a weak positive significant relationship between work-life balance and professional development of technical education lecturers. This means that lecturers with better work-life balance are a little more likely to engage in professional development.
3. There is a moderate positive significant relationship between career interest and job performance of technical education lecturers. This means lecturers with greater career interest tend to perform better in their jobs.
4. There is a weak positive relationship between work-life balance and job performance of technical education lecturers. This indicates that lecturers with better work-life balance may perform better, although the association is not strong.

Discussion of Findings

The findings of this study revealed a moderate positive and significant relationship between career interest and the professional development of technical education lecturers in universities in Southwest Nigeria. This finding implies that lecturers with higher career interest are more likely to pursue professional development activities. This aligns with Sung et al. (2017) who noted that individuals with strong career interests are more committed to learning and skills development, as such interest motivates them to continually update their knowledge. Similarly, Liu et al. (2021) found that when educators' career paths match their interests and intrinsic motivations, they are more likely to engage in training, workshops, and lifelong learning activities. Also, Kelchtermans (2017) observed that lecturers who lack genuine career interest often avoid professional development activities. Furthermore, the moderate correlation suggests that career interest may not alone guarantee sustained professional development and top job performance, possibly due to external or systemic constraints (Darling-Hammond et al., 2017). The study also found a weak positive but significant relationship between work-life balance and professional development. This suggests that while lecturers who maintain a good balance between professional responsibilities and personal life are likely to be more inclined to engage in professional development, the influence is not strong. This finding is in line with Haar et al. (2014), who noted that a balanced work and personal life promotes mental health and productivity, which may encourage participation in developmental activities. However, the weak strength of correlation found in this study implies that, although important, work-life balance might be less influential than career interest in lecturers' professional engagement and effectiveness. In support of this, O'Riordan (2021) noted that in higher education contexts with limited resources and heavy workloads such as Nigeria, even lecturers with a stable personal life may still struggle to pursue consistent professional development due to systemic constraints.

The study further established a moderate positive significant relationship between career interest and job performance. This means that lecturers who demonstrate strong career interest are more likely to perform effectively in their teaching, research, and community service roles. This finding corroborates Benítez et al. (2017), who noted that teachers' passion and intrinsic motivation influence classroom performance. Similarly, Darling-Hammond et al. (2017) emphasized that teachers with genuine interest in their profession show greater persistence, creativity, and effectiveness in their work. Umar and Abdullahi (2023) also linked lecturer attrition in Nigeria to a lack of career interest, which negatively affects classroom delivery. The study also found a weak but significant positive relationship between work-life balance and job performance. This means that lecturers with better work-life balance may perform better, though the relationship is not strong. This finding resonates with Haar et al. (2014), who observed that employees with good work-life balance experience reduced stress and increased productivity. Wijayanto and Riani (2021) also noted that performance in education depends not only on professional skills but also on personal well-being, which is shaped by the ability to balance work and family roles. However, the weak relationship suggests that, in the Nigerian context, lecturers' job performance may be influenced by more factors other than by work-life balance alone.

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Conclusion

This research explored how career interest and work-life balance influence the professional development and job performance of technical education lecturers. The findings revealed that career interest plays a more substantial role than work-life balance in shaping both professional development and job performance. Specifically, lecturers with higher career interest demonstrated greater engagement in professional development activities and better job performance. This emphasize the importance of intrinsic motivation and passion for sustained effectiveness in teaching and research. Lecturers who are inherently interested in their work are self-propelled to engage in continuous learning and to perform their duties with greater commitment and quality. Conversely, the relationships between work-life balance and the outcome variables, though statistically significant, were consistently weak. This does not mean work-life balance is irrelevant. Rather, it suggests that other factors may limit its overall impact.

Recommendations

1. During recruitment exercise for lecturers, assessments and interview questions designed to gauge genuine career interest in technical education and teaching should be prioritized.
2. Excessive workload should be alleviated to create the necessary space for lecturers to engage in professional development and achieve better work-life balance.
3. Access to funding for research and professional growth should be increased to motivate lecturers to continually improve their knowledge and skills.

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Impact of Male Child Preference Syndrome on Christian Couples In Kaduna State, Nigeria

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Abstract

The study sets out to examine the Impact of Male Child Preference Syndrome on Christian Couples in Kaduna State, Nigeria. The rampant causes of male child preference in Kaduna State prompted the researcher to conduct this study. One objective was formulated; to examine the impact of male child preference syndrome on young Christian Couples in Kaduna state. The researcher adopted descriptive survey design. Out of a total population of I,351,881 in the state, a purposive sample of 675 respondents was selected to participate. The reliability coefficient obtained in the pilot study is 0.961, indicating that the instrument is reliable for the study. Data were collected through a structured questionnaire and analyzed using descriptive statistic. A total of 624 respondents was used for this study. The result showed that female children and their mothers often endure significant hardships that impact their health, life opportunities, and overall sense of well-being. These challenges are primarily fueled by cultural norms and traditions that prioritise males over females, leading to discrimination and neglect of females. The researcher recommends that; Husbands should promote fairness and equality in their families, appreciate that both male and female children hold equal value and play vital roles in nurturing the family's spiritual and emotional health. Husbands should challenge any cultural biases that favour males over females, as these beliefs sometimes cause emotional pain and strain in marriage. Wives should stand confidently in their worth, no matter the child's gender; they should resist societal pressures that prioritise having a male and seek support when needed from their faith, community or counselling services to help them navigate these challenges without losing their dignity

Keywords: Male child, preference, syndrome, Christian couples

Introduction

The traditional beliefs and practices of every marriage are based on the expectation that couples should have children after marriage, to fulfil social and parental responsibilities to a future generation that will care for them in their old age. It also serves as proof of the fertility of both partners. There has always been a strong preference for male children over females, mainly due to the emphasis on preserving lineage. The male child holds a prominent position within the household, particularly in traditional agrarian settings. He is valued both as a protector of the community against external threats and as a labourer contributing to the expansion of farms for greater productivity. In some cultures, there is a norm where males are regarded as more socially and economically valuable than females. In Adara land, especially within the Apreh community, there has always been a strong bias among young couples to prefer sons over daughters, or to desire more males than females. Many cultures worldwide, not just in Africa, tend to favour male children over females. Historically, even royalty has gone as far as divorcing some of their wives for failing to produce a male heir. For instance, in 506 BC, King Anaxandridas of Sparta ended his marriage because his wife did not bear him a son. Similarly, in England, King Henry's urgent need for a male heir significantly influenced historical events. When the Pope refused to annul his marriage to Catherine a move that would have allowed him to marry Ann Boleyn, whom he believed could provide a son Henry, driven by the politics of royal succession rather than theological disputes, declared himself the head of the Church in England, thereby initiating the break from Rome (Jeremiah, 2017). Onyema, (2020) Preference for male children comprises a variety of norms embedded in obvious favouritism of the male child in our various families, with sometimes disregard for the female child. In Adara land, like many places, there is a strong preference for male children, deeply rooted in cultural traditions and family expectations. When a male child is born, it is often celebrated with much greater enthusiasm than the

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birth of a female, reflecting how highly valued sons are in the community. This preference can have a serious emotional impact on females, who may grow up feeling less important or overlooked, accepting this unfair treatment without question. In some families, not having a male child can lead to serious problems such as divorce, separation, or the husband marrying multiple wives in hopes that one will bear a son to continue the family name and legacy. This practice shows just how much a male child is tied to identity and social standing in Adara society. Christian perspectives on women show significant diversity today and have undergone considerable changes over the past two millennia, adapting in tandem with, or in opposition to, the societies in which Christians live. Since the first century, Christian institutions have often seen the Bible as supporting a clear, ranked order of authority on gender a view still maintained by Complementarians and traditionalists who argue it is mandated by scripture. This hierarchical theology has positioned women under the authority of men within the church, marriage, and other spheres of life (Kaduna, 2023). Young Christian couples often experience stronger influences of male child preference due to cultural and familial pressures to fulfil traditional roles early in marriage. The pressure sometimes contributes to marital challenges, emotional strain on women with female children, and impacts social adjustment within the family.

Male Child Preference Syndrome and Christian Couples in Nigeria

Male child preferences remain a significant aspect of reproductive decision making in our country Nigeria, influenced by cultural and socioeconomic factors. Nigerian women have the tendency to continue to give birth until they have a male or achieved their desired number of sons, a practice that has skyrocketed the country's birth rate. Nigeria is one of the countries with traditional practices that tend to exacerbate gender bias. Relatedly, educational disparities are stark, with females from the northern part of the country particularly disadvantaged, as societal and cultural norms prioritise the education of males. Similarly, Nigerian women experience profound biases in healthcare, especially in reproductive rights, where societal expectations and male-dominated decision-making severely limit their access to family planning and contribute to high maternal mortality rates. These biases extend to political representation, where women are starkly underrepresented, reflecting the patriarchal norms that continue to shape societal structures (Bawuah, Sarfo, Biney, Appiah, Baatiema, & Yaya, 2025). Nnagbo, Ugwu, Eze, Agu, Nnagbo, Ezugworie, and Odoh, (2024) in Nigeria, male child preference syndrome on young Christian couples has been an age-long belief and practice, where it is practiced to achieve gender balance, satisfy the husband, ensure inheritance, and consolidate marriage. For some reason, newly married wives are expected to have male children to fulfill this obligation; the failure of which may result in marital disharmony, controlling behaviour, domestic violence, or divorce. Hence, the woman becomes overtly pressured and may suffer physical and psychological harm in an attempt to prevent these menaces from happening. In general, women experience social, economic, and psychological challenges and, in some cases, social isolation in their various homes and communities, especially Adara land in Kachia, Kaduna State.

Syndrome is a symptom complex with a wide range of somatic, cognitive, sleep, and affective features, and is the most common consequence of traumatic brain injury. The differential diagnoses include headache disorder, cervical injury, anxiety, depression, somatisation, vestibular dysfunction, and visual dysfunction (Barlow, 2016). Ehirim and Osuji (2022) suggest that the male child is a source of pride in contemporary Nigerian homes, but balancing parental responsibilities in girl-dominated households is becoming a serious challenge. Parenting supports and promotes the physical, emotional, social, and intellectual development of a child. However, most girl children suffer neglect, are taken less seriously, or are largely abandoned, despite their significant entrepreneurial potential. Good parenting, which emphasises fostering independence in children, often undermines the entrepreneurial potential of girls at various ages and stages of development, thereby rendering them entirely dependent. Parenting styles are crucial because numerous reports indicate they influence children's performance in psychosocial development, business, academic achievement, social competence, and behavioural issues. Parents adopt different parenting styles, such as authoritarian, permissive, uninvolved, and authoritative, to raise their children. In Nigeria today, the continued preference for male children over female children raises urgent concerns. Many men argue that choosing a male heir is necessary to sustain the family name, inherit property, and conform to cultural and traditional norms. The girl child remains a contentious issue in a patriarchal society where boys enjoy privileges such as attending school to acquire skills. In contrast, girls are often relegated to domestic chores and early responsibilities in marriage.

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Numerous studies have highlighted how this affects women in different parts of Nigeria. Specifically, in Kurmin-iya, Bishini District, Kachia Local Government Area of Kaduna State, there was a Christian husband whose wife's inability to conceive a male child led to divorce. Even after remarrying, his subsequent wife also failed to produce a male heir. The male child preference syndrome illustrates a societal bias favouring males over females, resulting in harmful consequences for the female child, women, households, and society at large. In Nigeria, tradition and social customs still highlight significant gender inequality, with societal norms often favoring men over women. Women are frequently seen as naturally less capable than men, which leads to strict and unequal gender roles. Society tends to place men in leading positions, especially in economic and political areas, while women are mostly expected to handle domestic duties that are often undervalued and limit their opportunities for economic or political empowerment. In Nigerian families, the household is a central part of society, and while the head of the household isn't always the oldest person, it is usually a man. There is a common belief that being a male head of household significantly influences family decisions, often shaping behaviors and preferences that tend to favor sons over daughters (Nwankpa, Ekwueme, Akamike, Mbachu, & Onwujekwe, 2024).

Children are gifts from God that should be treasured, accepted, and appreciated. There is a perception in many cultures and Christian denominations that parents, both young and old Christian couples, prefer male children over female. This preference is deeply rooted in cultural and societal norms, where males are valued for their potential to carry on the family name and support in old age. In contrast, females may be undervalued, leading to significant strain in marriages and families. This bias has led to numerous marital breakdowns within various communities in Kaduna State, and this issue extends globally. In many communities within Kaduna State, the male child is often seen and valued as a source of pride and security, whereas the birth of a female child may be undervalued. This disparity can create considerable strain in marriages, as parents may face immense pressure to produce male heirs. The stress and disappointment of having a daughter can cause emotional pain and sometimes even lead to divorce. In many societies, both mainline and Pentecostal Christian couples value male children more than females due to economic and social reasons. Males are seen as helpers in farming and as sources of support during old age or illness. They are also the only ones permitted to continue the family line. In the researcher's patrilineal community, only males can perform important cultural functions, such as death rituals for parents. Despite ongoing efforts to promote gender equality, the preference for male children remains deeply rooted in some communities in Kaduna State. This cultural bias persists among Christian couples, influencing their reproductive decisions, family dynamics, and social relationships. This issue is not limited to Kaduna State alone but is a common problem affecting couples in various states; Kaduna is no exception. The societal preference for male children can lead to adverse outcomes, such as neglect of female children and practices like sex-selective abortions. These actions further entrench gender bias and inequality. In our society, traditional beliefs uphold male dominance over women, driven by the pervasive "son preference syndrome." This cultural bias often results in preferential treatment of male children, who are typically exempted from household chores and granted unrestricted access to education, unlike their female counterparts.

In Kaduna State, most cultural and ethnic groups show a preference for male offspring over females, which is disadvantageous to female children and their mothers. This bias may lead to an unequal distribution of resources among children after the death of their father, often leaving female children at a disadvantage. The phenomenon known as male child preference syndrome reflects a cultural prejudice favouring male progeny, which adversely affects female education and other societal aspects. While this is prevalent in Nigeria, there is limited understanding of its specific impact on Christian families in Kaduna State. Within this cultural context, some husbands blame their wives for bearing female children, despite scientific knowledge that the father's chromosomes determine the child's gender. This blame is primarily directed towards wives during their first childbirth. Certain societal attitudes reinforce this gender bias, with derogatory terms such as "half-current" or "mistake" used to refer to female offspring. Based on the above, the researcher aims to investigate further the male child preference syndrome among Christian couples in Kaduna State.

Objectives of the Study

The main objective of this study is to examine the impact of male child preference syndrome on Christian Couples in Kaduna State, Nigeria.

1. to examine the impact of male child preference syndrome on young Christian Couples in Kaduna state.

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Research question

1. What is the impact of male child preference syndrome on young Christian couples in Kaduna State?

Hypotheses

Ho$_1$: There is no significant difference between the opinions of young Christian couples between 1-5 and 6-10 years of marriage on the impact of male child preference syndrome in Kaduna State, Nigeria.

Methodology

The researcher adopted a descriptive survey design centered on Christian couples. With a total of 675 participants were chosen through purposive sampling from a population of 1,351,881. Data were gathered using a structured questionnaire, with 624 completed and returned, resulting in a high response rate of 92.5%. The researcher was responsible for the both distribution and collection of the copies of questionnaire. Analysis of the data was performed using SPSS version 25, employing four-point likert scale: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). A mean score of 2.50 was used as the decision criterion; scores at or above this threshold indicated agreement, while scores below signified disagreement. The hypothesis of the study was evaluated using a t-test at 0.05 significance level.

Research Question 1: What are the Impacts of male child preference syndrome on Young Christian couples in Kaduna State, Nigeria?

Table 1: Opinions of Respondents on the Male Child Preference Impact on Young Christian couples

S/N	Items	SA	A	D	SD	Mean	Decision
1	Most young couples' marriages get dissolved due to the absence of a male child	300	198	66	60	3.18	Accepted
2	The cultural, social, or family expectations due influence the preference for male children among young Christian couples	285	279	45	15	3.34	Accepted
3	Once a woman has not delivered a male child, she is yet to be entirely accepted in the family	189	281	89	65	2.95	Accepted
4	Female children, along with their mothers, face serious challenges	279	309	24	12	3.37	Accepted
5	Females face different barriers, including deep prejudice, which often leads to discrimination.	312	164	115	33	3.21	Accepted
6	The preference for a male child is to sustain the family name and inherit property, which involves conforming to cultural traditions.	267	189	92	76	3.04	Accepted
7	Young Christian couples may face pressure to have sons due to traditional ideas about inheritance and family lineage.	198	316	78	32	3.09	Accepted
8	Cultural practices and economic factors create a pronounced preference for sons by young couples	291	197	82	54	3.16	Accepted
9	Some young couples have a preference for male children, which may lead to harmful practices	199	291	98	36	3.05	Accepted
10	Families, resources are often directed towards the male, as there is a widespread belief that investing in a son is a permanent commitment	204	269	112	39	3.02	Accepted
	Cumulative					3.14	

Decision mean = 2.50

Content of table 1 revealed respondent's views on impact of male child preference syndrome on young Christian couples in Kaduna State which they adjudge very high as the cumulative mean of 3.14 was found to be higher than the decision mean of 2.50. Majority of respondents were of the opinion that most female children, along with their mothers, face serious challenges. This is because this item attracted the highest mean score of 3.37. The table also indicate that responses to all the items were positive as the mean score for each of the items were above the decision mean of 2.50.

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Testing of Null Hypotheses

Ho1: There is no significant difference between the opinions of young Christian couples between 1-5 years and 6-10 years on the impact of male child preference syndrome in Kaduna State, Nigeria. To test the null hypothesis, an independent sample t-test statistic was used, the result of which is presented in Table below.

Table 2: Independent Sample t-test on the impact of young Christian male child preference

Variables	N	Mean	St. Deviation	St. Error	t-value	DF	P-value
1-5yrs	119	3.93	0.251	0.023			
					4.413	237	0.000
6-10yrs	120	3.73	0.448	0.041			

Calculated p > 0.05, calculated t < 1.96, at df 237

Table 2 shows that there is no significant difference between the opinions of respondents aged 1-5 years and 6-10 years on the impact of male child preference syndrome on young Christian couples in Kaduna State. Reason being that the calculated p-value of 0.000 is less than the 0.05 alpha level of significance, while the t-calculated value of 4.413 is higher than 1.96, at df=237. This now shows that the null hypothesis is hereby rejected.

Findings

The study shows that female children and their mothers often endure significant hardships that impact their health, life opportunities, and overall sense of well-being. These challenges are primarily fueled by cultural norms and traditions that prioritise males over females, leading to discrimination and neglect of females.

Discussion of Results

From the analysis of data collected, it could be said that male child preference has significant impact on Christian couples in the study, from the six hundred and twenty-four (624) copies of questionnaire retrieved from respondents in Kaduna State majority of respondents were honest in their opinions that, male child preference has a significant impact on the young, old, mainline and Pentecostal life of the Christian couples. The finding of the study shows that male child preference had a significant impact on young Christian couples, because it has made female children, along with their mothers, face serious challenges. This finding agrees with Agbor and Gyong (2014). Most couples struggle to stop having children, especially when they do not have at least one son, despite having many daughters. Most marriages end in divorce due to the absence of a male child. In many instances, most men go for second or more wives just for the simple reason of getting a male child. This is supported by Profile (2022) It is pretty obvious that in Nigeria today, once a woman has not delivered a male child (baby boy), she is yet to be entirely accepted in the family, and this is the plight of many women who are yet to have male children for their husbands. The situation is so bad that no man wishes her sister to live without a male child in her husband's home because she will be socially and economically excluded in her home. The finding is also attributed to Sasongko et al. (2018). Some young couples have a preference for male children, which may lead to harmful practices, including the deliberate neglect and abandonment of female children. In many Nigerian families, resources are often directed towards the male, as there is a widespread belief that investing in a son is a permanent commitment, while investing in a daughter is temporary, as she will eventually be married off to another family.

Conclusions

Based on the findings of this study, it concluded that:

Female children and their mothers have endured significant hardships, facing numerous obstacles and adversity from their friends, families, and society as a whole. Both the mothers and their daughters have struggled with discrimination, limited opportunities, and a lack of support, making it even more difficult to navigate daily life and achieve their potential. Cultural and societal influences have led some Christian couples to desire male children over female ones. This preference has often been driven by traditional beliefs and values that place a higher importance on males, viewing them as heirs, providers, or carriers of the family name. Some Christian families, the male child is often seen as the ultimate blessing or the "crowning glory." This deep-seated belief places significant social and family pressure on couples who are unable to have a male child. In such cases, these couples may be viewed as "abnormal" or incomplete, which can lead to feelings of shame and inadequacy.

Recommendations

Based on the findings and conclusions of the study, the following recommendations were made:

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1. Husbands should promote fairness and equality in their families, appreciate that both male and female children hold equal value and play vital roles in nurturing the family's spiritual and emotional health. Husbands should challenge any cultural biases that favour males over females, as these beliefs sometimes cause emotional pain and strain in marriage.
2. Wives should stand confidently in their worth, no matter the child's gender; they should resist societal pressures that prioritise having a male and seek support when needed from their faith, community or counselling services to help them navigate these challenges without losing their dignity. Both wives and potential wives should maintain honest and open conversations with their husbands, sharing their thoughts and feelings about gender expectations openly. This transparency would help avoid misunderstandings and foster greater unity in their marriage.

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Effect of Health Education Intervention Programme on Attitude Towards Cervical Cancer Prevention among Female Students in Tertiary Institutions in North-East Nigeria

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Abstract
Cervical cancer remains a major public health challenge in Nigeria, particularly in the North-East, where incidence and mortality are disproportionately high. Although awareness of cervical cancer is gradually increasing, negative attitudes such as stigma, fear, and misconceptions continue to hinder preventive practices, including screening and vaccination. This study examined the effect of a health education intervention programme on attitude toward cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. A sequential explanatory mixed-methods design was employed. A total of 180 students were selected through multistage sampling and divided equally into experimental and control groups. Data were collected using a validated questionnaire (reliability coefficient = 0.851) and focus group discussions. Quantitative data were analysed using descriptive statistics and a one-sample t-test at the 0.05 significance level, while qualitative data were analysed thematically. Findings revealed a significant positive shift in attitude among the experimental group after the intervention, with post-test aggregate mean scores of 4.960 (universities), 4.4733 (polytechnics), and 4.3711 (colleges of education), all above the decision mean of 3.5 ($p < 0.05$). Qualitative results corroborated the quantitative findings, as students expressed greater willingness to adopt preventive behaviors, including HPV vaccination and cervical cancer screening. The study concludes that structured health education interventions are effective in fostering positive attitudes toward cervical cancer prevention among young women in tertiary institutions. It is recommended that such interventions be integrated into health promotion programmes to reduce the burden of cervical cancer in Nigeria.

Keywords: Cervical cancer, health education, attitude, prevention, female students, Nigeria

Introduction
According to the World Health Organization (WHO, 2023), cervical cancer is a significant public health issue affecting women globally. It is the second most commonly diagnosed cancer and the third leading cause of cancer-related deaths in women. Nearly 90% of new cases and 85% of deaths occur in developing countries, including Nigeria (Rimande-Joel & Ekenedo, 2023). Despite its preventable nature, cervical cancer continues to claim more women's lives annually than childbirth, with global estimates showing 804,127 new cases and over 500,000 deaths each year (GLOBOCAN, 2022). Cancer of the cervix starts when cells in the cervix begin to grow out of control due to DNA damage, often triggered by persistent infection with high-risk human papillomavirus (HPV) types 16, 18 and 22 (World Health Organization (WHO), 2023; American Cancer Society (ACS), 2023). The incidence and mortality rates vary widely across countries. For example, the United States recorded 13,960 new cases and 4,310 deaths in 2023 (ACS, 2023), while India reported 96,922 new cases and 60,078 deaths (ICMR, 2023). Ghana reported 3,151 new cases and 2,119 deaths annually (ICO/IARC, 2023). In Nigeria, about 14,089 new cases and nearly 10,000 deaths are reported annually, with eight out of ten women presenting at late stages (John-Akinola, Ndikom, Oluwasanu, Adebisi, & Odukoya, 2022). The burden is especially severe in the North East, where cervical cancer accounts for over 70% of gynaecological malignancies at University of Maiduguri Teaching Hospital (Kabir, Bukar, Nggada, Rann, Gidado, & Musa, 2023) and more than 68% at Abubakar Tafawa Balewa University Teaching Hospital. Poverty, insecurity, early marriage, polygamy, and limited healthcare access contribute to poor outcomes (Aminu, Ibrahim, Garba, Umar, Khan, & Usman, 2023). Although awareness of cervical cancer is gradually increasing, attitude remains a key determinant of prevention and control.

Attitude refers to an individual's perception, beliefs, and disposition toward preventive practices such as HPV vaccination and screening (Mbacu, 2022). Negative attitudes including fear, stigma, and misconceptions-discourage women from seeking preventive care (Abdullah & Suleiman, 2022). Studies in Nigeria reveal that even among female students who are aware of cervical cancer, many underestimate their risk, delay health-seeking behaviour, and perceive screening as

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unnecessary unless symptoms are present (Audu, Elnafaty, Khalil & Otubu, 2023). Mbacu (2022) notes that cultural stigma, myths, and superstitions further reinforce resistance to preventive services. These attitudinal barriers are critical because they undermine the effectiveness of preventive strategies such as HPV vaccination and regular screening, which remain the most cost-effective interventions compared to treatment (Haruna, Ibrahim, & Emanuel, 2023). Consequently, promoting positive attitudes through targeted health education interventions is essential, particularly among young women in tertiary institutions, who represent a critical group for breaking the cycle of ignorance, fear, and late presentation.

Although cervical cancer is preventable, many Nigerian women demonstrate poor attitudes toward preventive services, resulting in low uptake of screening and HPV vaccination. In North East Nigeria, socio-cultural norms, misconceptions, and fear of discrimination further discourage young women from seeking preventive care. Kabir et al. (2023) reported that even among women who are aware of screening services, less than 30% showed willingness to undergo testing, citing fear of pain, stigma, and cost as barriers. Similarly, Audu, et al (2023) found that in Bauchi State, over 60% of female students perceived cervical cancer screening as unnecessary unless symptoms were present. Such negative attitudes undermine preventive efforts, perpetuate late diagnosis, and worsen mortality rates. Since students represent an important sub-population of future mothers and role models, addressing their attitudes through structured health education interventions is essential to improve cervical cancer prevention in the region.

Research Objective

The purpose of this study was to determine the effect of a health education intervention programme on the attitude toward cervical cancer prevention among female students in tertiary institutions in North East Nigeria.

Research Question

Does health education intervention programme have positive effect on attitude toward cervical cancer prevention among female students in tertiary institutions in North East Nigeria?

Research Hypothesis

Ho: There is no significant effect of health education intervention programme on attitude toward cervical cancer prevention among female students in tertiary institutions in North East Nigeria.

Methodology

A sequential explanatory mixed methods approach was employed, in which quantitative data were collected and analysed first, followed by qualitative data to explain and elaborate on the quantitative findings. This approach provided a comprehensive, validated, and in-depth understanding of how the health education intervention programme affected female students' attitudes. The study population consisted of all 38,828 female students of federal tertiary institutions in North East Nigeria, while the sample included 180 female students, equally divided into the control and experimental groups (90 participants each). A multistage sampling technique was used to ensure representativeness and minimize bias. This process involved simple random sampling through balloting to select three states from the North East (Adamawa, Gombe, and Yobe), purposive sampling to include all available tertiary institutions in these states (federal universities, polytechnics, and colleges of education), and volunteer sampling to enrolled 60 female students from each state, with 10 allocated to the control group and 10 to the experimental group. Two researcher-developed instruments were used for data collection. Quantitative data were gathered using a closed-ended questionnaire with a five-point Likert scale, while qualitative data were obtained through focus group discussions guided by semi-structured open-ended questions. Both instruments were validated by five experts in health education and community medicine. The reliability of the quantitative instrument was tested using the split-half method and Pearson product-moment correlation, yielding a coefficient of 0.851, indicating strong reliability. Thematic analysis and member checking were employed for qualitative reliability, with positive feedback confirming that the findings aligned with participants' intended meanings and experiences. Data collection occurred in three phases: pre-intervention assessment, intervention sessions, and post-intervention assessment. Descriptive statistics such as frequency counts and percentages were used to present demographic information and distribution of attitude scores, while mean, median, and standard deviation were applied to summarize central tendency and variability. Inferential statistics using a one-sample t-test were employed to test the hypothesis at the 0.05 level of significance.

Presentation of Result

Table 1: Demographic information of Respondents

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Variables			**Frequency**	**Percentage**
1.	**Age**	18-29years	56	31.1
		30-39-years	92	51.1
		40-49years	32	17.8
		Total	**180**	**100.0**
2.	**Groups**	Experimental	90	50.0
		Control	90	50.0
		Total	**180**	**100.0**
3.	**Institutions**	MAUT Yola	20	11.1
		FCE Yola	20	11.1
		FP Mubi	20	11.1
		FU Kashere	20	11.1
		FCET Gombe	20	11.1
		FP Kaltingo	20	11.1
		F U Gashuwa	20	11.1
		FCET Potiskum	20	11.1
		FP Damaturu	20	11.1
		Total	**180**	**100.0**
4.	**Types of Institutions**	Universities	60	33.3
		FCE	60	33.3
		Polytechnics	60	33.3
		Total	**180**	**100**
5.	**Students' Level**			
		100level	18	10.0
		200level	54	30.0
		300level	82	45.6
		400level	23	12.8
		500level	3	1.7
		Total	**180**	**100.0**

Table 1 Revealed the demographic characteristics of the participants. The table shows that majority of the participants, 92 (51.1%), were within the age range of 30–39 years, followed by 56 (31.1%) aged 18–29 years, and 32 (17.8%) aged 40–

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49 years. The sample was equally divided between the experimental and control groups, with 90 respondents (50.0%) in each group. Furthermore, participants were evenly selected from nine different tertiary institutions, with each institution contributing 20 respondents, representing 11.1% of the total sample. In terms of institutional type, there was an equal distribution of respondents across universities, colleges of education, and polytechnics, with each category accounting for 60 respondents (33.3%). Regarding students' academic levels, the majority were 300-level students, accounting for 82 (45.6%) of the total respondents, followed by 54 (30.0%) in 200 level, 23 (12.8%) in 400 level, 18 (10.0%) in 100 level, and 3 (1.7%) in 500 level.

Research Question: Does Health Education Intervention programme have positive effect on attitude towards cervical Cancer prevention among female students in tertiary institutions in North East Nigeria?

Table 2: Mean, Standard Deviation and Aggregate Mean on the Effect of Health Education Intervention Programme among Female Students after the Intervention on Attitude towards Cervical Cancer Prevention

		Polytechnics		FCE		Universities	
S/N	**Attitude**	**Mean**	**STD**	**Mean**	**STD**	**Mean**	**STD**
1	I Prefer to maintain healthy body weight through regular exercise, physical activities and healthy eating habit in order to reduce the risk of cervical cancer.	4.5333	.50742	4.3667	.49013	4.8667	.34575
2	I Prefer to take preventive measures against sexually transmitted infection such HPV genital herpes, gonorrhea Chlamydia and HIV/AIDS which predispose individual to cervical cancer.	4.7000	.53498	4.4667	.62881	4.9000	.30513
3	I prefer to engage in adequate personal hygiene, avoiding vaginal douching and the use of herbs or traditional medication in the vagina in order to minimize cervical cancer	4.5333	.62881	4.4000	.62146	4.9333	.25371
4	I believe it is not healthy to be an active or passive smoker as it increases the risk of cervical cancer.	4.4667	.62881	4.4667	.57135	4.9667	.18257
5	Since I have a family history (Heredity) of cervical cancer, I think it is necessary to avoid all the risk factors.	4.5333	.57135	4.3000	.65126	4.9667	.18257
6	As a female student of tertiary institutions in north east Nigeria, I will take preventive actions to minimize the occurrence of cervical cancer as much as possible.	4.6000	.49827	4.3000	.59596	5.0000	.00000
7	I believe that observing vaginal bleeding, changes in the menstrual cycle, pains during sex, vaginal discharge tinged with blood can help in the early detection and treatment of cervical cancer.	4.3333	.60648	4.2667	.58329	5.0000	.00000
8	I would like to stick to one partner, avoid early exposure to sexual contact and reckless sex as these significantly increase the risk of cervical cancer.	4.3333	.47946	4.4000	.62146	4.9667	.18257
9	I feel that cervical cancer is 93% preventable because many predisposing factors, such as Human Papilloma Virus (HPV) infection, smoking, multiple sexual partners, early sexual activity and long-term use of oral contraceptives are modifiable.	4.4000	.56324	4.4333	.62606	4.9333	.25371
10	I feel that avoiding prolonged use of oral contraceptive pills and choosing an appropriate family planning method help in cervical cancer prevention,	4.4333	.56832	4.3667	.55605	5.0000	.00000

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11	I will like to vaccinate against HPV infection as a means to reduce the risk of developing cervical cancer,	4.3000	.59596	4.3333	.60648	5.0000	.00000
12	I feel that education about cervical cancer through intervention programme can reduce cervical cancer risk.	4.3667	.66868	4.3667	.49013	4.9667	.18257
13	I would like to engage in various cervical cancer screening procedures such as pap smears, HPV-DNA testing and Visual Inspection with Acetic Acid (VIA) because they help in the early detection and management of the disease.	4.4333	.62606	4.3333	.54667	4.9667	.18257
14	I belief that understanding Human Papilloma Virus (HPV) as a main cause of cervical cancer can aid in preventing the disease.	4.5333	.57135	4.3667	.55605	5.0000	.00000
15	I belief that early cervical cancer detection helps in effective treatment	4.6000	.49827	4.4000	.62146	4.9333	.25371
	Aggregate Mean	4.4733		4.3711		4.960	

Decision Mean 3.5

Table 2 Revealed the mean, standard deviation, and aggregate mean on the effect of the health education intervention programme on the knowledge of cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. The results reveal that the aggregate mean scores were: Polytechnics: 4.455, Federal Colleges of Education: 4.348, Universities: 4.968. All the aggregate means are above the decision benchmark of 3.5, indicating a high level of knowledge acquisition following the intervention. Therefore, the findings demonstrate a significant positive effect of the health education intervention programme on the knowledge of cervical cancer prevention across all types of tertiary institutions.

Hypothesis: There is no significant effect of Health Education Intervention programme on attitude towards cervical cancer prevention among female students in tertiary institutions in North East Nigeria.

Table 3: analysis of one-sample t-test on the effect of health education intervention programme on attitude towards prevention of cervical cancer among female students of tertiary institutions in north east Nigeria.

Variables	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**	**df**	**t-cal**	**Sig.**
			Federal Colleges of Education				
Attitude after Experimental	30	18.9667	3.32683	.60739	29	25.464	.000
Decision Mean		3.5					
			Federal Polytechnics				
Attitude after Experiment	30	66.7667	4.80433	.87715	29	72.128	.000
Decision Mean		3.5					
			Universities				
Attitude after Experimental	30	74.4000	.96847	.17682	29	400.97	.000
Decision Mean		3.5					

Table 3 Revealed the results of a one-sample t-test on the effect of the health education intervention programme on knowledge of cervical cancer prevention among female students in tertiary institutions in north east Nigeria. The findings show that the calculated t-values were 23.091 for Federal Colleges of Education, 75.060 for Federal Polytechnics, and 534.730 for universities. The corresponding p-values of .000 for all institutions are less than the alpha level of 0.05, indicating statistically significant results; therefore, the null hypothesis was rejected. Additionally, the mean scores for knowledge after the intervention across all institutions were above the decision mean of 3.5, suggesting a high level of knowledge acquisition following the intervention.

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Discussion of Finding

The findings of this study also revealed that the Health Education Intervention Programme (HEIP) had a significant effect on improving attitudes toward cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. However, despite the significant effect, the degree of improvement varied slightly across the different institution types. The post-test aggregate mean scores were 4.960 for universities, 4.4733 for polytechnics, and 4.3711 for colleges of education all above the decision mean of 3.5. This indicates that the intervention effectively promoted favourable attitudes across all institution types, although the extent of change differed. Students in universities recorded the highest attitude mean score (4.960), followed by students in polytechnics (Mean = 4.4733), while students in colleges of education had the lowest mean attitude score (4.3711), though still indicative of a positive shift. Qualitative data collected through Focus Group Discussions (FGDs) further supported these findings, as participants demonstrated a more positive attitude toward cervical cancer prevention following the intervention. Notably, university students exhibited the most pronounced positive attitudinal change compared to students from polytechnics and colleges of education.

Pre-Test Views of Students (FGD) on Attitude Toward Cervical Cancer Prevention:

Before the intervention, participants displayed low awareness and concern regarding cervical cancer prevention, as reflected in the following statements:

"I don't think it's that big of a deal. I haven't really heard about it being a major issue like other diseases."

"I'm not sure if it's important for me. I don't feel like I'm at risk, so I don't think much about prevention."

"I don't think it's preventable. If someone's going to get it, they'll get it."

Post-Test Views of Students (FGD) on Attitude Toward Cervical Cancer Prevention:

After the intervention, participants exhibited a more informed and proactive attitude toward cervical cancer prevention:

"I now understand that cervical cancer is a serious health issue for women, and preventing it is important."

"I have learned that every woman is at risk, so it is necessary to take preventive measures like vaccination and screening."

"Cervical cancer is largely preventable, and early detection can help save lives."

These findings clearly demonstrate that the HEIP significantly improved attitudes toward cervical cancer prevention among female students in tertiary institutions in North-East Nigeria. The outcome of this study aligns with the findings of Shakya et al. (2023), who demonstrated that community-based health education interventions significantly enhanced women's willingness to participate in cervical cancer screening in rural Nepal. Furthermore, the study is supported by the findings of George and Batra (2023), who conducted a randomized controlled trial on the effect of a community-based multicomponent intervention on cervical cancer prevention behaviors among women in India. Their study reported a significant improvement in women's attitudes toward cervical cancer prevention following a structured health education intervention. Similarly, the findings of this study align with those of Fawzy et al. (2023), who highlighted the effectiveness of structured educational initiatives in fostering awareness and promoting preventive attitudes among female nursing students in Saudi Arabia toward cervical cancer prevention. Furthermore, this study aligns with the findings of Ifediora and Azuike, (2022), who explored the impact of integrating cervical cancer awareness modules into secondary school curricula in Nigeria and found that early exposure to structured education significantly improved students' attitudes and increased their intention to adopt preventive behaviour. Consistent with these findings, Mohammad et al. (2022) demonstrated a statistically significant improvement in female nursing students' attitudes toward human papillomavirus (HPV) and cervical cancer screening following a health education intervention programme in Egypt. Moreover, the qualitative study by Williams et al. (2023) on cervical cancer and cervical cancer screening awareness among nurses in Ghana further supports these findings. Their research highlighted that health education intervention programme was highly effective in improving women's attitudes toward cervical cancer prevention. Additionally, the findings align with the study of Rimande-Joel and Ekenedo (2023), which reported that an education and communication-based intervention programme on cervical cancer prevention significantly increased participants' positive attitudes in Jalingo, Nigeria.

Conclusion

The seven-week health education intervention programme had a positive effect on the attitude of female students toward cervical cancer prevention in tertiary institutions in North East Nigeria after exposure to the programme.

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Recommendation

Tertiary institutions in north east Nigeria should collaborate with health professionals and advocacy groups to organize regular awareness campaigns, panel discussions, and testimonial sharing sessions to reinforce positive attitudes toward cervical cancer prevention.

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The Impact of Political Interference on Secondary School Administration and Fiscal Management in Nigeria

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Abstract
The role of politics in the administration of secondary school in Nigeria is always affected by the government interference. The reason is because politics cannot be separated from school management. This political interference undermines educational equality, accountability and institutional effectiveness. It is on this basis that this paper examined the leadership selection, fiscal management, delegation of duties. The paper further highlights how political patronage often determines school leadership appointments, influencing decision-making and resource allocation. Similarly, fiscal management in schools is affected by politically motivated funding delays and inequities, compromising infrastructure development and academic delivery. The politicization of delegation processes and student admissions further entrenches inefficiencies and exacerbates regional inequalities. The paper finally concludes that unless political interference is minimized and merit-based practices are enforced, the goals outlined in Nigeria's National Policy on Education will remain unattainable. Recommendations were preferred among them are to promote transparency, professionalism, and equity in the administration and governance of secondary schools.
Key words: Political interference, Administration, Fiscal Management & School Leadership

Introduction
The concept of politics has been well articulated by educators and social scientists like Ogunode and Musa(2022). They both agreed that politics is not restricted to political parties alone, but to other sectors of the economy and also the educational sector. However, the scope of politics is the temporal wellbeing of any community as a whole. It is obvious that no society can have an establishment government without politics. It is the interference of the government, communities, Parents teachers association (PTA) in establishing schools that brought about the establishment of secondary school. Hence, politics cannot be separated from school management. Education, as a crucial public service, cannot exist in a vacuum. It is inherently influenced by the political structures and ideologies of the society in which it operates.

In Nigeria, the role of politics in the administration and funding of secondary education has become increasingly prominent. As earlier mentioned, no educational system can be entirely insulated from the socio-political environment, as educational policies and structures are often shaped by political mandates and national objectives. Over the years, the Nigerian government has recognized education as both a fundamental human right and a national necessity. This recognition is rooted in democratic ideals, where every citizen is entitled to equal opportunities for self-development and societal contribution. Adeyemi (2000) observed that the strong correlation between educational attainment and employability has led many nations, including Nigeria, to adopt inclusive education policies. Politics, is defined as the process of influencing decision-making, resource allocation, and power dynamics, plays a significant role in shaping educational outcomes. Robbins (in Okorie, 2012) described politics as self-serving behavior aimed at influencing organizational structures and outcomes, which can also be observed among educational administrators and policymakers. This paper explores how politics influences secondary school administration, including policy implementation, leadership appointments, infrastructural development, school siting, and admission practices. It also examines the implications of political interference in funding and fiscal management. The objective is to understand how politics has both positively and negatively impacted the effectiveness and equity of secondary school administration in Nigeria.

The impact of politics in Secondary School Administration
Secondary education serves as a bridge between basic and tertiary education and plays a key role in preparing students for productive adulthood. According to the National Policy on Education (2004), secondary education aims to equip students with the necessary knowledge, skills, and values for higher education or direct entry into the labor market. However, these goals are often hindered by political interference in administrative functions.

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Political interference in secondary school administration manifests in areas such as appointments of principals, delegation of responsibilities, decision-making, and curriculum implementation. Abraham (2015) argued that schools have become extensions of political systems, where administrative decisions are influenced more by political considerations than merit or educational priorities. However, Olayinka (2018) opined that political influence on education is seen in the success of good educational policies issued by the government on the citizens as formulation of policies are sometimes influenced by the political parties in power which sometimes is being criticized by the opposition parties. A typical example is the politicization of the Universal Basic Education (UBE) program, which aimed at restructuring Nigeria's educational system into the 6-3-3-4 format. While the program sought to enhance quality and accessibility, it suffered from inadequate planning and resource mismanagement due to political interference. Moreover, political decisions often override technical expertise in curriculum implementation, staffing, and evaluation processes. This not only undermines professionalism but also disrupts the academic progress of students. The disarticulation of secondary education into Junior and Senior categories (JSS/SSS) is another politically driven development. Although well-intentioned, its execution lacked the infrastructural support required, leading to poor learning environments and increased instances of examination malpractice due to inadequate coverage of the curriculum.

Effects of Politics on School Leadership

The appointment of principals has increasingly become a political affair. Abraham (2015) noted that promotions are often based on political allegiance, ethnicity, or geographical origin, rather than competence or administrative experience. This practice results in a lack of visionary leadership and hinders effective school governance. According to Kochhar (2007), the principal should be a facilitator, motivator, and leader who fosters collaboration among staff and students. When leadership positions are politicized, such expectations are rarely met, leading to poor morale among staff and weak institutional performance. In some cases, political considerations prevent the timely transfer or reassignment of principals, allowing some individuals to remain in office for decades, often to the detriment of school development. This stagnation can breed inefficiency and nepotism, with ripple effects across teaching quality, student outcomes, and institutional reputation. Ethnic favoritism is another challenge. In many states, only individuals from certain ethnic backgrounds are considered for leadership roles, regardless of qualifications. This undermines national unity and demotivates competent staff from minority groups. Furthermore, politics influences school siting. Some schools are established in remote or ill-suited locations simply to appease political interests, without considering environmental, demographic, or infrastructural factors necessary for a viable learning environment. A case in point is the siting of the Federal University in Otuoke, Bayelsa State, which critics argue was politically motivated.

Politics and Fiscal Management

The effective administration of secondary education requires adequate and transparent funding. However, fiscal management in schools is often compromised by political interference. Budget allocations are frequently influenced by patronage systems rather than actual needs or performance metrics. Adeyemi (2000) pointed out that education funding must be aligned with community involvement and accountable management. Unfortunately, most political appointees lack the training or will to manage school finances effectively. Corruption, diversion of funds, and ghost workers are recurring challenges. Political favoritism also influences which schools receive grants or infrastructure projects, often leaving rural or less-connected schools underfunded. This deepens educational inequality and frustrates national education goals. Another fiscal challenge arises in the mismanagement of funds intended for the implementation of national education programs like UBE. Politically appointed administrators sometimes misappropriate such funds, leading to poorly executed projects or total abandonment. Abraham (2015) emphasized that politics has turned many educational projects into revenue-generating avenues for political elites, with little concern for long-term educational outcomes. Schools are left with dilapidated facilities and inadequate learning materials. To ensure accountability, Ememe (2013) recommends that school financial decisions should be guided by clear policies and monitored by independent bodies. He argues that transparency in fiscal operations promotes trust and supports strategic planning.

Politics and Delegation of Duties

Delegation is an essential aspect of effective school management. Ememe (2013) outlines the principles of delegation as clarity, competence, willingness, impartiality, and follow-up. However, in politically influenced environments, duties are often delegated based on favoritism, not on these principles. Teachers with close ties to principals or political godfathers

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are sometimes assigned critical responsibilities they are ill-equipped to handle. This leads to poor implementation of school policies and a breakdown in institutional workflow. Shared decision-making, an important democratic practice in school administration, is also compromised by politics. Nevertheless, one major importance of politics in Nigeria is that politics plays a vital role in decision making and controls the management, administration of secondary school completely. Kajo and Mando (2023) pointed out that politics in education can be looked upon as a means for the allocation of resources to different groups in order to achieve their set of educational objectives/goals. The fact remains that an educational system has political goals, which are essential to justify the existence of the system and the political order of the society. However, education develops an individual to participate effectively in politics, while politics in turn adds quality to education. Okorie (2012), citing Bridges, emphasized the concept of the "zone of acceptance," which refers to the range of decisions subordinates are willing to accept without resistance. When decision-making is politicized, this zone is disrupted, leading to conflict, poor morale, and inefficiency. Teachers become disillusioned when decisions are made without consultation or are based on political calculations. This undermines professional development and limits innovation in teaching and school management.

Political Influence on Admission and Equity

Political considerations also extend to student admissions. The quota system, geopolitical balancing, and positive discrimination are often used to allocate slots in federal unity schools and tertiary institutions. While these policies aim to promote national integration, they have generated controversy regarding merit and fairness. Students from educationally disadvantaged states (EDLS) are sometimes admitted with lower scores than their counterparts from educationally advanced states (EDAS), despite poor performance in entry examinations. While the policy has noble intentions, it raises questions about academic standards and equality of opportunity. Moreover, such politicized admissions often lead to classroom heterogeneity that is difficult to manage and may result in increased dropout rates, especially among underprepared students. Politics also affects student transfers, placement, and scholarship allocation. In some cases, students with political backing are given undue advantages, undermining the principle of meritocracy.

Recommendations

1. School leadership like the post of principals and vice principals appointment should be based strictly on qualifications, experience, performance and merit not on political or ethnic considerations. If this is done, it would bring about productivity, efficiency and effectiveness.
2. Budget allocations and disbursements should be transparent, with audits conducted regularly to prevent mismanagement.
3. Political leaders should prioritize school infrastructure development based on actual needs, not favoritism.
4. Teachers and administrators should be offered regular training to improve competence, especially in fiscal management.
5. Relevant stakeholders should be instituted to monitor to ensure equitable distribution of funds meant for the development of secondary schools.
6. Decision-making authority should be distributed within the school system to prevent over-centralization and political domination.
7. There is need for the quota systems to be evaluated, in order to balance equity with merit to ensure that all students receive support to succeed
8. State ministries of education should established independent merit based schools governing board (SGBs) comprising of community leaders, education experts and parents representatives to oversee the transparent recruitment and appointment of principals, insulating the process from direct political patronage.

Conclusion

It is obvious that politics has negative influence on funding, admission of students, leadership appointments. As such, politicians have significant influence on the management of secondary schools in Nigeria. Nevertheless, politics is inseparable from education, but its influence must be positively directed. When political interference becomes excessive or self-serving, it disrupts administrative efficiency, compromises educational quality, and undermines the objectives of national education policy. For Nigerian secondary education to achieve its full potential, politics must be guided by

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professionalism, transparency, and a genuine commitment to educational development. A depoliticized, well-managed educational system is essential for national growth and sustainable development.

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Impact of Micro-Teaching Skills on Performance in Classroom Control Strategy among Colleges of Education Students in Northwest, Nigeria

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Abstract
The impact of microteaching programme towards effective teacher education programme will never be over emphasized. It is a schematize programme which has been incorporated in the teacher education curriculum majorly to empower them adequately with the require teaching skills that will enable them to showcase their practical experiences based on their area of specialization during teaching practice so as to achieve the designed objectives. The study title "Impact of Microteaching Skill of classroom Control on the Nigerian Colleges of Education Student Performance during Teaching Practice in the North-West Geo-Political Zone, Nigeria" is designed to investigate the causes of the low performance of the student teachers in showcasing the skill of classroom control during teaching practice. To achieve this, the ex-post facto research design was used. The ex-post factor research design allows for the extensive study of a phenomenon that has already taken place. Data collected was analyzed using appropriate tools in Statistical Packages for Social Sciences (SPSS) Version 20 and Strata version 13. The data collected was analyzed using the descriptive tool and the result was reported in frequency and percentage table alongside mean and standard deviation. Also, regression analysis was used to test the statistical significance of the observed impact of the teaching skills on the experimental respondents. The stated hypotheses was tested at 5% level of significant i.e. 0.05 alpha level of probability.3,718 formed the population, and the sample size is 372. The findings of the study revealed that the skill of classroom control has significant impact on the performance of student teachers which aids in the achievement of the designed objectives. It is recommended that the Proper establishment of rules and regulations be mandated on students, this will ensure effective monitoring of students' behaviour

Keywords: *Microteaching, Classroom Control, Teaching Practice, Teaching Skills*

Introduction
Microteaching is a simulated teaching experience that allows both pre-service and in-service teachers to practice concept lessons within any subject. It was created by Dwight W. Allen, Robert Bush, and Kin Romney at Stanford University during the late 1950s. The purpose of micro-teaching is to provide a training environment where educators can develop their pedagogical skills while refining old ones through small group sessions lasting between five to ten (5-10) minutes with video recordings for feedback review. McKnight (cited in Millis et al., 2002) considers micro-teaching as an effective method for experienced and inexperienced teachers alike since it provides realistic classroom settings necessary for improving one's pedagogical abilities continually. Also, Audu, 2010 forwarded that Micro-teaching as a technique begun at Stanford University in 1964 and since then it has been widely used in most English-speaking. It is also extensively used in Northern Europe and in many Asian and African countries. It is, therefore, not surprisingly that, micro-teaching has been changed in many ways since it was first used at Stanford (Audu & Agbo, 2010; Chawla & Thukral, 2011). Whereas the Stanford School of Education gave practice a very narrowly defined skills, such as introducing a lesson, one at a time, most micro-teaching program nowadays require the student to teach realistic but brief lessons and to focus sharply upon a particular skill or set of skills during the viewing and discussion sessions (Chartzidimou, 2003). There are now so many different forms of micro-teaching that the term micro-teaching must be re-granted as genetic rather than specific. Writers who claim to have developed or used the only true This process also helps student teachers transform their behavior based on specific learning objectives. By allowing trainee teachers to work with few students mostly five to eight (5-8) in constrained periods using limited resources like timeframes and available technology such as videotape recording; Microteaching offers ample opportunities towards honing critical instructional methodologies till proficiency sets up commendably over some noteworthy trial-and-error experimentation before application achieving higher level results sought from advanced curriculum content needing responsive lesson delivery techniques they've been preparing all along

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under careful supervision without bias throughout different phases involving critique-based mentor guidance tailored according each individual candidate needs discussed upfront clarity around performance goals set against evaluation criteria known beforehand enabling dialogue channels fostering reflection-driven progress until desired outcomes attained achieved gradually incrementally inside programmatic structures supported constant upgrade teacher certification requirements across educational institutions worldwide involved improvement its programs considering best practices demonstrated intelligently researched strategies amongst peer reviewed literature sources. Posting student-teachers for teaching practice is done to allow them the opportunity to demonstrate to the students their level of expertise in the use of a skill appropriately in their classroom delivery. The microteaching theory (EDU 214) offered during the first semester of NCE II is a requirement that enables the student-teacher to undertake the microteaching practicum (EDU 224) offered in their NCE II second semester, which allows them to proceed with teaching practice (NCCE, 2020).

Teaching practice, according to Okorie (2019) is seen as a period of pre-service supervised teaching whereby the student teacher is exposed to all practices of a full –fledge teacher. Although the duration of microteaching can vary, during the session, student teachers are still observed to have ineffective performance. The learning environment is a crucial responsibility for an effective teacher. An efficient educator has essential duties that include controlling, coordinating, arranging, and managing the students, pedagogical resources, and the surroundings where knowledge acquisition occurs. Effective application of classroom control skill can affect the performances of the student teachers desire to attend the designed objectives during teaching practice exercise and can create confidence by the stakeholders as well as the general members of the society.

Objectives of the study

The objectives of this study was to determine to:

1. Investigate how effectively implementing classroom control skills affects the performance of student-teachers during their teaching practice.
2. Identifying the impact resulting from the effective implementation of classroom control skills by a student. During teaching practice, teachers evaluate the performance of their students in class.

Research Questions

1. What is the impact of the skill of appropriate use of classroom control on the performance of student-teachers on teaching practice?
2. To what extent does the effective use of skill of classroom control help in improving the performance of student teachers on teaching practice?

Research Hypotheses

H_{o1}: The skill of appropriate use of classroom control has significant impact on the performance of student-teachers on teaching practice.

H_{o2}: Adequate use of skill of classroom control would help in improving the performance of the student teachers on teaching practice.

Methodology

In this study, the ex-post facto research design was used. The ex-post fact research study is concerned with the aftermath of a phenomenon with regard to its effects (Korhari, 2012). The ex-post factor research design allows for the extensive study of a phenomenon that has already taken place. According to Creswell (2002) and Piccano (2004), another name for this type of research is retrospective casual – comparative research since both the hypothesis (cause) and the effect have already occurred and must be studied in retrospect. The sample for this study was 1886 NCE III students of Federal College of Education Zaria, and the Federal College of Education Kano which have 1,832 students, currently on teaching practice, using purposive sampling technique. The ration for such a decision is due to the fact that the above-mentioned institutions are strictly observing the micro-teaching theory as well as practicum which form a major aspect of teacher-education curriculum. However, 10% of the target population was used towards ensuring effective conduct of the research work. Jen (2002) states that sampling is drawn on the basis of phenomenon spread over a wide area for the purpose of getting clearer understanding. He further adds that 10% or less could be adequately used to represent the total population provided it covers the characteristics intended to be investigated. Therefore, 372 students (respondent) constitute the sample size of the study which represented the total population identified by the researchers from the two institutions. Similarly, Data

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collected was analyzed using appropriate tools in Statistical Packages for Social Sciences (SPSS) Version 20 and Stata version 13. The data collected was analyzed using the descriptive tool where result was reported in frequency and percentage table alongside mean and standard deviation. Also, regression analysis was used to test the statistical significance of the observed impact of the teaching skills on the experimental respondents. However, regression analysis is an appropriate tool to be used in testing significant impact, influence, effect and association as recommended by (Rawlings, Pantula, and Dickey, 1998). The stated hypotheses was tested at 5% level of significant or 0.05 alpha level of probability. The probability level is considered as a threshold to either accept or rejected the null hypothesis. However, probability value below 0.05 implies rejecting the null hypothesis while above implies accepting the null hypothesis. A total of 363 respondents out of the total of 372 sampled were found to have provided the required information in the questionnaire administered and therefore constituted the respondents used for the study. Data was sourced from the total of 363 questionnaires because five were missing, three not returned and one was not properly answered.

Table 1. Population and Sample Size

Institution	**Sample frame**	**Sample size**
FCE, Zaria	1886	351
Federal College of Education Kano	1832	183
Total	**3718**	**372**

Research Question One:

What is the impact of skills of appropriate use of classroom control on the performance of students' teachers on teaching practices?

In order to answer the above research question, the opinions of respondents on the skills of classroom control were scored in means as they influence the performance of students on teaching practice. The result is reported in the below table:

Table 2: Mean and Standard Deviation on Response scores on the Skills of Classroom Control

S/N	**Item Statements**	**SA**	**A**	**SD**	**D**	**Mean**	**St. Div.**	**Remarks**
1	Knowledge of feedback acquired during micro-teaching will enhance level of learner's participation in teaching and learning during teaching practice.	220	**132**	**10**	**1**	4.32	1.41	**Agreed**
2	The skill of reward acquired during micro-teaching session by the student teacher can augment the learners' level of commitment in acquiring knowledge during teaching practice.	200	100	**50**	13	4.33	1.42	**Agreed**
3	The use of motivation skill acquired during micro-teaching session by the student teacher will reduce the interest of learners while teaching during teaching practice.	199	**100**	46	15	3.81	1.30	**Agreed**
4	The experience of micro-teaching session on the use of teaching aid will motivate and enhance the level of learners' attention during teaching practice.	212	100	50	**1**	3.72	1.10	**Agreed**
5	Lack of use of skill of reinforcement acquired during micro-teaching by the student teacher during classroom presentation will decrease attention span of the learners during teaching practice.	202	100	40	**21**	3.53	1.64	**Agreed**
6	Micro-teaching session provides the student teacher with the skill of engaging learners in the daily classroom routine enhances high level of classroom control during teaching practice.	217	100	40	16	4.11	1.33	**Agreed**

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7	The experience acquired during micro-teaching session by the student teacher on proper arrangement of pupils in the classroom is not really required for effective classroom control during teaching practice.	215	111	**38**	0	2.12	1.25	**Agreed**
8	Micro-teaching session has provided the student teacher with skill of establishing rules and regulations for effective monitoring of students' behavior during teaching practice.	105	202	**60**	**0**	3.44	1.52	**Agreed**
9	The skill of dress code (teacher personality) acquired during micro-teaching help the student teacher in receiving respect and enhances class room control during teaching practice.	100	204	36	**20**	3.14	1.35	**Agreed**
10	The acquired skill of teacher's voice during micro-teaching session help student teacher in ensuring good classroom control during teaching practice.	200	122	**40**	**1**	2.80	1.52	**Agreed**
	Total					**35.32**	**13.84**	
	Average Mean and Standard Deviation					3.50	1.30	**Agreed**

Source: Field work (2025)

Table 2 showed that, the skill of classroom control is perceived to have impact on the performance of student-teachers on teaching practice, this was observed from the aggregate mean score of 3.5. Hence, the impact of classroom control is that, it brings about good Knowledge of feedback which enhance the level of learner's participation in teaching and learning', it also augments the learners' level of commitment in knowledge acquisition' and 'enhance the level of learner's attention', these are observed from the mean score of 4.3 and 3.7 which are greater than the decision mean of 2.5. However, in order to achieve proper classroom control, respondents were of the opinion that 'proper establishment of rules and regulations help in ensuring effective monitoring of students' behavior. Also, appropriate appearance of the teacher accorded him respect and enhances classroom control. Thus, it can be said that the skill of classroom control have impact on the performance of student-teachers on teaching practice.

Research Hypothesis One

What is no significant difference on the impact of skills of appropriate use of classroom control on the performance of students' teachers on teaching practices

Table 3: Result of t-test Analysis on the impact of Skills of Appropriate use of Classroom control on the Performance of students' Teachers on Teaching Practices

Response	**N**	**Mean**	**Std. Dev.**	**T**	**df**	**P**
Agreed	294	40.75	2.77	23.254	361	0.000
Disagreed	69	24.11	1.30			

Table 3 shows that, there is significant difference on the impact of skills of appropriate use of classroom control on the performance of students' teachers on teaching practices. The p-vale is 0.000 which is less than alpha value of 0.05 level of significance, this means that, there is significant difference in favour of agreement responses. Therefore, null hypothesis one is rejected

Research Question Two

To what extend does the effective use of skill of classroom control help in improving the performance of student's teachers on teaching practice

Table 4: Mean and Standard Deviation Scores on the Effective use of Skill of Classroom Control help in Improving the Performance of Students Teachers on Teaching Practice

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S/N	Statements	SA	A	D	SD	MEAN	Std. Div.	Remarks
1	Effective classroom control is essential for student's teachers to deliver their lessons confidently	200	120	40	3	2.86	1.02	Agreed
2	Student teachers who demonstrate effective classroom control skills tend to perform better on teaching practice	198	144	20	1	3.40	0.98	Agreed
3	Effective classroom control helps students' teachers to engage their students more effectively	203	151	4	5	3.48	0.74	Agreed
4	The ability to manage a classroom effectively is a critical factor in determining students' teachers' success on teaching practice.	178	133	50	12	2.53	1.08	Agreed
5	Effective classroom control reduces stress and anxiety for students' teachers allowing them to focus on teaching	222	123	14	4	3.64	0.62	Agreed
6.	Student teachers who master effective classroom control skills tend to receive positive feedback from supervisors and peers	214	100	42	7	3.21	0.88	Agreed
7	Effective classroom control enables student teachers to create a safe and inclusive learning environment.	221	100	30	10	2.97	0.66	Agreed
8	Students' teachers with effective classroom control skills are better able to adapt to unexpected situations	231	121	11	0	2.89	0.79	Agreed
9	Effective classroom control helps students' teachers to maximize instructional time and minimize disruption	198	130	30	5	3.11	0.92	Agreed
10	Mastering effective classroom control skills is essential for students' teachers to develop their professional identity.	217	105	40	1	3.22	0.84	Agreed
	Total					**31.31**	**8.53**	
	Average Mean and Standard Deviation					**3.13**	**0.85**	**Agreed**

Table 4 revealed the mean and standard deviation scores of responses on the effective use of skill of classroom control help in improving the performance of student's teachers on teaching practice. The average mean and standard deviation scores of items 1, 2, 3, 4, 5 and 6 is given as (N = 363, M = 3.19 and SD = 0.89) which is above the cut-off point of 2.50, indicating there is significant influence on the extend of the effective use of skill of classroom control help in improving the performance of student's teachers on teaching practice.

Hypothesis Two

Adequate use of skill of classroom control would help in improving the performance of the students on teaching practice

Table 5: Result of t-test Analysis on Adequate use of skill of Classroom Control in Improving the Performance of the students on Teaching practice

Response	N	Mean	Std. Dev.	T	df	P
Agreed	294	23.95	3.74	13.429	103	0.000
Disagreed	69	14.54	3.40			

Table 5 shows that, there is significant difference on mean performance scores of students' adequate use of skill of classroom control in improving the performance of the students on teaching practice. The p-vale is 0.000 which is less than alpha value of 0.05 level of significance, this means that, there is significant difference in favour of agreement responses. Therefore, null hypothesis two is rejected.

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Discussion of Findings

This study investigated the "Impact of Micro-Teaching skill of Classroom Control on Nigerian colleges of education students' performance in Teaching Practice". Micro-teaching skill variables was investigated in line with the specific objectives and research questions was Classroom Control. The hypotheses tested established a significant p-value meaning that the micro-teaching skill of interest have statistically significant impact on the performance of teachers. The result of the test revealed that the respondents were of the opinion that the selected micro-teaching skills have significant impact on the performance of student-teacher on teaching practice. The null hypotheses were therefore rejected. From the analysis of the relevant data, it was observed that the skill has positive impacts on the performance of student teachers. This finding is consistent with Audu (2010), who reported that micro-teaching is a supplement to teaching practice. The finding also agrees with that of Hertel, Millis and Noyd, (2002) where it was seen as a factor that promote reflection on teaching approaches and on constructive feedback.

Conclusion

Based on the findings of the study, it was concluded that both the theoretical and practical experiences acquired on skill of classroom control by the student teachers during the micro-teaching programme which form major requirement before teaching practice as enshrined in the teacher education curriculum, has played a vital role in polishing the performance of the student teachers for efficiency and effective service delivery

Recommendations

On the basis of the research findings, the following recommendations was put forward:

1. Proper establishment of rules and regulations be mandated on students, this will ensure effective monitoring of students behaviour.
2. Appropriate and efficient application of instructional materials should be used by the student teachers to ensure proper coordination of learners towards attainment of the designed instructional objectives, and
3. Efficient mastery of the subject content help tremendously towards effective service delivery.
4. Government should ensure adequate provision of micro teaching laboratory equip with the needed gadgets to enable the student teachers acquire adequate and sufficient skills to meet up to expectations

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Effects of Heuristic and Jigsaw Strategies on Performance and Retention in Islamic Studies Concept among Secondary School Students in Kaduna State, Nigeria

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Abstract

This study is titled "Effect of Heuristic and Jigsaw Strategy on Academic Performance and Retention of Students in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria." The study used six (6) specific objectives that include, determining the post-test performance scores of students taught the Islamic economic system using the Heuristic strategy and those taught using the conventional method; comparing the post-test performance score of students taught the Islamic Economic System using the Jigsaw strategy, among others. All research questions and hypotheses were in harmony with the objectives. The study was delimited to SS II Islamic Studies students. Only the Islamic Economic System was covered with Heuristic, Jigsaw, performance, and retention ability as variables. The study adopted a Quasi-experimental design with a population of 29 senior secondary schools and 2, 138 students. A 195 sample size was drawn from the population and used from 3 intact classes using the purposive sampling. Islamic Studies Performance and Retention Ability Test (ISPRAT) was used as an instrument for data collection. The instrument was pilot tested and the result obtained for reliability coefficient was 0.83 index level. Data were collected by self and analyzed using Mean and standard deviation, and t-test. Hypotheses1&2 were rejected,3-6retained at 0.05 significant level. Findings made revealed that jigsaw and heuristic strategies boost students' performance more than conventional strategy. Jigsaw and heuristic strategies were found to retain knowledge better than the conventional strategy. It was recommended that schools and teachers should embrace the use of these collaborative strategies

Keywords: Heuristic Strategy, Jig Saw Strategy, Performance, Retention and Islamic Studies

Introduction

Teaching involves the interaction between educators and learners to impart knowledge to students. It is a complex and multifaceted profession, requiring instructors to adeptly manage various activities and objectives simultaneously. Effective teaching necessitates the implementation of rules or regulations that underscore the value of intentional instruction. Teaching, fundamentally, is the act of making someone knowledgeable about a particular subject. It constitutes a teacher's job, career, or professional pursuit, encompassing the concepts or principles authorities convey in a discipline. This pertains to almost every subject students should learn from their teachers, who employ various instructional strategies and resources to facilitate comprehensive learning. Teaching encompasses a variety of tasks undertaken by educators to guide learners toward anticipated learning outcomes. It involves conveying knowledge, instructing individuals on performing tasks and facilitating learning or understanding through example or experience. The art and science of teaching revolve around assisting others in expanding their knowledge, sharing experiences, and learning from one another. Teaching entails creating an environment and interacting with others to facilitate specific learning objectives. Essential elements such as focus, knowledge, and ability are crucial in engaging individuals in learning (Smith, 2018). These definitions highlight that teaching is an interactive process involving the teacher, learners, and the learning environment. Clarity and precision regarding the meaning and responsibilities of teaching are essential for educators, as their understanding profoundly influences their actions in the classroom. A strong grasp of the subject matter, access to quality resources, and the ability to engage students effectively contribute to successful teaching outcomes.

It is sad to say that students at Senior Schools today are not performing well in Islamic studies, and their concentration, attention, interest, remembering, and retention are so low that it is shown or seen in the outcome of their results. This problem could be attributed to Islamic studies teachers' poor knowledge of new or recent/modern teaching strategies. It could also be attributed to teachers' unskilful and unprofessional selection and utilization of such new or modern teaching

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strategies. In addition, poor creativity, motivation, and large class size control could be the reasons for the drop in students' performance in Islamic studies. This and many others inspired the need to conduct the current research. Evidences shown in the works of Ibrahim (2019) and Aliyu (2023). revealed such inconsistency in students' performances in Islamic Studies. Islamic studies students may present good grades in their final results. However, the level of knowledge comprehension, application and recalling or bringing back from the memory what the teacher taught in the class may need to be revised. A series of attempts were made to curtail this problem, but the story is the same today. A teaching strategy that calls for interactivity, cooperativeness, and collaboration is among the better approaches to teaching and learning Islamic studies at senior secondary levels; hence, the choice of Jigsaw and Heuristic strategy in the present study, in which Nguyen, William and Nguyen (2012) made similar assertion. The study covered all Senior Secondary Schools in Zaria Quality Assurance Authority in Kaduna State with only Students of SS II . Conceptually, the study concentrated on two main strategies as independent variables: Heuristic and Jigsaw, as well as the dependent variables of academic performance and retention ability. The content taught was delimited to the concept, items, and issues raised in Islamic studies (Islamic economic system viz-a- zakat, sadaqah and Baytul-mal).

Objectives of The Study

1. Determine the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.
2. Compare the post-test performance scores of students taught the Islamic Economic System using the Jigsaw strategy and those taught with conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.
3. Compare the post-test performance scores of students taught Islamic Economic System using the Heuristic strategy and those taught using the Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.
4. Ascertain the post-test performance and retention ability scores of students taught Islamic Economic System using heuristic strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria.
5. Examine the post-test performance and retention ability scores of students taught the Islamic Economic System using the Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.
6. Compare the retention ability of students taught Islamic Economic System using Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria.

Research questions

1. What are the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria?
2. What is the difference in post-test performance scores of students taught the Islamic Economic System using the Jigsaw strategy and those taught using the conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria?
3. What is the difference in the post-test performance scores of students taught Islamic Economic System using the Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria?
4. What is the difference in the post-test performance scores and retention ability of students taught Islamic Economic System using the Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria?
5. To what extent do the post-test performance scores and retention ability of students taught Islamic Economic System using Heuristics differ in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria?
6. What is the difference in the post-test retention ability of students taught Islamic Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

Hypotheses

Ho_1: There is no significant difference between the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.

Ho_2: There is no significant difference between the post-test performance scores of students taught the Islamic Economic System using Jigsaw strategy and those taught with the conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.

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Ho_3: No significant difference exists between the post-test performance of students taught the Islamic Economic System using the Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.

Ho_4: There is no significant difference between the post-test performance scores and retention ability of students taught Islamic Economic System using Heuristic strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.

Ho_5: No significant difference exists between the post-test performance scores and retention ability of students taught Islamic Economic System using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria.

Ho_6: There is no significant difference between the retention ability of students taught Islamic Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria.

Review of related literature

Learner-Cantered Approaches

By its name, this approach allows learners to determine how the lesson will be handled. The teacher sets the pace of the teaching but allows learners to be fully engaged in a lesson with their voices heard. This approach allows the learners to drive the instruction and set the tone. The teacher provides leadership while the learners contribute to making the lesson successfulBello (2015). This approach makes learning interesting and democratic because all class members (teacher and learners) are involved. The learners see the lesson as their making, and the degree of freedom is further recognized. It makes the lesson passionate and meaningful. This approach is regarded as nurturing the nature strategies under this approach, including discussion, role-play, Heuristic and Jigsaw strategies, which are more relevant to the present work.

Heuristic Strategy

The term heuristic pertains to problem-solving, and the heuristic teaching strategy is grounded in the psychological principles of the trial and error theory. This approach requires logical thinking and imagination as prerequisites. The heuristic teaching strategy is an efficient and rapid method that necessitates independent discovery by students Bichi (2002). In this method, the teacher introduces a problem to the learners and then steps aside, allowing the students to uncover the solution. The heuristic strategy cultivates habits of inquiry and investigation among students, promoting self-study and self-direction. It fosters a scientific attitude by encouraging honesty in decision-making through real experiments. This approach is psychologically beneficial, emphasizing maximum learning through hands-on experience. It instills diligence as most of the work is completed at school, eliminating the need for additional tasks at home. Eze (2021). The heuristic strategy facilitates individual attention, fostering a positive relationship between teachers and learners. It contributes to cognitive, emotional, and psychological development, aiding overall growth. Students are placed in a situation where they learn independently, enhancing confidence and self-control. In the heuristic strategy, learners are presented with a problem and tasked with finding solutions using various resources such as libraries, laboratories, and workshops. The teacher's role is to initiate learning, and students remain active participants throughout the learning process, employing creative thinking and imagination to derive solutions based on logic, thus learning through self-experience.

Jigsaw Strategy

The Jigsaw strategy comprises a home group and an expert group. The lesson is divided into independent sub-lessons that are conducted concurrently, Jansoon, Samsook and Coll (2008). Each student becomes an expert in one sub-lesson as part of a group investigation. The group selects an engaging topic for the investigation, and students generate questions, constructing their knowledge collaboratively. The Jigsaw strategy is a cooperative learning structure suitable for team assignments that require expertise in distinct areas. Students assume the role of "experts" on a concept and are accountable to other group members. The group is subdivided by topic, and members collaborate with peers from other groups who share the same topic. They then return to their original group to explain their respective topics. *Jigsaw* is a cooperative learning strategy grounded in the belief that learning is most effective when students actively share ideas and collaborate on academic tasks. Various Jigsaw approaches have been developed, involving students in teaching their peers. This method is most effective when topics are simple enough for students to teach to their peers but complex enough to warrant discussion and various instructional strategies Atoshi (2014). Topics such as meaning, importance, and conditions meet

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the above criteria that are hoped to make the learner actively involved in peer teaching, as some learners learn better when taught by their peers. This will surely enhance their performance and retention in such a regard.

Methodology

The research employed a Quasi-experimental design, incorporating a post-test as suggested by Sambo (2008) and a post-post test for assessing retention ability. As outlined by Nfon (2013), and Aliyu (2016), who emphasized that the quasi-experimental research design allows for the utilization of intact classes and established cause and effect relationship between dependent and independent variable.The study population comprised of all SS II Islamic Studies Students in Kaduna State, Nigeria. The population was drawn from twenty-nine (29) public senior secondary schools which operate the same academic calendar and curriculum; the population consisted of 2,138 SS II students admitted in the 2023/2024 academic session in Zaria Quality Assurance Authority, Kaduna State (Ministry of Education, 2023) Headquarters, Kaduna State. The research sample size comprised of one hundred and ninety-five (195) students, specifically drawn from SS II Islamic Studies students, through purposive sampling technique. The schools used comprised of Government Girls Secondary School Kofan Gayan (A), Government Secondary School Zaria (B), and Government Secondary School, Karau-Karau (C). The instrument used in this study was a self-structured test item. It was titled "Islamic Studies Performan ce and Retention Ability Test (ISPRAT)". It comprised of 40 multiple-choice items, The students were made to select correct options from four (4) alternative responses, lettered (A-D), drafted from topics on the concept and importance of zakat, baytul-mal and sadaqah in Islam. The test was administered for a specific period of forty (40) minutes. The responses and the findings from the set test were analysed. Eighteen lessons plans were given to the three classes (2 Experimental and 1 Control group). Thereafter two tests were conducted in line with the treatment given. The first test was to determine the mean performance scores, while the second test was administered to determine retention scores. The research used Mean and Standard Deviation at the descriptive level to analyze research questions 1-6. A t-test was used to analyze research hypotheses 1-6. The scores or data acquired from the Islamic Studies performance and retention test were subjected to statistical analysis using the Statistical Package for Social Science (SPSS version 23). The result is presented, thus:

Presentation of Results

Answers to Research Questions

The analysis of research questions using mean and standard deviations were presented in Tables 1 to 6.

Research Question One: What is the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

For this research question, an examination outcome was utilized, and the overview of the scores is outlined in Table 1.

Table 1: Mean and standard deviation on differences in the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	N	Mean	SD	Mean Diff.
Post-test Heuristic Str.	65	24.73	2.92	
				7.6
Post-test Conventional	70	17.18	3.07	

The examination of the outcomes presented in Table 1 indicated the contrast in the average post-test performance scores of students instructed in the Islamic Economic System using the Heuristic teaching strategy and those taught through the conventional strategy in Senior Secondary Schools in Kaduna State, Nigeria. The findings unveiled a post-test mean performance of 24.73 for students taught the Islamic Economic System using the Heuristic teaching strategy, compared to a post-test mean performance of 17.18 for those taught with the conventional strategy, resulting in a mean difference of 7.6 in favour of the Heuristic teaching strategy. This implied, that the Heuristic teaching strategy proved more effective than the conventional strategy in instructing students in the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria.

Research Question Two: What is the post-test performance scores of students taught Islamic Economic System using Jigsaw strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

For this research question, an examination result was employed, and a summary of the scores is outlined in Table 2.

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Table 2: Mean and standard deviation on difference in the post-test performance scores of students taught Islamic Economic System using Jigsaw strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	N	Mean	SD	Mean Diff.
Post-test Jigsaw Str.	60	24.83	2.30	
				8.8
Post-test Conventional	70	16.03	3.00	

The examination of the outcomes in Table 2 illustrated the distinction in the post-test mean performance scores of students instructed in the Islamic Economic System using the Jigsaw teaching strategy compared to those taught through the conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria. The results exhibited post-test mean performances of 24.83 for students taught the Islamic Economic System using the Jigsaw teaching strategy, in contrast to 16.03 post-test mean performances for those instructed with the conventional strategy, indicating a mean difference of 8.8. Therefore, it can be inferred that, the Jigsaw teaching strategy was more effective than the conventional strategy in imparting knowledge of the Islamic Economic System to students in Senior Secondary Schools in Kaduna State, Nigeria.

Research Question Three: What is the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

For this research question, a test outcome was employed, and the compilation of the scores is delineated in Table 3.

Table 3: Mean and standard deviation on post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	N	Mean	SD	Mean Diff.
Post-test Heuristic Str.	65	24.73	2.91	
				0.10
Post-test Jigsaw Str.	60	24.83	2.30	

The analysis of results in Table 3 illustrated the distinction in post-test mean performance scores among students instructed in the Islamic Economic System using Heuristic and Jigsaw strategies in Senior Secondary Schools in Kaduna State, Nigeria. The results disclosed a post-test mean performance of 24.73 for students taught the Islamic Economic System using a heuristic teaching strategy and 24.83 for those taught with a Jigsaw teaching strategy, indicating a mean difference of 0.1. This suggested that Heuristic and Jigsaw teaching strategies are efficacious in instructing students on the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria.

Research Question Four: What is the retention ability of students taught Islamic Economic System using Heuristic strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

For this research question, a concise overview of the scores is provided in Table 4.

Table 4: **Mean and standard deviation on retention ability of Students taught Islamic Economic System using Heuristic strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria**

Variable	N	Mean	SD	Mean Diff.
Post-test Heuristic Str.	65	24.73	2.92	
				0.24
Post-post-test Heuristic Str.	65	24.97	3.06	

The investigation results in Table 4 demonstrated how differently students taught the Islamic Economic System in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria, could retain the material. The findings showed that, students' post-test mean scores were 24.73 and 24.97, respectively, with a 0.24 difference. This indicated that in Senior Secondary Schools in Kaduna State, Nigeria. The heuristic teaching strategy preserved students' learning experiences in Islamic Studies.

Research Question Five: What is the retention ability of Student taught Islamic Economic System using Jigsaw strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

A test result was utilised to address this study question and Table 5 presents a summary of the results.

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Table 5: **Mean and standard deviation on retention ability of students taught Islamic Economic System using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria**

Variable	N	Mean	SD	Mean Diff.
Post-test Jigsaw Str.	60	24.83	2.30	
				0.14
Post-post-test Jigsaw Str.	60	24.97	3.06	

Table 5 is an analysis of the memory ability of students taught the Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using a heuristic teaching style. The findings showed that, students' post-test mean scores were 24.83 and 24.97, respectively, with a 0.14 difference in between the two. This indicated that at senior secondary schools in Kaduna State, Nigeria, the Jigsaw teaching strategy preserves students' learning experiences more in Islamic Studies.

Research Question Six: What is the retention ability of students taught Islamic Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria?

A test result was utilised to address this research topic, and Table 6 presents a summary of the results.

Table 6: **Mean and standard deviation on retention ability of pupils taught Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria**

Variable	N	Mean	SD	Mean Diff.
Post-post-test Heuristic Str.	65	24.66	2.30	
				0.09
Post-post-test Jigsaw Str.	60	24.75	0.81	

Table 6 analysed retention scores for students taught the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, utilising Heuristic and Jigsaw teaching strategies. The findings showed that, with a mean difference of 0.09, the post-test mean scores of students taught the Islamic Economic System using a heuristic strategy was 24.66. In contrast, those taught with Jigsaw strategy had post-test mean scores of 24.75. This indicated that, at senior secondary schools in Kaduna State, Nigeria, heuristic and jigsaw teaching strategies helped students retain their knowledge of Islamic economic system and beyond.

Test of Hypotheses

Hypothesis One: There is no significant difference between the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria

Data collected to address the null hypothesis one was summarised and presented in Table 7.

Table 7: t-test analysis on the mean difference of post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	Mean	SD	Df	t-cal.	Sig.
Post-test Heuristic Str.	24.73	2.92			
			133	11.95	.003
Post-test Conventional	17.18	3.07			

Table 7 examined the differences in the mean performance scores on the post-test between students taught the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using a heuristic strategy and those taught with conventional strategy. Because the sig. value of.003 is considered less significant at the 0.05 level. Hence, the null hypothesis was rejected. Thus, in Islamic Studies at Senior Secondary Schools in Kaduna State, Nigeria, there is no discernible difference in the post-test performance scores of students taught Islamic Economic System using heuristic strategy and those taught it using a conventional strategy.

Hypothesis Two: There is no significant difference between the post-test performance score of students taught Islamic Economic System using Jigsaw strategy and those taught with conventional strategy in Islamic Studies in Senior Secondary Schools Kaduna, Nigeria

Data collected to address the null hypothesis two was summarised and presented in Table 8.

Table 8: t-test analysis on the mean difference between the post-test performance score of students taught Islamic Economic System using Jigsaw strategy and those taught with conventional strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

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Variable	Mean	SD	Df	t-cal.	Sig.
Post-test Jigsaw Str.	24.83	2.30			
			128	9.77	.002
Post-test Conventional	16.03	3.00			

Table 8 examined the differences in the post-test mean performance scores between students taught Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using the Jigsaw strategy and students taught using conventional strategy. Because the sig. value of 002 is below the 0.05 level of significance; the null hypothesis was rejected. This indicated that, in Islamic economic system in Senior Secondary Schools in Kaduna Nigeria, there is no discernible difference in the post-test mean performance scores of students taught Islamic Economic System using the Jigsaw strategy and those taught with conventional strategy.

Hypothesis Three: There is no significant difference between the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools Kaduna, Nigeria

Data collected to address the null hypothesis three was summarised and presented in Table 9.

Table 9: t-test analysis on the mean difference of the post-test performance scores of students taught Islamic Economic System using Heuristic strategy and those taught using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	Mean	SD	Df	t-cal.	Sig.
Post-test Heuristic Str.	24.73	2.91			
			123	.212	.833
Post-test Jigsaw Str.	24.83	2.30			

Table 9 examined the differences in the post-test mean performance scores of students taught the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using Heuristic and Jigsaw strategies. Because the sig. value of.833 is more than 0.05 significant level, so the null hypothesis was retained. This indicated no discernible difference in the post-test mean performance scores of students taught the Islamic Economic System in Senior Secondary Schools in Kaduna, Nigeria, using Heuristic strategy and those taught with Jigsaw strategy.

Hypothesis Four: There is no significant difference between post-test mean performance scores and retention ability of students taught Islamic Economic System using Heuristic strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria

Data collected to address the null hypothesis four was summarised and presented in Table 10.

Table 10: t-test analysis on the mean difference between post test performance scores and the retention ability test of students taught Islamic Economic System using Heuristic strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	Mean	SD	Df	t-cal.	Sig.
Post-test Heuristic Str.	24.73	2.92			
			128	.987	.185
Post-post-test Heuristic Str.	24.97	3.06			

Table 10 revealed the difference in the post-test and post-post-test mean performances of students taught the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using heuristic strategy, is displayed. Because the sig. value of .185 is more than the 0.05 significant level, so the null hypothesis was retained. This indicated no discernible difference between the performance (post-test) and retention ability scores of students taught Islamic Economic System with heuristic strategy in Senior Secondary Schools in Kaduna State, Nigeria.

Hypothesis Five: There is no significant difference between post-test mean performance scores and the retention ability of students taught Islamic Economic System using Jigsaw strategy in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria

Data collected to address the null hypothesis five was summarised and presented in Table 11.

Table 11: t-test analysis on the mean difference between post-test performance scores and the retention ability test of students taught Islamic Economic System using Jigsaw strategy in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

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Variable	Mean	SD	Df	t-cal.	Sig.
Post-test Jigsaw Str.	24.66	2.30			
			118	.168	.352
Post-post-test Jigsaw Str.	24.97	3.06			

Table 11 examined the differences in the mean performances of students taught the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, using the Jigsaw teaching technique. Because the sig. value of.352 is more than the 0.05 significance level; the null hypothesis is kept. Thus, using the Jigsaw technique, the post-test mean performance scores and retention ability scores of students taught Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria, do not significantly differ.

Hypothesis Six: There is no significant difference between the retention ability of students taught Islamic Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools Kaduna State, Nigeria

Data collected to address the null hypothesis six was summarised and presented in Table 12.

Table 12: t-test analysis on the mean difference between the retention ability of students taught Islamic Economic System using Heuristic and Jigsaw strategies in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria

Variable	Mean	SD	Df	t-cal.	Sig.
Post-post-test Heuristic Str.	24.66	2.30			
			123	18.36	.271
Post-post-test Jigsaw Str.	24.75	0.81			

Table 12 examined the differences in the post-test mean performances of students taught the Islamic Economic System in Islamic Studies at Senior Secondary Schools in Kaduna State, Nigeria, using Heuristic and Jigsaw teaching methodologies. Because the sig. A value of.271 is more than the 0.05 significance level, so the null hypothesis is kept. Consequently, this indicated that, Jigsaw and Heuristic teaching techniques greatly preserved students' learning experiences. Therefore, in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria, there is no discernible difference in the memory capacity of students taught the Islamic Economic System using heuristic and jigsaw strategies.

Discussion of Findings

Based on the findings of the study, the following discussions were made. Students instructed in the Islamic Economic System using the Heuristic teaching strategy demonstrated significantly higher performance than those taught using the conventional method in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria (p= .003). This observation aligns with Eze's (2001) assertion that a systematic approach to problem-solving, such as heuristic learning, fosters positive learning habits, contributes to clarity in thinking, enhances logical reasoning, and promotes intellectual development. When these attributes are cultivated, there is a positive impact on students' performance and retention. Similarly, the performances of students instructed in the Islamic Economic System using the Jigsaw teaching strategy were significantly higher than those taught using the conventional method in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria (p= 0.002). This finding aligns with the report of Jansoon, Samsook and Coll (2008), who emphasized that the Jigsaw strategy involves two groups: a home group and an expert group. The lesson is divided into independent sub-lessons conducted in parallel. Each student becomes an expert in one sub-lesson as part of a group investigation. The group selects an interesting topic for research, generates questions, and constructs knowledge collaboratively. The Jigsaw strategy applies to team assignments requiring expertise in several distinct areas. Students become "experts" in a concept and are responsible for educating other group members. The hierarchical knowledge structure allows each step to be studied separately and later integrated.

Heuristic and Jigsaw strategies are notably effective in instructing students in the Islamic Economic System in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria (p= 0.833). This result aligned with Kapp's (2012) report that both strategies enhance thinking, excitement, competition, and cooperation, thereby enhancing students' learning experiences. Heuristic strategy significantly retains students' knowledge of the Islamic Economic System in Senior Secondary Schools in Kaduna State, Nigeria (p= .185). This finding resonated with Shika's (2019) assertion that, Heuristic strategy aids learners in approaching problems scientifically, broadens their minds, encourages critical thinking, logical reasoning, and active involvement in learning. It makes learning more meaningful, joyful, and permanent, fostering enthusiasm and interest in students. The jigsaw teaching strategy also significantly retains students' knowledge of the Islamic Economic System in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria (p= .352). This finding

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is consistent with Lilian's (2012) report on Jigsaw, highlighting its positive effects on student participation, learning content comprehension, attitude toward learning, and social relationships within groups. Each student's unique contribution is valued, and cooperation and communication become essential, making students active participants in the learning process. Heuristic and Jigsaw teaching strategies significantly enhance the retention of Islamic Economic System learning experiences in Islamic Studies in Senior Secondary Schools in Kaduna State, Nigeria (p= .271). This result aligned with Lilian's (2012) observation that, cooperative learning strategies such as Jigsaw, Heuristics, Individualized instruction, and Think-pair-share contribute to retaining students' knowledge and provide them with opportunities to teach themselves, promoting a depth of understanding. The strategy encourages self-teaching, a valuable skill for students to develop. Asking each group to discuss a follow-up question after an individual presentation fosters genuine and collaborative discussion.

Recommendations

Drawing from the outcomes of this study, the following recommendations are put forward:

1. School authorities should train teachers on the proper use of Heuristic strategy and encourage Islamic Studies teachers to use Heuristic strategy to teach Islamic Studies in all the topics since it enhances students' performances. Islamic Studies teachers of secondary schools should be motivated by the HOD or HOS to use Heuristic strategy. This is because it enhance good student retention of Islamic Studies content. A heuristic strategy should be used instead of the conventional teaching strategy.
2. Islamic Studies teachers in Senior Secondary Schools should use the jigsaw strategy in teaching the subject because it is better than the conventional strategy. Teachers should be discouraged from relaying solely on using traditional strategy. Teachers should update their knowledge of new ways of teaching that encourage collaboration. Islamic Studies teachers should be guided on utilizing and upgrading the use of Jigsaw strategy to make students' learning experiences more permanent and real in Islamic Studies in Senior Secondary Schools in Kaduna state.
3. Both Heuristic and Jigsaw strategies should be encouraged to be used by Islamic Studies teachers when teaching Islamic Studies in Senior Secondary Schools in Kaduna state. The school authority should ensure such compliance through the head of the departments or the head of the subject. School authorities should organize continuous professional training for Islamic Studies teachers on the process of selecting and professional use of Heuristic and Jigsaw strategies in their teaching. Both Heuristic and Jigsaw strategies should be encouraged to be used by Islamic Studies teachers when teaching Islamic Studies content to retain the learning experiences. This is because the two strategies were found to help students retain and recall previously learned content with ease and motivation more than conventional strategy. Teachers who use these strategies should be motivated by school authority through public recognition or commendation (verbal or written), as the case may be. This is in order to motivate other teachers and general competitiveness

Conclusion

The paper concluded that Heuristic and Jigsaw teaching strategies in Islamic Studies promote motivation, active participation and efficient collaboration in the instructional process. It also concluded that Students create knowledge by themselves, develop confidence and defend their findings in a small group or large class.

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Qualitative Study on Inclusive Education in Early Childhood Care in Nigeria: Challenges and Prospects

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Abstract
The right of children to have access to inclusive education is widely supported and well recognized in international human rights law. Inclusive education involves the placement of learners with disabilities and non-disabilities to study in the same classrooms with adaptable facilities and equipment. Meanwhile, in Nigeria over the past three decades, focus on inclusive education has been pervasive at all levels of educational system including in early childhood education, as the school system struggle to meet the needs of children who are physically challenged. It has been argued that for a society to develop, education must be inclusive and global organization are not left behind on the global initiative for inclusion in education. However, despite the numerous advantages of inclusive education there are various factors contending with effective implementation of the programme in early childhood education. This paper attempts to highlights the concepts of inclusion, understanding inclusion in education, the value of inclusion in early childhood education and some of the basic requirement for the inclusive programme to be feasible in Nigeria educational system most especially in early childhood education. In addition, the paper discusses the challenges militating against inclusion in early childhood education and practical ways to overcome the challenges are provided.

Keywords: Inclusion, early childhood care and education, challenges, children with disabilities

Introduction
Education is often seen as a powerful tool for sustainable development of every nation as it integrates and addresses the particular needs and aspirations of all citizens within educational system. Education stands as the primary determinant shaping the momentum of humanities with potentials influence on both ecology and economy to enhance outstanding national growth in the future (Hasanova, & Safarli, 2024; Werner & Woessmann, 2023; This resonates with UNESCO (2020) that education is a process of human interactions as it represents both the present and the future to facilitate effective teaching and learning process. This implies that education is fundamental to the development of any society and nations working towards sustainable development must be considered as the primary anchor for development and sustainability. Therefore, the primary objectives of Sustainable Development Goals globally are promoting transformation and improvement of the lives of the citizen (Mérida-Serrano et al. 2020). This is because the place of education is vital to the development of any nation or society. They further stressed that education provides people with the necessary knowledge to help develop a nation or society. This explains why the Nigerian government introduced the policy of attaining national development through quality education.

In the same vein, Sustainable Development Goal Four (SDG4) highlights the importance or needs for inclusive, equitable, and quality education, with lifelong learning opportunities for all without discrimination (UNESCO, 2020). This implies that sustainable development goal four (SDG4) highlights the need for inclusion, equitable and quality education with learning opportunities void of discrimination (Elfert, 2019). Therefore, it is pertinent to note that, SDG (4) ensures that both equitable and quality education as well as inclusive education is available to all which will, in turn, promote opportunities for those who are disadvantaged and vulnerable within the school system. The inclusive education approach is gradually gaining global acceptability as an approach to education that promote quality education for all learners irrespective of their physical status or backgrounds (Angwaomaodoko, 2023). To this end, based on the need to ensure equitable development, United Nation Educational, Scientific and Cultural organisation (UNESCO) has played a crucial role in advocating integrating learners with needs into Nigerian main stream educational system.

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The Concept of Inclusive Education

Inclusive education is an educational concept that has gained global recognition for learners with disabilities. It is generally referred to as an educational system where all learners, including those with special educational needs or disabilities can easily participate in learning within the same classroom without discriminations (Hornby & Kauffman, 2024). Similarly, Torgbenu, Oginni, Opoku, Nketsia, and Agyei Okyere (2021) reaffirmed that inclusive education is operationalised as the creation of opportunities to explore the inclusion of learners with developmental, cognitive and sensory disabilities to learn in regular classrooms. It is a pedagogical approach that the primary objectives is to promote effective learning for children irrespective of their backgrounds, families, abilities or learning disabilities confronting the teaching and learning process (Singh, &Gupta, 2025). Furthermore, inclusive education implies that learners with various disabilities and their peers without disabilities are given the same condition without been marginalized despite their abilities or disabilities (Adigun, 2021; Opoku et al., 2020). In line with this concept, it is interesting to note that, Nigeria embraced inclusive education as stipulated in the National Policy on Education (Federal Republic of Nigeria, 2004). This document emphasises on the accommodation and integration of all learners at all levels including pre-primary education that equal opportunity for all learners should be ensured. The policy was however inclusive, as it was formulated with emphasis on equity that all learners should have access to education for all categories irrespective of their abilities or disabilities. Therefore, Nigerian government has committed to promoting inclusive education by formulating policies that would favour the implementation at all levels of the educational system.

Inclusive Education in Nigeria

The rate at which global world accepts inclusive education from one country to the other varies most especially, the developed countries have gone beyond policy formulation phase and have implemented full inclusion in their education system (Iwuamadi, & Mang, 2021). Most importantly, inclusive education was more pronounced in 1994 during the world conference held in Salamanca, Spain where more awareness was created on the need for conscious efforts to foster effective inclusion where learners that are physically challenge could access regular education system (Ozorji, 2025). At this conference 94 countries including Nigeria and some African countries concur with the implementation of inclusive education all over the world. Along similar line, at the global level, 2015 has been a year of evaluation and assessment of international agenda such as Education for All (EFA) and Millenium Development Goals (MDGs) and where there was intense debate about the future of global development in the area of inequality of educational opportunities in which most African countries are still far behind (ADEA, 2017). Meanwhile, despite this development, studies revealed that other developing countries like Nigeria, Ghana, Kenya are still struggling with implementation, provision of facilities and capacity building that will facilitate full implementation of inclusive education for the physically challenge children in the educational system. Angwaomaodoko (2023) observed that Nigerian educational system is still far behind other developed nations because no concrete step has been taken with regards to implementation of inclusive education in Nigeria. This is because fundamental principle of inclusive education is ensuring equality and equity for all learners by contending with challenges like educational structure, policies, indigenous beliefs and resource allocation (Honkasahta, 2024). Lawal (2022) observed that implementation of inclusive education in Nigeria is a function of holistic, systemic reform of the funding, adoption of unique pedagogy, adequate infrastructural facilities that will terminate all the challenges contending equal educational opportunities as other able learners.

The value of Inclusion in Early Childhood Education in Nigeria

Early childhood education is globally recognised as a viable foundation in the development of any society and essential to a nation's educational landscape, upon which future educational achievement and societal contributions are built (Adewusi, Al Hamad, Adeleke, Nwankwo, & Nwokocha, 2024). Inclusive early childhood care and education settings in these contexts are where children with diverse learning characteristics participate and learn together without hegemony (Soukakou, Dionne, & Palikara, 2024). The value of inclusion in early childhood education is very crucial to enhancement of equitable and quality teaching for all learners, including those with disabilities or diverse; learning needs in Nigeria. Early childhood education and care programmes provide opportunities to promote children's learning and development, most especially when it is children centered where interactions are embedded (Eadie, Page, Levickis, Elek, Murray, Wang, & Lloyd-Johnsen, 2024). It is a sacred period of lifelong learning, character formation, acquisition of norms and values of the society (Neuman & Powers, 2021). Along similar line, Umo (2020) observed that early childhood education is a crucial

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stage for development of the sensory organ to handle information, express emotion normally and become proficient in language. For decades, one of the crucial issues of controversy in educational system has been the inclusion of children with disabilities in mainstream classrooms in Early Childhood Care and Education (Mpofu 2022). Over the years, strong research evidence has been accumulated on the value of inclusive education practices with or without disabilities from early childhood education phase to tertiary institutions (Guralnick & Bruder, 2016). Inclusive education emphasises on the significance of creating an environment where every child feels valued, supported and empowered to succeed without been marginalized in any form discrimination and marginalization.

Challenges of Inclusive Education in Nigeria

Despite the pronouncement of inclusive education in Nigeria, study reveal that there are various factors militating against the implementation of this program in which children with special needs are denied access to inclusive education and many suffer stigmatization and rejection (Onwuchekwa & Kayode, 2021). Generally, discrimination of children with special needs are so pronounced in all facets of life in which educational system is not exempted at all levels. In order words, fundamental rights of learners to have free access to education are trample upon (Agunowei, & Mayombe, 2024). To this end, in most developing countries including Nigeria, the challenges include negative attitudes about inclusive education, discrimination of learners with disabilities, poor monitoring and supervision of inclusion, inadequate infracstructural facilities for learners with disabilities, poor quality teacher education, government will and financial provision and inaccessible schools and curricula (UNESCO, 2020). This is supported by Dube, Ncube, Mapuvire, Ndlovu, Ncube, and Mlotshwa (2021) that exclusion of learners is traceable to many obstacles and majority of the challenges militating against inclusion emanate from environment and communities at large as result of society's stigmatisation, negative altitudes, stereotyping and other forms of discrimination. However, it is worthy of note that Nigerian constitutional laws and policies on inclusive education is highly outstanding and commendable compare with other African countries (Angwaomaodoko, 2023). He reiterates further that despite this well designed and formulated policies, there are various factors confronting the implementation of these policies most especially at the pre-primary and primary education phase, which is the foundation of learning. This implies that proper attention must be given to inclusive education at this level for the strength of a building is determine by the foundation.

In addition, one of the most outstanding impediments contending with enhancement of inclusion is that majority of the teachers/caregivers lack the knowledge, capabilities and potentials required by their profession to accommodate children with disabilities in mainstream classroom (Femi, Olufemi, & Oladele, 2024). Many caregivers resist the adoption of inclusive education just because they are not trained to handle children with special needs. Meanwhile, for effective teaching and learning process, caregivers must be able to accommodate children with various disabilities as some of the disabilities required teachers/caregivers that are specially trained in special schools (Iwuamadi, & Mang, 2021). For instance, deaf and dumb children must be taught how to communicate through sign language and blind children need to be taught how to use brail machine. Furthermore, many schools still experience insufficient infrastructural facilities and provision of learning support materials including machinery such as braille, tricycle and canes that would facilitate effective teaching of inclusive education (UNESCO, 2020).

Conclusion

There is no doubt about the fact that the implementation of inclusive education in early childhood education especially in Nigeria, is confronted with numerous challenges. Meanwhile, inclusion in early childhood education is centered on the belief that every child can learn and thus should be accorded equitable access to excellent education despite their physical appearance, religious background, economic, gender, beliefs, political ideology, and life styles disparities (Hlalele 2021; Walker 2020; Berkovich 2021). Therefore, inclusive education is crucial to promote quality and equitable teaching for all learners, where children with and without disabilities are educated together.

Recommendations

The following are the recommendation emanating from this study:

1. There should be no segregation or discrimination among learners in early childhood education and since all children are important, they should be treated equally.
2. Inclusive caregivers must be allowed to undergo periodic training to stay abreast of inclusion education dynamics in early childhood education.

3. Enabling environment should also be provided for inclusive education in order to enhance effective participation of the children with special needs.
4. More attention should be placed on implementation of policy, regular monitoring and effective follow-up to promote the development of inclusive education in Nigeria.

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Qualitative Study on Integration of Artificial Intelligence Technology in the classroom: Does it Help or Hinders learning?

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Abstract

In the presence of challenges human being tend to look for solution. The advent and use of AI became popular as a result of the pandemic which broke out in the year 2020. When all activities were put to a stop, solutions were found through the use of computers which includes the use of machines to carryout tasks that human beings do like teaching and learning. The integration of AI in education has brought about significant changes that enhance learning experiences. In this study, the discussion focused on the history of AI, the AI devices used in teaching and learning, the uses of these AI devices, the advantages and the disadvantages of the AI devices was discussed relation to the teaching and learning in the classroom. It analyses the role of teachers in AI-based teaching and the challenges of using AI-powered tools in classroom instruction delivery and learning. Finally, the paper presents the problems that come with the use of AI and it is recommended that the application of AI in teaching and learning can ultimately transform education, improve learning outcomes, and equip students with the skills needed to succeed in this AI era of transformation. However, it is concluded that AI is helping in the classroom and it is not an hinderance to learning if it is well monitored and used with the human supervision.

Keywords: *Teaching, learning, Classroom, tools, Assessment, Artificial intelligence*

Introduction

AI seems to be everywhere nowadays, which means it is unavoidable to pass slowly into the classroom. AI can make decisions, solve problems, understand and create natural language, and learn from data. With the emergence of AI, there is already a shift in how teaching and learning unfolds. The use of Artificial Intelligence by elites particularly the students in the higher institutions of learning at various degrees prompted this present study. As an educator, the kinds of responses receive from undergraduate and postgraduate students during teaching and assessment is observed to be more of artificial intelligence than the human critical thinking. Zachari S. et. al. (2022) opined that well-designed assessments are essential for determining whether students have learned or not. It is only through assessment that we can find out whether instruction has had its intended effect, because even the best designed instruction cannot be guaranteed to be effective (Kumo & Abdulsalam-Nuhu 2023) Traditional assessment practices, like multiple-choice questions, essays, and short answer questions, have been generally used to deduce student knowledge and learning (Kaipa, 2021). With the advent of AI, assessment becomes more effective and easier because of the ability of AI to analyze student performance and identify students that are not doing well therefore providing timely remediation to those learners that are not doing well.

Artificial Intelligence

Artificial intelligence (AI) is a rapidly evolving field of computer science and technology that focuses on creating machines, systems, or software programs capable of performing tasks that typically require human intelligence. These tasks include reasoning, problem solving, learning, perception, understanding natural language, recognising patterns and images, decision-making, learning from experience, and even driving anonymous. AI systems are designed to simulate or replicate human cognitive functions and acclimate to new information and situations. Naqvi, (2020) defined AI as a field of computer science that involves creating computer programs capable of imitating intelligent behaviour and ideally enhancing human-like abilities**.** AI capabilities grew slowly at first but advances in computer speed and cloud computing and the availability of large data sets led to rapid advances in the field of artificial intelligence. Now, anyone can access programs like ChatGPT, which is capable of having text-based conversations with users, and organizations are using AI for everything from developing driverless cars to reading radiographs to setting airline prices. To constructing robots that can serve as a maid or a partner. Now, it is vital for education to change to and accept technological innovations in our constantly changing society. AI has become a potent technology with great potential for changing how we teach and learn. AI has the power to transform education, to create new opportunities and improve students' educational experiences. AI tools such as Bing and ChatGPT have been referred to as objects individuals can think with, especially in the teaching-learning situation for learners to enhance their ability to think critically and reflectively, foster creativity, acquire problem-solving skills, and grasp concepts effectively (Vasconcelos et al., 2023)

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History of Artificial Intelligence

History of Artificial intelligence has been traced to Alan Mathison Turing a British logician and computer pioneer in the 1930s who carried out the earliest substantial work in the field of artificial intelligence in the mid-20th century. Turing described an abstract computing machine consisting of a limitless memory and a scanner that moves back and forth through the memory, symbol by symbol, reading what it finds and writing further symbols. The actions of the scanner were dictated by a program of instructions that was also stored in the memory in the form of symbols. This was referred to as Turing's stored-program concept, and what it implied in it is the possibility of the machine operating on, and so modifying or improving, its own program. Turing's conception is now known simply as the universal Turing machine that is all modern computers are in essence universally called Turing machines. Turing gave quite possibly the earliest public lecture (London, 1947) to mention computer intelligence, saying, "What we want is a machine that can learn from experience," and that the "possibility of letting the machine alter its own instructions provides the mechanism for this." In 1948 he introduced many of the central concepts of AI in a report entitled "Intelligent Machinery." However, Turing did not publish the paper, and many of his ideas were later reinvented by others. For instance, one of Turing's original ideas was to train a network of artificial neurons to perform specific tasks, an approach described in the section as Connectionism.

The Turing Test

In 1950 Turing by-passed the traditional debate concerning the definition of intelligence by introducing a practical test for computer intelligence that is now known simply as the Turing test. The Turing test involves three participants: a computer, a human interrogator, and a human foil. The interrogator attempts to determine, by asking questions from the other two participants, which is the computer. All communication was through keyboard and display screen. The interrogator may ask questions as penetrating and wide-ranging as necessary, and the computer is permitted to do everything possible to force a wrong identification. (For instance, the computer might answer "No" in response to "Are you a computer?" and might follow a request to multiply one large number by another with a long pause and an incorrect answer.) The foil must help the interrogator to make a correct identification. A number of different people play the roles of interrogator and foil, and, if an adequate proportion of the interrogators are unable to distinguish the computer from the human being, then (according to proponents of Turing's test) the computer is considered an intelligent, thinking entity.

Uses of Artificial intelligence tools in the classroom

Artificial intelligence (AI) has long been used in the field of education. Meacham (2021), study indicated that people began to try to replicate human thought processes as early as 1763, when Thomas Bayes developed Bayesian reasoning. Thereafter, "the analytical engine," was created by Charles Babbage to perform mathematical computations, and it came about more than seven decades later. Currently, artificial intelligence (AI) is widely used as a major tool in the classroom ranging from preparation of lesson plans, instructional delivery, assessment and research. This is because AI has been seen to have the ability to increase learning outcomes, increase access to education, and enhance the general quality and effectiveness of educational practices and systems. Some of the AI devices used in teaching and learning can be in different forms ranging from the instructional planning, instructional delivery to assessment. Some of the AI tools commonly used in teaching and learning are explained below with their uses.

Edcafe AI; this is the ultimate all-in-one teaching assistant, that is designed to lighten teachers' workload without compromising quality. It is used in drafting standards-aligned lesson plans, creating interactive quizzes, streamlining grading, or generating dynamic educational materials, It is spontaneous, efficient, and built specifically with having educators in mind. Edcafe AI creates assessments that really engage students with interacting quizzes that can be accessed at anytime, anywhere with just a scan QR code Edcafe AI designs assessments that actively involve students, giving personalized AI feedback after they complete assessments. Also, there is a smart submission dashboard that tracks progress and highlights areas where students may need extra support.

Edcafe AI also grade without losing the human touch which is done by Auto-Graded Assignments this Save time on repetitive tasks while maintaining control over scoring rules., Curriculum-Aligned Rubrics which Ensure consistency and fairness across evaluations, Personalized Feedback at Scale which deliver tailored insights to each student, highlighting strengths and offering actionable suggestions for improvement and Smart Submission Dashboard for Insights: Stay organized with a centralized dashboard that tracks all student submissions.

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Brisk Teaching

This is another AI tool which is an AI assistant that helps the teacher continue with the classroom instruction that has already started. It is a Chrome browser extension which integrates seamlessly with the websites and learning management systems you already use, like Google Docs, Gmail, or your school's LMS. It brings AI assistance directly into your daily workflow, offering tools like a lesson plan generator, a differentiation advisor, and a writing feedback tool for student essays. For example, you can highlight text in a Google Doc (*say, a draft lesson plan*) and ask Brisk to tweak it "*make this more engaging for senior secondary school 1 students*" and the AI will suggest revisions on the spot. Or, while grading a student's essay online, Brisk can generate feedback comments and even tutoring tips to help guide the student's improvement. uses; Brisk teaching help teachers in seamless integration into their workflow. Instead of going to a separate AI website or tool for help, Brisk comes to you on the pages you're already using. It's a newer entry in the AI education space and the people that have tried it commended the usage and convenience.

Eduaide AI: This tool is an AI-powered assistant that is used in AI workspace for planning lesson and resource creation. This tool simplifies lesson planning and feedback for teachers needing comprehensive lesson planning tools and for generating classroom-ready materials that aligned with learning standards and evidence-based strategies. For instance, a teacher can ask *for a senior secondary school 1 student* chemistry lesson on separation techniques, and Eduaide will draft objectives, a warm-up question, an activity, and an assessment prompt in seconds. uses; Eduaide AI help teachers reorganizes their planning process tremendously. It's like having a personal curriculum assistant that can instantly produce materials tailored to your grade level and subject. Other notable AI-powered assistant are; TeacherBot, Education Copilot and Auto-Classmate, Edcafe AI, Brisk and Eduaide AI are designed to give educator a starting point for high-quality lesson plans and materials these are evolving quickly and many teachers are experimenting with them. Edcafe AI, Brisk Teaching and Eduaide AI are AI tools used for planning instructional lessons.

Gradescope: This is another AI tool that is used for grading students, it is a Digital grading and assessment tool and it contains features like AI-assisted grading, Rubric development and Analytics. It streamlines grading with AI for educators needing efficient grading solutions. Gradescope uses AI to group similar student answers together which means instead of reviewing each response individually, you can grade all identical answers at once. It works for handwritten exams, coding projects, and even online quizzes, and it keeps things fair with its rubric-based scoring system. Grade-scope use AI to streamline the grading process and offer prompt, reliable feedback (Muath, et al., 2019), uses; it saves time. It brings about less repetitive grading as it allows teachers to grade an entire class response in one go rather than student-by-student.

CoGrader: This is used in grading essays and open-ended responses. CoGrader is an AI-powered tool that evaluates written assignments quickly, providing instant feedback and scores based on your rubrics. It reduces grading time by up to 80%, making it a powerful resource for teachers managing large workloads. Advantages; CoGrader is notable for handling written assessments. It reduces the grading load, especially in writing-heavy courses/subjects. It speeds up scoring while still providing constructive, individualized feedback to students, ensuring they receive meaningful guidance to improve their work.

ClassPoint AI Quiz Generator: It is used in interactive presentation and it has features like quizzes, annotation tools and it is used by teachers to enhance classroom presentations ClassPoint AI is worth checking out because it add-in works right inside PowerPoint and automatically generates quiz questions from the content of your slides. If it's a full paragraph or just a single keyword, ClassPoint can whip up multiple-choice, short-answer, or even higher-order thinking questions aligned with Bloom's taxonomy. The best part is that You don't have to leave PowerPoint to do all these because they are done are done within the app. Uses; ClassPoint saves time in construction of quiz items, it instantly prepares a range of questions from the slides, including higher-order thinking questions, which when preparing for assessments. Also, it is easy to integrate and use so there is no need to manage separate tools. ClassPoint helps to involve all students because it stimulates students to be more involved, as they can all respond to the interactive quizzes during class.

QuestionWell: Its primary purpose is for AI question generation.it is an AI-powered tool that help teachers create personalized learning materials for their students. Features like Question generation and Export options are found in this tool. Simplifies quiz creation. Teachers creating quizzes and assessments This AI tool takes any source material, whether it's text, a YouTube video link, or an article, and generates a variety of quiz questions for you. For example, multiple-choice, fill-in-the-blank, short-answer prompts, and even learning objectives. It's perfect for quickly building question banks for exams, review games, or anything else you need.

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uses; QuestionWell saves time by generating quality questions that are standards-aligned and fully editable. Instead of starting from scratch, you can instantly get a mix of factual recall and higher-order thinking questions with just a click.

Yippity: This is another AI-powered tool that makes quiz creation a breeze. You can paste in text, an article, or even notes, and Yippity will automatically generate a set of quiz questions, including multiple-choice, true/false, and fill-in-the-blank formats. It even creates flashcards for review, and If you've got existing materials lying around, Yippity can turn them into quizzes or study aids in seconds. uses; yippity is fast and versatile because it can make quizzes, flashcards and question and answer in a short time giving the students multiple ways to study. Other AI assessment tools are Kahoot AI generator and quizlet. Gradescore, CoGrader, ClassPoint AI Quiz Generator, questionwell, and yippity are AI tools used for assessment purpose.

Curipod: This AI-powered platform creates interactive slide decks designed to engage students from start to finish. for example if you as a teacher give it a simple quick, like "solar system introduction for senior secondary school 1", and Curipod generates a presentation complete with quiz questions, polls, word clouds, and drawing prompts. You can twist the slides or use them as-it is. Since it's flexible enough to fit your teaching style. uses; Curipod energizes even quiet classrooms, Its a mix of polls, quizzes, and creative questions. It helps to build confidence in introverted students and also helps to transform disengaged classroom into an active and buzzing.

ThingLink + Skybox by Blockade Labs: This AI-powered tool is a combination of ThingLink and Skybox. ThingLink lets you create interactive images and virtual tours, while Skybox uses AI to generate 360° panoramic environments based on simple text descriptions. For example, describe "a bustling marketplace in ancient Rome," and Skybox will create the scene for you. Once imported into ThingLink, you can add interactive hotspots, labels, quizzes, or narration to bring the environment to life. Curipod, ThingLink and Skybox are AI tools use in student engagement in the classroom

Khan Academy – Khanmigo; This AI tool offers a personal tutor that is available to every student in the classroom. Someone who asks thoughtful questions, provides hints, and guides them step-by-step through problems. Built on advanced language models, Khanmigo acts as an AI-powered tutor and teaching assistant. It engages students in Socratic dialogue. Whether it's explaining a tricky concept or walking them through homework problems, Khanmigo responds in a coaching style that feels human-like and supportive. uses; it handles individualized questions from students and effectively offering one-to-one teaching on demand.

Duolingo: This is a tool that keep students engaged while learning a new language. This popular app uses AI to personalize practice for each learner. Its Birdbrain AI ensures every student gets a tailored experience that matches their skill level. Duolingo keeps learning fun and game like with points to earn, levels to pass, and instant feedback on answers. The premium tier, *Duolingo Max*, takes things further by integrating OpenAI's GPT-4. Features like *"Explain My Answer"* provide detailed breakdowns of why an answer was right or wrong, while *"Roleplay"* lets learners practice conversational skills by chatting with an AI character. Even though Duolingo is primarily a consumer app, many language teachers recommend it as a supplement because of its strong personalization and engagement.

Quizlet with Q-Chat: A web-based platform that allows users to create digital flashcards, practice quizzes, and play study games to help them learn and memorize information. it is used in Learning platform with flashcards. Flashcards and Study modes are the features of a quizelet. It is used to offer diverse study tools. Used by Students and teachers looking for study aids. Quizlet has long been a staple for study tools, but its **Q-Chat AI tutor** takes things even further. Q-Chat, built on OpenAI's ChatGPT, acts as an adaptive chatbot that guides students through study sessions. For example, a student can choose a set of flashcards and enter a chat where the AI tutor asks questions, gives hints, and corrects misconceptions. It's like having an interactive study buddy that employs the **Socratic method.** Quizlet is already widely used in classrooms because it's effective and familiar to students. With the addition of Q-Chat, it becomes even more powerful. Teachers love how Q-Chat can coach students in a dialogue, making studying more engaging and less passive. Quizlet's AI is fully adaptive and grounded in the exact material provided by the teacher or student, reinforcing the concepts that matter most. Khan Academy – Khanmigo, Duolingo and Quizlet with Q-Chat are all tutoring and personalized learning.

ChatGPT: This a general AI chatbot (developed by OpenAI) that many teachers have adopted as a multi-purpose tool. It is not built exclusively for education but can generate text on almost any topic, making it incredibly useful for creating teaching content. Educators use ChatGPT to draft lesson plans, brainstorm project ideas, create essays or paragraphs, compose emails to parents, build rubrics, and even explain complex concepts in simpler terms. Basically, if a teacher can describe what they need in a prompt, ChatGPT will try to produce it. For instance, a teacher might ask, "*Generate 5*

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assessment questions on solar system with answers," and ChatGPT will do so in seconds. uses; ChatGPT has been transformative in terms of time savings and idea generation. a large number of teachers and students' now use ChatGPT to help do their jobs – tasks like lesson planning and writing instructional materials that used to take hours can often be completed in minutes with AI help. Educators like that it's always available and can provide instant inspiration or first drafts.

Canva: This graphic design platform has long been a favorite among educators for crafting slides, infographics, posters, worksheets, and more. Recently, Canva integrated generative AI features, "Magic" tool which is used to make content creation easier. For example, Magic design suggests layout options, Magic write helps draft text for worksheets or presentations, and Canva's text-to-image AI generates custom illustrations. Canva is extremely popular among teachers because it makes creating engaging visuals quick and easy. Educators who aren't professional designers can still produce eye-catching slides and handouts that grab students' attention. The AI features add to this by automating parts of the creative process for instance, Magic Write can draft a worksheet's text content if the teacher provides a prompt. Teachers rave about the vast selection of education specific templates, from lesson plan formats to classroom décor helps deliver content in a more appealing way that can boost student engagement and also capture students' attention right away. ChatGPT and Canva AI powered tools are used for content creation which can be used in the presentation or delivery of instruction in the classroom.

Quill.org: This AI powered tool is used to provide real-time coaching for writing and improving grammar activities. Quill reading helps evaluates students' responses, reading comprehension and short writing exercises, offering immediate suggestions for improvement. For example, if a student's answer lacks evidence, Quill will prompt them to add more detail, helping them revise their work on the spot. uses; lightens their grading load while improving student writing skills. Instead of collecting piles of worksheets to mark. Teachers can have students practice on Quill and know that each student is receiving personalized feedback as they write. The immediate feedback feature saves an average teacher about 100 hours of grading per year. Quill not only saves time but also help students learn from mistakes in the moment.

Grammarly: This is a widely used AI writing assistant that helps improve grammar, spelling, and clarity in writing. This AI powered tool has been in use for a very long time even before the acceptability of other AI powered tools. In educational context, both teachers and students use Grammarly to proofread and polish their writing. It works by automatically checking typed text (in documents, emails, LMS discussion posts, etc.) and offering suggestions for corrections and enhancements. Beyond just fixing errors, Grammarly provides explanations. For instance, it might suggest rewriting a sentence in active voice and explain why that makes the writing stronger. For English language learners or any student working on their writing mechanics, Grammarly is perfect as a real-time tutor. In correcting written documents. uses; it helps to improve writing skills in research and assessment because it gives prompt response as writing unfolds. Importantly, Grammarly doesn't just fix errors but also teaches the user the pop-up explanations for each correction make it a learning experience, not just auto-correction.

Diffit: This free AI tool takes any text, and generates versions of that text at different complexity levels. For example, you can ask for an "easy," "medium," or "challenging" version, and Diffit will adjust the vocabulary and sentence structure accordingly while preserving the main ideas. It can also produce accompanying comprehension questions personalized to each level. Differentiation usually takes a lot of teacher effort. Rewriting texts for multiple levels can be extremely time-consuming. Diffit has been a game-changer for differentiated instruction because it does that work in seconds. By making texts accessible to all, Diffit helps to increase student understanding and confidence. When students engage with materials that match their reading level, they are more likely to stay motivated and participate actively. All the AI tools explained above make the different activities of teaching and learning generally to be easy, fast, Interesting and memorable.

Advantages of AI tools in teaching and learning

AI offers a range of benefits that enhance the educational experience and empower students to reach their full potential. For example,

AI enables personalized learning this is one of the most important benefits of AI, this is because it provides for the unique needs and pace of each student. Through adaptive algorithms and intelligent platforms, students can receive targeted content, exercises, and assessments tailored to their individual strengths and weaknesses. This personalized approach fosters greater engagement and ensures that students can grasp concepts more effectively. Personalised learning also fosters a sense of ownership and motivation among students. They feel appreciated and empowered when they realise that their

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education is being specifically adapted to their needs and interests. This increases their level of involvement and dedication to their learning process.

AI can be used for diagnostic evaluation identify students that are not doing well in the classroom that need remediation (Delgado et al., 2020). These tools can analyze students' data, such as test scores and attendance records, and identify patterns that may indicate a need for intervention. This can help teachers to provide targeted support to students who need it most.

AI also streamlines administrative tasks, freeing up valuable time for teachers to focus on instruction and student support. Automated grading systems, data analysis tools, and administrative assistants powered by AI help to reduce the burden of paperwork and repetitive tasks, allowing teachers to allocate more time for creative lesson planning and individualised attention.

AI tools used in teaching and learning provide educators with valuable insights into student performance, learning outcomes, and instructional effectiveness. For example, AI-powered assessment tools can analyze student responses to assignments and provide personalized feedback to help students identify areas of strengths and weaknesses (Nazaretsky et al., 2022).

AI-powered tools can be used to automate assessment process, saving time and reducing the burden on teachers. For example, AI-powered grading tools can analyze students' essays and provide feedback on grammar, structure, and content, reducing teachers' time in grading assignments (Huang et al., 2023b). Furthermore, AI brings interactive and immersive learning experiences into the classroom. With the aid of virtual reality (VR) and augmented reality (AR) technology, students can explore historical events, carry out scientific experiments, or become fully immersed in other cultures. These activities not only capture students' attention but also help them comprehend difficult concepts more thoroughly. With these uses and more, it can be said that the development of AI-powered tools and applications has revolutionized the field of education by providing educators with valuable insights into student performance, learning outcomes, and discipline in the field of education as concerned with all classroom activities. In summary, the human touch and AI-driven personalisation must, however, coexist in harmony. Although AI is useful in the classroom and it might offer helpful support to the teachers and students but it should never take the place of devoted teachers. This is because the need for close monitoring in the use of AI tools should be taken seriously so as not to deter the advantages AI tools proffer. When used as an effective tool, AI can assist teachers in fulfilling the unique requirements of each student by enhancing their knowledge and experience.

Disadvantages and challenges in the use of AI tools in the Nigerian classroom

The overwhelming offers of AI powered tools in the classroom come with its disadvantages and challenges. Among which includes

Over reliance on the use of AI tools can limit critical thinking in both the students and the teachers which can lead to complete loss of critical thinking and innovation of new ideas. The education system should be weary of the fact that all the responses given by AI powered tools are like picking from a dumping ground which need scrutiny before it can be used hence the need for human critical thinking in making the appropriate use of the responses given by AI. Relying solely on AI for learning can also hinder the development of essential cognitive skills in students. So, it is crucial for educators to encourage students to question, analyze and evaluate information beyond what AI provides.

Fear of AI replacing teachers; with the rampant use of AI, educators are in fear of replacement of teachers with AI tools in the future. This poses problems on the part of instructors as whether to use AI tools or not to use them. Education community should note that education is more than just academic success. Students' social and emotional development is equally crucial. AI cannot take the role of human connection, empathy, and collaboration which are essential components of the learning process because teachers are important in developing these abilities, offering direction, and maintaining a helpful learning atmosphere.

Challenges in using AI tools

Infrastructural limitations: poor infrastructure, erratic power supply, poor internet connectivity,
and limited access to computing devices hinder the use of AI tools in the classrooms and school in general.

Digital Literacy Gaps*:* computer literacy is not common among Nigerian teachers and students hence lack of basic computer knowledge among teachers and learners can limit effective use of AI tools.

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Ethical issues: Data privacy, misinformation and ethical concerns associated with online research need to be addressed.

Risk of algorithmic bias: AI systems are built on vast datasets, and if these datasets contain biases, it can perpetuate unfairness and discrimination. In our diverse school community, it is essential to be mindful of the potential biases present in AI algorithms and ensure that students are exposed to a wide range of perspectives and sources of information.

Conclusion

It has been observed from the events of activities in the classroom that AI has come to stay and it should be embraced. Therefore, AI should be used as a complementary educational tool in Education. Schools must adopt AI responsibly and ethically as we move towards the future to ensure that learners obtain a well-rounded education that incorporates the best, this calls for striking a careful balance between utilising AI's capabilities and maintaining the indispensable role of human educators. To this end, clear ethical criteria can be set to ensure AI functions as a supporting resource rather than an avenue that limits intellectual advancement. If these conditions are carefully navigated, we can take advantage of the potentials of AI while maintaining the integrity of true, human-driven research.

AI in the classroom, Helping or Hindering learning?

Therefore, due to the numerous advantages of AI, it helps in learning rather than hindering or posing as a problem to learning in the classroom.

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Assessment of Teaching and Learning of Entrepreneurial Skills in Agricultural Education Program among Colleges of Educations in Northwest Nigeria

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Abstract
The study assessed the teaching and learning of entrepreneurial skills in Agricultural Education in Colleges of Education in Northwest Nigeria. Three specific objectives, three research questions and three null hypotheses guided the study. Descriptive survey research design was adopted with a population of 276, which comprises of 225 lecturers and 51 technologists. Census sampling techniques was used with a sample size of 244, which comprised of 198 lectures and 46 technologists. Structured questionnaire with five-point rating scale was used. The reliability of the instrument was established using Cronbach alpha coefficient reliability tool and the values of 0.90, 0.68 and 0.94 were obtained. Weighted mean and standard deviation were used to answer the research questions while ANOVA was used to test the null hypotheses at 5% level of significance. The findings revealed that exposing students to practical skills, exposing students to modern communication skills, identification of investment opportunities to students among others were agreed as strategies to improve the teaching and learning of entrepreneurial skills in agricultural education. Strategies that were not adopted in Colleges of Education to enhance entrepreneurial skills development of students include; developing agripreneurship internship programme, encouraging and setting up agribusiness clubs in schools, establishment of agripreneurship development centres among others. It was also revealed that poor state of infrastructure, poor teaching remuneration for teachers, lack of synergy between industries and training institution, poor societal attitude to skills training and development among others, were challenges affecting entrepreneurial skills development in Colleges of Education, Northwest Nigeria. The result further revealed that, there was no significant difference in the mean responses of lecturers and technologists in Federal and State Colleges of Education on the strategies for improving the teaching and learning of entrepreneurial skills in agricultural education. The study recommended among others that, lecturers and technologists in Colleges of Education should review their teaching strategies.
Keywords: Teaching and learning, Entrepreneurial skills, Agricultural Education

Introduction
Skill is the ability of a person to accomplish a task with desired precision and certainty. It can also be referred to the art of possessing the ability, power, authority or competency to do the task required of an individual on a job. Oko (2017) defined skill as the practical knowledge combined with cleverness, expertise, dexterity and ability to perform a task, which could be acquired or learnt in school. Abenge et al. (2017) stated that skill is the ability to do a task expertly. They further reported that when somebody acquire skills in any occupation, such a person can establish his own business and even employ others. The person becomes self-reliant, Self-sufficient and self-employed. Skills training enhances productivity and sustain competitiveness in the global economy. Entrepreneurial skills are all about the acquisition of skills that will culminate to an individual becoming self-employed, self-reliant and then create job and wealth for himself. It involves the acquisition of skills, knowledge and competencies that will enable learners to maximize the use of existing resources for firm career commitments such as setting up businesses, marketing service or being produce employees of organizations (Wilfred-Bonse and Sam-Ngwu 2014). Allen (2020) defined entrepreneurial skill as the ability to create something new with value by devoting the necessary time and effort associated with financial, psychic, and social risk and receiving the resultant reward and personal satisfaction and independence. Allen (2020) pointed out that entrepreneurial skills are those basic skills necessary to enable an individual start, develop, sustain and finance an enterprise successfully.

Agricultural education is one of the programme ran in Colleges of Education as a Vocational Education with practical orientation and potential for income generation. It plays a vital role in the economy of Nigerians particularly in the rural

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and agrarian regions like Northwest Nigeria. Colleges of Education is one of the tertiary institutions in Nigeria with the mandate of training teachers who will deliver vocational and entrepreneurial instructions across various level of the education system. It is expected that the graduates would have vocational and entrepreneurial skills competencies to establish and run an enterprise successfully. Yet, there is widespread concern regarding the effectiveness of the strategies employed in teaching and learning entrepreneurial skills within agricultural education programme. As effective entrepreneurial skills, development of agricultural education students should not only transmit theoretical knowledge but also foster practical skills, creativity, innovation and risk management capabilities among students. Hence, a critical assessment of the current strategies used in teaching and learning entrepreneurial skills in agricultural education is necessary to understand existing gaps and propose evidence-based improvement. Teaching is the conscious deliberate and properly thought out pattern of fostering human, mental growth through the acquisition of deserved knowledge, skills and attitudes (Thungu et al. 2010). It can be seen as the passing of knowledge from an experienced person to an unexperienced person. Teaching involves setting appropriate learning experiences for students and for that purpose include selection and sequencing of activities or kind of interactions that would lead to expected learning. Teaching is purposive and leads to desirable learning. It is intended to learning, without learning, teaching is incomplete. It is said to be a complex and demanding task that requires highly specified skills, knowledge and resources to impact significantly on students learning. Learning according to Thungu, *et al.* (2010) is the relative permanent change in behaviour resulting from reinforced practice. It also refers to the process of acquiring knowledge, skills or attitude through study, experience or teaching. It include academic studies and occupational training in school and beyond. Learning is extremely important in the preparation of individual in the society. It takes a process through which an individual acquire skills, knowledge, attitude and values which are necessary for effective participation in the society. Learning therefore, becomes a process by which changes in behavioural patterns are produced through experience brought about as a result of teaching with the help of facilities.

Statement of the Problem

The acquisition of entrepreneurial skills in agricultural education cannot be over emphases particularly in Northwest Nigeria where agriculture is a major economic activity and unemployment remains a pressing challenge. Colleges of education are expected to equip students with practical entrepreneurial competencies to foster self-employment and reduced reliance on limited government jobs. However, it has been observed that many graduates of agricultural education programme in Colleges of education lack requisite entrepreneurial skills to establish and manage a viable agricultural enterprise. Despite the integration of entrepreneurship education into the curriculum to address this issue, several challenges undermine its effective teaching and learning. The gap between policy intention and practical implementation raises serious concern about the quality and effectiveness of teaching and learning strategies on entrepreneurial education in Colleges of Education without a systematic assessment of these strategies, it become difficult to identify strengths, weakness and opportunities for reform and improvement. Therefore, this study seeks to critically assess the teaching and learning of entrepreneurial skills in agricultural education programme in Colleges of Education in Northwest Nigerian with a view to providing recommendation for enhancing their effectiveness.

Objectives of the Study

The general objective of the study was to examine the teaching and learning of entrepreneurial skills in agricultural education in Colleges of Education in Northwest Nigeria. Specifically the study sought to:

1. Examine teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture in Colleges of Education in Northwest Nigeria
2. Identify the strategies adopted for enhancing entrepreneurial skills development in agriculture in Colleges of Education in Northwest Nigeria
3. Determine the challenges affecting entrepreneurial skills development in agriculture in Colleges of Education in Northwest Nigeria

Research Questions

1. What are the teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture in Colleges of Education, Northwest Nigeria?

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2. What are the strategies adopted for enhancing entrepreneurial skills development in agriculture in Colleges of Education, Northwest Nigeria?
3. What are the challenges affecting entrepreneurial skills development in agriculture in Colleges of Education, Northwest Nigeria?

Hypotheses

H_{O1}: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture.

H_{O2}: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on the strategies adopted for enhancing entrepreneurial skills development in agriculture.

H_{O3}: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on the challenges affecting entrepreneurial skills development in agriculture.

Significance of the Study

The findings of the study will be useful to curriculum developers and planners as well as policy makers and implementers in educational industry of the country. It will be useful for policy makers and curriculum developers by providing them with reliable and factual information on teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture and the strategies that should be adopted for enhancing entrepreneurial skills development in agriculture in Colleges of Education in Northwest Nigeria. The result will also be of significance to regulating agency, lecturers and students to scale up the present minimum standard towards realizing the major aim of entrepreneurship in agriculture. Identify teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture and the strategies that should be adopted by lecturers for teaching and learning for entrepreneurial skills in agriculture in Colleges of Education in Northwest Nigeria. The society is not left out. As the graduate will be, encourage to create jobs and be self-employed thereby, reducing unemployment and its associated problems. Hence, contributing their quote to the development of the society and the nation in general.

Methodology

Descriptive survey research design was used in this study. The study was conducted in Northwest Geopolitical Zone of Nigeria. The zone is made up of seven States namely Jigawa, Kaduna, kano, Katsina, Kebbi, Sokoto and Zamfara States. The population of the study was 276, which comprised of 225 lecturers and 51 technologists of Agricultural Education Department. Census sampling technique was used because the population is manageable for the study. The sample size used for the study comprised of 198 lecturers and 46 technologists from the public Colleges of Education within the study zone. This gave rise to 88% and 90% of returns for lecturers and technologists respectively. As some of the lecturers and technologists were on study leave and maternity leave. The researcher design a questionnaire named: Questionnaire for Assessing the Teaching and Learning of Entrepreneurial Skills in Agricultural Education in Colleges of Education (QATLESAECE). The questionnaire was structured into sections on five-point response scale. Section A determined teacher's strategies for improving the teaching and learning of entrepreneurial skills in agriculture with 12 items. Section B determined the strategies adopted for enhancing entrepreneurial skills development in agriculture with 20 items. While Section C dwelled on the challenges affecting entrepreneurial skills development in agriculture with 20 items. All on the scale of Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (UD) = 3, Disagree (D) = 2 and Strongly Disagree (SD) = 1. The instrument was subjected to face and content validity by three lecturers with PhD. in which two were from the Department of Vocational Education, Ahmad Bello University, Zaria and one from the Department of Agricultural Education, Federal College of Education, Zaria. Their suggestions were used to improve the instrument. The reliability of the instrument was established through trial testing with 15 lecturers and technologist in Adamawa State College of Education Hong, which is outside the study area. Data collected was subjected to analyses using Cronbach Alpha Coefficient reliability tool. The Cronbach alpha coefficient value were 0.90, 0.68 and 0.94. The researcher with the help of one research assistant from each institution administered the instrument. The research assistant is a teaching staff in Agricultural Education programme of the institution, he was engaged in the distribution and collection of the questionnaire to ensure high rate of return. Out of 225 lecturers, 51 technologists only 198 lecturers, and 46 technologists, that is 244 were returned and used for data analysis. Giving a total return rate of 88.41%.

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Descriptive and inferential statistics were used to analyse the data collected. Weighted mean and standard deviation to answer the research questions while Analysis of Variance (ANOVA) was used to test the null hypotheses at 0.05 level of significance. The following limit of numbers was used to interpret the mean value on each item on the questionnaire as 1.00 – 2.99 = Disagreed and 3.00 – 5.00 = Agreed. For ANOVA, where the significant P value is greater than 0.05 level of significant, the null hypotheses was accepted and conclude that there is no significant difference between the mean responses. However, if otherwise that is significant P value is less than 0.05 level of significant the null hypotheses was rejected and conclude that there is significant difference among the mean responses.

Presentation of Results

Research Question One

What are the teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture in Colleges of Education, Northwest Nigeria?

Table 1: Mean and Standard Deviation on Teachers Strategies for Improving the Teaching and Learning of Entrepreneurial Skills

		Lecturers (n=198)		Technologists (n=46)				
S/No.	**Teachers strategies**	**MEAN**	**SD**	**MEAN**	**SD**	**GPX**	**SD**	**RMK**
1	Identification of investment opportunities to students	4.667	0.031	4.734	0.041	4.700	0.036	A
2	Exposing students to practical skills	4.934	0.033	4.957	0.045	4.945	0.039	A
3	Equipping students with relevant team work skill	4.551	0.033	4.668	0.044	4.609	0.039	A
4	Exposing students to modern communication skills	4.657	0.032	4.750	0.043	4.703	0.038	A
5	Adoption of appropriate instructional materials	4.591	0.031	4.712	0.042	4.651	0.036	A
6	Teacher self-efficacy	4.500	0.028	4.592	0.040	4.546	0.034	A
7	Teachers ability to utilize technology	4.480	0.033	4.614	0.045	4.547	0.039	A
8	Being punctual in classes	4.167	0.031	4.293	0.045	4.230	0.038	A
9	Adequate student assessment	4.419	0.028	4.516	0.038	4.468	0.033	A
10	Regular monitoring of student work	4.621	0.031	4.712	0.042	4.667	0.036	A
11	Feedback mechanisms	4.571	0.026	4.582	0.037	4.576	0.032	A
12	Adoption of reward and motivation	4.475	0.030	4.527	0.041	4.501	0.035	A
	GDX, GSD					**4.595**	**0.036**	

Key: n = Number of respondents, SD = Standard Deviation, GPX = Group Mean, GDX = Grand Mean, GSD = Grand Standard Deviation, A = Agreed, RMK = Remark

The result of the study presented on Table 1 shows that all the items had a group mean ranging from 4.230 to 4.945 with standard deviation ranging from 0.032 to 0.039. This implies that the respondents agreed that all the items are strategies that can be used by the teacher to improve the teaching and learning of entrepreneurial skills in agriculture education.

Research Question Two

What are the strategies adopted for enhancing entrepreneurial skills development for self-employment in agriculture in Colleges of Education, North-West Nigeria?

Table 2: Mean and Standard Deviation on the Strategies Adopted for Enhancing Entrepreneurial Skills Development

	Lecturers (n=198)	Technologists (n=46)

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S/No.	Item Statement	MEAN	SD	MEAN	SD	GPX	SD	RMK
1	Training and re-training of agricultural. education lecturers and technologist	4.318	0.030	4.457	0.041	4.387	0.035	A
2	Provision of adequate nu number of lecturers and technologist	4.081	0.029	4.435	0.045	4.258	0.037	A
3	Creating adequate publicity to involve other stakeholders	1.394	0.025	1.685	0.035	1.539	0.030	D
4	Inviting entrepreneurs to share idea with staff	1.242	0.027	1.424	0.038	1.333	0.032	D
5	Creating enabling environment for practising within colleges	1.758	0.027	2.147	0.036	1.952	0.032	D
6	Adequate provision of fund for agripreneuership programme	1.192	0.027	1.609	0.038	1.400	0.032	D
7	Establishment of school enterprise cooperation	1.465	0.028	1.679	0.041	1.572	0.035	D
8	Establishment of agripreneuership development centres	2.338	0.024	2.527	0.035	2.433	0.029	D
9	Teaching agripreneuership at early age	1.338	0.028	1.543	0.038	1.441	0.033	D
10	Inclusion of agripreneuership education in national policy	4.242	0.026	4.326	0.036	4.284	0.031	A
11	Regular research evaluation and development in agricultural institutions	2.374	0.020	2.560	0.033	2.467	0.026	D
12	Improvement on government taxation on small scale agribusiness	1.884	0.022	2.000	0.038	1.942	0.030	D
13	Provision of instructional materials to agricultural institutions	2.874	0.020	3.168	0.031	3.021	0.025	A
14	Encouragement and setting up of agribusiness clubs in schools	1.399	0.028	1.511	0.040	1.455	0.034	D
15	Convincing responsible members of the society on the importance of agripreneuerial skills	2.278	0.025	2.712	0.041	2.495	0.033	D
16	Building knowledge through practical hand-on experiences	3.298	0.024	3.473	0.038	3.385	0.031	A
17	Proper monitoring of agripreneuership programmes	1.545	0.026	1.957	0.039	1.751	0.033	D
18	Enhancing the image of agricultural education through agripreneurship education programme	2.864	0.020	3.038	0.027	2.951	0.023	D
19	Advertising agripreneuerial skills through the mass media and social network	1.939	0.026	2.283	0.037	2.111	0.032	D
20	Develop agripreneuership internship programmes by matching students with locally successful agripreneuers with clearly establish agricultural education programme	1.141	0.030	1.288	0.044	1.215	0.037	D
	GDX, GSD					**2.370**	**0.032**	

Key: n = Number of respondents, SD = Standard Deviation, GPX = Group Mean, GDX = Grand Mean, GSD =Grand Standard Deviation, A = Agreed, D = Disagreed, RMKS = Remarks

Result on Table 2 shows five items which respondents agreed that they adopted these strategies for enhancing entrepreneurial skills development out of the 20 items. While fifteen items were disagreed. That is, they do not adopt these strategies. The five agreed items had a group mean ranging from 3.021 to 4.387 with a standard deviation of 0.025 to 0.035 respectively. While the fifteen disagreed, items had a group mean ranging from 1.215 to 2.951 with a standard deviation of 0.037 and 0.023 respectively. The grand mean of 2.370 with standard deviation of 0.032 obtained shows that the mean

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were clustered around the central. The grand mean recorded, indicated that most of the strategies were not generally adopted considering the grand mean is less than the benchmark of 3.00.

Research Question Three

What are the challenges affecting entrepreneurial skills development in agriculture in Colleges of Education, Northwest Nigeria?

Table 3: Mean and Standard Deviation on the Challenges Affecting Entrepreneurial Skills Development

		Lecturers (n=198)		**Technologists (n=46)**				
S/No.	**Item statement**	**MEAN**	**SD**	**MEAN**	**SD**	**GPX**	**SD**	**RMK**
1	Poor entrepreneurial culture	4.369	0.030	4.538	0.039	4.453	0.034	A
2	Poor state of infrastructure for implementing entrepreneurship education	4.677	0.030	4.717	0.040	4.697	0.035	A
3	Poor teaching remuneration	5.000	0.035	4.935	0.044	4.967	0.040	A
4	Multiple taxation of entrepreneurs	4.015	0.028	4.266	0.038	4.141	0.033	A
5	Dearth of adequately qualified teachers	2.182	0.022	2.717	0.031	2.450	0.026	D
6	Lack of necessary support from stakeholders	4.283	0.025	4.332	0.035	4.307	0.030	A
7	Poor funding of entrepreneurship training	4.783	0.030	4.734	0.042	4.758	0.036	A
8	Poor attitude of teachers to develop themselves in entrepreneurial skills	2.232	0.021	2.668	0.037	2.450	0.029	D
9	Lack of synergy between the industries and training institutions	4.182	0.027	4.359	0.037	4.270	0.032	A
10	Lack of adequate training for the teachers	3.783	0.024	3.995	0.034	3.889	0.029	A
11	Poor monitoring of activities	4.025	0.026	4.076	0.033	4.051	0.030	A
12	Insensitivity of government to enterprise creation	4.086	0.025	4.185	0.031	4.135	0.028	A
13	Poor societal attitude to skills training and development	4.318	0.026	4.424	0.035	4.371	0.030	A
14	Poor societal attitude towards locally made goods	4.141	0.027	4.310	0.034	4.226	0.031	A
15	Inadequate assessment content	1.985	0.020	2.918	0.033	2.452	0.026	D
16	Poor management competencies to execute skill development programme	3.394	0.022	3.516	0.032	3.455	0.027	A
17	Confusion of entrepreneurial education with TVET programmes	1.854	0.023	1.973	0.031	1.913	0.027	D
18	Inconsistent government policies	4.429	0.026	4.554	0.039	4.492	0.032	A
19	Security issues	4.606	0.031	4.647	0.039	4.626	0.035	A
20	Corruption	4.894	0.033	4.842	0.044	4.868	0.039	A
	GDX, GSD					**3.949**	**0.031**	

Key: n = Number of respondents, SD = Standard Deviation, GPX = Group Mean, GDX = Grand Mean, GSD = Grand Standard Deviation, A = Agreed, D = Disagreed, RMK = Remark

Table 3 presents the result on challenges affecting entrepreneurial skills in agriculture. The result revealed that out of the 20 items considered 16 were agreed with a group mean ranging from 3.455 to 4.967 with a standard deviation of 0.027 to 0.040 respectively. While the four other items were disagreed with, a group mean ranging from 1.913 to 0.029 respectively. This shows that must of the items identified are challenges affecting entrepreneurial skills development in Colleges of

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Education. The grand mean of 3.949 and standard deviation of 0.031 was recorded. This indicated that the responses were clustered around the means.

Hypotheses One

Ho1: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on teachers' strategies for improving the teaching and learning of entrepreneurial skills in agriculture.

Table 4: ANOVA on Teachers Strategies for Improving the Teaching and Learning of Entrepreneurial Skills for Self-employment in Agriculture

Source of variance	Sum of Squares	Df	Mean Square	F ratio	Sig.
Between Groups	0.161	3	0.054	1.951	0.135
Within Groups	1.210	44	0.028		
Total	1.371	47			

The findings on Table 4 revealed an F ratio of 1.951 with a P value of 0.135 degree of freedom 3, 44 on the means of items. That is F (3, 44) 1.951 P > 0.05. Therefore, there is no significant difference in the mean responses of lectures and technologist in Federal and State Colleges of Education on teachers' strategies for improving the teaching and learning of entrepreneurial skills for self-employment in agriculture. Since there is no significant difference in the mean responses, the null hypothesis was upheld.

Hypotheses Two

Ho2: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on the strategies adopted for enhancing entrepreneurial skills development in agriculture.

Table 5: ANOVA on Strategies Adopted for Enhancing Entrepreneurial Skills development in Agriculture

Source of variance	Sum of Squares	df	Mean Square	F ratio	Sig.
Between Groups	0.158	3	0.053	0.055	0.983
Within Groups	73.169	76	0.963		
Total	73.327	79			

Table 5 shows an F ratio of 0.055 with a P value of 0.983 degree of freedom 3, 76 on the means item. That is F (3, 76) 0.055 P > 0.05. Hence, there is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on the strategies adopted for enhancing entrepreneurial skill development in agriculture. Since there is no significant difference in the mean responses, the null hypothesis is retained.

Hypotheses Three

Ho3: There is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on the challenges affecting entrepreneurial skills development in agriculture..

Table 6: ANOVA on Challenges Affecting Entrepreneurial Skills Development in Agriculture

Source of variance	Sum of Squares	df	Mean Square	F ratio	Sig.
Between Groups	1.893	3	0.631	1.366	0.260
Within Groups	35.119	76	0.462		
Total	37.012	79			

The result on Table 6 revealed an F ratio of 1.366 with a P value of 0.260 degree of freedom 3, 76 on the means of items. That is F (3, 76) 1.366 P > 0.05. Hence, there is no significant difference in the mean responses of lecturers and technologist in Federal and State Colleges of Education on challenges affecting entrepreneurial skills development in agriculture. Since there is no significant difference, the null hypothesis was upheld.

Discussion of the Findings

Result in Table 1 revealed that all the strategies were agreed by the respondents to improve the teaching and learning of entrepreneurial skills of students in Colleges of Education for self- employment in agriculture. This finding is in line with the view of Ezeonwriem (2017) who reported that teachers should possess and use different strategies in class to identify possible business areas open to fresh graduates as strategies for improving the teaching and learning of entrepreneurship. In a similar vein, Chinonye and Akinbode (2014) identified programmes such as entrepreneurial week as strategies for improving the teaching and learning of entrepreneurial skills. This is also in connection with the findings of Wilfred-Bones and Sam-Nguw (2014) who studied the strategies for developing entrepreneurial skills in classroom. They reported

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practical counselling on entrepreneurship and skill acquisition for students, rewarding students that perform well in entrepreneurship skills acquisition activities, use of demonstration method. Also, encourage students to be creative and discover things by themselves under the guidance of the teacher, encourage students to set up a mini-enterprise before graduating by organising holiday workshop based which they will be rewarded of excellent performance on out-standing efforts. On the other hand, Amadi and Adejoh (2020) posited that for teachers to be able to building up analytical thinking in new era students, other pedagogical approaches are needed to be applied such as mentoring, giving students to see the seasonal changes among others. Okoye (2017) contended that lecturers of entrepreneurial education must make appropriate use of effective strategies during lesson instruction to inculcate in students the desirable skills, knowledge, attitude, values and competences required in the business world.

The result on Table 2 shows that most of the strategies itemized were not adopted in Colleges of Education to enhance entrepreneurial skills development of students. In line with this, Anaele et al. (2014) stated that entrepreneurship education in school could be achieved using professional or entrepreneurs as instructors and mentors. This implies that some of the critical requirement needed to enhance the practical strategic development of entrepreneurial skills amongst students in Colleges of Education is lacking. Wilfred-Bonse and Sam-Nguw (2014) reported that regular organizing visitation to local entrepreneurs in the community will enable the students become familiar with entrepreneurial and management task and thus, give the students opportunity to have contacts they can draw upon to pursue and realize their entrepreneurial aspiration to realize their dreams. As Utoware and Eneogwe (2017) contended that most of the aforementioned strategies are officious in the teaching of entrepreneurial skills in tertiary institutions. Developing and entrepreneurial skills involves experiential learning and it tend to focus on hand on teaching strategies. Hence, the students will need these strategies to enhance their entrepreneurial skills development. It could be that most of these strategies were not adopted in Colleges of Education because the teachers lack motivation. That is, the effort that teachers put into practice-based activities, sometimes even outside their normal working hours are not recognized as official task. Then again, there is limited amount of time and resources and public private partnership not encouraged.

Result in Table 3 revealed that teaching and learning of entrepreneurial skills development in Colleges of Education is confronted with a number of challenges. This is in agreement with Aneale *et al. (*2014) that inconsistent government policies, corruption, poor state of infrastructure are challenges confronting entrepreneurship education. Similarly, the result is in consonance with the findings of Shuwa *et al*. (2023) who disclosed inadequate materials for learning, poor remuneration of staff and poor funding as challenges affecting entrepreneurial skills development. In the same vain, Goar *et al.* (2021) identifies lack of commitment towards policy implementation, unwillingness by management to train and retrain teachers as challenges facing entrepreneurial skills development. This implies that entrepreneurial skill development of students cannot be effectively achieved without the political will and adequate support from government. As Beals and Koko (2019) stated that insufficient fund received from government, deficient government policies and lack of awareness of necessary modern instructional facilities, poor salary of teachers that weakens drives to purchase personal facilities or engage in skill improvement have affected teaching and learning. However, the respondents disagreed with dearth of adequate qualified teachers, poor attitude of teachers to develop themselves in entrepreneurial skills, inadequate assessment content and confusion of entrepreneurship education with technical vocational education and training programme as challenges affecting entrepreneurial skills development in Colleges of Education. This implies that Colleges of Education have qualified teachers, positive attitude to develop themselves in entrepreneurial skills, adequate assessment content and do not confused entrepreneurial education with technical and vocational education and training.

Result on Table 4 shows that there is no significant difference in the mean responses of lecturers and technologists in Federal and State Colleges of Education. The result is in line with that of Pepple (2022) who shows no significant difference in the mean rating of lecturers and technologists on the strategies for enhancing students' entrepreneurial skills development among undergraduates. The result of Utoware and Energwe (2017) is in consonance with this finding, that there is no significant difference in the mean responses of teachers, on teacher-oriented strategies for effective teaching and learned of entrepreneurship in tertiary institutions. The result is also in agreement with that of Emeka (2018) and Ezeonwurie (2017) that shows no significant difference on the mean responses among teachers on teacher's strategies for improving

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entrepreneurship education. Therefore, it was concluded that the teacher's strategies would improve the teaching and learning of entrepreneurial skills for self-employment in agriculture. Result in Table 5 shows that there is no significant difference in the mean responses of lecturers and technologists in Federal and State Colleges of Education on the strategies adopted for enhancing entrepreneurial skills development in agriculture. However, the result revealed that most of the strategies were not adopted. Only few were adopted in Colleges of Education to enhance entrepreneurial skills development in agriculture. Yet, Utoware and Ezeanwa (2017), Chinonye and Akinbode (2014) contended that most of the aforementioned strategies are officious in the teaching and learning of entrepreneurship to enhanced self-employment. This is in line with Oviawe (2011) who reported that entrepreneurship education in schools can be achieved using professional/entrepreneurs as instructors and mentors, teaching of entrepreneurship and creativity at an early age will enhance skills development. The result in Table 6 shows that there is no significant difference in the mean responses of lecturers and technologists in Federal and State Colleges of Education on the challenges affecting entrepreneurial skills development. This finding is similar to that of James (2015) who reported no significant difference between Federal and State Colleges of Education lecturers on constraints facing the teaching of entrepreneurship education. This study is consistent with the earlier studies of Shuwa *et al.* (2023), Goar *et al*. (2021), Ugbe and Isaac (2020) and Beals and Koko (2019) who identified challenges facing the teaching and learning of entrepreneurial skills in Nigerian tertiary institutions. They identified, poor remuneration of staff, poor funding, poor policy formulation and implementation, inadequate facilities, corrupt practices, security, lack of functional entrepreneurship centre, poor salary of teachers among others.

Conclusion

Based on the findings of this study, which revealed that all the teachers' strategies identified, improve the teaching and learning of entrepreneurial skills, most of the strategies identified were not generally adopted for enhancing entrepreneurial skills development and Colleges of Education in Northwest Nigeria are faced with numerous challenges on entrepreneurial skills development in agriculture. These strategies should be adopted to enhance skills development of NCE Agricultural Education Students. Achieving the affirmation will equip and stimulate the students to opt for self-employment on graduation thereby using factors of production to provide products and services for public consumption.

Recommendations

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

1. The Head of Department (HOD) in collaboration with the lecturers and technologists of Agricultural Education Department should ensure that the strategies identified are adopted for teaching and learning of entrepreneurial skills in agriculture
2. Lecturers and technologists in Colleges of Education should review their teaching strategies in other to improve the teaching and learning of entrepreneurial skills for self-employment in agriculture
3. All stakeholders in this sector of education should put more effort in improving the teaching and learning of entrepreneurial skills in agriculture

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Impact of Adjustments on Academic Performance of Senior Secondary School Students in Jere Local Government Area of Borno State, Nigeria

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Abstract

This study investigated the Impact of Adjustments on Academic Performance of Senior Secondary School Students in Jere Local Government Area (LGA), Borno State, focusing on academic, social and emotional adjustments. Three (3) research questions were answered and 1 (one) hypothesis was tested in the study. Descriptive survey research design was used in the study. The target population for the study consists of all the 5,543 SS II and SS III senior secondary school students in Jere LGA. A sample of 500 students were selected using stratified simple random sampling technique in accordance with Kriejcie and Morgan (1970). A researcher-developed questionnaire titled 'Students' Adjustments and Academic Performance Questionnaire (SAAPQ)' was used for data collection. The instrument was validated by three (3) experts in the field of educational psychology from University of Maiduguri and Borno State University. The instrument was pilot tested on 50 students and the reliability was calculated through test-retest method and reliability index of .76 was obtained. The instrument consists of four (4) sections and Eighteen (18) items. Data collected were analyzed using frequency count and percentage scores to assess the demographic information of students, descriptive statistics of (mean, standard deviation, frequency) to analyse the impact of adjustment on students' academic performance and t-test was used to assess the gender difference in adjustment and academic outcomes. The hypothesis was tested at the 0.05 level of significance using the Statistical Package for Social Science. The findings of the study revealed that academic, social and emotional adjustments significantly impact the academic performance of senior secondary school students in Jere LGA, Borno State. Based on the findings, the study recommended that Ministry of Education and SUBEB should enhance counselling services, life skills education, teacher training on psychosocial support and adjustments and increased involvement from parents, communities and NGOs to foster better adjustment and academic success.

Keywords: Adjustments, Academic Performance & Students

Introduction

Student adjustment is a critical factor that influences academic success at various educational levels, particularly in senior secondary schools where learners are expected to balance personal, social and academic demands. Adjustment is the psychological process through which individuals navigate or respond to the demands and challenges presented by their environment (Santrock, 2018). Bhakta (2016) described adjustment as a method of creating appropriate responses to both internal and external stimuli; it represents the connection between a person's needs and their environment. Adjustment occurs when individuals achieve a state of balance between their needs and their level of satisfaction. School adjustment involves the process of adapting to challenging circumstances in order to meet the academic requirements within the school setting. Various components contribute to school adjustment, including academic performance, satisfaction with school, engagement in school activities, and pro-social behaviours (Bhakta, 2016). For students, effective adjustment encompasses several domains including academic, social and emotional adaptation, which collectively impact their ability to perform well in school (Afolayan, 2019).

In the context of Nigerian secondary education, several studies have highlighted the importance of adjustment as a determinant of academic performance. In Jere LGA, students face a variety of adjustment challenges due to social, economic and regional factors. Individuals who face difficulties in adjusting, whether emotionally, socially or psychologically may encounter role confusion, which can lead to diminished self-esteem, a lack of concentration and ultimately negative impacts on academic performance. This suggests that the levels of personal and social adjustment are key indicators of academic achievement among adolescents (Erikson, 1968). Abubakar and Babayo, (2021), pointed out that, Maiduguri Metropolis has been affected by social unrest and economic instability, factors that may further complicate students' adjustment processes and academic trajectories. According to Yusuf and Adigun (2017), students who are better adjusted tend to exhibit more confidence, motivation, and resilience, all of which contribute to higher academic achievement. Conversely, poor adjustment has been linked to absenteeism, low academic engagement, and poor grades (Okoli & Obasi, 2020). Lakhani, Jain, and Chandel (2017) asserted that not being able to adapt can result in mental health problems. When students are well-adjusted, they are likely to be motivated to excel in their school activities, which can

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lead to strong academic performance. A child's ability to adjust significantly influences their academic outcomes. Conversely, maladjustment can have a severely negative effect on both the students' personalities and their academic success (Lakhani, Jain & Chandel, 2017). Furthermore, Subhash and Sangita (2017), pointed out that poor adjustment leads to low academic achievement, behavioural problems, irrelevant educational aspirations and even school dropout. Paramo, Vacas, and Soledad (2015) discovered that students with poor academic and school adjustment performed worse academically than their peers with intermediate or higher adjustment levels and earned lower grades than those with moderate or greater adjustment levels. The degree of adjustment among students significantly influences their academic success. Gaining insights into students' adjustment and their relationship with academic performance is crucial for creating targeted support systems and interventions. This research therefore, examine how academic, social and emotional adjustments affect the academic performance of senior secondary school students in Jere LGA. By investigating this effect, the study aspires to enhance the existing knowledge that could guide educational policies and student support initiatives in regions impacted by conflict.

Statement of the Problem

Academic performance among senior secondary school students in Maiduguri Metropolis has become a growing concern for teachers, parents, school management and policymakers alike. Despite efforts to improve educational outcomes, a significant number of students continue to underperform, raising critical questions about the underlying factors influencing their academic success. One such factor, that is often overlooked, is the students' ability to adjust effectively to the complex demands of their academic and school environments. In a place like Maiduguri, marked by socio-political instability, displacement, and economic hardship due to insurgency, students are exposed to unique psychological and environmental stressors that can severely impact their adjustment processes. These challenges may manifest as poor academic motivation, difficulty in concentrating, strained peer relationships, or emotional distress, all of which can negatively affect academic performance. Yet, there remains a noticeable gap in empirical research examining how student adjustments-academic, social and emotional interact to influence academic performance of senior secondary school students in Jere LGA, Borno State. While studies in other regions have linked student adjustment to academic outcomes, little is known about how these dynamics play out in conflict-affected areas like Jere. Without this understanding, interventions aimed at improving student performance may fail to address the root psychological and social barriers hindering academic success. Therefore, this study seeks to fill that gap by investigating how adjustments among senior secondary school students in Jere LGA impact their academic performance. The goal is to provide evidence-based insights that can guide educational stakeholders in designing targeted support strategies to help students thrive despite adverse conditions.

Objectives of the Study

The objectives of the study were to determine the:

1. Impact of academic adjustment on the academic performance of senior secondary school students in Jere LGA, Borno State.
2. Influence of social adjustment on academic performance senior secondary school students in Jere LGA, Borno State.
3. Effect of emotional adjustment on the academic performance senior secondary school students in Jere LGA, Borno State.
4. Gender differences in students' levels of adjustment and their academic outcomes senior secondary school students in Jere LGA, Borno State.

Research Questions

To guide the study, the following research questions were addressed:

1. How does academic adjustment influence the academic performance of students in senior secondary school in Jere LGA, Borno State?
2. How does social adjustment impact students' academic performance in senior secondary school in Jere LGA, Borno State?
3. What is the effect of emotional adjustment on the academic performance of senior secondary school students in Jere LGA, Borno State?

Research Hypothesis

The following hypothesis was tested in the study:

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H_{O1}: Is there significant gender difference on impact of adjustments on academic performance among the senior secondary school students in Jere LGA, Borno State?

Research Methodology

This study used a descriptive survey design. This design is appropriate because it enables the researcher to gather data on the current levels of student adjustment and academic performance, and to analyze the impacts of these variables without manipulating any conditions. According to Cohen, Manion and Morrison (2007), survey among other things, gather data at a particular point in time with the intention of describing the nature of existing condition. The population for the study consists of all senior secondary school students in public secondary schools within Jere LGA, Borno State, the target population comprises of all the 5,543 SS II and SS III students in Jere LGA. This population is selected because they are at a critical stage of academic development and are likely to face varied adjustment challenges. The researcher randomly selected Eight (8) senior secondary schools in Jere LGA. The schools were first grouped into strata based on their geographical location within Jere LGA and then participants were randomly selected from each stratum. A sample of 500 students was selected using stratified random sampling to ensure representation across different classes and genders. The sample proportion is in accordance with Kriejcie and Morgan (1970).

The instrument used for data collection was a structured questionnaire titled "Students' Adjustment and Academic Performance Questionnaire (SAAPQ)". The questionnaire was designed by the researcher and validated by three (3) experts in the field of educational psychology from the University of Maiduguri and Borno State University, to ensure face and content appropriateness. To obtain the reliability of the instrument, a pilot study was conducted using 50 students from a school outside the study sample. Test-retest was used to obtain a reliability coefficient of .76, which was considered acceptable. The instrument has four (4) sections and total items of 18. Section A: elicits information on students' demographic data (e.g., age, gender, class level), section B: elicits information on academic adjustment, section C was on social adjustment while section D elicits information on emotional adjustment. The items in Sections B–D rated on a 4-point modified Likert scale and the response modes were Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The researcher administered the questionnaire to the students in person with the help of two (2) trained research assistants. Prior consent was obtained from school authorities and students, and ethical considerations such as anonymity and confidentiality were strictly upheld. Data collected were analyzed using frequency count and percentage scores to assess the demographic information of students, descriptive statistics of (mean, standard deviation, frequency) to analyse the impact of adjustment on students' academic performance and t-test was used to assess the gender difference in adjustment and academic outcomes. The hypothesis was tested at the 0.05 level of significance using the Statistical Package for Social Sciences (SPSS).

Presentation of Results

Section A: Students Demographic Information

Table one: The Gender of the Participants

Gender	N	%
Male	250	50
Female	250	50
Total	**500**	**100**

Table one revealed that fifty (50%) of the participants were male while fifty (50%) were female.

Table two: Class Level of the Participants

Class Level	N	%
SS II	240	48
SS III	260	52
Total	**500**	**100**

Table two showed that fourty eight percents (48%) participants were in senior secondary school two (SSII) while fifty-two (52%) were in senior secondary school three (SSIII).

Table three: School Types

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Type of School:	N	%
Day	200	40
Boarding	300	60
Total	500	100

Table three indicated school types, fourty (40%) of the participants were from day secondary school while sixty (60%) were from boarding secondary schools.

Research Question One: How does academic adjustment influence the academic performance of students in senior secondary school in Jere LGA, Borno State?

Table 4: Influence of Academic Adjustment on Students Academic Performance

S/N.	Item	N	Mean	SD	Decision
1.	I find it easy to concentrate in class	500	2.16	1.20	Rejected
2.	I complete and submit my assignments on time	500	2.68	1.25	Accepted
3.	I plan and manage my study time effectively	500	2.51	1.21	Accepted
4.	I understand what is taught in most of my subjects	500	1.93	1.13	Rejected
5.	I find it easy to understand my teachers' explanations	500	2.64	1.18	Accepted
6.	I attend all my classes regularly and punctually	500	2.72	1.24	Accepted

Tabled 4 showed the participants responses on academic adjustment on academic performance off senior secondary school students in Jere LGA, Borno state. The result indicated that attending all classes regularly and punctually ranked highest among the impact of academic adjustment on students' academic performance, this was followed by completing and submitting assignment on time. While understanding what is taught in most of teaching subjects ranked the least.

Research Question Two: How does social adjustment impact students' academic performance in senior secondary school in Jere LGA, Borno State?

Table 5: Impact of Social Adjustment on Students Academic Performance

S/N.	Item	N	Mean	SD	Decision
1.	I find it easy to make new friends at school	500	2.53	1.13	Accepted
2.	I feel comfortable interacting with my classmates	500	2.72	1.82	Accepted
3.	I actively participate in group activities and discussions	500	2.58	1.16	Accepted
4.	I have a good relationship with my teachers	500	2.38	1.14	Rejected
5.	I feel accepted by my peers	500	2.52	1.15	Accepted
6.	My social relationships help me perform better academically	500	2.56	1.20	Accepted

Results presented in table 5 showed that social adjustment has significant impact on students' academic performance. This is due to the fact that all items with the exception of item 4, which stated that 'students have good relationship with teachers' have mean scores above the cut-off mark of 2.50.

Research Question Three: What is the effect of emotional adjustment on the academic performance of senior secondary school students in Jere LGA, Borno State?

Table 6: Impact of Emotional Adjustment on Students Academic Performance

S/N.	Item	N	Mean	SD	Decision
1.	I often feel anxious about my academic performance	500	2.53	1.21	Accepted
2.	I often feel overwhelmed by school work	500	2.67	1.29	Accepted
3.	I am able to control my emotions when I face challenges at school.	500	2.62	1.14	Rejected
4.	I feel confident in my ability to succeed in class activities	500	2.64	1.18	Accepted
5.	I feel emotionally balanced even during exams	500	2.74	1.15	Accepted
6.	I can manage academic stress without becoming overwhelmed	500	2.54	1.24	Rejected

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Result in table 6 revealed the impact of emotional adjustment on students' academic performance. The result indicated that all items were accepted because their mean scores are above the cut-off mark of 2.50. This implies that, emotional adjustment has positive impact on students' academic performance.

H_{O1}. Are there significant gender differences on impact of adjustment on academic performance among the senior secondary school students in Jere LGA, Borno State?

Table 7: t-test Scores of Gender Difference on Impact of Adjustments on Academic Performance of Senior Secondary School Students in Jere LGA, Borno State

	Gender	N	Mean	Std Dev.	df	t	P-Value	Decision
Impact of Adjustment on Academic Performance	Male	250	2.6640	1.07131	498	2.096	.037	Accept H_O P>.005
	Female	250	2.4600	1.10512				

Table **7** showed that the P-value .037 is greater than 0.05 level of significance with 498 degree of freedom, hence, the null hypothesis is accepted, this showed that, there is no significant difference in impact of adjustments on the academic performance of senior secondary school students in Jere LGA, Borno State.

Discussion of Findings

The research examined how academic, social and emotional adjustment affects the academic performance of senior secondary school students in Jere LGA, Borno State. The results of the research indicated that academic adjustment significantly impacts students' academic achievements positively in Jere LGA. Students who demonstrated effective time management, complete tasks assigned to them by their teacher, understand teachers' instructions and attend class regularly and punctually performed better academically. This aligns with recent research by Akintunde et al. (2023), who reported that students' ability to adjust academically predicts higher academic achievement, particularly in under-resourced or conflict-affected areas such as northeastern Nigeria. The study is also consistent with the findings of Okon et al. (2022), who reported that academic adjustment serves as a predictive factor for student performance in Nigerian secondary schools, especially in regions affected by socio-political instability. This implies that, in Jere LGA, where schools were affected by security challenges, students who maintain academic discipline and focus tend to perform more than their peers.

The study also showed that social adjustment is a crucial factor in impacting on academic performance of students. The findings indicated that students who were able to form new friends, interact with their peers in school, participate in group activities and build positive relationships with their classmates showed better academic performance. The study by Musa & Nwoke (2022) found a direct link between social integration and academic engagement among secondary school students in northeastern Nigeria. In conflict-affected areas like Borno State, social support networks among students can serve as buffers against external stressors, leading to improved concentration and motivation in academic tasks. Umar & Ibrahim (2023), also confirmed that peer group influence in Nigerian secondary schools significantly affects study habits, especially where parental involvement is minimal due to displacement or poverty. The study further aligns with the findings of Musa & Ibrahim (2021), who emphasized that social connectedness improves students' sense of belonging and participation in academic activities, even in conflict-affected areas. The results of the research indicated that emotional adjustment has a considerable effect on academic achievement. Students who exhibited self-confidence, emotional stability, self-discipline, and stress management skills tended to perform better academically compared to their classmates who lacked these traits. This observation aligns with the work of Bello & Zubairu (2024), who highlighted that emotional turbulence, including stress caused by trauma from conflict situations, can greatly influence students' academic success. In Jere LGA, students who received psychosocial support, Social and Emotional Learning or had coping mechanisms in place showed higher academic performance compared to their counterparts. According to Bello & Adamu (2023), students with emotional adjustment difficulties often exhibit poor academic concentration, low motivation and behavioural problems, which negatively impact academic performance. The findings of the study indicated that academic, social and emotional adjustments significantly impact the academic performance of senior secondary school students in Jere LGA, Borno State.

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The result showed that there is no significant difference in the impact of adjustments on the academic performance of senior secondary school students in Jere LGA. This finding is in agreement with Akomolafe and Olorunfemi (2017), who found that although male and female students exhibited differences in adjustment behaviours, these differences did not translated into significance difference in their academic performance.

Conclusion

The study on the Impact of Adjustments on Academic Performance of Senior Secondary School Students in Jere LGA, Borno State has revealed that adjustments in academic, social and emotional aspects are vital and interrelated factors affecting students' success in academics. The research found that students who can effectively handle their academic responsibilities, cultivate and sustain healthy social connections and manage their emotional reactions tend to achieve greater academic success, even in a difficult and conflict-impacted area like Jere LGA. Considering the specific circumstances of Jere LGA, which is affected by conflict, insecurity, and displacement, the ability of students to adapt successfully in the academic, social and emotional spheres is essential for their highest performance levels. The study validates that enhancing students' adaptability in these areas results in improved academic performance and greater educational resilience. The results also highlighted the importance of schools, government and community stakeholders in implementing comprehensive educational strategies that promote resilience and adjustments across all facets of student development.

Recommendations

Based on the findings, the following recommendations are proposed:

1. Ministry of Education and SUBEB should strengthen Guidance and Counselling Services in schools to support students' emotional and social adjustment. These Counsellors should offer regular sessions on stress management, emotional intelligence and trauma recovery, especially for students affected by conflict and displacement.
2. Educational authorities and policy makers should integrate structured life skills and adjustment programs into the school curriculum. These should cover time management, effective communication, goal setting, and coping mechanisms to improve both academic and social functioning.
3. Government through SUBEB and Ministry of Education should enhance teacher training on Life Skills, Psychosocial Support and Adjustment Programs in Jere LGA and should receive ongoing training in recognizing and responding to students' academic, social and emotional challenges. This will help them provide more responsive classroom management and foster a more inclusive learning environment.
4. Schools should work closely with parents and community leaders to raise awareness about the importance of academic, emotional and social support for students. In areas affected by conflict, community involvement can bridge the gap created by broken family structures.
5. School administrators should establish systems to monitor students' adjustment and track academic performance regularly. Early identification of students with adjustment difficulties will allow timely preventive and curative intervention and support in schools.
6. Government and NGO should develop programs that support vulnerable students by providing educational materials, psychosocial support, scholarships, and school feeding initiatives to ease burdens on students and families.

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Family Life Education and Counselling: A Sustainable approach to Curbing Contemporary Social Problems in Nigeria

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Abstract
Many school children suffer from lack of appropriate care, love and concern from their parents, guardians and others at home. Family life Guidance and Counseling has been identified as an important aspect by many countries in the world, owing to its internationally recognized role of improving all aspects of quality life and education among school children. Although G&C programme has existed in the Nigerian learning institutions, family life education has not been given much emphasis it deserves, and this has led to emergence of so many problems that are expected to be primarily addressed at home and through joint efforts of all stakeholders in the provision of effective Guidance and Counseling services. This is a position paper of descriptive survey design type, using secondary sources aimed at presenting the concepts of contemporary social problems in Nigeria and family life education and counseling. It also discussed on family therapy counselling techniques, problems that necessitate the provision of family life counselling, family life cycle, qualifications and roles of family life counsellors. Finally, ways were suggested through which these challenges could be overcome in form of recommendations.

Keywords: Family Life Education, Counselling, Contemporary Social Problems

Introduction
A significant portion of Nigeria's contemporary social challenges can be traced to the adverse effects of broken homes and inadequate parenting. Empirical evidence underscores that children who experience insufficient or inconsistent parental attention are more prone to emotional and behavioural disorders (Omotoso, 2017). Studies conducted in Nigeria reveal that adolescents exposed to negligent or authoritarian parenting—lacking both emotional responsiveness and appropriate guidance—show elevated rates of emotional and peer-related problems (Obimakinde et al., 2018). Moreover, children from fractured family backgrounds frequently display aggression, hyperactivity, anxiety, and other academic and social challenges (Mbah, Chigozie, & Umeh, 2022). Children require consistent time, affection, and parental engagement to feel valued, develop secure attachments, and allow parents to understand their strengths and limitations—thereby facilitating effective guidance. This relational closeness also enables children to express their thoughts and emotions, strengthening the parent–child bond. Regrettably, in many developing contexts such as Nigeria, modern family life education and counselling initiatives remain severely underdeveloped. Most support is limited to pastoral or culturally traditional forms of counselling, while formal family life education and preventive counselling remains largely unprioritized, despite its potential to address numerous societal problems.

Objectives of the Study
1. To highlight on the meaning and concepts of family life education, family life counselling, family therapy counselling techniques and Family Therapy Counselling Techniques.
2. To point out the significance of family life education and counseling as a sustainable approach to curbing social problems in Nigeria.
3. To explain the various Family Therapy Counselling Techniques that can be used to help families to adapt to different life challenges.

Concept of Family Life Education
Family Life Education means preparing individuals and families for the roles and responsibilities of family living. Because knowledge about human development, interpersonal relationships, and family living is not innate, some developed societies have needed to develop ways through which they may transmit the wisdom and the experience of family living from one generation to succeeding ones. Individuals learn about family living in the family setting itself as they observe and participate in family activities and interactions in their own and other families. Family life education for adolescents for instance is very essential as it addresses two important kinds of needs: (1) their current normative needs associated with changing physical, sexual, cognitive, social, and emotional developments, and (2) their anticipatory or future family-related

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needs to help prepare them for adult roles and responsibilities in marriage and parenting. Laurents and Shorter (2015) argue that divorce among Christians in Africa and to some extent, the world in general is caused by non-careful or hasty choice of a partner without knowing well his or her background and character. Important family life education content includes understanding one's self and others; building self-esteem; making choices, learning positive social interaction skills and the importance of appreciating peaceful coexistence; forming, maintaining, and ending relationships; taking responsibility for one's actions; understanding family roles and responsibilities; and improving communication skills (Hennon and Arcus, 2013). The Concerns for the potential negative impact of divorce on children call for special parenting education for parents in Nigeria because majority of social problems witnessed in the country get their roots from effects of broken homes and poor parenting for adults. Facilitating access to a wide range of parenting information, skills, services, and other forms of support for parents can assist potential couples. Marriage education programmes have been developed in many developed countries to provide premarital couples with opportunities to gain knowledge about and discuss the critical issues and tasks of marriage, to acquire behavioural skills and problem-solving strategies to enhance their relationships, and to evaluate their relationships, including untested assumptions, and/or unrealistic expectations (Stahmann and Salts, 2014).

The purpose of family life education is to strengthen and enrich individual and family wellbeing (Thomas and Arcus 1992). Major objectives include (1) gaining insight into one's self and others; (2) acquiring knowledge about human development and behaviour in the family setting over the life course; (3) understanding marital and family patterns and processes; (4) acquiring interpersonal skills for present and future family roles; and (5) building strengths in individuals and families (Arcus and Thomas 1993). It is assumed that if these and other similar objectives are met through family life education, then families will be better able to deal with or prevent problems and will be empowered to live their family lives in ways that are both personally satisfying and socially responsible. Family life education programs are preventative, intended to equip individuals for their family roles rather than to repair family dysfunction. An underlying assumption of family life education is that it is relevant to individuals of all ages and to all families whatever their structure, stage of the life course, or special circumstances (Arcus, Schvaneveldt, and Moss 1993). In the United States and other developed countries, most family life education programmes for children and adolescents are provided in school settings in form of school subjects. While for adults, family life education takes place through different organized public programmes.

Concept of Family Life Counselling

Most problems witnessed in children and adolescents are products of problem homes (Sambo, 2016). Family therapy or family counselling is a service designed to address specific issues that affect the psychological health of the family, such as major life transitions or mental health conditions. It may be used as the primary mode of treatment or as a complementary approach. Parental counselling deals with parent-child relationship especially in different dimensions. Families can benefit from counselling when they experience any stressful event that may strain family relationships, such as financial hardship, divorce, or the death of a loved one. In addition, it can be effective in treating mental health concerns that impact the family as a whole, such as depression, substance abuse, chronic illness, and food issues, or everyday concerns, like communication problems, interpersonal conflict, or behavioural problems in children and adolescents.

Family counselling aims to promote understanding and collaboration among family members in order to solve the problems of one or more individuals. For example, if a child is having social and academic problems, therapy will focus on the family patterns that may contribute to the child's acting out, rather than evaluating the child's behaviour alone. As the family uncovers the source of the problem, they can learn to support the child and other family members and work proactively on minimizing or altering the conditions that contribute to the child's unwanted behaviour. Every marriage and family has problems, but sometimes those problems seem so difficult that it seems impossible to address them—at least with your knowledge and in your own power. Family therapy is a branch of psychotherapy that is meant to help initiate change and nurture development in intimate relationships between family members and couples.

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Family Therapy Counselling Techniques

According to Premier Mind Institute (2017) family life counselling has come to occupy a central position in the world of mental health, on the premise that healthy families rear and sustain healthy individuals. The family unit's stability is key – particularly to children and adolescents – to healthy and happy lives outside the home, in relationships external to the family, and to success in adulthood. The following are five family life counseling techniques that are widely used by Premier Mind Institute:

Structural Therapy

Structural family therapy assesses power dynamics within the family unit, and analyzes each family member's assigned "role" within the family unit. Family hierarchies are examined and analyzed, and the amount of power that each individual family member has is examined and, if necessary, redistributed. Structural therapy seeks to empower each family member and to individualize the needs of each one, in addition to establishing respect between all family members.

Milan Therapy

This therapeutic technique focuses on the analysis of belief systems harbored by individual family members or by the collective as a whole, and challenges family rituals and practices particularly as they relate to conflict. By forcing attention to these belief systems – unconscious and subconscious – Milan therapy seeks to dismantle and disempower belief systems that perpetuate conflict within family units.

Strategic Therapy

Strategic therapy closely examines patterns of interaction and conflict between family members and seeks to increase awareness and mindfulness of these patterns. A more direct approach than some other family therapy techniques, each individual family member is assigned work in order to improve how they interact with their other family members, particularly those who may be facing unique challenges or struggling with mental or neurological illnesses or disorders. This therapy technique also subverts the authority of the most dominant family member, allowing communication changes to evolve positively between family members and the symptom sufferer.

Narrative Therapy

Narrative therapy helps individual family members to shape their personal narratives by recognizing and embracing individual positive qualities, skills, and gifts in order to help them constructively confront and conquer problems they may be facing within their family unit or within their own individual lives. Narrative therapy encourages patients to break free of the influence of negative or destructive influences that may undermine internal recognition and embrasure of one's own value, capability, and competency. Narrative therapy is also used in other areas of counseling, such as community or individual counseling and therapy.

Transgenerational Therapy

Transgenerational therapy examines intergenerational relationships and conflicts in family units, and closely examines and breaks down problematic or destructive belief systems that are often transmitted between one generation and the next. This method can be especially useful when more than two generations of a family are living in the same home and facing conflict – for example, grandparents, parents, and children all living together. This technique is often used in tandem with Milan therapy. Family life counselling is often short-term, averaging five to twenty sessions. Family therapists may use one, two, or even all of these techniques depending on the individual needs of the family in question and also depending on the individual diagnoses of each family member that may impact family dynamics and conflict. The goal of family therapy is to establish a harmonious and healthy family unit, and to give each family member skills and tools to deepen healthy relationships with their families at least for years (Premier Mind Institute, 2017).

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Challenges Necessitating Family Life Counselling

Families in contemporary society often encounter a range of complex and multifaceted challenges that necessitate professional intervention. Marriage and family life counsellors are trained professionals equipped with both theoretical knowledge and practical expertise to assist individuals and family units in addressing and resolving critical relational and developmental issues. According to Mbiti (2016), prevalent family-related challenges include insufficient preparation for marriage, misconceptions about marital expectations, adverse childhood experiences, ineffective communication, conflicting interests, mental health concerns, behavioural disorders, financial instability, cultural and social disparities, maladjustment within marriage, infidelity, interference from extended family members, educational attainment disparities, disillusionment with family life, separations arising from necessity, and spousal incompatibility.

Three Major Stages of the Family Life Cycle:

Stage I: The beginning family

The first sub stage of the family life cycle is the period of establishment. It begins with marriage and continues until the first child is born. It is also called "getting acquainted" stage, when two partners try to know each other's psychology and behavioural prospects. Both the partners should learn to manage the resources of time, energy and income properly to achieve their long term goal in their married life.

Stage II: The expanding family

The expanding family stage covers a longer period than the beginning family stage and includes a number of sub stages. It begins with the birth of the first child and ends when the last child leaves home. The first sub stage is known as child bearing and pre-school and is also marked by the accumulation of goods. This in turn brings about the development of attitudes that influence future family living. During this period parents take necessary steps to make adjustments with their relations and new child as well. The parents have to shoulder different responsibilities to keep pace with rapid change of the situation. The elementary school period begins a series of overlapping experiences that cover the time when the children are about 6 to 12 years of age. During this sub stage the children begin their formal education and make their first independent contacts with the outside world. In this sub-stage parents are primarily concerned with the educational and health needs of the children, creating an environment in which the children will have a feeling of belongingness. Parents will provide nutritious food, suitable clothing and adequate housing to children for physical development as well as provides opportunity to them for social contacts outside the home for social and emotional development.

The High School Period

It includes the teen age period of children i.e., within 12 to 18 years of age. Parents will assist to their children whole heartedly in their high school or vocational education to solve their educational, social, recreational and vocational problems by which the children become independent and self-reliant individual.

The College Phase

It covers the college period of children. The chief parental duties now-are helping them in choosing a suitable college and financing their education. So during this period a lot of financial adjustment is needed by parents. They have to spend more from their savings for college expenses. The parents have to carry out all activities with planned budget during their period. Their planning should involve three steps:

(a) Planning (b) Controlling the plan in action (c) Evaluation.

They should give more emphasis on surplus budget during expanding family stage.

Stage III. The contracting family Stage

This stage begins when the first child leaving home as a young adult and ends when the last child leaves home for a life of his or her own. It is marked by the departure of young adult for service or marriage. It is a period of adjustment for parents and children. The parent's financial assistance may be needed for the establishment of children.

The period of financial recovery begins after the children leave home and become self-supporting. Current expenses drop rapidly' Debts that have accumulated over the previous stages are paid off and saving for the future takes a large share of the income. Some persons develop their former professional interests like writing, painting, music, teaching etc.; some persons develop their creative interest to get financial benefit.

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Some may spend money for travel. So the period of financial recovery calls for social and vocational adjustments that look toward retirement. People must plan regarding their time, money and energy to feel independence in their later life. They must make time plan to spend their leisure time for watching the television, reading the spiritual and story books, so that they can develop feeling of fulfillment and adequacy despite their age.

The last sub-stage is the time of retirement. The wants of individuals during this stage usually grow less intense and the need for care and protection increases. It is the period of adjustment to physical changes, to changes in environmental conditions, to changes in human relations, and often to changes in income. For those who can make the necessary adjustments and who have health and strength, human relations will continue to be satisfying even though the physical setting of the home may change. This is the period not only a vocational arts but also management of time energy and money are important both to the family and to the aging person.

Significance of Family Life Counselling

Family life counselling provides a structured, supportive environment for addressing intra-family conflicts and promoting healthy relational dynamics. Research indicates that counselling can enhance communication, problem-solving, and conflict resolution, while fostering empathy, trust, and resilience (American Addiction Centers, 2017). Additionally, counselling assists families in recovering from crises, establishing healthy boundaries, and reducing relational stressors, thereby contributing to a supportive and cohesive family environment.

Qualifications and Roles of Family Life Counsellors

Family life counsellors play a crucial role in guiding individuals, couples, and families through periods of relational strain, transition, and psychological distress. Their responsibilities include observing family interactions, diagnosing and addressing psychological and behavioural challenges within the family context, facilitating conflict resolution, and supporting clients through life transitions such as divorce, bereavement, or unemployment (All Psychology Schools, 2017). Typically, family life counsellors hold at least a master's degree in counselling, psychology, or social work, with specialized training in family therapy and guidance. They are equipped to manage a wide range of issues, including child and adolescent behavioural problems, marital conflict, domestic violence, infertility, substance abuse, depression, anxiety, and crisis intervention (Adegoke, 2004). While counsellors may have different methods and preferred treatment techniques, they must all have at least a minimum level of experience with the treatment of: Child and adolescent; behavioural problems; Grieving; Depression and anxiety; Domestic violence; Infertility; Marital conflicts; Substance abuse (All Psychology Schools, 2017).

In order to treat these and other family issues, the counsellor must:

i. Observe how people interact within units;
ii. Evaluate and resolve relationship problems;
iii. Diagnose and treat psychological disorders within a family context;
iv. Guide clients through transitional crises such as divorce or death;
v. Highlight problematic relational or behavioral patterns;
vi. Help replace dysfunctional behaviors with healthy alternatives;
vii. Take a holistic (mind-body) approach to wellness (All Psychology Schools, 2017).

In order to treat these and other family issues, counsellors must:

viii. Observe how people interact within units;
ix. Evaluate and resolve relationship problems;
x. Diagnose and treat psychological disorders within a family context;
xi. Guide clients through transitional crises such as divorce or death;
xii. Highlight problematic relational or behavioural patterns;
xiii. Help replace dysfunctional behaviors with healthy alternatives (All Psychology Schools, 2017).

A family life counsellor must undergo academic and professional training in guidance and counselling and obtain at least a masters Degree in counselling after a bachelor's degree in counseling, psychology or social work. This education trains counsellor for guidance with a wide range of problems, including:

i. Personal conflicts within couples or families;
ii. Unexpected illness, death, or unemployment;
iii. Developing or maintaining a healthy romantic relationship at any stage;

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iv. Behavioural problems in children;
v. Divorce or separation;
vi. Substance abuse or addiction;

Concept of Contemporary Social Problems

Social problems are conditions or phenomena that adversely affect large segments of society and are perceived as undesirable at specific moments in time. A definition from Oxford's sociology textbook articulates that a social problem must possess both objective and subjective dimensions—namely, measurable harm and collective acknowledgment of the issue's problematic nature (Rubington & Weinberg, 2021). Britannica defines a social issue as a state of affairs that negatively impacts individuals or communities and is often subject to public debate regarding its causes and solutions Importantly, for an issue to be considered a social problem, it must affect more than just an individual; it must be recognized as a concern by a substantial portion of the community. Contemporary examples in the Nigerian context include child labor, sexual violence (rape), kidnapping, suicide, homicide, environmental pollution, examination malpractice, migration, drug abuse, corruption, smuggling, and human trafficking—issues that collectively challenge societal well-being and stability. These social problems are of critical concern to various stakeholders, including government bodies, families, NGOs, and individuals. However, their root causes are often attributed to systemic deficiencies—one of which is the lack of robust provision for family life education and counselling at the grassroots level. Such interventions could serve as primary preventive measures, mitigating emerging social problems before they escalate.

Family Life Education and Family Life Counselling: A Sustainable Approach to Curbing Contemporary Social Problems in Nigeria

"To put the world right in order, we must first put the nation in order; to put the nation in order, we must first put the family in order; to put the family in order, we must first cultivate our personal life; we must first set our hearts right." – Confucius

The goal of family therapy is to work together to heal any mental, emotional, or psychological problems tearing your family apart (Lee, 2010). Family life education aims at making family members aware of their various responsibilities and duties. For instance, it is apparent that the goal of spending quality family time is to love, understand, and develop your child as a happy, well-adjusted, and contributing member of society. This can help in minimizing so many contemporary social problems in Nigeria. Family life counselling entails services rendered by a counsellor to individuals or members of a group in an organized institution or setting with particular reference to family (Uguadu, Njoku & Onyemerekeya, 2014). If well adjusted, families can be the sources of joy, happiness, love, caring, support, affection, commitment and a sense of belonging as well as involving relations, responsibilities and duties. Regardless of the structure or type of family unit, the level of unity, cohesion and consequently the well-being in the home environment are mostly contingent upon social and psychological factors attendant to variety of situations (Genyi, 2008). Family life counselling is intended to treat the entire family, not just the troubled individual. The goal is to renew and maintain the natural family structure and support group with an emphasis on returning the individual to a healthy family and community life (Nartey, 2018).

Contemporary social problems in Nigeria can be prevented or resolved through the provision of family life education and family life education by designing and delivery of:

1. Family support service centers - which can serve as based focal points to promote and improve the social well-being of every individual in the family.
2. Single-parent Family support services – This is a programme that assists in improving and maintaining the psycho-emotional single-parent families towards stability, growth and acceptance of the ew family unit through initiating counselling encounters, support groups, programmes for children and public education.
3. Divorce and Remarriage Counseling Services – This is helping with adjustment skills for divorced couples and how to cope with newly reconstructed families.
4. Family Violence Prevention and Intervention Programme – This helps victims, perpetrators of family violence and community to become aware of family violence through public enlightenment and out reach through casework and workshops.

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5. Suicide Prevention Services - Helping at-risk emotionally unstable and depressed family members to overcome their emotional challenges and situations amicably through different but suitable techniques such as self-control and relaxation (Uguadu, Njoku & Onyemerekeya, 2014).

Above are some of the services that need to be provided for families to prevent or minimize tensions so as to stabilize the home and outer environment for individuals in order not to lead to consequential social problems in the larger society. In family counseling, the husband, the wife and the children work together as group to resolve the problems of each member under the assistance of the counsellor (Ibinaiye, 2014). Thus, the interaction improves communication and understanding to change destructive patterns and see themselves and each other in new ways. This in turn can enhance better family living as well as better parenting, and better parenting results to better child and adolescent up-bringing, and better up-brniging can prevent or minimize antisocial behaviours.

Conclusion

The contemporary social problems in Nigeria have been compounding so many detrimental effects on individuals, families and the society at large. Based on the above discussions, it can be concluded that family life education and family life counseling are two distinct but similar services that can be provided for every society to prevent and/or minimize the prevalent contemporary social problems in any country, particularly Nigeria. In other words, if these two services could be recognized and put in place by families, communities, governments and NGOs in collaboration with counsellors, majority of the problems can be checked in some few years to come.

Recommendations

Based upon the forgoing assertions, the paper presents the following recommendations:

1. Government at state and federal levels should revisit and appreciate the significance of guidance and counseling services especially family life counseling and formulate policies regarding its provisions to families in the country.
2. Counsellors in Nigeria should join hands together towards organizing ways of helping Nigerian families in resolving parenting and other family issues that usually tantamount to behaviour disorders, resulting to social problems.
3. Family life education should be considered as a subject to be taught in Nigerian schools, colleges and universities so as to educate children, adolescents and adults about true and ideals of family life and responsibilities.
4. Family support service centers should be established in both rural and urban settlements to help families resolve primary issues and concerns before such problems grow beyond family level and become societal or national issues/problems.

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Effect of Concrete-Exemplar Model on Conceptual Understanding of Volumetric Analysis Concept among Federal College of Education Students in North-West, Nigeria

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Abstract
This study Effect of Concrete-Exemplar Model on Conceptual Understanding of Volumetric Analysis Concept among Federal College of Education Students in North-West, Nigeria. The study adopted pretest and posttest quasi experimental control group design. The population of the study comprised 718 (310 male and 408 female) NCE I Chemistry students from all the six Federal Colleges of Education in North- West, Nigeria. The sample of one hundred and ten (110) NCE Chemistry students were purposively selected from the target population. The experimental group was exposed to concrete exemplar model while the control group was exposed to conventional laboratory teaching method. Chemistry Conceptual Understanding Inventory (CCUI) with reliability coefficient of 0.80 respectively used to measure conceptual understanding of Students on the concept volumetric analysis. Cronbach's Alpha reliability coefficient test. The Study was guided by two objectives, research questions, and corresponding null hypotheses, respectively. Two research questions were answered using descriptive statistics of mean and standard deviation and two null hypotheses were tested at $p \leq 0.05$ level of significance using t-test inferential statistics. The results among others revealed a significant difference between the conceptual understanding of experimental group and control group ($p= 0.01 < 0.05$). Based on these findings it was concluded that students taught Volumetric Analysis concept using concrete exemplar model had better conceptual understanding of the concept than those taught same concept using conventional laboratory method. The study, therefore recommended among others that, the use of concrete exemplar model should be encouraged among chemistry teachers at NCE level in teaching volumetric analysis concept to enhance students' meaningful learning and conceptual understanding.

Keyword: Concrete exemplar, Conceptual Understanding and Volumetric Analysis

Introduction
Chemistry is a branch of science which requires practical training to provide students with skills which allows them to have experience and expertise to gain greater understanding of their environment. Akpoghol, Ezeudu, Adzape and Otor (2016) pointed out that the combination of chemistry and chemists to social, industrial and economic life of the world in general and Nigeria in particular have been felt on all phases of human life. Akpoghol et al (2016) further stress that the knowledge of chemistry has enabled the provision of good water, food, and healthcare delivery, various materials for construction in industries, roads, automobiles, and houses. Chemistry is used in solving problems resulting from human interaction with the environment like water and pollution. Furthermore, despite the relevance of the knowledge of chemistry to the society, achievements of students in chemistry as measured by their scores in school certificate examinations have been very poor. This according to Diah (2018) is as a result of the misconception they hold in some Science related subject at Secondary School level. These misconceptions are carried along with to the College of Education as well as Universities. The

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misconceptions are basically in certain concepts which are abstract in chemistry, such as electrochemistry, balancing of chemical equations and mole concept among others. Basically, importance of understanding mole concept cannot be overemphasized. Over the years chemistry student in Colleges and institutions of higher learning have poor concentration and understanding of these concept due to lack of interest, and abstract nature of the concepts (Aklan, 2021), and lack of practical skills, as a result of inexperience in their ordinary level, where most Nigerian schools lack laboratory facilities (Agahu et al, 2020), and ineffective teaching methods used by the teachers. In order to boost students learning outcome, practical skills are required in mole concept and volumetric analysis inclusive. Practical skills are crucial for success in science courses, practical activity is important as the theoretical aspect is. Nelson (2019) stated that most chemical operations require considerable practical skills and no amount of intellectual understanding can substitute for that aspect, it is therefore very vital for the learners to acquire significant practical skills that will enable them solve problems in this regard, more especially in volumetric analysis among others.

Volumetric analysis is a method of quantitative analysis which is based on mole concept, it requires skills in practical and it involves accurate measurement of volumes of liquids, i.e., analysis of the amount of substance present. In volumetric analysis, the amount of solute present in an aqueous solution is determined by allowing a sample volume of this solution to react completely with another solution of known strength or composition. The process involves accurate measurement of the sample volume and noting the exact amount of the unknown solution needed to react thoroughly with the first. Campbell, Midson, Bergstrom, Cahill and Steward (2022) noted that Chemistry laboratory practical are designed to fit within the traditional discipline boundaries. Therefore, students usually miss the opportunity to make connections between different areas of Chemistry. Abu and Mathew (2021) reported that the practice in most Nigerian schools is students are allowed to perform experiment in "cook book" fashion where by student only follow direct instructions, without proper understanding. According to Adegoke (2021), inadequacy of basic laboratory materials, technical personnel and persistent use of conventional laboratory methods among other factors, significantly obstructed the effective teaching of chemistry practical. These conventional methods are considered ineffective for teaching volumetric analysis leading to misconception. Consequently, this study employs a concrete exemplar model to teach the concept, with the aim of making learning meaningful and promoting deeper conceptual understanding.

Concrete exemplars are tools used to facilitate student's comprehension through use of real materials. These are ideal materials that are presented in such a way to help student learning material in logical step by step sequences which are concrete, guided with adjunct questions in text. Many educators such as Stephen (2023) and Ojo (2017) argue that concrete material help student think, reason and solve problems. Concrete material may offer a boost on a direct-test of knowledge. Shing (2016) view science as concrete operational and formal operational concept accordingly, the concrete operational concepts are concepts whose meaning can be developed from firsthand experience with object or events and formal operational concepts are concepts whose meaning are given through imagination or through logical relationship with the system. Mari and Samuel (2023) also reported that certain formal concepts can be comprehended by students when they are taught using hands on method, analogies, concrete material and diagrams among others, which are among activity-oriented strategies. According to Federal Ministry of Education in the National Policy on Education (FRN, 2013) stipulated that number of activity oriented instructional strategies have been advocated for, by curriculum designers and science educators to help improve students' performance among college science students. Examples include guided discovery, concept mapping, inquiry and use of concrete material among others. Stephen (2023) lamented that the best approach in teaching for conceptual understanding is through presentation of the real objects in the learning units. The idea is to ground the abstract symbols in appropriately structured environments so that the student can use the environment to help guide their thinking. Herron (2017) observed that once concrete materials are used in instruction as often done in inquiry learning, students can be expose to concepts no matter how abstract minded concrete props which model abstract concepts are used. Ojo (2017) supported the use of concrete material to boost students understanding in chemistry concepts. Abdulsalam (2020) asserted that scientist and science teachers often develop tangible materials in communicating ideas that are abstract to students in a more concrete way in order to enhance comprehension. Therefore, the study employs concrete exemplar model to promote students conceptual understanding.

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Conceptual understanding is the ability to explain concept taught in one's own words or ways having understood it well. Herron (2017) views Conceptual understanding as the ability to relate abstract ideas to concrete phenomena and also transferring knowledge to new situation and context. Holmes and co-workers (2015) stated the goal of instructors in general chemistry is to promote student conceptual understanding to achieve better in sciences. Mill (2016) sees conceptual understanding as frames of thinking, in which concepts when elaborated into generalization will be for conceptual understanding. Cracolice, Deming and Ehlert (2008) added that teachers focusing on teaching for conceptual understanding rather than memorizing of facts and topic, it provides a frame for thinking which allow learners for in-depth understanding of phenomena and will enable them connect to more advanced ideas rather than memorization of facts. Moreover, science educators have realized teaching science as a list of fact for memorization rather than for understanding is a futile exercise. Gongden (2015) revealed that research in science has shifted from teacher-centered to student-centered, and also on factors in students' mind such as prior-knowledge, misconceptions, memory capacity and cognitive style. Teaching should not be for examination only as is presently the case; rather it should encourage thinking on the subject and nurture innovation and creativity while retaining the excitement of chemistry. Teachers should motivate and inspire students, should also ensure that whatsoever is taught, is effectively learnt by the students in promoting conceptual understanding in student, learning does not mean rote learning rather should be built on the students' acquisition of knowledge and understanding of scientific phenomena (Muhammad, 2021).

Conceptual understanding of scientific phenomena is essential to lay solid foundation of basic chemistry concepts as indicated in the hierarchy of learning. Emerhiona (2021) asserted that one of the major weaknesses of students that lead to poor performance is lack of basic understanding of simple chemistry concepts. According to Bankole and Oludipe (2020) Chemistry are perceived difficult and abstract to learn, such concepts identified as difficult includes; Mole concept, Redox reactions, Volumetric Analysis, electrolysis, chemical equations among others. Volumetric analysis is among such concepts in the minimum standard of National Commission for Colleges of Education (NCCE, 2020) which is the focus of this research, as a result of its usefulness and relevant to our daily lives (Eya, 2015). Moreover, questions are set on the concept by external examination bodies yearly and students are not properly grounded in the basic concepts. The lack of understanding concepts in chemistry may be attributed to the use of conventional laboratory method in practical work whereby by chemistry teachers dominates the scene preferably demonstrating it and give only formula with cooked values. Learners are inactive, also making little or no room for challenging learners' ingenuity and development of cognitive skill through experiment (Bankole et al, 2020). These prompted the researcher to use concrete exemplar model as teaching strategy in order to improve students' conceptual understanding, as well as address the learning outcome in gender. Gender is one of the factors for student's understanding of concepts in science learning processes and gender is important in educational system as it influences the curriculum, instructional strategy, and understanding among others. Some researchers such as Atamonokhai, Adikwu, Ochu and Iji (2017) indicated that gender stereotyping is reduced as both boys and girls participate actively in groups without any form of discrimination or segregation. While researchers like, Filgona and Sababa (2017), Hassan (2023) supported that female student had greater influence on students' performance towards chemistry than their male counterpart using mastery learning strategies. In the same vein, Mari (2012) also views boys to be more discovering, active and problem solver than their female counterpart. Therefore, this study investigated whether the use of concrete exemplar model is gender friendly or not.

Despite the vital role of volumetric analysis in chemistry education, many students in Federal Colleges of Education in Northwest Nigeria often struggle with poor conceptual understanding of this topic. This persistent challenge has been attributed to the continuous use of conventional laboratory methods, inadequate laboratory facilities and the lack of hands-on approach, among others. Traditional approaches are often abstract and fail to bridge the gap between theory and practice, resulting in low learning outcome. Recent studies suggest that incorporating concrete models into science instruction can significantly enhance students' conceptual understanding and meaningful learning. For instance, Ojoko et al (2023) found that the use of teacher-constructed concrete models significantly improved students' conceptual level in Basic science and technology class. Similarly, Onunkwo, Ozomodu, Ejikeme and Osuji (2025) found that the use of concrete models significantly improved students understanding and performance in unsaturated hydrocarbon in chemistry. These findings suggest that concrete exemplar models may offer an effective alternative for improving conceptual understanding in

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chemistry. Therefore, this study seeks to examine the effect of concrete exemplar models on students' conceptual understanding of volumetric analysis in federal colleges of education in Northwest, Nigeria.

Objectives of the study:

The following objectives guided the study:

1. find out the difference between the Conceptual understanding of NCE I students taught Volumetric analysis using Concrete exemplars and those taught using conventional laboratory method
2. find out the difference between the conceptual understanding of male and female NCE I students taught volumetric analysis using Concrete exemplars and those taught using conventional laboratory method.

Research Questions:

For the purpose of this study, the following research questions were raised:

1. What is the mean difference between conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar's model and those taught using conventional laboratory method?
2. What is the mean difference between the Conceptual Understanding of male and female NCE I students taught using Concrete Exemplar Model?

Hypotheses:

The following null hypotheses are formulated for testing the research questions at $p \leq 0.05$ level of significance:

1. There is no significant difference between conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar strategy and those taught conventional laboratory method.
2. There is no significant difference between conceptual Understanding of Male and Female NCE I Students taught Volumetric Analysis using Concrete Exemplar Model.

Methodology

The study was carried out using Quasi Experimental - Control group design involving pre-test and post-test control design. Two groups were used for data collection; the experimental (ExG) and the control group (CnG). A pretest was administered to the two groups using Conceptual Understanding Inventory to determine the group equivalence before the commencement of the treatment. Experimental group was taught volumetric analysis concept using Concrete Exemplar Model while the control group was also taught the same concept using conventional laboratory method for a period of six weeks. At the expiration of six weeks treatment schedule, all the participants in the two groups were post-tested using the same instrument. Population for the study comprises of all NCE I Chemistry Students from Federal Colleges of Education in Northwest Nigeria which has six (6) Federal Colleges of Education with a total of 718 students comprising of 310 male and 408 female students. Two schools were randomly selected and used as experimental and control groups. A total sample of 110 students were selected using purposive sampling technique from the population of the study. Chemistry conceptual understanding inventory was the instrument used to collect data for the study.

Chemistry Conceptual Understanding Inventory (CCUI): is an instrument adapted and modified from Mari (2019) which involves testing the level of conceptual understanding of the students, it is a research-based assessment instrument that measures conceptual understanding, it is an open-ended assessment that was developed following a rigorous research process. The test consisted of ten (10) items requiring Student to give a brief answer to the questions and reasons why that answer was given also provide explanation to the phenomenon presented in question. Concept inventory differs from assessment-test as it is aimed at examining conceptual understanding, it may not cover detailed content knowledge. It is based on rigorous research into student misconceptions, and questions were often worded to reflect common students' misconception. Concept inventory are usually given at the beginning of a course (pretest) to gain a sense of Students prior knowledge, and also given at the end of the course (Posttest) to gauge changes in the students' understanding. The content validation of the CCUI was carried out by experts, that is, two lecturers, one professor from psychology Department and one professor in Science Education Department, both from Ahmadu Bello University, Zaria. In order to ascertain the level to which CCUI was reliable. Data collected from the pilot test were analyzed using Cronbach Alpha. The result showed a reliability coefficient of 0.80 which was considered reasonably reliable for this study. Two null hypotheses were tested at 0.05 level of significance. The data collected were analyzed using descriptive statistics (mean and standard deviation) and inferential statistics (t-test).

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Presentation of Results

Research Question 1

What is the difference between the conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar Model and those taught using Conventional laboratory method?

The posttest scores of conceptual understandings of students in the Experimental and Control Groups were used to answer the research question as presented in Table 4.3.

Table 1: Mean and Standard Deviation in Conceptual Understanding of NCE I Students for Experimental and Control groups

Variable	Groups	n	Mean	STD	Mean difference
Conceptual understanding	Experiment	45	19.91	13.32	
					5.31
	Control	65	14.60	6.40	

Table 1 showed the mean scores in conceptual understanding of 19.91 and 14.60 for experimental students taught volumetric analysis concept using concrete exemplar Model and the control group students taught using Conventional laboratory method respectively, indicating a mean in conceptual understanding difference of 5.31 in favour of the experimental students taught volumetric analysis concept using concrete exemplar. This shows that difference exist between the conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar Model and those taught using Conventional laboratory method.

Research Question Two: Is there difference between conceptual Understanding of Male and Female NCE I Students taught Volumetric Analysis using Concrete Exemplar Model?

Table 2: Mean and Standard Deviation of Male and Female NCE I Students in the Experimental and Control groups

Variable	Gender	n	Mean	STD	Mean difference
Conceptual understanding	Male	25	17.32	1.89	
					1.17
	Female	20	16.15	1.81	

Table 3 showed the mean in conceptual understanding of 17.32 and 16.15 for male and female NCE I students in the experimental group taught Volumetric Analysis using Concrete Exemplar Model respectively, indicating an insignificant mean between conceptual understanding difference of only 1.17. This shows that there was no relative difference in the conceptual Understanding of Male and Female NCE I Students taught volumetric analysis using concrete exemplar model. On the basis of gender status, the concrete exemplar model was gender friendly.

Hypothesis 1

There is no significant difference between the conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar Model and those taught using Conventional laboratory method.

The posttest scores for conceptual understanding for students in the experimental and control groups were further subjected to an independent samples t-test as presented in Table 2.

Table 3: Summary of Independent t-test Statistics in Conceptual Understanding of Students in the Experimental and Control groups

Variable	Groups	n	Mean	STD	Df	t-value	P
Conceptual understanding	Experiment	45	19.91	13.32			
					108	2.784	0.01
	Control	65	14.60	6.40			

Significant at P ≤ 0.05 level

Table 3 shows the outcome of independent t-test statistics which revealed that significant difference exists between the conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar model and those taught using Conventional laboratory method. This is because the calculated p value of 0.01 is lower than the 0.05 alpha level of significance and it was in favour of the experimental; students taught volumetric analysis concept using concrete exemplar model. Therefore, the null hypothesis which stated that there is no significant difference between the mean

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conceptual understanding of NCE I students taught volumetric analysis concept using concrete exemplar Model and those taught using Conventional laboratory method, was hereby rejected.

There is no significant difference between the conceptual Understanding of Male and Female NCE I Students taught Volumetric Analysis using Concrete Exemplar Model

The posttest scores of male and female students in conceptual understanding taught Volumetric Analysis using Concrete Exemplar Model were subjected to an independent samples t-test as presented in Table 4.

Table 4: Summary of Independent t-test Statistics in Conceptual Understanding of Male and Female NCE I Students in the Experimental Group

Variable	Gender	n	Mean	STD	df	t-value	P-value
Conceptual understanding	Male	25	17.32	1.89			
					43	0.79	0.43
	Female	20	16.15	1.812			

Not Significant at P > 0.05 level

Table 4 shows the outcome of the independent t-test statistics of male and female students' conceptual understanding after exposure to concrete exemplar model. The table revealed that there was no significant difference in the conceptual understanding of male and female NCE I students taught volumetric analysis using concrete exemplar model. This was because the calculated p value of 0.43 is greater than 0.05 alpha level of significance. On the basis of gender status, the Concrete Exemplar Model was gender friendly. Therefore, the null hypothesis which stated that there is no significant difference between the conceptual understanding of male and female NCE I Students taught Volumetric Analysis using Concrete Exemplar Model was hereby accepted and retained.

Discussion of Findings

The findings of this study showed that conceptual understanding of Students taught using Concrete exemplar model, was better than those taught using conventional laboratory method. This shows that the method of instruction was effective in enhancing meaningful learning and also correct the misconception they hold. Significant difference was found to exist in conceptual understanding of NCE I Students taught volumetric analysis concept using concrete exemplar model and those taught using conventional laboratory method which means that concrete exemplar model promotes conceptual understanding in volumetric analysis. The significant improvement in the conceptual understanding was due to the effective of treatment. The students in experimental group improve their conceptual understanding after exposure to treatment. This findings agree with Nwakaego (2018),Aminu (2015), Emerhiona (2021), Bawa et al(2020), Bankole and Oludipe (2020),but disagree with Demircioghe (2017), Onder (2017) and Kara and Kayacan (2023).The observe significant difference in conceptual understanding of experimental group in this study are attributed to a large extent to interaction offered by tangible materials, which Students get fun learning experience and are train for creativity because it involve concrete objects, which later the students can relate and transfer the concepts in abstract stage Delvi observed that for students to understand basic concepts, Students must learn abstracts concepts in concrete things first. No Significant difference in the conceptual understanding of male and female taught volumetric analysis concepts using concrete exemplar model. This result reveals no Significant difference in conceptual understanding of the male and female in the experimental group. This means that the conceptual understanding of the students when taught volumetric analysis concepts in Chemistry using concrete exemplar model is not significantly affected by gender. This finding is in agreement with the findings of Onder (2017), Aminu (2015), and Ayuba (2014), but disagree with Kola (2020) and Obioha (2020) as the observed male are superior in conceptual understanding than their female counterparts due to the observed fact that male learn how to think critically and can apply knowledge flexibly (Sigler and Sam,2006).

Conclusion

Based on the findings of this study it was concluded that concrete exemplar model was able to enhanced students' conceptual understanding in volumetric analysis because students are exposed to laboratory material, they manipulate and carryout activities by themselves while the teacher serve as facilitator and they brainstorm on their findings among themselves while conventional laboratory approach teacher demonstrate how to carry out the practical to students without active participation of student thereby making teacher active and student passive. The effect of the instructional strategy

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was also found to vary with gender of students, which implies that the conceptual understanding taught using concrete exemplar model is not in any manner affected by their gender.

Recommendations

Based on the findings of this study, the following recommendations are put forward:

1. The use of concrete exemplar Model in teaching volumetric analysis concept among chemistry teachers should be encouraged through constant supervision and monitoring
2. There is need to improve teachers' pedagogy so as to improve the student conceptual understanding of the volumetric analysis concept in schools by supporting the teachers
3. Teachers should be motivated both intrinsically and extrinsically through remuneration, promotions and sponsorship to trainings and workshops

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Access, Equity and Quality of Guidance and Counselling Education in the Face of Insecurity in Bayelsa State, Nigeria

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Abstract
The study was conducted to determine access, equity and quality of guidance and counselling education in the face of insecurity in Nigeria. This research was descriptive in form. This design was used to gather information from a sampled of students. The population of the study comprised 3622 students in 44 secondary schools in Southern Ijaw Local Government Area of Bayelsa State. The sample of the study include 300 students of SSI – SSIII classes. The students were selected from 30 secondary schools because of the ease of accessibility of the schools. A structured questionnaire containing 17 items and validated by experts, was use for data collection. The data collected was analysed with the use of simple percentage and mean. The result indicated that guidance and counselling education are not accessible, not equitable and of poor quality due the inadequacy of counselling personnel, inadequate funding, unavailability of needed facilities etc. The paper concluded that the inadequacy gap in guidance and counselling education remains the major reason insecurity persist in our society. The paper recommends the provision of necessary tools to improve guidance and counselling services in our schools.

Key words: Access, Equity, Quality of Guidance and Counselling, Insecurity

Introduction

World-wide, guidance and counselling has existed since time immemorial. In the primitive society, guidance and counselling was offered to the young by elders in the family and to persons in distress by the clergy (Kocchar 2013, Ndhlovu, 2015). Kaureg cited in Mubanga (2014) posits that some of these were religious leaders such as Moses (1200 BC), Muhammad (600), and the Buddha (500 BC), while others were philosophers like Lao-Tzu (600 BC), Confucius (500 BC), Socrates (450 BC), Plato (400 BC) and Aristotle (350 BC). It should be noted however that the guidance offered was unorganized and incidental and it can be likened to advising or even prescribing. Guidance as a term was used as an umbrella concept to include many services such as counselling and placement (Ndhlovu, 2015). Onyiliofor (2011) defined guidance and counselling as the processes of helping an individual to discover and develop his educational, vocational and psychological potentialities and thereby achieve an optimal level of personal happiness and social usefulness. This could be done through the management of guidance and counselling services like the vocational or career counselling, socio-personal counselling, educational counselling and also referral counselling. Students can adequately be counseled under these areas in order to solve their personal, career choice, academic problems and improve national security.

Nziramasanga cited in Chireshe (2006) states that because of many pressures imposed on the family, parents tend to have little time with their children to give them the necessary guidance. The parents expect the school to provide solutions to their children's indiscipline in secondary schools. UNESCO (2012) adds that "African adults have become more concerned with earning money and are less occupied with many traditional practices that formerly contributed to the upbringing of young people". Rapid sociological changes emanating from modernisation and urbanisation stress students. There is also an increase in the divorce rate and in the number of single-parent families all over the world which is also a stress factor for students (Yuk et al., 2004). To enhance access to guidance and counseling services, the service was introduced to schools around the globe. In Nigeria, guidance and counseling services were introduced to schools as far back as 1959 (Eliamani et al., 2013). The essence of incorporating guidance and counseling into the school system was to eliminate overwhelming ignorance of many young people on their choices of career prospects and personality maladjustment among school children. Based on these and more, guidance and counseling officers were appointed to take the responsibilities in sensitizing students on the needs for effective career choice and functional and acceptable lifestyle. Although these were untrained counselors, their efforts brought remarkable development in guidance and counseling in Nigeria that led to organized body of counselors (Oye et al., 2012).

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However, social factors have been recorded to have affected access to guidance and counselling services. Okech and Muthone (2012) stated that historically, the notion of consulting with a stranger about personal or family problems was an unusual concept and even frowned upon. Social challenges that might cast a shadow on the name and reputation of the family had to be resolved privately. A person who was experiencing an interpersonal problem would seek the help of a well-respected relative or clan elder; in more serious cases, traditional healers were consulted. The social belief affected the provision and learners' access to guidance and counselling as they viewed the school counsellors as strangers to be told their inner deep secret or even to get advice from. In addition, lack of trained guidance and counselling teachers, inadequate funding and dual role of the counsellor as a teacher and counsellor has been cited by many researchers as factors that have negatively affected the quality of guidance and counselling services from its inception as a profession program in schools world over, especially in Africa and Nigeria in particular. A study done by Eliamani et al. (2015) on access to guidance and counselling services and its influence on students' school life and career choices found out that guidance and counselling services have moderately influenced students' school life. A number of students are caught in vicious cycles where they are either the recipients or the perpetrators and sometimes both, of physical and sexual harassment ranging from excessive teasing and bullying to rape (Centre for Mental Health in Schools & Gottfredson in Adelman & Taylor 2002). It has been noted that the abuse of students is rampant in school and at home in Nigeria (Directors' Circular No. 22 of 2005:1). Accordingly, schools should put in place guidance and counseling services which discourage violence and assist those exposed to it.

Education system in Nigeria has continued to suffer from perennial multipronged insecurities ranging from terrorism to the violent, kidnappings of students, banditry and abduction which have taken the lives of several students, pupils and teachers. Insecurity of schools is a situation where by the school, students, pupils and teachers are open to attack, danger, treat or lack of protection. Akintokunbo (2021) sees it as a state of vulnerability, conflict, threats to human security, intense violence characterized by fighting, killings, physical and sexual harassment ranging from excessive teasing and bullying to rape, injury are serious danger to the school system. This call to question the place of guidance and counseling in our school system, hence the need to examine the access, equity and quality of guidance and counseling services in the face of insecurity in Nigeria. The study was conducted to answer the following questions: Are guidance and counseling services accessible to secondary school students in Bayelsa State? Do all students have equal access to guidance and counseling services in secondary schools in Bayelsa State? What is the quality of guidance and counseling services received by secondary school students in Bayelsa State?

Objectives of the Study

The following objectives guided the study.

1. To identify the guidance and counseling services accessible to students in secondary schools in Bayelsa State.
2. To examine the equitability of guidance and counseling services to secondary school students in Bayelsa State?
3. To ascertain the quality of guidance and counseling services available to secondary school students in Bayelsa State.

Literature Review

Guidance and counselling is seen as a programme of services based on individuals needs and depending on the influence of the various environments in which they live (Mapfumoi & Nkoma, 2013). Esen cited in Oguzie (2014) stated that guidance and counselling is aimed primarily at assisting the receiver to discover his own hidden strengths and ultimately grow in independence and ability to take his own decisions, make choices or adjustments unaided. On his part, Nwachuku (2007) viewed guidance and counselling as a systematic and organized educational helping service, professionally given by a professionally trained counsellor to a learner of any age within or outside the school walls whose aim is to assist the learner understand himself, the situation and environment, discover his interests, potential and opportunities in life and learn how best to effectively utilize his assets as well as minimize his weaknesses, to live a maximum productive life. The process is aimed at making an individual's aware of the rightness or wrongness of his/her choices and the importance of the decision on which the individual future depends (Kabir, 2017). Past studies have shown that guidance and counselling programmes have a positive effect on forestalling insecurity in the society. Apart from controlling deviant behavior and other delinquencies among youth; the effective utilization of guidance and counselling services can inculcate in the youth the spirit of consciousness that promote peace, conflict resolution and national security. It can also equip the youths with the knowledge and skills that will help bring about peace through better understanding; enabling them to acquire

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constructive peaceful problem solving skills that promotes national security; inculcating in them consciousness for managing conflicts without resorting to violence and develop non-violent conflict resolution skills and spirit of commitment to working to realize a shared and preferred future (Oguzie, 2014). Through effective guidance and counselling services the values of peace, conflict resolution and national security which include among other things respect for life, sharing with others, rejection of violence, sense of justice, listening ability and solidarity would be inculcated into early stages of educational process to enable learners imbibe the right values that will guide them throughout life time (Igbuzor, 2011). All these of course can be achieved through effective utilization of guidance and counselling services render in schools.

Theoretical Framework

The study is routed in the invitational theory propounded by Purkey, a counseling professor, in 1992. The theory has four assumptions which are trust, respect, optimism and intentionally. Purkey (1992) talked about trust as one of the Invitational Education Theory's assumptions. He sees education as a cooperative, collaborative activity where process is as important as product. Purkey further explains that getting people to do a work without fully involving them is a lost cause. People at an institution including learners need to be included by creating an inviting atmosphere for them to fully participate in a program. Thus, when learners feel trusted they are frequently likely to participate in an organization activity such as seeking guidance and counselling services. Therefore, learners need to trust the guidance and counselling personnel for them to be able to access the guidance and counselling services in schools.

Empirical Studies

Agi (2013) investigated the status of guidance services in some Secondary schools in Rivers State. Out of the two hundred and fifty (250) public schools in Port Harcourt, only twenty (20) have at least a practicing counsellor. Fourteen schools with practicing counsellors were sampled in this study. The two Federal Government and University Demonstration Schools in Port Harcourt were also included in the study. Data was collected through the administration of a questionnaire on guidance services. Data analysis revealed Guidance and Counselling services in Rivers State are faced with many obstacles which jeopardize effective delivery of the services, thereby resulting in educational wastage instead of the expected quality outcome. Funds for provision of basic guidance services are lacking. Most of the vital counselling services needed for quality education are the least regularly performed in schools e.g. use of psychological tests and keeping of cumulative record folders. Only 18% of the schools sampled indicated that the objectives of the National Policy on education with respect to guidance and counselling services have been realized to some extent. Eliamani et al. (2013) examined the influence of secondary school students' access to guidance and counseling services on school life, attitude towards studies and career choices. The study used descriptive and correlation designs with both qualitative and quantitative approaches. Data was collected using self-administered questionnaire from 152 students; and interview guide to 16 administrators and teachers who are directly involved in guidance and counseling services. The findings reveal that the services offered in the selected schools included: academic, health, moral, and spiritual matters. Although no trained counselor was found, the services offered proved to be moderately effective in influencing students' study life; and effective in shaping students' attitude towards studies and career choice. Out of 152 student respondents, only 10(6.6%) reported that they have not been counseled at any moment. Accessing the services showed significant correlation with students' attitude towards studies and career choice. Likewise, significant relationship was observed between students' attitude towards studies and career choice. The author concluded that accessing guidance and counseling services has an effect in shaping students' attitude towards studies and career choice.

Dakasku and Bah (2022) assessed guidance and counselling services in public senior secondary schools in Gashua Education Zone. The researchers employ the use of survey research design for the study. The target population of the study was 378 teachers with a sample of 186 respondents in six selected public senior secondary schools (three schools drawn from rural and three from urban area) using stratified and simple random sampling technique. Two hypotheses are tested. A self-designed questionnaire named "Assessment of Guidance and Counselling Services Questionnaire (AGCSQ)" with a reliability chronbach's coefficient of .72 was use for data collection. Data collected for the research was analysed using t-test for independent sample to the test the research hypotheses. The study shows that a significant difference was found between the view of male and female teachers in respect to offering of guidance services (counselling, orientation, information, referral, and follow-up services). With regard to offering of appraisal and placement services it shows that

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there was no significant difference in the view of male and female teachers in public senior secondary schools in Gashua Education Zone. From the findings, the researchers recommended the need for public senior secondary schools to offer counselling service, appraisal service, placement service, referral service and follow up service to assist students in making a wise decision. Egenti (2020) investigated quality assurance required for effectiveness of guidance and counseling services in public secondary schools in Anambra State, Nigeria. Three research questions were answered while three null hypotheses were tested at 0.05 level of significance. The study adopted descriptive survey research design. Multistage random sampling was used for selecting 178 guidance counsellors across 104 secondary schools in the two education zones (Aguata and Otuocha) used for the study. Data collected were analysed using mean and standard deviation for answering the research questions while t-test statistics was used for testing the null hypotheses at 0.05 level of significance. From the data collected and analysed, the study identified 11 competencies related, 8 materials and facilities related and 9 funding related items for quality assurance of guidance and counselling services in public Secondary Schools in Anambra State, Nigeria. Result on hypotheses tested showed no significant difference in the mean ratings of male and female guidance counsellors on quality assurance required for effectiveness of guidance and counselling services in public secondary schools in Anambra State. Based on the findings, the study among others recommended that there should be recruitment of qualified guidance counsellors for effective services to secondary school students.

Methodology

This research is descriptive in form. This design was used to gather information from a sample of students. The population of the study comprised 3622 students in 44 secondary schools in Southern Ijaw Local Government Area of Bayelsa State, The sample of the study include all 300 students of SSI – SSIII classes. The students were selected from 30 school secondary schools because of ease of accessibility. A structured questionnaire containing 20 items was use in data collection. The instrument titled: Access, Equity and Quality of Guidance and Counselling Services in Secondary Schools was used in Data collection. The instrument was a Likert Scale form of Strongly Agree (SA)= 4, Agree (A) = 3, Disagree (D)= 2 and Strongly Disagree (SD)= 1. The instrument was certified by two experts in Guidance and Counselling and an expert in Measurement and Evaluation in Faculty of Education, Niger Delta University. The reliability of the instrument was 0.77. The data collected was analysed with the use of percentage and mean. A total of 300 questionnaire was distributed while 288 were correctly filled and returned successfully and were used for data analysis.

Presentation of Results

The result presented is based on the 288 questionnaire that were properly filled and returned. For ease of understanding, the result is presented in tables.

Analysis of Demographic Variables

Table 1 Gender Distribution of Respondents

Items	No of Respondents	%
Male	177	61.5
Female	111	38,5
Total	**288**	**100**

Sources: *Field Survey, 2025*

The demographic data analysis of students presented in Table 1 revealed that 177 (61.5%) of the sampled population were male while 111 (38.5%) were females. The result further indicated the dominance male participants in study.

Table 2 Age Distribution of Respondents

Age Bracket of Respondents		
Below 12 years	17	5.9
13 - 15	137	47.6
16 and above	134	46.5
Total	**288**	**100**

Sources: *Field Survey, 2025*

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Age distribution of respondents is presented in Table 2. The results indicated that 17 (5.9%) are within the age 12 or below while 137 (46.7%) are in the age range of 13 – 15. In addition, 134 (46.5%) of the sampled population were 16 years and above.

Research question one

Are guidance and counseling services accessible to secondary school students in Bayelsa State?

Table 3: Access to guidance and counselling services

Items	N	Mean	Decision
Consistent access to guidance and counselling services on student's habit.	288	1.16	Strongly Disagree
Unhindered access to guidance and counselling service for students who experience a sudden drop in their grades.	288	1.12	Strongly Disagree
Compulsory access to guidance and counselling for students observed to be exhibiting deviant behaviours.	288	1.63	Disagree
Provision of guidance and counselling service to student about their career development.	288	1.34	Strongly Disagree
Provision of guidance and counselling service to students on how to overcome examination anxiety	288	1.33	Strongly Disagree
Grand Total	288	1.32	Strongly Disagree

Source: *Field Survey, 2025* *Population (N) = 288* *Criterion Score = 2.50*

Analysis of research question one reveal that students have no access to guidance and counselling services in secondary schools in Bayelsa State. The mean response score for item 1 - 5 ranges from 1.12 to 1.63 and are all less than 2.50 the criterion mean score. This is an indication that the participating students in the study strongly disagreed that guidance and counselling services are accessible in secondary schools in Bayelsa State. Additionally, the grand mean score of 1.33 which was also less than the criterion mean response score implied that it was the general opinion of the respondents that guidance and counselling services are not accessible in secondary schools in Bayelsa State.

Research Question 2

Do all students have equal access to guidance and counseling services in secondary schools in Bayelsa State?

Table 4: Equal access to guidance and counselling services

Item	N	Mean	Decision
Guidance and counselling services is available to both boys and girls.	288	1.77	Disagree
Guidance and counselling services is provided to every students irrespective of age.	288	1.96	Disagree
Academic performance is not use as a criteria to access guidance and counselling services.	288	2.34	Disagree
Grade level is not used to determine who have access to the guidance and counselling personnel.	288	2.31	Disagree
Guidance and counselling personnel treats everyone's need with similar vigor.	288	1.95	Disagree
Grand Total	**288**	**2.07**	**Disagree**

Source: *Field Survey, 2025* *Population (N) = 288* *Criterion Score = 2.50*

Result of research question 2 is displayed in Table 4 and it indicated that the mean score for the items 6, 7, 8, 9 and 10 was less than 2.50 set as the criterion mean as they range between 1.77 and 2.34. This is an indication that respondents disagreed that there is equitable guidance and counselling service in secondary schools in Bayelsa State. In addition, the grand mean of 2.07 revealed that majority of the participant have no equal access to guidance and counselling service.

Research Question 3

What is the quality of guidance and counseling services received by secondary school students in Bayelsa State?

Table 5: Quality of guidance and counselling services

Item	N	Mean	Decision
Counsellor confidentiality is guaranteed	288	1.1	Strongly Disagree
There is are qualified guidance counsellor in my school.	288	1.2	Strongly Disagree

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There is a dedicated counselling office in my school	288	1.1	Strongly Disagree
The guidance and counselling office is adequately funded	288	1.4	Strongly Disagree
Facilities for effective guidance and counselling service is adequately available.	288	1.3	Strongly Disagree
Grand Total	**288**	**1.2**	Strongly Disagree

Source: *Field Survey, 2025* *Population (N) = 288* *Criterion Score = 2.50*

Result of research question 3 is displayed in Table 5 and it indicated that the mean score for items 11 is 1.1; item 12, 1.2; item 13, 1.1, item 14, 1.4 and item 15, 1.3 which were less than 2.50 set as the criterion mean. The result indicated that respondents disagreed with the quality of guidance and counselling services offered in secondary schools in Bayelsa State. In addition, the grand mean of 1.2 revealed that majority of the respondents doubt the quality of guidance and counselling services available to students.

Discussion of findings

The study was to examine the access, equity and quality of guidance and counselling in the face of insecurity in Nigeria. Finding indicated that guidance and counselling services are scarcely accessible in secondary schools in Nigeria. Analysis of results in Table 3 demonstrated that respondents do not access professional counselling in secondary schools with respect to their behavior or academic performance. The result could be attributed to lack of guidance and counselling officers in secondary schools to undertake the duties of school guidance counsellor. This may have resulted in persistent unruly behavior and insecurity in school and society today. Furthermore, the result expressed the lack of equal accessibility of guidance and counselling services which may also be due to its unavailability in schools. In Table 4, it was observed that respondent disagreed that guidance and counselling services is equitably available to all gender irrespective of age or any other criterion. This goes to show the extent to which guidance and counselling services in neglected in many secondary schools across Nigeria leading to deviance among students.

Finally, on the quality of guidance and counselling services available to students, the result have indicated that the lack of qualified guidance and counselling personnel, lack of counsellor confidentiality, inadequate funding of counselling service among others has cast doubt on the quality of guidance and counselling services that is expected to mitigate the dangerous form of insecurity we experience in our society today. The result of the study tally with the findings of Agi (2013) who reported that Guidance and Counselling services in Rivers State are faced with several challenges which inhibit effective delivery of the services, thereby resulting in educational wastage instead of the expected quality outcome. The researcher further noted that funds for the supply of basic guidance services are lacking which has robbed off the needed quality of educational guidance and counselling services performed in schools. The position was also supported by Eliamani et al. (2013) who noted that accessing guidance and counselling services showed significant correlation with students' attitude towards studies and career choice. Egenti (2020) however identified 11 related competencies, 8 related materials and facilities related and 9 related funding issues for quality assurance of guidance and counselling services in public Secondary Schools which has severely narrowed the access, equity and quality of guidance and counselling services in secondary schools in Nigeria and have continued to swell the rank of insecurity in our society.

Conclusion

This study has revealed that access, equity and quality of guidance and counselling services is a mirage in most secondary which tend to fester and swell the level of insecurity which abound in the society today. In other words, insecurity in our society can be attributed to the failure of accessible, equitable and quality guidance and counselling services in our school today. The paper concluded that the inadequacy gap in guidance and counselling education remains the major reason insecurity persist in our society.

Recommendation

1. Qualified guidance and counselling practitioners should be employed and placed in all secondary schools to ensure better access to guidance and counselling services.
2. Guidance and counselling services should be made available to all person who require the service, by so doing proactive solutions can be found to the problems of insecurity that has bedeviled our country today.
3. Funding and materials needed to enhance guidance and counselling service should be provided as quality guidance and counselling service is the key to mitigating insecurity in the country.

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