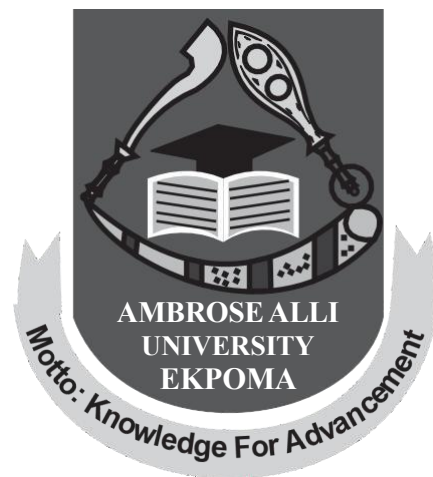


STUDIES IN EDUCATION

Vol. 23 Number 1, April, 2025



**OFFICIAL JOURNAL OF THE FACULTY OF EDUCATION
AMBROSE ALLI UNIVERSITY, EKPOMA, EDO STATE-NIGERIA**

EDITORIAL BOARD

Editorin Chief

Prof.A. I. Ojugo

Managing Editor

Prof. J. I. Oviawe

Business Editor

Dr.A. E. Ojiemhenkele

Editors

Prof. J. E. Afen-Akpaيدا

Prof. G. Ikhioya

Prof. H. E. Ibhafidon Rev.

Fr. Dr. O. S. Imhangbe Dr.

P. Aluyor Dr. K.

Ediagbonya

Dr. M. Asika

Editorial Consultants

Emeritus Prof. J. U. Aisiku (AAU, Ekpoma)

Prof. K. Adeyemi (UNIBEN, Benin City)

Prof. R. O. A. Aluede (AAU, Ekpoma)

Prof. O. Aluede (AAU, Ekpoma)

Prof. M.O. Anavberokhai (AAU, Ekpoma)

Prof. E. A. Arubayi (DELSU, Abraka)

Prof. E. J. Egwunyenga (DELSU, Abraka)

Prof. I. Owie (UNIBEN)

Prof. S.I. Akinseinde (DELSU, Abraka)

Prof. Alfred Adegoke (UNI ILORIN)

Prof. E. O. Omoregie (AAU, Ekpoma)

Prof. L. I. Aguele (AAU, Ekpoma)

Prof. R. Uwameiye (AAU, Ekpoma)

GUIDELINE FOR AUTHORS

Studies in Education is a multidisciplinary journal in the field of education that is devoted to the Publication of both theoretical and empirical contemporary issues in educational development. Researchers from other disciplines including Arts/Humanities, Social/ Behavioural Sciences are equally encouraged to submit relevant manuscripts that can address contemporary educational problems, policies and programs. The Journal is intended to be published twice in a year; April and September. Manuscripts can be continuously submitted online via e-mail to the Managing Editor.

SUBMISSION/ACCEPTANCE PROCEDURE

1. Papers are to be submitted to; studiesineducation@aauekpoma.edu.ng
2. The title page should contain name(s) of authors, their title, address and e-mail or telephone numbers.
3. Abstract should be single line spacing of not more than 250 words.
4. Articles must be double spaced, Times New Roman, Font 12, on A4 paper, and should not exceed 15 pages.
5. Manuscripts submitted to this journal are blindly peer reviewed and only highly recommended ones will be published.
6. Articles must be written in clear and unambiguous English language.
7. Papers submitted to this Journal must not have been published or under consideration for publication elsewhere.
8. The journal adopts 7th edition of APA referencing style.
9. The Journal is published both online and in hard copies.
10. A non-refundable payment of ₦5,000 for vetting of manuscripts and the sum of ₦25,000 for publication if the paper is accepted, are to be paid to the journal account. For foreign authors, the vetting fee is \$10 while publication fee is \$100.

CONTENTS

TITLE PAGE	i
EDITORIAL BOARD	ii
GUIDELINE FOR AUTHOR	iii
Teachers' Quality and Students' Academic Performance in Technical Drawing in Polytechnics ANETEKHAI, Agnes O., OVIawe, Jane Itohan Ph.D, & UWAMEIYE, Raymond	1-10
Assessing the Impact of Direct and Indirect Pedagogical Approaches on Science Literacy and Learning Experiences In Basic Science and Technology for Junior Secondary School Students OJO, Samson Abayomi Ph.D, OJO, Oluwaseun Dolapo, EZEUGWU, Oluchi Juliana, & DALYOP, Gyang Babung	10-22
Education for Self-Reliance and Entrepreneurship Skills: Exploring the Different Shades of Skill Acquisition Programmes in Universities in Lagos State AWONIYI, Augustine Babatunde, OWOLABI, Olawale Abiodun, & IGE, Temitope Damilola	23-34
Effective Counselling Skills for Remediating School Violence Among Secondary School Students in Nigeria OGBONNA, Chinenye Henry & ALUEDE, Oyaziwo Ph.D	35-45
Relationship between Self-Concept and Students' Academic Performance in Technical Drawing in Technical Colleges in Edo State OGBEBOR, Samuel Osamede & OVIawe, Jane Itohan	46-53
Influence of Game-Based Learning on Academic Performance in Mathematics of Secondary School Students in Ondo State AKINTEWE, B.N., & IKECHUKWU, M. F.	54-63
Impact of Technology-Assisted Instruction on Secondary School Students Achievement in Chemistry OYAKHIROME, A.H. Ph.D	64-73
Influence of Social Media Usage on Senior Secondary School Students' Academic Achievement in Esan West Local Government Area, Edo State OMI-UJUANBI, Gloria Omolegho Ph.D	74-84
Impact of Chemistry Students' Conceptions and Misconceptions on their Academic Achievement in Stoichiometry OYAKHIROME, A.H. Ph.D	85-93

Outsourcing and Organizational Performance of Listed Consumer Goods' Firms in Lagos State MARADESA, Wakeel Olalekan, OJO, Tokunbo Oluwaseun, GARUBA, Qudus Ajibola, & SHOLANKE, Afeez Abiodun	94-104
Pragmatism And Learning in Nigerian Schools KEHINDE, Destiny Ilemobayo Ph.D & ADEYEMI, Emmanuel Gboyega	105-112
Quality Assurance Challenges to Technical Education Assessment in Nigeria: The Way Forward SULEIMAN, Abdurrazaq, Ph.D	113-121
Relationship Between Eating Habits and Mental Health of Undergraduates Students in University of Nigeria, Nsukka, Nigeria OGANAH-IKUJENYO, B. C., OKEZUE, S. E., NNUBIA, U. I. & NWAIZUGBO, J.	122-131
Teachers' Up-Skilling as a Correlate of Instructors' Effectiveness in Government Technical Colleges in Ogun State LEMO, Olusiji O. Ph.D	132-139
Technological Integration for Effective Classroom Management: Implications for Educational Psychology OBIYAN, Daniel Oseghale, ODIOWAYA, Clementina Osasere, & BALOGUN, Mabel Ashe	140-152
Technological Skills Requisite by Motor Vehicle Mechanics Trainees of Technical Colleges For Optimal Productivity and Sustainability in Ogun State, Nigeria LEMO, Olusiji O. Ph.D	153-159
Effect of Designated Computer Applications on Academic Performance of Business Education Students in Federal College Of Education (Technical) Ekiadolor-Benin, Edo State AIWANSEDO, IKponmwosa Alexander, & IDUWE, Edwin	160-170
Impact of Government policy on Agricultural product distribution in Owerri-West LGA, Imo State Obuseh Raphael, Ph.D, Nnamdi E.A.E, Ph.D., Agu Paul Chinedu	171-180
Soft skills as a predictor of academic staff job performance in public colleges of education in ogun state GARUBA Qudus Ajibola	181-190
Effects of graphic organiser instruction on senior secondary school students' main idea and retelling skills (comprehension) of expository texts Eunice Patrick Fash (Ph.D) , Patricia Umamezi Mmegwa (PhD)	191-199

TEACHERS' QUALITY AND STUDENTS' ACADEMIC PERFORMANCE IN TECHNICAL DRAWING IN POLYTECHNICS

ANETEKHAI, Agnes. O.

Department of Building Technology, Auchu Polytechnic, Auchu, Edo State.

anetekhaiagnes@gmail.com +2348128281871;

Corresponding Authors:

OVIawe, Jane Itohan Ph.D

Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma.

janeoviawe@aauekpoma.edu.ng; janeoviawe98@gmail.com +2348055601983; 09030854009

UWAMEIYE, Raymond Ph.D

Department of Vocational and Technical Education, Ambrose Alli University, Ekpoma

Faculty of Education Ambrose Alli University, Ekpoma, Edo State.

uwameiye@aauekpoma.edu.ng

Abstract

The study examined the influence of teachers' quality on polytechnic students' academic performance in technical drawing in Edo and Delta States, Nigeria. The study was guided by two research questions and one null hypothesis. The population consisted of 1,917 students and their 27 lecturers in six public polytechnics under study. Using a proportionate sampling technique, a sample of 575 students were selected which represented 30% of total number of students, and the entire 27 Technical drawing lecturers were used for the study. The data were collected using two instruments titled "Technical Drawing Teachers' Quality Questionnaire (TDTQQ), and Technical Drawing Achievement Test (TDAT) which were developed by the authors and face-validated by three specialists (Technical Education and Test and Measurement) in Ambrose Alli University, Ekpoma. To ensure content validity of the TDAT, a table of specification was built for the test. Mean, standard deviation, Pearson Product Moment Correlation were used to answer the research questions and Binary Logistic Regression was used to test the null hypothesis at .05 probability level of significance. Findings indicated that the students' performance in technical drawing was very poor. It was also revealed that there was a significant but negative correlation and relationship between teachers' quality and students' academic performance. The teacher's quality had a greater influence ($x^2 = 40.294$, $r^2 = .091$) on academic performance of students. It was recommended among others that technical drawing teachers should acquire adequate knowledge and skills in pedagogy of teaching.

Key Words: Performance, Polytechnics, Quality, Teacher, Technical Drawing

Introduction

Education is a wealth of knowledge acquired by an individual after studying a particular subject matter or experiencing life lessons that provide an understanding of something. Nigeria, like all

other developing nations, needs a type of education that can liberate its citizens from premature ideas about work (Fakeye, 2015). This desired type of education is Technical Vocational Education and Training (TVET). TVET refers to the study of sciences and technology; acquisition

of practical skills; attitudes and knowledge relating to occupation in the various sectors of the economy and social life (Oviawe, 2020). TVET is offered as prevocational education at the junior secondary school level; vocational education at the senior secondary/technical college level; technical education at the polytechnic/college of technology level and TVET teacher education at the universities and colleges of education level (Federal Republic of Nigeria (FRN), 2013).

According to the FRN (2013), the polytechnics were primarily established to train technical middle-level manpower to drive the economy, to produce technologists who would use their technical skills to work in industries or go to the universities to acquire more sophisticated skills in their chosen careers. Polytechnic education is an “incubator for hatching” saleable skills and nurturing vocational competence of its clientele. The polytechnics have a mandate to give quality technical education to help to develop and enhance the individuals’ knowledge of science and technology in broad occupational areas requiring technical and professional competencies and specific occupational skills (Mohamud & Abdulle, 2015).

To achieve this occupational development in conjunction with personal and social development of the individual and their communities, there is the need to inculcate the ability of reflective thinking through a detail, precise diagram or plan that can convey information about how an object is constructed, which is known as Technical Drawing. Technical Drawing is one of the core technical courses taken in polytechnics by all engineering and technology students. It is a tool for communicating ideas between people on any project in industries, between countries, in the social media–newspapers, magazines and television. Technical Drawing describes the process of producing a design or engineer’s vision into a physical form. For instance, it is also used for building drawing, electrical drawing, and architectural drawing among others.

Anetekhai and Ebube (2021) asserted that considering the scientific technology revolution in the world of work, the global acceptance of AutoCAD, ArchiCAD, among others, in construction work and large graduate unemployment in Nigeria only adequate knowledge of technical drawing could help to develop skilled personnel who will be enterprising and self-reliant in order to move Nigeria to a greater height technologically.

Adequate knowledge and skills in technical drawing by an individual could enable them fit into any of the technology-based occupations and become useful to the society. The following professionals need Technical Drawing at some point in their careers. Anyone who builds or creates, application designers, production designers, and aeronautical drafters among others. If students are properly guided in these areas of specialization, unemployment, underemployment, poverty, and insecurity among others will no longer be problems for our Country. It is unfortunate, that in Nigeria today the technical courses such as metal work, wood/building construction, electrical/ electronic works are not taught in most secondary school as stipulated in the education policy document of Nigeria (FRN, 2013).

These could only be achieved when adequate quality teachers who teach Technical Drawing are recruited for the benefits of students. Quality teachers are generally positive minded individuals who believe in the success of their students as well as their own ability to help students achieve. Competence and knowledge of the content area being taught is something that makes a well-prepared teacher more likely to take time during lessons to notice and attend to behavioral matters, effective use of instructional time, students’ participation and thereby, academic success.

Statement of the Problem

Over the years, parents, governments and other stakeholders in technical education have been worried over students' poor performance in Nigerian tertiary institutions. Researchers such as Oviawe and Adeola (2017); Uddin et al. (2019); and Oviawe (2020) lamented over students' poor performance in technical drawing at various educational levels. Also, in Auchi Polytechnic, Auchi result trend in Technical drawing in 2017, 2018, 2019 and 2020, show that 24%, 26.6%, 24% and 20% scored 40% and above. (Exams and Records Division, 2020). Also, in Edo State Polytechnic Usen, Edo State, students' results in sessional examination showed that 33.3%, 17.1%, and 13.8% of the students passed in Technical Drawing for 2017, 2018, and 2019 while 67%, 82.9% and 86.2% failed the course during the periods (Exams & Records Division, 2020). This is worrisome! However, many factors affect students' performance in this course, these include: the schools' environment; students, teachers' quality, frequent strikes, among other. Therefore, the problem of this study is that, there is poor academic performance of students in Technical Drawing in polytechnics which could be attributed to issues related to teachers' quality listed above. The teacher is the most important resource in educational sector all other resources revolve around him/her. Hence, this study investigated how teachers' quality could affect the performance of polytechnic students in technical drawing in Edo and Delta States.

Purpose of the Study

The purpose of this study is to ascertain the influence of Teachers quality, on polytechnics students' academic performance in technical drawing in Edo and Delta States. Specifically, the focus of this study was to determine:

the level of academic performance of polytechnic students' in technical drawing in Edo and Delta State.

the influence of teachers' quality on polytechnic students' academic performance in technical drawing in Edo and Delta States, Nigeria.

Theoretical Framework

This study was anchored on Trait theory, which originated from psychological research in the early 20th century by Gordon Allport and Raymond Cattell. It focuses on identifying and understanding specific individual quality that influences behavior and performance. These are inherent qualities that an individual possesses. These traits include: enthusiasm, empathy, patience, and a genuine interest in students' welfare and learning. Teachers with positive traits can create a conducive learning atmosphere, motivate students and foster a passion for learning.

These traits enable teachers to self-assess, develop targeted skills, manage classrooms more effectively, establish better communication, and create positive learning environments for their students. The technical drawing teachers in Edo and Delta States do not possess these qualities adequately! Hence their students' performance is very low.

The Key Qualities that make a good Teacher

A good teacher has a blend of skills, qualities, and characteristics that creates a supportive and effective learning environment for students. These qualities collectively make a teacher effective, inspiring, and capable of positively impacting their students' lives. Here are some of the key qualities that make a good teacher according to Ali et al. (2020):

Passion for Teaching: A good teacher is passionate about the subject he/she teaches and genuinely enjoys helping students to learn, which makes learning attractive and exciting.

Effective Communication: Good teachers explain complex concepts in a clear and significant way. They also listen to students' worries and

encourage open discussions.

Adaptability and Flexibility: A good teacher should be flexible and able to adjust his/her teaching methods to fit the varying needs of students, creating lessons that cater for different learning styles.

Patience: Every student learns at his own pace, and a good teacher is patient and understanding, offering help as needed and allowing students to grow and develop without pressure.

Empathy and Compassion: A good teacher is sympathetic, understanding the challenges students face, both academically and personally, and offers support and encouragement to motivate the students.

Creativity: This is another quality of the teachers that makes him/her conspicuous from other professions. Creative teachers find new, interesting ways to engage students, making lessons dynamic and interactive, which helps maintain students' interest and curiosity.

Strong Knowledge Base: A good teacher has a deep understanding of their subject, enabling them to answer questions, provide insights, and encourage students to think critically.

Classroom Management Skills: Good teachers maintain a structured and positive environment, setting clear expectations and encouraging respectful interactions, which help students feel safe and focused.

High Expectations: Effective teachers set high standards for all students, motivating them to do their best and encouraging a growth mindset, where effort and improvement are valued.

Enthusiasm and Positivity: A positive attitude can revitalize the classroom and make learning enjoyable. Enthusiasm from a teacher often inspires students to engage more with the material, do their homework, classwork and assignments regularly.

Fairness and Respect: A good teacher treats all students fairly, fostering a sense of respect and trust in the classroom, which helps students feel valued and respected.

Reflectiveness: Great teachers regularly reflect on their teaching practices, seeking feedback and continually working to improve, showing a commitment to their growth as educators.

To this end, Usman and Abubakar (2020) reported that teachers' quality is what makes up a good teacher. A good teacher must have: (i) communication skills; (ii) master subject content; (iii) collaboration skills; (iv) adaptable and be able to show empathy and understanding; (v) share best practices and have creative skills.

A good teacher must also exert high self-efficacy. Self-efficacy determines the goals one pursues, and how these goals are accomplished. The teacher's self-efficacy affects the effort he/she puts into teaching, the goals he/she set up, and the level of target set up. This quality influences teachers' persistence when things do not go smoothly and their resilience in the face of setbacks. These qualities cannot only help a good teacher to maintain good classroom relationship, but can directly have influence on students' learning in the classroom. Students learn differently either fast or slowly, so the teachers need to always pay close attention to ensure each student learn at his/her own pace. Teacher's quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student performance. If teachers are properly trained, it is expected that they may effectively influence the student performance, regulate their instructional methods based on learners' age and individual differences, available resources, ever dynamic curriculum, best practices and the societal needs (Arsha et al., 2015). It seems as if the technical drawing

teachers in Edo and Delta States do not possess these qualities, which, in turn, hinders students' performance

Gepila (2020) further listed seven domain of teachers' quality which includes: content knowledge and pedagogy; learning environment; diversity of learners; curriculum and planning; assessment and reporting; community linkages and professional engagement; and personal growth and professional development. He further stated that teacher quality characteristics such as certification status and degree in the field to be taught are very significantly and positively correlated with student performance and if teachers are properly trained, it will definitely have positive effects on students' performance.

Adeleke and Manuel (2019) observed the following as challenges facing teachers' quality in Nigeria: Non professionalization of teaching in Nigeria which made it possible for many unqualified to practice teaching; the low social status ascribed to teaching; the poor remuneration and other motivational incentives in teaching jobs; poor professional entry points affect teaching profession negatively and lack of quality training.

Ali et al. (2020) examined the influence of teacher' quality on students' academic performance among public senior secondary schools in Maiduguri Metropolis, Borno State. The results of the findings showed that teachers' quality influenced students' academic performance significantly. The way teachers interact with the students influence their seriousness and approach toward school and their academic performance. Academic performance of students' is often seen as a standard for testing educational quality of a nation. Poor academic performance brings untold hardships and frustration to an individual and backwardness in the development of a nation (Medupin et al., 2015). For Technical drawing to serve as a fundamental communication tool for engineers, designers, and innovators, there is need for

technical drawing teachers' quality to be adequate so that they could possess high professional development and ability to motivate students, teaching methodologies, communication skills, and organization of content and planning of lessons (Mohamud & Abdulle, 2015).

Factors Affecting Teachers' Quality

The teachers' quality has been shown to have an important role on students' academic performance. These roles seem not to be accurately achieved because of these factors: i) school location; ii) No support structures in place for teachers; iii) insufficient training and professional development; iv) lack of resources; v) overwhelming workload and class sizes; vi) low pay and job insecurity; vii) curriculum constraints and testing pressures; viii) Challenging classroom environments and issues with student behavior (Oviawe, 2020).

These barriers have affected students' performance especially in technical drawing resulting to poor performance in the course. Therefore, the influence of teachers' quality on students' academic performance in polytechnic is apt.

Relationship between Teachers' Quality and Academic Performance

Students who have access to highly qualified teachers tend to achieve at a higher rate, regardless of other factors

A teacher's passion for teaching can be positively impart students' performance by creating a caring learning environment that motivate students to learn and set high goals.

Effective communication is also one of the teacher's qualities that affect students' communication. This motivates the students to enhance their abilities in the subject matter and encourages them to work harder in their studies.

The flexibility of a teacher in the classroom environment can help to promote students'

performance because the teacher is able to adjust his/her teaching methods to cater for individual rate of learning.

Teacher's patience is necessary in a classroom environment because it enables students to learn at their own pace, thereby enabling the students to develop their retentive capacity without pressure.

Skilled teachers are better equipped to implement curricular effectively, adapt lessons to meet diverse students' needs, differentiate instruction, and incorporate innovative teaching strategies that can enhance academic learning experiences (Anetekhai, 2024).

Methods of the Study

Correlational research design was adopted for the study because when the teachers' quality increases this will also increase the academic performance of students. The population consists of 1,917 students and 27 lecturers in six public polytechnics in the study area, in 2020/2021 academic session. The proportionate and consensus sampling techniques were utilized to select 575 technical drawing students which represent 30% of the total number of students and 27 teachers. This proportionate sample was used to provide more accurate mean score, identify outliers that could skew the data in a small sample and provide a small margin of error (Zamboni, 2018).

The data were collected using two instruments titled Technical Drawing Teachers' Quality Questionnaire (TDTQQ) and Technical Drawing Achievement Test (TDAT). The instruments were modified by the authors and the face-validation done by three experts (in technical education and test and measurement) in Ambrose Alli University, Ekpoma. The instrument adopted a 4-point scale of Strongly agree (SA)=4, Agree

(A) =3, Disagree (DA)=2 and Strongly Disagree (SD) =1. The benchmark of the weighted responses was 2.50, which indicated a positive response, while a mean score below indicated a negative response.

To ensure content validity of the TDAT, a table of specification was built for the test. A pilot study was conducted by administering 30 copies of TDAT on the students and a copy of TDTQQ each was administered on the Lecturers in Federal Polytechnic, Ile Oluji in Ondo State. Cronbach's alpha was used to analyze the data which yielded a reliability coefficient alpha value of .60 and .75 respectively, which indicated that the instruments were adequate for use in this study.

Mean, standard deviation, Pearson Product Moment Coefficient was used to answer the research questions and the decision rule for answering research questions thus: low quality (1.0-2.9); Average (3.0-4.9); High (5.0- above). While Binary (linear) Logistic Regression was used to test the hypothesis at .05 probability level. Binary (linear) Logistic Regression was employed, because it helps to identify risk factors for dropout rates, or assessing the impact of interventions on outcomes. The decision rule for testing the hypotheses is that if any probability value more than alpha value, hypothesis was retained but any alpha value more than probability value, and hypothesis was rejected. Decision rules: Any probability value more than alpha value, hypothesis was retained but any alpha value more than probability value, and hypothesis was rejected.

Results

Research Question 1: What is the level of academic performance of polytechnic students in technical drawing

Table 1: Level of Academic performance of Selected Students in Technical Drawing in Edo and Delta States

S/N	Descriptions	Performance Level	Percentages
1	No of students with 40% and above in TDAT	230	40%
2	No of students with 39% and below in TDAT	345	60%
3	Total No of Students	575	100%

Table 1 showed the rates of students' performance in technical drawing. 230 (40%) of the students passed the test at 40% while 345 (60%) scored below 40%. A critical analysis of the scores of students in Technical Drawing Achievement Test (TDAT) indicated that the levels of students performance is very low.

Research Question 2: Does teachers' quality influence students' academic performance in technical drawing in polytechnic in Edo and Delta

States, Nigeria?

To determine the relationship between teachers' quality and students' academic performance in technical drawing, the Pearson Product Moment Correlation was performed. The analysis revealed a significant correlation at the .01 level (2-tailed), indicating that teachers' quality has a meaningful impact on students' performance in this subject. The result is summarized as follows:

Table 2: Influence of Teachers' Quality on Polytechnic Students' Academic Performance in Technical Drawing in Edo and Delta States

	Teachers' Quality	Students' Performance	Academic
Teachers' quality	Pearson Correlation 1	-.263**	
	Sig. (2-tailed)	.000	
	N	575	575
Students' Academic Performance	Pearson Correlation -.263**	1	
	Sig. (2-tailed)	.000	
	N	575	575

** . Correlation is significant at the .01 level (2-tailed).

Table 2 shows the influence of the independent variable of teachers' quality and polytechnic students' academic performance in technical drawing in Edo and Delta States, Nigeria. The Pearson Product Moment Correlation was used to determine the relationship between teachers' quality and students' academic performance in technical drawing.

The results showed that there is a significant, but negative correlation between teachers' quality and

students' academic performance. (N=575, $r = -.263$, $p < .05$). By and large, teachers' quality had a significant but negative correlation on students' academic performance in technical drawing in polytechnics.

Testing Research Hypothesis

Research Hypothesis 1: Teachers' quality does not significantly influence polytechnic students' academic performance in technical drawing in Edo and Delta States, Nigeria.

Table 3: Influence of Teachers' quality on students' academic performance

		B	S.E.	Wald	df	Sig.	Beta Value
Step 1 ^a	TQ	-.086	.014	37.789	1	.000	.918
	Constant	2.314	.448	26.656	1	.000	10.111

a. Variable(s) entered on step 1: TQ.

Note: Nagelkerke $R^2 = .091$; TQ means Teacher Quality

The results of the binary logistic regression on Table 3 indicated that teachers' quality scored 9.1% of the variance ($\chi^2 = 40.294$, Nagelkerke $R^2 = .091$, $P < .05$) and it is statistically significant. Thus, the calculated binary regression ($r^2 = .091$) was less than the alpha level (.05). The null hypothesis which states that teachers' quality does not significantly influence students' academic performance in technical drawing is rejected. Teachers' quality significantly influences polytechnic students' academic performance in technical drawing in Edo and Delta States, Nigeria. All in all, teachers' quality had a significant but negative influence on polytechnic students' academic performance in technical drawing.

Discussion of Results

This analysis of the research questions raised and the hypothesis tested revealed some interesting findings which are discussed below:

Students' academic performance in technical drawing in Edo and Delta States, Nigeria was very poor. This is in line with some other studies, for instance Medupin et al. (2015) who reported poor performance in Engineering Drawing in Nigerian Polytechnics: A case study of the Federal Polytechnic Bida, Niger State, Nigeria. The reason was that some aspects of the teachers' personal quality enumerated above have negatively influenced students' performance in technical drawing at various educational levels. Oviasu (2013) reported that the results of 2013

WAEC technical drawing showed that about 78.3% of the students that sat for WAEC failed and only 21.7% passed is in line with the findings of this study.

Furthermore, Oviawe and Adeola (2017); Uddin et al. (2019); Oviawe, (2020) and Anetekhai (2024) have affirmed students' poor performance in technical drawing at various educational levels. This state of affairs cannot necessarily produce the knowledge for the actualization of the objectives of teaching technical drawing, which is to prepare its recipients for the world of work in technology related fields.

Secondly, the academic performance of students in technical drawing was influenced by teachers' quality. This is in line with Ali et al. (2020) whose report found significant relationship between teachers' quality and students' academic performance in Maiduguri Metropolis, Borno State. This finding corroborates with Odoh et al. (2020), which also confirmed that regardless the level of preparation, students bring into the classroom, decisions that teachers make about subject matter can either greatly facilitate students learning or serve as an obstacle to it. So, a trained technical teacher uses skills, principles and different methods to achieve his/her goals better than an untrained teacher who has no such knowledge. However, the results of the findings of this study are at variance with Faize (2011) who found no difference in teachers' quality and higher academic performance. Teachers' quality

is not effective but instead the prior achievement is the most effective.

The literature highlights that teacher's quality is a strong predictor of students' success, especially in under- resourceful instructional environments. From the finding of this study, it is clear that teachers' quality significantly influenced polytechnic students' academic performance in technical drawing.

Conclusion and Recommendation

Technical Drawing is the only precise language, which can be used to express the technologist's mind to the producer. Adequate knowledge/skills in technical drawing by an individual can enable them fit into any of the technology-based occupations and become useful to the society. If the nation must advance in technology, there is need for the citizens to master the short hand language and tool (technical drawing) used in the workshop where goods are produced. Therefore, it is necessary to have professional skilled, competent, teachers with high quality to enhance the realization of the dreams and expectations of Technical Drawing programme in our technological institutions. The following recommendations are enumerated:

All Technical Drawing teachers should endeavor to acquire appropriate professional training and adequate knowledge and skills in pedagogy.

All Technical drawing teachers should endeavor to undergo sufficient training on the use of AutoCAD software to boost their performance and confidence to be able to effectively teach their students in this era of modern technological advancement. Furthermore, they should exhibit qualities such as patience, empathy, and flexibility towards their students.

References

- Adeleke, O.P., & Manuel, M.N. (2019). Teacher quality: A tool for sustainable human and national capital development in Nigeria. *UNILAG Journal of Curriculum and Instruction, 1*(1), 230-239. Retrieved from <https://www.researchgate.net>344>
- Ali, M., Tela, M.G., & Saleh, B. (2020). Impact of teachers' quality on academic performance of students in public senior secondary schools in Maiduguri metropolis, Borno State, Nigeria. *Asian Journal of Education and Social Studies, 11*(3), 18-24. Retrieved from <https://doi.org/10.9734/ajess/2020/v11i330292>
- Anetekhai, A.O. (2014). Empowerment of youths and transformation of national economy through technical and vocational education, *Journal of Collaborative Research and Development, 2*(2), 64-76.
- Anetekhai, A. O., & Ebube, C. O. (2021). Importance of technical drawing in addressing challenges to Technological Development. *Journal of Applied Science and Technology (JAST), 12*(1), 138-147. Retrieved from www.sast.auchipoly.net www.ejast.com
- Anetekhai, A.O. (2024). Influence of teachers' characteristics on students' academic performance in technical drawing in polytechnic in Edo and Delta State, Nigeria. *Unpublished Ph.D Thesis, Ambrose Alli University Ekpoma, Edo State.*
- Arshad.M., Zaidi, S. M., & Mohamood, K. (2015). Self-esteem and academic performance among university students. *Journal of Education and Practice, 6*(1), 165- 176. www.iiste.org.
- Blömeke, S., Olsen, R., & Suhl, U. (2019) Relation of students' achievement to the quality of their teachers and instructional quality. *IEA Research for Education, 2*(3),

21–28. Doi: 10.1007/978-3-319-41252-8

22-29.

- Chokera, K.J. (2014). Influence of teacher characteristics on students' academic performance in public schools in Kenya: A case of Akithi Division, Meru County, Kenya. *Master of Arts thesis University of Nairobi*.
- Daso, P.O. (2013). Teacher quality and secondary school students' achievement in mathematics in Rivers State. *Journal of Educational Research International*, 1(3), 41- 48.
- Federal Republic of Nigeria (2013). *National policy on education*, Lagos: NERDC Press.
- Gepila, J.E. (2020). Assessing teachers using Philippine Standards for teachers. *Universal Journal of Education Research*, 8(3), 739-746.
- Hassan, B., Alias, M., Saleh, K.M., & Awang, H. (2017). Students' perceptive of their teachers' performance in teaching engineering drawing in Nigerian tertiary institutions. *Raektona Nauki = Path of Science*, 3(10), 3001-3013.
- Medupin, R.O., Abubakre, O.K., Adebayo, S.A., Enock, O.I., & Suleyman, F.A. (2015). Students' academic performance in engineering drawing in Nigerian Polytechnic. A case study of Federal Polytechnic Bida, Nigeria. *Journal of Multidisciplinary Engineering Science and Technology*, 2(2), 158-167.
- Mohamud, A.S., & Abdulle, M.M. (2015). Teacher quality and student achievement at secondary stage in Mogadishu Somalia. *Educational Research International*, 4(1),
- Odoh, L.C., Ugwuanyi, U.B., Odigbo, B.E., & Chukwuani, N.V. (2020). Influence of parental involvement and level of education on academic performance of accounting students Nigeria. *Research on Humanities and Social Sciences*, 7(10), 21-30.
- Oviawe, J.I. (2020). Influence of teacher quality and professional development on the students' academic performance in technical drawing in technical colleges. *Australian Journal of Science and Technology*, 4(1), 242-249.
- Oviawe, J.I., & Adeola, L. (2017). Effects of concept mapping instructional strategy on students' academic performance and interest in technical drawing in technical colleges in Edo State, Nigeria. *IOSR Journal of Research and Method in Education*, 7(3), 9-15.
- Uddin, P.S.O., Nwachokor, S., & Uwameiye, R. (2019). Influence of teachers' qualification in the teaching of technical drawing in technical colleges in Edo and Delta States, Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 9(5), 578-587. Retrieved from <http://dx.doi.org/10.6007/IJARAFMS/v9-i5/5906>
- Usman, M., & Abubakar, M. (2020). Impact of teachers' quality on students' academic performance in secondary schools in North Central Zone, Nigeria. *African Scholars Journal of Contemporary Education Research*, 18(8), 134-145.

ASSESSING THE IMPACT OF DIRECT AND INDIRECT PEDAGOGICAL APPROACHES ON SCIENCE LITERACY AND LEARNING EXPERIENCES IN BASIC SCIENCE AND TECHNOLOGY FOR JUNIOR SECONDARY SCHOOL STUDENTS

OJO, Samson Abayomi Ph.D

Department of Industrial Technical Education,
University of Nigeria, Nsukka
Email: samson.ojo@unn.edu.ng (07034985698)

OJO, Oluwaseun Dolapo

Department of Business Education,
University of Nigeria, Nsukka.

EZEUGWU, Oluchi Juliana

Department of Arts Education
University of Nigeria, Nsukka.

DALYOP, Gyang Babung

Abstract

This study aimed to determine students' perceptions of pedagogical approaches used by Basic Science and Technology (BST) teachers in junior secondary schools in Enugu State, with a particular focus on their impact on science literacy and learning experiences. A descriptive survey research design was adopted, targeting a population of 3,796 students, from which a sample of 797 (348 urban and 449 rural students) was selected through simple random sampling. Data were collected using a structured questionnaire titled 'BST Pedagogical Approaches and Science Literacy Questionnaire' (BSTPASLQ), developed after an extensive review of relevant literature. The questionnaire comprised two parts: Part I collected demographic data, while Part II contained 79 items grouped into five sections (A–E) on a five-point Likert scale, ranging from Very Effective - 5 to Very Ineffective - 1. The instrument was face-validated by three experts from the Department of Industrial Technical Education, University of Nigeria, Nsukka. Internal consistency was established using the Cronbach alpha method, yielding an overall reliability coefficient of .88. A total of 797 questionnaires were administered to students in urban and rural areas with the help of two research assistants. Of these, 741 (93%) were retrieved and analyzed using the Statistical Package for Social Sciences (SPSS). Means and t-test statistics were used to answer research questions and test hypotheses at a .05 significance level. Findings revealed that students perceived both direct and indirect pedagogical approaches as ineffective in enhancing their BST learning experiences and science literacy development. This suggests a need for instructional strategies that actively promote conceptual understanding, critical thinking, and problem-solving skills in science education. Based on the results, recommendations were made, including encouraging BST teachers to adopt pedagogical approaches that foster science literacy, thereby improving the teaching and learning of BST in junior secondary schools in Enugu State.

Key Words: *Direct Approach, Indirect Approach, Science Literacy, Learners' Experiences, Basic Science and Technology*

Introduction

Basic Science and Technology (BST) encompasses the study of fundamental principles and the acquisition of essential skills in science and technology, which are crucial for addressing life's challenges and achieving sustainable development. Publications (2018) defined BST as the study of the fundamental principles and acquisition of basic skills in science and technology needed for combating life challenges and achieving sustainable development. At the junior secondary level in Nigeria, BST serves as an introductory subject, laying the groundwork for advanced studies in disciplines such as Biology, Physics, Chemistry, and Technical Drawing (Barrett, et al., 2019). The curriculum integrates themes including basic science, basic technology, physical and health education, and information technology (Federal Republic of Nigeria (FRN), 2013). A critical outcome of BST education is science literacy, which refers to students' ability to apply scientific concepts and reasoning to real-world problems, make informed decisions, and participate meaningfully in society (UNESCO, 2021).

The incorporation of BST into the junior secondary curriculum aims to foster innovative teaching and learning approaches that promote science literacy, creativity, and critical thinking. Science literacy enables students to analyze and interpret scientific data, evaluate technological advancements, and understand their implications for everyday life (Yu et al., 2020). Furthermore, it equips learners with the competencies necessary to navigate a rapidly changing world and address emerging national and global challenges such as climate change, disaster risk reduction, and technological advancements (Arnhold & Bassett, 2021). Researchers like Olaleye et al. (2022)

emphasize that BST plays a crucial role in equipping students with scientific reasoning and problem-solving skills that are essential for the 21st century. The objectives of BST include developing interest in science and technology, acquiring scientific knowledge and skills, applying these competencies to meet societal needs, and preparing students for careers in STEM fields (Igbokwe, 2015). To achieve these objectives, effective pedagogical approaches that promote both science literacy and meaningful learning experiences must be implemented.

Pedagogical approaches, as defined by Mkpa (2009), are the principles, methods, and techniques employed by teachers to maximize learning and facilitate science literacy. The selection of appropriate instructional strategies is crucial, as ineffective teaching methods can hinder students' ability to engage with scientific concepts and apply them in real-world situations. These approaches are broadly categorized into direct and indirect methods, both of which play significant roles in BST instruction and the development of science literacy. Direct pedagogical approaches involve explicit teaching methods where the teacher leads the learning process, providing clear instructions, structured explanations, and demonstrations. These approaches often include lectures and step-by-step problem-solving sessions, which ensure that students acquire foundational scientific knowledge and basic literacy in science concepts (Tebabal & Kahssay, 2011). While direct instruction is effective in introducing new concepts and ensuring clarity, it may limit students' engagement, inquiry, and practical application of scientific ideas (Offorma, 2018). This limitation can affect the development of science literacy, as students may focus on memorization rather than understanding how scientific principles apply to real-world situations.

In contrast, indirect pedagogical approaches emphasize student-centered learning, encouraging exploration, inquiry, and discovery. Methods such as problem-based learning, inquiry-based learning, and collaborative projects promote critical thinking, creativity, and scientific inquiry, which are key components of science literacy (Ganyaupfu, 2013). Indirect approaches align with the principles of constructivist learning theories, which suggest that students learn best when they actively engage with content and construct their own understanding through experimentation and discussion (Chang, 2010). These methods foster higher-order thinking skills and prepare students to apply scientific knowledge in diverse contexts, an essential aspect of science literacy. However, while indirect approaches enhance engagement and conceptual understanding, they may require more time and instructional scaffolding to ensure students develop a solid grasp of complex scientific ideas (PytlikZillig et al., 2018).

Students' perceptions of these pedagogical approaches play a crucial role in their effectiveness. Perceptions encompass students' attitudes, experiences, and engagement levels in response to instructional strategies (Chang, 2010). A study by Eze and Ofoegbu (2023) found that indirect methods significantly enhance motivation and performance in BST by allowing students to actively participate in the learning process and develop problem-solving skills essential for science literacy. However, balancing both direct and indirect approaches is crucial for fostering well-rounded science literacy, ensuring that students develop foundational knowledge while also acquiring the ability to think critically, analyze data, and apply scientific reasoning in their everyday lives (Mtsem, 2011). This study focuses on evaluating the impact of direct and indirect

pedagogical approaches on students' science literacy and learning experiences in BST. Understanding how different instructional strategies shape students' interest, engagement, and conceptual understanding will provide insights into how best to enhance science education and literacy at the junior secondary level. Given the variations in educational resources and teacher expertise across school locations, the study also seeks to explore how school environments influence students' perceptions and experiences with different pedagogical approaches. Ultimately, the findings will contribute to improving science education in Nigeria, ensuring that students develop scientific knowledge, problem-solving skills, and the ability to apply science literacy in their daily lives and future careers.

Statement of the Problem

The call for Basic Science and Technology (BST) teachers in junior secondary schools to adopt instructional approaches that facilitate the effective and seamless transmission of BST knowledge and skills to students, in line with global best practices, has continued to grow. This emphasis is driven by persistent poor performance in BST, as evidenced in both internal and external examinations. For instance, the Basic Education Certificate Examination (BECE) results in Enugu State (2019) revealed widespread underachievement, leading to a decline in students' interest and motivation in BST. This challenge undermines the achievement of the subject's stated aims, goals, and objectives. A critical aspect of this issue is the lack of science literacy among students, which stems from the predominant use of theoretical instructional approaches rather than practical, inquiry-based, and hands-on learning experiences. Science literacy, which encompasses the ability to apply scientific knowledge to real-world situations, critically analyze information, and

engage in problem-solving, is essential for 21st century competencies. However, many students graduate from junior secondary school without the foundational scientific skills and critical thinking abilities needed for further studies or entry into technology-driven careers. This gap highlights the inadequacy of traditional pedagogical methods in fostering science literacy and preparing students for the evolving demands of the modern workforce.

Researchers have linked the low science literacy and poor academic performance of BST students to the broader issue of workforce readiness, as many students struggle to pursue careers in science, technology, and related fields. Furthermore, students who advance to senior secondary school often exhibit low interest in BST-related subjects, and those who do enroll tend to perform poorly in external examinations due to weak foundational knowledge from their junior secondary school years. Although BST remains a compulsory subject for Junior Secondary School (JSS) I - III students, engagement levels vary significantly, and this disengagement is often linked to ineffective instructional delivery rather than an inherent lack of interest in the subject. The persistent challenge is not necessarily the absence of diverse instructional approaches in BST classrooms but rather the uncertainty surrounding which pedagogical strategies are most effective in enhancing students' science literacy, improving academic performance, and fostering motivation and interest in the subject. To address this, there is a need to investigate the specific instructional approaches that students perceive as effective in facilitating science literacy and meaningful learning experiences in BST at the junior secondary school level.

Purpose of the Study

The major purpose of this study was to determine students' perceptions of pedagogical approaches utilized by BST teachers in junior secondary schools in Enugu State. Specifically, the study sought to determine students' perceptions of:

1. direct pedagogical approaches employed by BST teachers in junior secondary schools in Enugu State.
2. indirect pedagogical approaches employed by BST teachers in the junior secondary schools.

Method of the Study

This study employed a survey research design to analyze students' perceptions of effective pedagogical approaches for teaching Basic Science and Technology (BST) and their impact on science literacy in junior secondary schools. According to Nworgu (2015), survey research involves studying a population or sample using instruments such as questionnaires. This design was appropriate as it enabled the collection of students' opinions on how direct and indirect pedagogical approaches influence their understanding of scientific concepts, ability to apply scientific knowledge, and development of critical thinking skills, key components of science literacy.

The study was conducted in Enugu State, Nigeria, covering 60 public secondary schools. These schools were selected due to the persistent low academic performance in BST, which has been linked to students' lack of interest, motivation, and limited science literacy skills. The research population comprised 3,796 Junior Secondary School III (JSS III) students in the Nsukka Education Zone, as documented by the Enugu State Post Primary School Management Board (PPSMB). These students were considered suitable

respondents because they had completed two years of BST education, positioning them to provide informed perspectives on the effectiveness of different pedagogical methods in fostering their ability to interpret, evaluate, and apply scientific knowledge in real-world contexts.

From this population, a sample of 797 students was selected using simple random sampling to ensure equal opportunity for participation. The sample included 348 students from urban schools and 449 from rural schools, thereby capturing the influence of diverse learning environments on science literacy development. The Taro Yamane formula was used to determine the sample size.

Data collection was carried out using a structured questionnaire titled the Basic Science and Technology Pedagogical Approaches and Science Literacy Questionnaire (BSTPASLQ), which was developed from an extensive review of literature on science education and pedagogy. The questionnaire was divided into two main parts. The first part collected demographic data, while the second part comprised 27 items categorized into two sections, each focusing on direct and indirect pedagogical approaches and their impact on students' conceptual understanding, problem-solving skills, and practical application of scientific knowledge. The response options were based on a five-point Likert scale ranging from Very Effective to Very Ineffective, which allowed for an assessment of the extent to which pedagogical approaches enhanced students' ability to comprehend scientific texts, interpret data, engage in scientific inquiry, and apply learned concepts to everyday problems.

To ensure validity, the instrument was face-validated by three experts from the

Department of Industrial Technical Education, University of Nigeria, Nsukka. These experts reviewed the questionnaire items for clarity, relevance, and alignment with science literacy components. Their feedback led to revisions that improved the instrument's ability to measure students' experiences with different pedagogical methods and their effects on scientific reasoning and literacy development.

Reliability was established using the Cronbach Alpha method, with a pilot test conducted among 20 BST students in the Obollo-Afor Education Zone, an area outside the study's primary focus but with similar characteristics. The reliability analysis conducted using SPSS yielded coefficients of .86 and .90 for the two research questions, with an overall reliability score of .88, indicating high internal consistency.

The researchers personally administered the questionnaire with assistance from two trained aides, ensuring efficient distribution and retrieval of responses. The instruments were collected within two weeks, achieving a high retrieval rate of 93%, as 741 out of 797 questionnaires were successfully returned.

Data analysis was conducted using mean scores, standard deviation, and t-tests. Mean scores were used to answer the research questions, providing insights into students' perceptions of how pedagogical approaches influence their science literacy skills, including critical thinking, experimentation, and data interpretation. Standard deviation was used to assess the variability of responses, ensuring a robust measure of students' experiences. Hypothesis testing was conducted at a .05 significance level, with hypotheses retained if the p-value was greater than or equal to .05 and rejected if it was less than 0.05.

Statistical analyses were carried out using SPSS version 22.

Results

Research Question 1: What are students' perceptions of direct instructional approaches employed by BST teachers in junior secondary schools in Enugu State?

The data presented in Table 1 below revealed that items 1, 5, 6, 7, 11 and 13 had means ranging from 2.50 – 3.49, indicating that the respondents perceived the instructional

approaches as 'fairly effective' when used in the teaching of BST in junior secondary schools in Enugu State by teachers. In the same vein, the means of items 2, 3, 4, 8, 9, 10, 12 and 14 that ranges between 1.50 – 2.49 shows that the respondents perceived the instructional approaches as 'ineffective' when used by teachers in the teaching of BST in junior secondary schools in Enugu State. The Table also showed that the standard deviations (SD) of all the items are within the range of 0.48 to 1.38 and are positive which indicated that the respondents were not very far from one another in their responses.

Table 1: Mean Responses of the Respondents on Students' Perceptions of Direct Instructional Approaches Employed by BST Teachers in Junior Secondary Schools in Enugu State

S/N	Item Statement	Mean	SD	Decision
1	Individualized instruction	2.71	.95	FE
2	Information, Advice and Guidance (IAG)	2.13	.69	I
3	Lecture	2.28	1.26	I
4	Cognitive Instruction	2.43	.89	I
5	Inductive Instruction	2.71	1.31	FE
6	Compare and contrast	2.57	.53	FE
7	Reciprocal peer tutoring (RPT)	2.57	.97	FE
8	Guided and shared Reading	2.00	1.15	I
9	Listen and visualize	1.71	.75	I
10	Structure overview	2.00	.81	I
11	Explicit teaching	2.57	.97	FE
12	Didactic questions	1.71	.48	I
13	Demonstrations	3.28	1.38	FE
14	Imitation of guest speaker	1.71	.95	I

Key: SD = Standard Deviation, VE = Very Effective, E = Effective, FE = Fairly Effective, I = Ineffective, VI = Very Ineffective

Hypothesis 1: There is no significant difference between the mean responses of Urban and Rural students' perceptions of direct instructional approaches employed by Basic Science and Technology teachers in junior secondary schools.

Table 2: The t-test Analysis of the Mean Responses of Respondents on Students' Perceptions of Direct Instructional approaches Employed by Basic Science and Technology Teachers in Junior Secondary Schools in Enugu State

S/N	Items Statements	X ₁	S.D ₁	X ₂	S.D ₂	t-cal	Sig.	Decision
1.	Individualized instruction	2.25	.96	3.33	.57	1.72	.15	NS
2.	Information, Advice and Guidance (IAG)	2.25	.50	2.00	1.00	.44	.68	NS
3.	Lecture	3.00	1.60	3.66	.57	.66	.54	NS
4.	Cognitive Instruction	2.25	.95	2.00	1.00	.34	.75	NS
5.	Inductive Instruction	3.25	1.50	2.00	1.00	1.24	.27	NS

6.	Compare and contrast	2.50	.57	2.66	.54	.38	.72	NS
7	Reciprocal peer tutoring (RPT)	2.75	.50	2.33	1.55	.52	.62	NS
8	Guided and shared Reading	2.25	1.22	1.66	1.15	.63	.56	NS
9	Listen and visualize	2.00	.81	1.33	.57	1.20	.29	NS
10	Structure overview	1.75	.95	2.33	.54	.92	.40	NS
11	Explicit teaching	2.75	1.25	2.33	.74	.52	.62	NS
12	Didactic questions	1.75	.50	1.66	.74	.21	.08	NS
13	Demonstrations	3.25	.95	3.33	2.17	.07	.95	NS
14	Imitation of guest speaker	1.75	.95	1.67	1.47	.11	.91	NS

Key: N_1 = Total Number of Basic Science and Technology Students in Urban Settlements, N_2 = Total Number of Basic Science and Technology Students in Rural Settlements; X_1 = Mean of Basic Science and Technology Students in Urban Settlements, X_2 = Mean of Basic Science and Technology Students in Rural Settlements; SD_1 = Standard Deviation of Basic Science and Technology Students in Urban Settlements, SD_2 = Standard Deviation of Basic Science and Technology Students in Rural Settlements; df = Degree of Freedom (739), Sig = Significance Level (2 tailed); $t-cal.$ = calculated values of t-test on SPSS; S = significant, NS = Not Significant

Data presented in Table 2 revealed that each of the 14 items had probability values that is greater than the probability value of .05. This indicated that there was no significant difference in the mean responses Urban and Rural students' perceptions of direct instructional approaches employed by Basic Science and Technology teachers in junior secondary schools. Therefore, the stated null hypothesis of no significant difference was upheld.

Research Question 2: What are students' perceptions of indirect instructional approaches employed by BST teachers in the junior secondary schools?

Table 3: Mean Responses of the Respondents on Students' Perceptions of Indirect Instructional Approaches Employed by BST Teachers in Junior Secondary Schools in Enugu State

S/N	Item Statement	Mean	SD	Decision
15	Inquiry-based instruction	1.71	.79	I
16	Assignments	1.72	.75	I
17	Questioning Technique	1.86	.89	I
18	Read and Practice	1.57	.55	I
19	Pre-test	1.57	.78	I
20	Learning by Teaching	3.28	1.25	FE
21	Concept formation	3.14	1.34	FE
22	Concept attainment	2.57	.97	FE
23	Committee/Group work	2.71	.95	FE
24	Report Back Session	3.00	1.00	FE
25	Concept sketches	2.42	.78	I
26	Pre-reading	2.57	.97	FE
27	Cloze procedure	2.14	.91	I

Key: SD = Standard Deviation, VE = Very Effective, E = Effective, FE = Fairly Effective, I = Ineffective, VI = Very Ineffective

The mean value of items 20, 21, 22, 23, 24 and 26 as reported in Table 3 falls within 2.50 to 3.49. This indicates that the instructional approaches' items are seen to be 'fairly effective' when used

by teachers in the teaching of BST in junior secondary schools in Enugu State. On the other hand, items 15, 16, 17, 18, 19, 25 and 27 were perceived by the respondents to be 'ineffective'

when used in the teaching of BST in junior secondary schools in Enugu State by teachers. This is because their mean responses fall within 1.50 – 2.49 on the scale. Meanwhile, all the items had their standard deviations (SD) ranging from .55 to 1.34 which implies that the respondents were very close to one another in

their responses.

Hypothesis 2: There is no significant difference between the mean responses of Urban and Rural students’ perceptions of indirect instructional approaches employed by Basic Science and Technology teachers in junior secondary school

Table 4: t-test Analysis of the Mean Responses of Respondents on Students’ Perceptions of Indirect Instructional approaches Employed by Basic Science and Technology Teachers in Junior Secondary Schools in Enugu State

S/N	Items Statements	X ₁	S.D ₁	X ₂	S.D ₂	t-cal	Sig.	Decision
15	Inquiry-based instruction	1.75	.18	1.66	.57	.13	.90	NS
16	Assignments	2.00	.50	1.33	.81	1.20	.29	NS
17	Questioning Technique	2.25	.53	1.33	.81	1.45	.21	NS
18	Read and Practice	1.50	.60	1.66	.87	.38	.72	NS
19	Pre-test	1.50	.37	1.67	.78	.26	.81	NS
20	Learning by Teaching	2.75	.43	4.00	.85	1.41	.22	NS
21	Concept formation	3.00	.58	3.33	.76	.30	.78	NS
22	Concept attainment	2.50	.34	2.66	.84	.21	.85	NS
23	Committee/Group work	2.75	.51	2.66	.77	.11	.92	NS
24	Report Back Session	2.75	.46	3.33	.87	.73	.60	NS
25	Concept sketches	2.75	.50	2.00	.77	1.32	.24	NS
26	Pre-reading	2.75	.00	2.33	.60	.52	.62	NS
27	Cloze procedure	2.00	.57	2.33	.69	.45	.67	NS

Key: N_1 = Total Number of Basic Science and Technology Students in Urban Settlements, N_2 = Total Number of Basic Science and Technology Students in Rural Settlements; X_1 = Mean of Basic Science and Technology Students in Urban Settlements, X_2 = Mean of Basic Science and Technology Students in Rural Settlements; SD_1 = Standard Deviation of Basic Science and Technology Students in Urban Settlements, SD_2 = Standard Deviation of Basic Science and Technology Students in Rural Settlements; df = Degree of Freedom (739), Sig = Significance Level (2 tailed); t-cal. = calculated values of t-test on SPSS; S = significant, NS = Not Significant

The t-test analysis of the responses of Urban and Rural students’ perceptions of indirect instructional approaches employed by Basic Science and Technology teachers in junior secondary schools as presented in Table 4 revealed that all the 13 items had probability values which are greater than the probability value of .05. This implies that there was no significant difference in the mean responses Urban and Rural students’ perceptions of indirect instructional approaches employed by Basic Science and Technology teachers in junior secondary schools. Therefore, the null

hypothesis of no significant difference was accepted for all the items.

Discussion of Findings

The findings were discussed in relation to the research questions and hypotheses.

Students’ Perceptions of Direct Instructional approaches Employed by Basic Science and Technology Teachers in Junior Secondary Schools in Enugu State

The findings of this study indicate that most direct instructional approaches used by

BST teachers in junior secondary schools in Enugu State were perceived by students as either fairly effective or ineffective. Instructional strategies with mean scores between 2.50–3.49 were rated "fairly effective," while those between 1.50–2.49 were deemed "ineffective." These results suggest students generally found direct instructional methods inadequate for understanding BST concepts. The standard deviations (.48–1.38) showed consistency in responses, reflecting shared perceptions across the sample. The study also revealed no significant differences in perceptions between urban and rural students regarding the effectiveness of direct instructional approaches. All 14 items had probability values greater than .05, upholding the null hypothesis of no significant difference. This uniformity indicates students in both settings faced similar challenges with these methods.

These findings align with previous research critiquing direct instruction in science education. For instance, Oloyede (2016) reported that direct instruction often fails to foster critical thinking and problem-solving skills essential for subjects like BST. Similarly, Okeke and Nwafor (2017) noted that while direct methods deliver foundational knowledge, they are often seen as monotonous and less engaging, particularly in subjects requiring practical application. In contrast, studies by Obiekwe (2018) and Adewale (2020) emphasized the effectiveness of interactive and inquiry-based teaching, which enhance understanding and retention through hands-on activities and active participation. These methods are particularly beneficial for subjects like BST that combine theory and practice. This study highlights the need for BST teachers to adopt more student-centered approaches. The perceived ineffectiveness of direct methods reflects their teacher-centered nature, which limits interaction, experimentation, and critical

engagement—key to effective science learning. These findings align with broader calls for strategies that prioritize student involvement and active learning. A unique aspect of this study is its finding that both urban and rural students shared similar perceptions of direct instruction. Unlike studies such as Ezeudu (2015), which reported disparities in teaching practices and resources between urban and rural schools, this study suggests systemic challenges with direct instruction across all settings. This underscores the need for comprehensive reforms in teaching methods and teacher training.

Students' Perceptions of Indirect Instructional approaches Employed by Basic Science and Technology Teachers in Junior Secondary Schools in Enugu State

The study revealed varying perceptions of instructional approaches used by BST teachers in junior secondary schools in Enugu State. Items 20, 21, 22, 23, 24, and 26 were rated as "fairly effective," with mean values between 2.50 and 3.49, indicating moderate benefits. In contrast, items 15, 16, 17, 18, 19, 25, and 27 were rated "ineffective," with mean values between 1.50 and 2.49, reflecting student dissatisfaction. Standard deviations ranging from .55 to 1.34 showed consistent responses among participants. The t-test analysis showed no significant differences in urban and rural students' perceptions of indirect instructional approaches, as all 13 items had p-values greater than .05. This result suggests that geographic location did not influence students' views, supporting the null hypothesis of no significant difference.

These findings align with prior research highlighting the limitations of traditional methods in teaching science and technology. Uzoagulu (2011) noted that lecture-based teaching often fails to engage students, while Nworgu (2015) found teacher-centered methods

less effective for developing critical thinking and problem-solving skills. The "fairly effective" ratings of some approaches align with Olaitan and Agusiobo (2010), who argued that certain methods, though not highly engaging, can still provide moderate learning benefits when combined with practical demonstrations. Similarly, Adepoju and Fabiyi (2007) found that teaching effectiveness depends more on teacher competence than location, consistent with this study's findings. However, the study contrasts with Okebukola (1997), who emphasized the benefits of interactive and collaborative methods in enhancing student engagement and performance. The absence of "highly effective" ratings suggests gaps in implementing these strategies or a mismatch with students' needs. Furthermore, while Obioma and Ajagun (2014) identified experimental methods as highly effective in other regions, their limited use in Enugu State likely explains the lower effectiveness reported in this study.

Conclusion and Recommendations

This study found that students in Enugu State perceived direct instructional approaches used by BST teachers as mostly ineffective or fairly effective. These methods were insufficient for fostering deep understanding of BST concepts. Additionally, no significant differences were found between urban and rural students' perceptions, indicating that the challenges with these methods are widespread. The study also showed that indirect instructional approaches were perceived as moderately effective, further emphasizing the need for more dynamic, student-centered methods to engage students and develop critical thinking and problem-solving skills. These findings align with existing literature critiquing teacher-centered methods and advocating for interactive, hands-on teaching strategies in science education.

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

1. Teachers should integrate inquiry-based, collaborative, and problem-solving activities to foster engagement and critical thinking.
2. Teachers should prioritize hands-on learning experiences to connect theory with practice.
3. Government should provide continuous professional development which should focus on interactive and inquiry-based teaching strategies.
4. The BST curriculum should encourage diverse teaching methods and the use of digital tools to support interactive learning.

References

- Adepoju, T. L., & Fabiyi, A. I. (2007). *Teaching effectiveness in Nigerian schools: The influence of teacher competence and location*. Ibadan: Educational Management Research Center.
- Adeyemi, P. T. (2020). Student-centered learning in science education: A review of current practices. *International Journal of Educational Research*, 21(3), 89–98.
- Arnhold, N., & Bassett, R. M. (2021). *Steering tertiary education*. <https://doi.org/10.1596/36328>
- Barrett, P., Treves, A., Shmis, T., & Ambasz, D. (2019). *The impact of school infrastructure on learning: A synthesis of the evidence*. World Bank Publications.
- Chang, C. Y. (2010). Students' perceptions of teaching styles and use of learning

- strategies. *Educational Research and Reviews*, 5(2), 61–65. Retrieved from http://trace.tennessee.edu/utk_gradthes/782.
- Enugu State Ministry for Education. (2019). *Business Studies Basic Education Certificate Examination result analysis*. Unpublished, Post Primary School Management Board, Enugu.
- Eze, E. C., & Ofoegbu, T. O. (2023). Active pedagogical approaches and their impact on students' motivation and performance in basic science and technology. *Journal of Educational Strategies*, 10(2), 105–117.
- Ezeudu, F. E. (2015). Challenges of teaching science in rural and urban schools: A comparative study. *Journal of Educational Research and Practice*, 10(2), 101–110.
- Federal Republic of Nigeria. (2013). *National policy on education (revised)*. Lagos: NERDC press.
- Ganyaupfu, E. M. (2013). Teaching methods and students' academic performance. *International Journal of Humanities and Social Science Invention*, 2(9), 29–35.
- Igboke, I. (2005). *Principles of business education (theory and practice)*. Enugu: Cheston Ltd.
- Mkpa, N. D. (2009). Teaching methods and strategies. *Curriculum theory and Practice*. Lagos: Curriculum Organization of Nigeria.
- Mtsem, A. A. (2011). Effects of diagnostic and contextual instructional strategy on students' interest and achievement in secondary school algebra. *Ph.D. thesis, Faculty of Education, Abia State University*.
- Nworgu, B. G. (2015). *Educational research: Basic issues and methodology* (3rd ed.). Nsukka: University Trust Publishers.
- Obiekwe, L. N. (2018). Inquiry-based learning and its impact on students' engagement in science education. *Journal of Educational Research*, 18(4), 67–75.
- Obioma, G., & Ajagun, G. A. (2014). Effective pedagogical strategies for teaching science subjects in Nigeria. *Journal of Science Education*, 14(3), 45–53.
- Offorma, G. C. (2018). Curriculum innovation for effective teaching and learning in the 21st century. *Journal of Curriculum Studies and Instruction*, 11(1), 12–20.
- Okebukola, P. A. (1997). Collaborative and interactive learning strategies in science classrooms: A Nigerian case study. *Science Education International*, 8(1), 19–24.
- Okeke, C. M., & Nwafor, G. A. (2017). Pedagogical approaches in science education: A study of students' perceptions. *Nigerian Journal of Education*, 32(1), 45–58.
- Olaitan, S. O., & Agusiobo, E. N. (2006). *Development and teacher education*. Ibadan: Lezy Publishing Co.
- Olaitan, S. O., & Agusiobo, O. N. (2010). *Teaching methods for science and technology education in Nigeria*. Onitsha: Cape publishers.
- Olaleye, D. O., & Salami, I. A. (2024). Basic science and technology teachers' attitude and intention-to-use AI for lesson planning and delivery: The narratives in Oyo State, Nigeria. *International Journal of Research and Innovation in Social Science*, 8(3s), 4221–4232.

- Oloyede, O. O. (2016). The effectiveness of direct instruction methods in teaching science subjects. *Journal of Science Education and Technology*, 25(2), 112–120.
- Publications, U. N. (2018). *World economic and social survey: Reflecting on 70 years of development policy analysis*.
- PytlikZillig, L. M., Hutchens, M. J., Muhlberger, P., Gonzalez, F. J., & Tomkins, A. J. (2018). Deliberative Public Engagement with Science. In: *Springer briefs in psychology*. <https://doi.org/10.1007/978-3-319-78160-0>
- Tebabal, A., & Kahssay, G. (2011). The effects of student-centered approach in improving students' graphical interpretation skills and conceptual understanding of kinematical motion. *Latin American Journal of Physical Education*, 5(2), 374–381.
- UNESCO. (2021). *Media and Information Literacy curriculum for educators and learners: Think critically, click wisely!* UNESCO Publishing.
- Uzoagulu, A. E. (2011). *Practical guide to writing research project reports in tertiary institutions*. Enugu: Cheston agency ltd.
- Yu, S., Ally, M., & Tsinakos, A. (2020). *Emerging technologies and pedagogies in the curriculum*. Springer Nature.

EDUCATION FOR SELF-RELIANCE AND ENTREPRENEURSHIP SKILLS: EXPLORING THE DIFFERENT SHADES OF SKILL ACQUISITION PROGRAMMES IN UNIVERSITIES IN LAGOS STATE

AWONIYI, Augustine Babatunde

Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria

Faculty of Education

Department of Educational Management

batundeawoniyi@yahoo.com;

+2348113677018

OWOLABI, Olawale Abiodun

University of Lagos, Akoka

Faculty of Education

Department of Educational Management

owolabiolawale001@gmail.com

+2348061365417

&

IGE, Temitope Damilola

Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria

Faculty of Education

Department of Educational Management

temitope.ige@aaua.edu.ng

+2348133534538

Abstract

This study investigated the influence of the different shades of skill acquisition programs, which include, SIWES, Internship, Online learning and entrepreneurship Education on the development of entrepreneurship skills. The study adopted a correlational research design. The population of the study comprised of 92,042 undergraduate students from universities in Lagos State. The sample Size for the study was 398, ascertained using Yamane formula. In order to have a balanced analysis for both institutions, the researcher used equal number of 225 participants from both institutions. A purposive sampling technique was used to select 450 students who have undergone SIWES. Data was collected using a questionnaire tagged “Enhancing Entrepreneurship Skills through the Different Shades of Skill Acquisition Programme Questionnaire” (EESDSSAPQ). The reliability of the questionnaire was established using test re-test method that yielded an index of .75. Mean and Standard deviation statistics were used to answer research questions. Simple linear regression analysis was used to test the hypotheses at .05 level of significance. The study found out that SIWES programme, entrepreneurship education, online learning and internship programme significantly influenced the development of entrepreneurship skills. The study recommended that students should take advantage of the digital era to develop in demand entrepreneurial skills; Centre of entrepreneurship studies should take a cue from the SIWES programme, hereby, create avenue for students to go on practical entrepreneurship training, in addition, schools should collaborate with the critical community players to enrich the delivery of entrepreneurship education.

Keywords: Skill Acquisition, Entrepreneurship Skills, Internship Programme, Online Learning, Education for Self-reliance

Introduction

Considering the external inefficiency of the formal system of education in Nigeria, in that some University graduates are unemployable, there is a need to re-strategize and re-design the curriculum structure to reflect the needs of society. Such that education is tailored in such a way that skills, knowledge and attitudes relevant to the community at large are enshrined in the policy objective and curriculum. In light of this, Okon, et al., (2010) defined education for self-reliance as the “Learning directed towards developing in young people those skills, competencies, and attributes which equip them to be innovative and successfully manage personal and community work and business opportunities”. Such education programmes and curriculum structure are tailored in such a way that the skills, potentials and abilities of citizens are built and developed in order to become self-reliant in the political, social, economic and cultural contexts.

Education has a very important role in shaping young people into competitive and innovative individuals, especially in the context of an increasingly complex and rapidly changing global economy (Ahmad, et al., 2023). In practical terms, the tertiary institution plays crucial role in turning this into a reality. The role of tertiary education in equipping individuals with skills for self-reliance and entrepreneurship has been widely acknowledged. Education systems globally have been shifting from traditional learning models to frameworks that integrate practical skill acquisition, with universities playing a pivotal role in fostering innovation, creativity, and entrepreneurship (Azuakor, 2023; Ojule, & Oliobi, 2024).

The current state of Nigeria economy is devastating, and individuals can no longer rely solely on the degrees earned in higher institutions to secure stable sources of income (Ofor-Douglas, 2022) thus, there is a need for skill acquisition for individual and national growth. According to

Ojule and Oliobi (2023), the goals of tertiary education institutions in any country are directed towards scientific, technological, and socio-economic development, among others. Empowering learners through effective and efficient entrepreneurship education can boost self-employment and drive sustainable growth and development. Skill acquisition refers to the process of gaining practical abilities and expertise in a particular trade or profession. It is foundational for promoting self-reliance and reducing dependency on formal employment. Universities have incorporated various skill acquisition programs into their curricula, ranging from vocational training to technological skills workshops, as a means to bridge the gap between education and employability (Salau, et al., 2024; Onyema, et al., 2024, Mohammed, & Yusuf, 2023). Skill acquisition is a dynamic process encompassing the development of competencies such as creativity, critical thinking, adaptability, and effective decision-making (Salau, et al., 2024). These initiatives are vital in creating a workforce capable of adapting to dynamic labor market demands.

Entrepreneurship skills involve the knowledge, attitudes, and abilities necessary to identify opportunities, organize resources, and start a business. These skills extend beyond business ventures to include innovation, critical thinking, and risk management (Somwethee, et al., 2023). Developing entrepreneurship skills at the university level is essential in preparing students for economic independence and fostering a culture of innovation (Oyinlola, 2024). According to Evans-Obinna (2016), Quality entrepreneurship education plays a crucial role in fostering job creation, which, in turn, helps reduce unemployment, poverty, and social vices in Nigeria. It also contributes to improving living standards, thereby driving socio-economic and political development. Maina (2014) argued that for individuals receiving entrepreneurship education to become job creators rather than job

seekers, they must acquire fundamental skills and attitudes that equip them to succeed as entrepreneurs. In this regard, entrepreneurship education promotes self-reliance, enhances quality of life, and raises the general standard of living for the population. This is evident in various economic indicators, such as increased profits for employers, more job opportunities, greater productivity, the advancement of innovative technologies, and a rise in local sourcing of raw materials (Awan & Yaqoob, 2023). Consequently, for a nation aiming to achieve a self-reliant economy, its educational system should prioritize a comprehensive and robust entrepreneurial curriculum.

Entrepreneurship education aims to instill an entrepreneurial mindset in students through formal and informal learning experiences. By teaching students how to identify market needs, create innovative solutions, and sustain businesses, entrepreneurship education acts as a catalyst for economic development. Successful programs often incorporate case studies, business simulations, and community-based projects to ensure practical learning outcomes. As Ojule and Oliobi (2023) emphasized, effective entrepreneurship education not only boosts employability but also fosters innovation and adaptability in a competitive world.

Internship programs provide students with real-world experience in professional environments, bridging the gap between theoretical knowledge and practical application. According to Adeniji et al., (2022), Internships represent an interdisciplinary learning experience that is deeply integrated into the community and serve as a unique form of learner-centered education. The purpose of an internship is to translate theoretical learning into practical, applied experiences in which students actively participate. An internship is a cooperative industrial training program that involves students from institutions of higher learning (Sumal & Sopotan, 2018). Through internships, students gain professional knowledge

and skills, providing them an opportunity to acquire industrial experience while still studying. The challenge arises when university graduates enter the labor market with little or no entrepreneurial mindset, which negatively affects the development of nations globally. This issue can be addressed by instilling entrepreneurial virtues in undergraduates. One key factor to fostering the transition of economies is ensuring that university graduates are well-equipped with entrepreneurial knowledge gained through their university training (Okolie e. al., 2020). These programs are integral to building industry-specific skills, improving employability, and fostering networking opportunities.

The Student Industrial Work Experience Scheme (SIWES) is a Nigerian initiative designed to expose students to industrial work environments during their university education. SIWES is planned supervised occupational experienced program involving practical activities conducted outside the regular classroom and in a real industrial set-up (Madu, et al., 2023). It is a skill development program designed to expose and prepare students for real work in which they are likely to meet in their selected courses after graduation from school. SIWES was Introduced by the Industrial Training Fund (ITF) in 1973, SIWES aims to bridge the gap between theoretical learning and practical application in engineering and technology in Nigerian tertiary institutions. It has since become an integral part of the academic curriculum in universities, as it is required for various degree programs. SIWES provides a structured opportunity for students in disciplines such as engineering, technology, science, agriculture, medical fields, management, and other professional areas to gain hands-on experience. This industrial exposure equips students with the practical knowledge they need to integrate more effectively into the workforce after completing their academic studies. The scheme encourages collaboration between schools and industries, helping students gain practical

skills in addition to theoretical knowledge acquired in the classroom. It also exposes students to work environments where they can become familiar with tools, machinery, and equipment that may not be available at educational institutions. SIWES plays a pivotal role in helping students gain hands-on experience in their chosen fields, thereby increasing their practical competencies and readiness for the workforce (Adeosun, et al., 2022)

Online learning has emerged as a transformative approach to education, offering flexibility and accessibility for skill acquisition. The COVID-19 pandemic further accelerated its adoption in universities, with students leveraging digital platforms for courses in programming, entrepreneurship, and other in-demand skills (Dhawan, 2020). However, challenges such as digital divide and inadequate internet infrastructure remain barriers to effective implementation in Nigeria. Lack of access to ICT makes it difficult for people to access information. The benefits of having access to ICT are numerous. ICT has the potential to promote other sectors of the economy such as agriculture, education, health, bank, defence, among others. In times of emergency, ICT becomes an indispensable tool for overcoming the barriers of time and distance (Okoye, et al., 2023; Umeifekwem, & Eme, 2023). This study aims to explore the different shades of skill acquisition programs implemented in universities across Lagos State, investigating their influence on the development of entrepreneurship skills among students.

Statement of the Problem

Unemployability, which depicts the inability of a person who has earned a degree to secure a job because of lack of required job specific skills needed to fit the world of work, is a phenomenon that have contributed to the increasing unemployment rate in Nigeria. Extensively, this dimension to youth unemployment is a fruit of

external inefficiency of tertiary education. This borders on the incongruity between the curriculum programme structure and the skill and knowledge demands of the labour market, which results into graduates deficiency of in demand job ready skill, thus, they become liabilities to themselves and to the society at large thereby, plunging them into poverty. Consequently, they can contribute neither to the economic growth of the nation nor to themselves. Thus, they become patronage of social vices amounting to educational wastage. There appears to be a gulf in the disequilibrium when placed side-by-side with the sustainable development goals. Consequent upon this, the study sought to explore the different shades of skill acquisition programmes as essential instruments toward enhancing the development of entrepreneurship skills for self-reliance among university students.

Methodology

A correlational research design was used for the study. The population of the study comprised of 92,042 undergraduate students from the University of Lagos (48, 680) and Lagos State University (43,362). The sample Size for the study was 398, ascertained using Yamane formula. In order to have a balanced analysis for both institutions, the researchers used equal number of 225 participants from both institutions. Purposive sampling technique was used to select 450 who have undergone the SIWES programme.

A self-designed Questionnaire tagged “Enhancing Entrepreneurship Skills through the Different Shades of Skill Acquisition Programme Questionnaire” (EESDSSAPQ) was used to collect data. The instrument was divided into two sections. Section A sought information on the impact of Impact of Student Industrial Work Experience scheme (SIWES), entrepreneurship education, online learning, and internship programme on the development of entrepreneurship skills. Section B sought information on the entrepreneurship skills

students have acquired as a function of the different shades of Skill Acquisition programmes. It was structured after the four-point scale of Strongly Agree = 4 Agree = 3, Disagree = 2 and Strongly Disagree = 1 respectively.

The instrument was duly validated by three experts in Test and Measurement. The reliability of the questionnaire was established using test re-test method, which was calculated with Pearson's Product Moment Correlation Coefficient and it yielded an index of .75.

Table 1: Influence of SIWES Programme on the Development of Entrepreneurship Skills

SN	Items	Mean	S.D	Decision
1.	SIWES experience engender the development of positive work ethics.	3.89	.31	Agreed
2.	I have developed self-awareness and empathetic skills that engender positive social networking.	3.22	.63	Agreed
3.	I have become more emotionally intelligent	3.56	.50	Agreed
4.	SIWES is instrumental for eliciting better understanding about the urgency for goal attainment	3.56	.50	Agreed
5.	SIWES has helped students to be more accountable, thus, carefully managing my business	3.67	.47	Agreed
Grand Mean		3.58	.35	Agreed

As indicted in the Table 1, the general opinion of the respondents represented by the grand mean of 3.58 is greater than the scale mean of 2.50; this implies that student industrial work experience scheme (SIWES) influences the

Table 2: Influence of Entrepreneurship Education on the Development of Entrepreneurship Skills

SN	Items	Mean	S.D.	Decision
6.	I have high propensity to start a business	3.56	.69	Agreed
7.	I favour development of business firm more than searching for white collar jobs	3.44	.69	Agreed
8.	I am enlightened as to the direction of the viable business to venture into	3.22	.63	Agreed

Mean and Standard deviation statistics were used to answer research questions, decisions were made along the criterion mean of 2.50, therefore, any mean value ≥ 2.50 is accepted while any value < 2.50 is rejected. Simple linear regression analysis was used to test the hypotheses at .05 level of significance. **Results**

Research Question 1: Does Student Industrial Work Experience scheme (SIWES) influence development of entrepreneurship skills?

development of entrepreneurship skills.

Research Question 2: Does entrepreneurship education influence the development of entrepreneurship skills?

9.	I am motivated to be financially independent and self-employed	3.56	.69	Agreed
10.	My perception about taking risk is positive, hence, I see it as an unavoidable phenomenon that facilitate success	3.67	.47	Agreed
Grand Mean		3.49	.59	Agreed

As indicted in Table 2, the general opinion of the respondents represented by the grand mean of 3.49 is greater than the scale mean of 2.50; this implies that entrepreneurship education influences the development of entrepreneurship

skills.

Research Question 3: Does online learning influence the development of entrepreneurship skills?

Table 3: Influence of Online learning on the Development of Entrepreneurship Skills

SN		Mean	S.D.	Decision
11.	I have developed networking skills that aides expansion of my business partnership	3.33	.67	Agreed
12.	I have access to DIY videos that foster learning entrepreneurial skills	3.00	1.06	Agreed
13.	Knowledge and skills from online learning has helped in searching for new trends in the parlance of business enterprise	3.56	.50	Agreed
14.	Online learning helps me to update my knowledge of 21st century driven new business strategies	3.44	.69	Agreed
15.	It offers plethora of courses that fosters leadership capacity	3.33	.67	Agreed
Grand Mean		3.33	.61	Agreed

As indicted in the Table 3, the participants agreed on all the items with their mean ratings all above the criterion mean of 2.50. Similarly, the table showed that the general opinion of the respondents represented by the grand mean of 3.33 is greater than the scale mean of 2.50; this

implies that online learning influences the development of entrepreneurship skills.

Research Question 4: Does Internship programmes influence the development of entrepreneurship skills?

Table 4: Influence of internship Programmes on the Development of Entrepreneurship Skills

SN	Items	Mean	S.D.	Decision
16.	Internship helps students to develop self-confidence	3.67	.47	Agreed
17.	Internship programme enhances students self-efficacy	3.78	.42	Agreed
18.	It has helps students to appreciate the importance of a role model	3.56	.50	Agreed
19.	Internship programme provides student with the avenue to identify and address skill deficiencies	3.67	.47	Agreed
20.	It has given me the opportunity to be familiar with the work environment	3.67	.47	Agreed
Grand Mean		3.67	.40	Agreed

As indicted in the Table 4, the participants agreed on all the items with their mean ratings all above the criterion mean of 2.50. Similarly, the table showed that the general opinion of the respondents represented by the grand mean of 3.58 is greater than the scale mean of 2.50; this implies that internship programme influences

the development of entrepreneurship skills.

Testing of Research Hypotheses

Research Hypothesis 1: There is no significant influence of Student Industrial Work Experience scheme (SIWES) on development of entrepreneurship skills

Table 5: Influence of Student Industrial Work Experience scheme (SIWES) on the Development of Entrepreneurship Skills

Regression Model		ANOVA				
Source	Sum of Squares	Df	Mean Squares	F	Sig.	
R=.551	Regression	16.121	1	16.121	195.225 .000	
R ² =.304	Residual	36.990	448	.083		
Adj. R ² =.302	Total	53.111	449			

a. Dependent variable: Development of Entrepreneurship Skills

b. Predictor: (constant), Student Industrial Work Experience scheme (SIWES)

Table 5 shows a co-efficient of regression (R) of .551, this indicates that there is a strong positive relationship between student industrial work experience scheme (SIWES) and development of entrepreneurship skills. The result also shows Regression square (R²) of .304, indicating that the independent variable, student

industrial work experience scheme (SIWES) is accountable for 30.4% (Regression square R² × 100) variability in the development of entrepreneurship skills. The table indicated that the analysis of variance of regression produced an F-ratio value of 195.225 with p-value (.000) at .05 level of significance. This means that student

industrial work experience scheme (SIWES) had a significant influence on the development of entrepreneurship skills (F= 195.225; df= (1;448); p-value (.000)< .05).

Research Hypothesis 2: There is no significant influence of entrepreneurship education on the development of entrepreneurship skills

Table 6: Influence of Entrepreneurship Education on the Development of Entrepreneurship Skills

Regression Model	Source	Sum of Squares	ANOVA Df	Mean Squares	F	Sig.
R=.288	Regression	4.395	1	4.395	40.419	.000
R ² =.083	Residual	48.716	448	.109		
Adj. R ² =.081	Total	53.111	449			

a. Dependent variable: Development of Entrepreneurship Skills

b. Predictor: (constant), Entrepreneurship Education

Table 6 shows a co-efficient of regression (R) of .288, this indicates that there is a strong positive relationship between entrepreneurship education and development of entrepreneurship skills. The result also shows Regression square (R²) of .083, indicating that the independent variable, entrepreneurship education is accountable for 8.3% (Regression square R² × 100) variability in the development of entrepreneurship skills. The table indicated that the analysis of

variance of regression produced an F-ratio value of 40.419 with p-value (.000) at .05 level of significance. This means that entrepreneurship education had a significant influence on the development of entrepreneurship skills (F= 40.419; df= (1;448); p-value (.000)<.05).

Research Hypothesis 3: There is no significant influence of online learning on the development of entrepreneurship skills

Table 7: Influence of Online Learning on the Development of Entrepreneurship Skills

Regression Model	Source	Sum of Squares	ANOVA Df	Mean Squares	F	Sig.
R=.236	Regression	2.969	1	2.969	26.526	.000
R ² =.056	Residual	50.142	448	0112		
Adj. R ² =.054	Total	53.111	449			

a. Dependent variable: Development of Entrepreneurship Skills

b. Predictor: (constant), Online Learning

Table 7 shows a co-efficient of regression (R) of .236, this indicates that there is a strong positive relationship between online learning and development of entrepreneurship skills. The result also shows Regression square (R²) of .056, indicating that the independent variable, online learning is accountable for 5.6% (Regression square R² × 100) variability in the development of

entrepreneurship skills. The table indicated that the analysis of variance of regression produced an F-ratio value of 26.526 with p-value (.000) at .05 level of significance. This means that online learning had a significant influence on the development of entrepreneurship skills (F= 26.526; df= (1;448); p-value (.000)<.05)

Research Hypothesis 4: There is no significant influence of Internship programmes on the development of entrepreneurship skills

Table 8: Influence of Internship Programme on the Development of Entrepreneurship Skills

Regression Model	Source	Sum of Squares	ANOVA Df	Mean Squares	F	Sig.
R=.916	Regression	44.599	1	44.599	2347.208	.000
R ² =.840	Residual	8.512	448	.019		
Adj. R ² =.839	Total	53.111	449			

a. Dependent variable: Development of Entrepreneurship Skills

b. Predictor: (constant), Internship Programme

Table 8 shows a co-efficient of regression (R) of .916, this indicates that there is a strong positive relationship between internship programme and development of entrepreneurship skills. The result also shows Regression square (R²) of .840, indicating that the independent variable, internship programme is accountable for 84% (Regression square R² × 100) variability in the development of entrepreneurship skills. The table indicated that the analysis of variance of regression produced an F-ratio value of 2347.208 with p-value (.000) at .05 level of significance. This means that internship programme had a significant influence on the development of entrepreneurship skills (F= 2347.208; df= (1;448); p-value (.000)<.05).

Discussion of Findings

The answer to research question 1 and the corresponding test of hypothesis 1 showed that Student Industrial Work Experience scheme (SIWES) influences the development of entrepreneurship skills. Based on the results, the study found out that student industrial work experience scheme (SIWES) influences the development of entrepreneurship skills. This implies that, although the SIWES might be aimed at preparing students' for future specific job roles, however, they agreed that some parts of the programme helps them to develop entrepreneurship skills such as the development

of work ethics, the urgency of goal attainment and social networking skill among others. In the same vein, in corroboration, Agada and Etori (2023) found out that this SIWES significantly influence entrepreneurship skills of Business Education students in Colleges of Education in Cross River State.

Similarly, the answer to research question 2 and the result of hypothesis 2 indicated that entrepreneurship education positively influences the development of entrepreneurship skills. This implies that, the general course titled "entrepreneurship studies" which is compulsory for students to take greatly influences the development of entrepreneurship skills of students. Although, concerns have risen over the low level of pragmatism to the teaching of the course in various universities. In the same vein, Arogundade (2011) argues that entrepreneurship education will help students to develop skills that foster self-reliance and task the government and other education stakeholders to ensure that educational programme at all levels of education are relevant to provide the youths and graduates with needed entrepreneurial skills that gives them advantage in the world of work.

In likely manner, the answer to research question 3 and the result of hypothesis 3 indicated that online learning had significant influence on the development of entrepreneurship skills.

Extensively, the study illustrated that, students are able to access course materials in both text form and videos from online learning management platforms such as coursera, Alison as well as YouTube videos on several handcrafts. One could deduce that, students are able to take leadership courses and other business management course as well as learn crafts.

The result of the study further showed that internship programme has positive significant influence on the development of entrepreneurship skills. This implies that students' agreed that they were able to develop entrepreneurial skills during the course of an internship programme they had attended, even when the internship programme was not entrepreneurship inclined. One could deduce that, the skills developed during the internship programme suffices for entrepreneurial success, such that the skills acquired during the internship programme could applied in the business world.

Conclusion and Recommendations

In recent time "skills" in its different shades have become a critical factor in the recruitment and selection parlance as well as in the competitive business world. Consequently, either in the aspect of enhancing graduate employability or attaining a successful entrepreneurial endeavor, students should be exposed to the different shades of skill acquisition programmes that includes SIWES, online learning, internship programme and entrepreneurship education which according to this study has been empirically proven to have significantly influenced the development of entrepreneurship skills. These programmes are instrumental towards developing entrepreneurship skills in students' that gives them leverage in the business world amidst economic uncertainties, as such, rather than join in line with the already long queue of unemployment they reduce the queue by creating job opportunities.

Based on the findings of this study, the following

recommendations were made:

1. Schools should collaborate with private and public institutions to facilitate the provision of internship programmes for students to enhance employability skills, since those skills are equally useful in the entrepreneurship and business parlance.
2. The centre for entrepreneurship studies should enrich the entrepreneurship courses taken by University students, such that, it is more pragmatic and activity-based than theoretical.
3. Centre for entrepreneurship studies of the universities should engage community resource persons for fostering practical demonstration and giving room for mentorship, which is crucial for engendering entrepreneurial intention among students.
4. Students should take advantage of the digital era to develop in demand entrepreneurial skills by exploring plethora of online courses made available on the several online learning platforms.
5. Centre of entrepreneurship studies should take a cue from the SIWES programme, hereby, create avenue for students' to go on practical entrepreneurship training.

References

- Adeniji, O. O., Ogunyemi, K. M., & Egbeyemi, G. A. (2022). Internship and students' attitude towards entrepreneurship: Study of federal universities in South-West Nigeria. *Al-Hikmah Journal of Business Education*, 2(2), 42-48. <https://doi.org/2705-2559>
- Adeosun, O. T., Shittu, A. I., & Owolabi, T. J. (2022). University internship systems and preparation of young people for the world of work in the 4th industrial revolution. *Rajagiri Management Journal*, 16(1), 164-179. <https://doi.org/0972-9968>
- Agada, N. A., & Etori, I. J. (2023). Impact of

- students' industrial work experience scheme (SIWES) in enhancing entrepreneurship skills of business education students in colleges of education in Cross River State. *International Research Journal of Innovations in Engineering and Technology (IRJIET)*, 7(12), 209-219.
- Ahmad, M, Idrus, M., & Rijal, S. (2023). The role of education in fostering entrepreneurial spirit in the young generation. *Journal of Contemporary Administration and Management (ADMAN)1*, 93-100. 10.61100/adman.v1i2.28.
- Arogundade, B. B. (2011). Entrepreneurship education: An imperative for sustainable development in Nigeria. *Journal of Emerging Trends in Educational Research and Policy Studies (JETERAPS)* 2(1), 26-29
- Awan, A. G., & Yaqoob, R. (2023). Economic value of introducing technology to improve productivity: An ARDL approach. *Innovation and Green Development*, 2(3), 1-9. 100069. <https://doi.org/10.1016/j.igd.2023.100069>
- Azuakor, P. O. (2023). Entrepreneurship studies in tertiary education for security in Nigeria. *Nnadiabube Journal of Social Science (NJSS)*, 3(1), 104-115.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology System*, 49(1), 5-22. <https://doi.org/10.1177/0047239520934018>
- Evans-Obinna, R. N. (2016). Entrepreneurship education for self-reliance and economic development in Nigeria. *International Journal of Vocational and Technical Education Research*, 2(2), 9-14.
- Madu, U., Omonijo, D. O., Anyaegbunam, M. C., Adeleke, V. A., Nnatu, S., Ejoh, S., Oluwunmi, A. O., Olowookere, E. I., & Agubo, C. (2023). Influence of the Students Industrial Work Experience Scheme (SIWES) on academic performance of library and information science students in library schools in Osun State, Nigeria. *Global Educational Journal of Library and Information Science*, 10(1), 1-11. <https://doi.org/2449-0628>
- Maina, S. (2014). The role of entrepreneurship education on job creation among youths in Nigeria: *International Letters of Social and Humanistic Science*, 4, 87-96.
- Mohammed, A., & Yusuf, J. (2023). Assessment of employability skills acquisition need for self-reliance in business studies among government junior secondary schools students in Niger State. *Facta Universitatis: Series: Teaching, Learning and Teacher Education*, 7(2), 265-277. <https://doi.org/10.22190/FUTLTE230312028M>
- Ofor, D. S. (2022). Repositioning University education for sustainable youth empowerment and national development in Nigeria. *International journal of Advanced Research*, 5(1), 215-226.
- Ojule, L. C., & Oliobi, G. I. (2024). Managing entrepreneurial education in tertiary institutions for graduate employability in a competitive society. *East African Scholars Journal of Education, Humanities and Literature*, 7(2), 49-58.
- Okolie, U. C., Nwajiuba, C. A., Eneje, B., Binuomote, M. O., Ehiobuche, C., & Hack-Polay, D. (2020). A critical perspective on industry involvement in higher education learning: Enhancing graduates' knowledge and skills for job creation in Nigeria. *Industry and Higher Education*. <https://doi.org/10.1177/095042222091965>

- Okon, C. E., Osam, O. E., & Bassey, A. O. (2010). Recreating education for self-reliance and marketability of Nigeria Education products. *Journal of Qualitative Education*, 6(4), 90-95.
- Okoye, N. S., Umeifekwem, U. T., & Eme, O. I. (2023). Addressing digital technology gap challenges: The Nigerian experience. *Nigerian Journal of Social Development*, 11(1), 95–100. <https://www.arabianjbm.com/AOJP>
- Onyema, O. A., Bassey, U. S., & Uzoh, E. E. C. (2020). The imperatives of merging skill acquisitions and formal education for the girl child for sustainable national development. *International Journal of Social Sciences and Humanities Reviews*, 10(3), 169–176.
- Oyinlola, M., Kolade, O., Okoya, S. A., Ajala, O., Adefila, A., Adediji, A., Babaremu, K., Tijani, B., Adejuwon, J., Wambui, F., & Akinlabi, E. T. (2024). Entrepreneurship and innovation in Nigerian universities: Trends, challenges and opportunities. *Heliyon*, 10(9), 1-10. <https://doi.org/10.1016/j.heliyon.2024.e29940>
- Salau, A. A., Brimah, A. N., Akanbi, K. L., & Adegbemile, I. S. (2024). Entrepreneurial skills acquisition and employment generation in Kwara State. *International Journal of Advanced Research in Multidisciplinary Studies (IJARMS)*, 4(1), 145-155.
- Somwethee, P., Aujirapongpan, S., & Ru-Zhue, J. (2023). The influence of entrepreneurial capability and innovation capability on sustainable organization performance: Evidence of community enterprise in Thailand. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(2), 1-10. 100082. <https://doi.org/10.1016/j.joitmc.2023.100082>
- Sumal, H., & Soputan, G.H. (2018). Entrepreneurship through industrial internship for technical and attitude towards entrepreneurship. *Journal of Material Science and Engineering*, 3(5), 29-41.

EFFECTIVE COUNSELLING SKILLS FOR REMEDIATING SCHOOL VIOLENCE AMONG SECONDARY SCHOOL STUDENTS IN NIGERIA

OGBONNA, Chinenye Henry

Department of Guidance and Counselling
Ambrose Alli University,
Ekpoma, Edo State
Email: ogbonnahenry12@gmail.com

ALUEDE, Oyaziwo Ph.D.

Department of Guidance and Counselling
Ambrose Alli University,
Ekpoma, Edo State
Email: oyaziwoaluede@gmail.com

Abstract

This paper examined counselling skills needed for remediating school violence in secondary schools in Nigeria. Specifically, the paper discussed conceptually the key terms - counselling skills and school violence for clarification; relevant issues in school violence in Nigerian secondary schools were reviewed and counselling skills needed for remediating school violence were discussed literally. Ecological Systems Theory propounded by Bronfenbrenner in 1979 was used as the theoretical anchorage while the qualitative-expository approach was used to discuss the review. Based on the review school violence was identified to have been caused by several factors which included poor impulse control, mental health conditions, access to weapons, dysfunctional family dynamic and domestic violence. School violence has attendant effects on victims that require empathy, and empowerment. It was suggested that working together with students and stakeholders, would help to point out areas counsellors could focus to address the root causes of violence, provide support by utilizing positive coping strategies, promote a culture of respect, understanding, and nonviolence in schools. The paper therefore recommended the utilization of essential counselling skills such as active listening, empathy, conflict resolution, and empowerment. Collaboration skills could help to play a critical role in creating safe, supportive, and inclusive school environments.

Keywords: *School Counsellors, Counselling Skills, School Violence, Success, Academic Achievement*

Introduction

School violence has become a major concern in secondary schools in Nigeria, with report of incidents ranging from bullying to physical assaults. This has raised questions about the safety and security of students within these educational institutions (Obilor & Ikpa, 2021). Bullying problem has remained pervasive and a growing concern for all stakeholders of education who desire to make school climate a safe haven

(Aluede & Adegoke, 2011). From the secondary school context, some violent behaviours among students that threaten the school peace include: grievous harm/wounding, assault, rape/indecent assault, stealing, burglary, receiving stolen property, forgery, unlawful possession, threat to life, malicious damage, defilement and cultism and so on.

One of the factors contributing to school violence in Nigeria is drug abuse. The use of drugs and

alcohol among students has been on the rise, leading to impaired judgment and an increased likelihood of engaging in violent behaviour (Aliero, et al., 2023). Drug abuse can contribute to a culture of violence within schools, making it more likely for students to be exposed to and involved in violent incidents. Furthermore, a lack of adequate infrastructure and resources in schools has made it difficult for educators to effectively address issues of school violence (Aborisade, 2024a). Without proper support systems in place, teachers may struggle to intervene in conflicts or provide students with the necessary guidance and counselling to prevent future acts of violence. In addition, overcrowded classrooms and a lack of supervision can create an environment where incidents of bullying and physical violence go unnoticed or unaddressed (Obilor & Ikpa, 2021).

In recent times, there is the growing need for diverse counselling skills in secondary such as conflict resolution skills and active listening skill to effectively communicate with students who may be experiencing or perpetrating violence (Anyin, 2021). By building trust and rapport with students, counsellors can create a safe space for them to talk about their experiences and emotions. This can help identify underlying issues that may be contributing to violent behaviour and develop strategies to address them. Also, it is expected that counsellors must have a deep understanding of the root causes of school violence in Nigeria. This includes factors such as poverty, peer pressure, family dysfunction, and exposure to violent media (Iyekolo, et al., 2021). By having a comprehensive understanding of these factors, counsellors can tailor their interventions to address the specific needs of each student and prevent future instances of violence (Aliero, et al, 2023).

Additionally, counsellors may also need strong crisis intervention skills to effectively respond to incidents of violence as they occur. This includes knowing how to de-escalate volatile situations,

provide support to victims, and work with school administrators and law enforcement to ensure the safety of all students. By having a clear plan in place for dealing with emergencies, counsellors can help minimize the impact of violence on the school community. Therefore, this paper examines counselling skills for remediating school violence in secondary schools in Nigeria. The specific objectives of this paper include the discussion of the following: counselling skills and school violence clarification, some issues of school violence in Nigerian secondary schools in recent times, causes and effects of school violence and counselling skills needed for remediating school violence.

Conceptual Clarification

Some of the major terms considered germane to this study are conceptually clarified in this study:

School counselors: A school counsellor is a certified/licensed professional that provides academic, career, college readiness, and social-emotional support for all students (Anyin, 2021). There are school counsellor positions within each level of schooling (elementary, middle, high, and college). By developing and following a school counselling program, school counsellors are able to provide students of all ages with the appropriate support and guidance needed for overall success. Therefore, school counsellors are trained professionals that play a crucial role in helping students navigate the ups and downs of their academic and personal lives. They are there to provide support, guidance, and resources to help students succeed in school and beyond (Oparaduru & Ukwueze, 2022). Whether it's academic struggles, social challenges, or personal issues, school counsellors are there to listen, provide guidance, and help students develop the skills they need to overcome obstacles and reach their full potential.

One of the main responsibilities of school counsellors is to help students set and achieve

academic goals. They can help students create a plan for academic success, whether it's improving grades, preparing for college, or exploring career options. School counsellors can also help students develop study habits, time management skills, and effective problem-solving strategies to help them succeed in school (Aliero, et al., 2023). In addition to academic support, school counsellors also provide social and emotional support to students. They can help students navigate issues such as bullying, peer pressure, and relationships. School counsellors are trained to provide a safe and confidential environment where students can discuss their feelings and concerns and receive guidance on how to cope with difficult situations (Nwamma, 2022). They are there to provide students with the support and guidance they need to overcome challenges, develop essential skills, and achieve their full potential. By building strong relationships with students, school counsellors can help create a positive and nurturing environment where students feel valued, supported, and empowered to reach their goals. Furthermore, school counsellors in Nigerian secondary schools help students with career planning and exploration.

Nwamma (2022) submitted that they provide information on various career paths, college admissions requirements, and job training programs. School counsellors work with students to assess their interests, strengths, and goals and help them develop a plan for their future. They also assist students in finding internship and job opportunities that align with their career aspirations. Buttressing this, Aliero, et al. (2023) added that school counsellors play a critical role in the success and well-being of students in Nigerian secondary schools. They provide guidance, support, and resources to help students overcome academic, personal, and career challenges. School counsellors contribute to creating a positive and supportive school environment where students feel empowered to achieve their full potential. Their dedication to

helping students thrive academically and personally makes them invaluable members of the school community.

School Violence: School violence refers to violence that takes place in a school setting. This includes violence on school property, on the way to or from school, and at school trips and events (Aborisade, 2024a). It may be committed by students, teachers, or other members of the school staff; however, violence by fellow students is the most common. This show it can be anything that involves a real or implied threat—it can be verbal, sexual, or physical, and perpetrated with or without weapons (Obilor & Ikpa, 2021). School violence is any activity that can create a disturbance in an educational system. It includes verbal and physical altercations and also bullying through electronic means or social media, threats, weapon use, or gang activity.

School violence can take many forms. These are some of the types of school violence. First is physical violence, which includes any kind of physical aggression, the use of weapons, as well as criminal acts like theft or arson. Second is psychological violence, which includes emotional and verbal abuse. This may involve insulting, threatening, ignoring, isolating, rejecting, name-calling, humiliating, ridiculing, rumor-mongering, lying, or punishing another person. Third is sexual violence, which includes sexual harassment, sexual intimidation, unwanted touching, and sexual coercion (Uyanne, 2021). Fourth is bullying, which can take physical, psychological, or sexual forms and is characterized by repeated and intentional aggression toward another person while another case is cyberbullying, which includes sexual or psychological abuse by people connected through school on social media or other online platforms. This may involve posting false information, hurtful comments, malicious rumors, or embarrassing photos or videos online.

Cyberbullying can also take the form of excluding someone from online groups or networks.

Theoretical Framework

This paper was anchored on Ecological Systems Theory propounded by Urie Bronfenbrenner in 1979. The major tenet of Urie Bronfenbrenner's Ecological Systems Theory is that human development is influenced by various environmental systems, ranging from immediate settings (e.g. family, school) to broader societal contexts (e.g., culture, policies). Hence, the theory is concerned with issues of change and development in contemporary societies, especially as they relate to socio-environmental changes like how deviance and violence is learnt in societies and the need to devise and sort out techniques of tackling development problems (Bronfenbrenner, 1979).

The theory states that, as the population of a society increases in size, behaviour of individual members of the society changes as the society exert more pressure on individuals for change. In the case of school violence, this theory is relevant to this paper because it highlights that behaviours such as aggression or bullying are influenced not just by the individual (e.g., the violent student) but also by multiple levels of change in the environment (Bronfenbrenner, 1994). Also, the theory guides Counsellors on the use of active listening and empathy skills to understand how dynamic changes within the home and school can cause violence in students. For example, counsellors may explore peer influences that contribute to violent behaviour. The relationship between the student's school life and home life is important.

Counsellors can engage parents and teachers in collaborative strategies to address violence. This may include conflict resolution and anger management training for students. The theory helps Counsellors to recognize how the community environment influences school

violence. This includes exposure to community violence or societal norms that tolerate aggression (Savitz-Romer & Nicola, 2022). Counselling interventions might also involve community leaders or mentors in reducing violence. Nigeria's diverse cultural backgrounds influence students' behaviours and responses to authority. Counsellors need cultural sensitivity and conflict resolution skills to work with students from different ethnic and social backgrounds effectively.

Research Methods

The design of the study or research design is the spec-analysis of the data and procedure needed to attain a research fit. For this paper, the qualitative - expository research design was adopted for this study. Saunders and Thornhill (2003) noted that the qualitative-expository research design is aimed at widening or awakening prospective readers to the values of a discovery by reviewing or discussing its inherent benefits. Hence, the expository research design was used in this review. This was chosen because the research sought to awaken prospective readers or information users.

Data collected for this paper were majorly from secondary sources. The secondary data collected for the review of previous literature were from textbooks, electronic journals, newspapers, and other internet sources. Hence, the researchers were simply trying to make generalizations based on content review from previous literature on effective counselling skills. Hence, secondary data from textbooks, electronic journals, newspapers and other internet sources were solely used to draw inferences from reviews and make generalizations. The technique of analysis was basically the descriptive-expository approach. Since the data collected are solely qualitative in nature, the content analysis method was used to analyze data and inferences were drawn on the basis of the researcher's views in relation to the position of scholars from previous literature.

School Violence in Nigerian Secondary Schools (Ogba & Igu, 2019; Uyanne, 2021).

From the secondary school context, some violent behaviours among students that threaten the school peace include: attempted murder, suicide, grievous harm/wounding, assault, rape/indecent assault, stealing, burglary, receiving stolen property, forgery, unlawful possession, threat to life, malicious damage, defilement and cultism and so on. The committal of these atrocities has increased among students over the years (Aborisade, 2024b). School violence committed by secondary school students can be grouped into the following forms: robbery, rape/indecent assault, assault, breach of peace, secret cultism, stealing and burglary. It has been observed that the secret activities among student cultists are rampant in schools. Fellow students are oppressed, maimed and killed. Teachers are harassed and so many withhold discipline from suspected cultists which in turn may lead to general breakdown of law and order (Ezemenaka, 2021).

School violence in recent times appears to be a learned practice from outside the school system but imported by students into schools by socialization with others. The situation is causing serious concern to school management, parents and some of the students, whose education may be adversely affected (Aborisade, 2024a). The prevailing situation cannot be ignored otherwise the schools will become centres for breeding criminals instead of being places where discipline and other teaching and learning activities hold. In the secondary schools, there are alleged criminal cases most of which are not reported to the appropriate law enforcement agencies. Such cases include teachers being threatened by students in the course of discharging their lawful duties. Clashes of rival cult whose memberships are secondary schools' students or dropouts. In the midst of all these problems, there is a growing hopelessness over the dwindling standards of secondary education due to facilities and staff personnel shortages, as well as poor attitude of teachers to work especially in the public schools

In secondary schools in most part of Nigeria, there are instances whereby students assault their teachers with weapons, and threaten their teachers. It was in this regard, Osiesi, et al. (2023) noted that teachers tender their resignation in some schools where their security is at stake in preference of better schools where students are less or non-criminal. Erinsho (2007) rightly observed that our schools and colleges have lost their sacred value as character formation centres and have become breeding grounds for thugs, secret cults, gangsters, rapists and prostitutes, violence and juvenile delinquencies of different sorts. These behaviours worry students, parents, teachers, counsellors, school principals, educational administrators, religious leaders, communities and the entire society (Ogba & Igu, 2019).

In the last few decades, particularly since the early eighties, the issues of school violence and demand for school safety by members of the public have become topical (Ogba & Igu, 2019). This is because the school system has allegedly become a breeding ground for wild and indiscriminate behaviours among student instead as opposed to goals of secondary education in Nigeria. In 2021, 24.5% and 20.9% of criminal cases were committed by secondary school students while in 2022 in the South West and North central zones respectively (Victor-Akinyemi, et al., 2024; Halima, 2024). 2342 out of 10,423 cases charged to the court in the South East zone, were secondary schools products or un-completers of the school that had to be charged to juvenile court according to the relevant laws (Aborisade, 2024b).

The report further had it that many of the cases in juvenile court include incidences where a student or group of students' carry weapons such as knives to schools to assault their teachers, burn down classrooms, lay ambush for staff personnel, and even set fire on school property during a

student riot. It can be affirmed that these cases of violence obviously dominate the issues of today school management and are not limited to private or public; day or boarding; large or small schools within the towns, villages and hamlets of Nigeria (Igu & Ogba, 2019).

Causes of School Violence

While it is not always easy to know what causes school violence, one of the possible causes of school violence is poor academic performance. Poor academic performance puts a student in conflict with other students, teachers, and even their parents. This creates a stressful atmosphere around the student, increasing the number of negative interactions they have with adults and their peers (Iyekolo, et al., 2021). Also, a student who has a history of violence is more likely to engage in further violence. This risk factor increases if the lack of emotional regulation that contributed to previous acts have not been properly addressed (Igu & Ogba, 2019).

Poor impulse control and mental health conditions are also potential causes of school violence. Students who struggle to moderate their emotions or their reactions to stimuli may be more likely to act out (Halima, 2024). A child or teenager with a mental health condition may not know how to manage the powerful symptoms they experience, making it one of the common causes of school violence. Mental health concerns can isolate students and put them at risk of bullying.

Witnessing or being a victim of violence may result in school violence. This is because children and teens learn behaviour through modeling. Seeing their parents, guardians, teachers, or any other adults resorting to violence shows them that it may be the only way to deal with their emotions and resolve their problems (Victor-Akinyemi, et al., 2024). Furthermore, dysfunctional family dynamic and domestic violence and abuse are another set of potential predictors of school

violence. This is because a child or teenager who does not have the right amount of supervision or whose parent or guardian is so preoccupied with their own struggles that they neglect their child is more likely to engage in violence. This occurs because the child does not have a model for what emotional stability looks like (Uyenne, 2021). Similarly, children and teens who have experienced or witnessed domestic violence develop trauma that impedes emotional processing as well as learning. This can isolate the child from peers, affecting their view of the school environment.

Having easy access to weapons encourages impulsive actions. Halima (2024) pointed that it also puts the child at risk of self-harm. This is because children and teens learn through seeing others, being surrounded by delinquent peers makes it more likely for them to follow that example. Delinquent behaviour makes violence more likely. Also, living in poverty or in a community where crime is high encourages the child to model that behaviour. Poverty also correlates to the development of other risk factors and causes of school violence, such as mental illness and domestic abuse.

Effects of School Violence

Children who are victims of violence or exposed to it in some capacity sometimes believe that becoming violent is the only way they will ever be safe. When they commit violence, they may experience a sense of satisfaction when their emotional need for strength or safety is satisfied (Smiley, et al., 2021). That is short-lived however, because they start to fear punishment or retribution, which triggers anger that can sometimes lead to more violence if they're scared of what might happen to them if they do not protect themselves. Victims of school violence may get physically injured and experience cuts, scrapes, bruises, broken bones, gunshot wounds,

concussions, physical disability, or death. Emotionally speaking, the child might experience anxiety, or rage. Their academic performance may suffer because it can be hard to focus in school when all you can think about is how to avoid being hurt again (Aborisade, 2024a).

School violence is traumatic and can cause considerable psychological distress. Traumatic experiences can be difficult for adults too; however, when someone whose brain is not fully developed yet experiences trauma, especially if it's over a long time, their brains can switch to survival mode, which can affect their attention, concentration, emotional control, and long-term health. Children who have experienced school violence are at risk for long-term mental and physical health conditions, including attachment disorders, substance abuse, obesity, diabetes, cancer, heart disease, and respiratory conditions (Smiley, et al., 2021). The more adverse childhood experiences someone has, the greater the risk to their physical and mental health as an adult.

Children who witness school violence may feel guilty about seeing it and being too afraid to stop it. They may also feel threatened, and their brain may react in a similar way to a child who has faced school violence. Additionally, when children witness traumatic experiences, their basic beliefs about life and other people may be changed as they may no longer believe that the world is safe, which can be damaging to their mental health. For a child to be able to take care of themselves as they get older, they need to first feel safe and cared for. Learning to cope with threats is an advanced lesson that has to be built on a foundation of feeling safe and self-confident (Aborisade, 2024b; Obilor & Ikpa, 2021). Others are proactive and try to work with the school or challenge the school, if necessary, to try and keep their child safe.

Counselling Skills for remediating School Violence

School violence is a pressing issue that can have devastating consequences for students, teachers, and the entire school community. In order to address and control school violence, counsellors play a crucial role in providing support, guidance, and intervention strategies. In this section, five essential counselling skills - active listening, empathy, conflict resolution, and collaboration for remediating school violence were discussed.

Active listening skill: Active listening is a communication technique that involves fully concentrating on what a student is saying, understanding their message, and responding in a thoughtful and empathetic manner (Nwamma, 2022). By actively listening to students who may be experiencing difficulties or displaying violent tendencies, counsellors can create a safe and supportive environment in which students feel heard and understood (Oparaduru & Ukwueze, 2022). This can help to de-escalate potentially volatile situations and prevent instances of violence before they occur. Also, counsellors can gain valuable insights into the root causes of violent behaviour and provide appropriate support and interventions by actively listening to students' concerns,

In addition to creating a sense of trust and rapport with students, active listening can also help counsellors to identify underlying issues that may be contributing to violent behaviour (Eggenberger, 2021). By listening attentively to students' concerns, counsellors can uncover factors such as bullying, abuse, mental health issues, or other stressors that may be driving violent behaviour. This insight enables counsellors to develop tailored interventions and support strategies that address the root causes of violence and promote positive behaviour change. Furthermore, active listening can help counsellors to effectively communicate with students who may be resistant or hesitant to seek help. By demonstrating

genuine empathy and understanding, counsellors can build a bridge of trust with students and encourage them to open up about their feelings and experiences. This can be particularly beneficial for students who may be struggling with anger, aggression, or other emotional challenges that can lead to violence.

Empathy skill: Empathy is the ability to understand and share the feelings of others, and in the context of school violence, it can help counsellors connect with students on a deeper level (Molina, et al., 2022). By showing empathy towards students who may be experiencing issues such as bullying or aggression, counsellors can better understand the root causes of their behaviour and provide effective interventions to address the underlying issues. Empathy also allows counsellors to create a safe and supportive environment where students feel comfortable expressing their emotions and seeking help. By demonstrating empathy towards students who may be struggling with anger, frustration, or feelings of isolation, counsellors can help them feel heard and validated. This can help prevent instances of school violence by addressing students' emotional needs and providing them with the necessary support to cope with their challenges.

Furthermore, counsellors with strong empathy skills can effectively deescalate confrontations and prevent conflicts from escalating into acts of violence (Altavilla, et al., 2021). By demonstrating understanding and compassion towards students in conflict, counsellors can help them resolve their issues in a peaceful and constructive manner. This can contribute to a more positive school climate where students feel supported and valued, reducing the likelihood of violent incidents occurring. In addition, empathy can also help counsellors identify early warning signs of potential violence and intervene proactively to prevent harm (Oparaduru & Ukwueze, 2022). By empathizing with students who may be exhibiting behaviours indicative of

aggressiveness or distress, counsellors can intervene early to provide them with the necessary support and resources to address their issues. This proactive approach can help prevent incidents of school violence before they occur and promote a safer and more inclusive school environment for all students.

Conflict resolution skill: Conflict resolution skills feature under the vital counselling skill of problem solving. It is considered a crucial skill for counsellors because it could help navigate conflicts and misunderstandings in a nonviolent and constructive manner. One important conflict resolution skill for counsellors is teaching students effective communication techniques. Many conflicts arise from misunderstandings or miscommunication, so teaching students how to express their thoughts and feelings clearly and respectfully can help prevent conflicts from escalating into violence (Nwamma, 2022).

By equipping students with these communication skills, counsellors empower them to resolve conflicts peacefully and maintain positive relationships with their peers. In addition to effective communication, counsellors can also teach students problem-solving skills to help them resolve conflicts on their own. By guiding students through a structured problem-solving process, counsellors can help them identify the underlying issues contributing to the conflict, brainstorm possible solutions, and evaluate the pros and cons of each solution (Lewis, et al., 2022). This not only empowers students to take ownership of their conflicts but also helps them develop critical thinking skills that they can apply in future situations.

Empowerment skill: Another important counselling skill for controlling school violence is empowerment skill. By empowering students with knowledge, resources, and skills, counsellors can help students build self-esteem, confidence, and resilience (Levy & Lemberger-Truelove, 2021). Empowerment can help students develop a

sense of agency and control over their lives, which can reduce feelings of powerlessness and helplessness that can lead to violence. Empowerment skills for counsellors involve teaching other stakeholders of the school how to effectively communicate to build trust and rapport with students who may be experiencing violence or have concerns about safety.

Additionally, counsellors need to be able to communicate effectively with teachers, administrators, and law enforcement to ensure that appropriate interventions are put in place (Cross, et al., 2021). By empowering counsellors with strong communication skills, they can effectively convey concerns, gather important information, and work collaboratively with others to address school violence.

Collaboration skill: Collaboration is considerably another essential counselling skills for controlling school violence (Brigman, et al., 2021). One of the main reasons why collaboration skills are important for school counsellors is the need to work with teachers, parents, and other school staff members to identify and address potential risks for violence. By collaborating with these stakeholders, counsellors can gather valuable information about students who may be at risk of engaging in violent behaviour. This information can then be used to develop intervention strategies and provide appropriate support to these students before any violent incidents occur (Geesa, et al., 2022).

Oparaduru and Ukwueze (2022) pointed that counsellors must also work closely with mental health professionals and external agencies to address the underlying causes of violence in schools. Collaborating with experts in the field of mental health allows counsellors to gain a better understanding of the psychological factors that contribute to violent behaviour among students. By working together, they can create comprehensive treatment plans and support systems to help students or staff to deal with their

emotions in a healthy way.

In addition, counsellors need to collaborate with community organizations and law enforcement agencies to ensure that students have access to the resources they need to prevent violence. By forging partnerships with these external entities, counsellors can provide students with opportunities for mentorship, counselling, and community engagement to promote positive behaviour and prevent violence (Geesa, et al., 2022). Collaboration with law enforcement agencies like the Nigerian Police, and paramilitary organisations can also help counsellors create emergency response plans and safety protocols to mitigate the impact of violent incidents in schools.

Conclusion

School violence in secondary schools in Nigeria is a complex issue that requires a multifaceted approach to address. By addressing the underlying causes of violence, providing support for students and educators, and fostering a safe and inclusive school environment, counsellors and other school stakeholders can work towards creating a future where all students can learn and thrive without the fear of violence. Therefore, counselling skills play a vital role in managing school violence in Nigeria. By having trained and competent counsellors who are equipped with the necessary skills and knowledge, schools can create a safe and supportive environment for students to learn and thrive. Through effective communication, crisis intervention, trauma-informed care, conflict resolution, and cultural competence, counsellors can help prevent and address instances of violence within the school system. It is essential for schools in Nigeria to prioritize counselling services as a key component of their violence prevention efforts.

Suggestions

The following suggestions were made to guide policy formulation:

- i. it is crucial for policymakers and educators to prioritize the safety and well-being of students in order to address the issue of school violence in Nigeria. To achieve this, there is need for implementing anti-bullying programmes, providing training for teachers on conflict resolution and behaviour management and creating a supportive environment where students feel comfortable reporting incidents of violence.
- ii. the government at all levels need to be a focus on addressing the root causes of school violence, such as poverty, unemployment, and drug abuse, in order to prevent future violent incidents from occurring.

References

- Aborisade, R. A. (2024a). Student violence against high school teachers in Africa: The context, impacts, and interventions. In: *Handbook of School Violence, Bullying and Safety*, 151-166.
- Aborisade, R. A. (2024b). Violence in a patriarchal Nigerian society. *Routledge international handbook of investigative interviewing and interrogation*, 3, 72-92.
- Aliero, B. U., Mainagge, I. M. S., & Tsagem, S. Y. (2023). Effect of cognitive restructuring Counselling technique on reduction of bullying behaviour among secondary school students in Sokoto metropolis, Nigeria. *Journal of Educational Research in Developing Areas (JEREDA)*, 4(1), 50 – 64.
- Altavilla, G., Manna, A., & Lipoma, M. (2021). Relevance of empathy in educational relationships and learning processes. *Journal of Physical Education and Sport*, 21, 692-695.
- Aluede, O., & Adegoke, A.A. (2011). Managing bullying problems in Nigerian secondary schools: Some counselling interventions for implementation. *Niger Journal of Guidance Counselling*. 15(1), 19 -37. doi: 10.4314/njgc.v15i1.64660.
- Anyin, N. N. (2021). Counselling services a panacea for the prevention/management of youth restiveness. *Journal of Education, Society and Behavioural Science*, 34(2), 1-8.
- Brigman, G., Villares, E., Mullis, F., Webb, L. D., & White, J. F. (2021). *School counsellor consultation: Skills for working effectively with parents, teachers, and other school personnel*. Detroit: John Wiley and sons.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Texas: Harvard university press.
- Bronfenbrenner, U. (1994). Ecological models of human development. *International Encyclopedia of Education*, 3(2), 37-43.
- Cross, D., Runions, K. C., & Pearce, N. (2021). Friendly schools' bullying prevention research: Implications for school counsellors. *Journal of Psychologists and Counsellors in Schools*, 31(2), 146-158.
- Eggenberger, A. L. (2021). Active listening skills as predictors of success in community college students. *Community College Journal of Research and Practice*, 45(5), 324-333.
- Erinosho, L. (2007). Social values in a reforming society. A keynote address delivered at *Nigerian Anthropological and Sociological Association (NASA) National Conference, University of Ibadan, Nigeria, 26, held on 10th May at Students Conference Centre, University of Ibadan, Nigeria*.
- Ezemenaka, K. E. (2021). Youth violence and human security in Nigeria. *Social Sciences*, 10(7), 267-281.
- Geesa, R. L., Mayes, R. D., Lowery, K. P., Quick, M. M., Boyland, L. G., Kim, J., ... & McDonald, K. M. (2022). Increasing partnerships in educational leadership and

- school counselling: A framework for collaborative school principal and school counsellor preparation and support. *International Journal of Leadership in Education*, 25(6), 876-899.
- Halima, A. B. (2024). Childhood education in a world of violence and crisis: The case of Katsina State, Northwestern Nigeria. *Childhood Education*, 11(1), 45-67.
- Iyekolo, O. A., Okafor, I. P., & Abdulaziz, I. (2021). Factors responsible for violent behaviours among secondary school students as expressed by teachers in Ilorin Metropolis, Kwara State. *Canadian Journal of Family and Youth/Le Journal Canadien de Famille et de la Jeunesse*, 13(1), 56-70.
- Levy, I., & Lemberger-Truelove, M. E. (2021). Supporting practicing school counsellor's skill development: A hip hop and spoken word professional development intervention. *Journal of Counsellor Preparation and Supervision*, 14(1), 17-32.
- Lewis, T., Jones, K. D., Militello, M., & Meisenhelder, R. (2022). A clear and consistent focus on students: Principals' perceptions of the role of school counsellors. *Journal of School Leadership*, 32(1), 3-26.
- Molina, C. E., Lemberger-Truelove, M. E., & Zieher, A. K. (2022). School counsellor consultation effects on teachers' mindfulness, stress, and relationships. *Professional School Counselling*, 26(1a), 23-29.
- Nwamma, B. A. (2022). Behavioural modification techniques of school counsellors in controlling indiscipline among secondary students in Anambra State. *Journal of Educational Research and Development*, 5(2), 45-57.
- Obilor, E. I., & Ikpa, A. I. (2021). Assessment of the effects of violence on students' academic performance in public senior secondary schools in Rivers State. *International Journal of Innovative Psychology and Social Development*, 9(1), 147-158.
- Ogba, F. N., & Igu, N. C. (2019). Violence in Nigerian secondary schools: Implications for educational management and sustainable development. *School Violence in International Contexts: Perspectives from Educational Leaders without Borders*, 57-70.
- Oparaduru, J. O., & Ukwueze, A. C. (2022). Inappropriate behaviours in mainland public and private primary schools of Lagos State, Nigeria: Need for counselling services. *Indonesian Journal of Learning and Instruction*, 5(2), 12-26.
- Osiesi, M. P., Taiwo Sanni, K., & Oluwatoyin, F. O. (2023). Investigating the forms, causes, effects, and solutions to challenging behaviours among public primary schools in Ibadan South West, Oyo State, Nigeria. *Education 3-13*, 51(4), 636-646.
- Saunders, M. L. P., & Thornhill, A. (2003). *Research methods for Students (3rd ed.)*. England: Pearson Education Limited.
- Savitz-Romer, M., & Nicola, T. P. (2022). An ecological examination of school counseling equity. *The Urban Review*, 54(2), 207-232.
- Smiley, A., Moussa, W., Ndamobissi, R., & Menkiti, A. (2021). The negative impact of violence on children's education and well-being: Evidence from northern Nigeria. *International Journal of Educational Development*, 81, 103-121.
- Uyanne, E. O. (2021). Forms, causes and consequences of gender based violence among in-school adolescence in Ilorin metropolis. *The New Educational Review*, 65, 62-75.
- Victor-Akinyemi, D. H. B., Otuoze, D. G. A., & Awotoye, G. T. (2024). Causes, effects and cure of youth restiveness in Nigeria: Implications for counselling. *NAOAT*, 202, 63-82.

RELATIONSHIP BETWEEN SELF-CONCEPT AND STUDENTS' ACADEMIC PERFORMANCE IN
TECHNICAL DRAWING IN TECHNICAL COLLEGES IN EDO STATE

OGBEBOR, Samuel Osamede

08078180039

ogbebor@aauekpoma.edu.ng

OVIawe, Jane Itohan

08055601983

janeoviawe@aauekpoma.edu.ng

Department of Vocational and Technical Education

Faculty of Education

Ambrose Alli University, Ekpoma

Abstract

This study investigated the relationship between self-concept and students' academic performance in technical drawing in Edo State technical colleges using a correlational research design. One research question and one null hypothesis guided the study, the hypothesis was formulated and tested at .05 level of significance. The population of the study consisted of 834 technical drawing students from the five Edo State technical colleges. Purposive sampling technique was used to obtain a sample size of 322 from the total population and used for this study. Two research instruments: standardized technical drawing achievement test (TDAT), and Academic self-concept scale (ASCS) were used in this study. Standardized TDAT was adopted from the National Technical Certificate Examination past questions. Three experts in Technical Education and measurements and evaluation validated the instrument. Cronbach Alpha was used to determine the reliability coefficients of self-concept questionnaire which yielded the reliability coefficient values of .87. 303 copies of the instruments were duly completed, returned and used for data analysis. Pearson Product Moment Correlation Co-efficient (PPMCC) was used for data analyses to answer the research question and linear regression was used to test the hypothesis at .05 level of significance. Results revealed a high positive correlation and relationship between self-concept and students' academic performance in technical drawing in technical colleges in Edo State. Based on this finding, it was recommended that to create confidence in students and their ability to overcome academic problems and reach their desired academic goals, students should work to cultivate and develop positive beliefs about themselves and their self-worth, among others.

Keywords: *Academic Performance, Technical Drawing, Self-Concept.*

Introduction

Education has become an important issue as it is considered as one of the imperative or the development of essential skills, abilities and knowledge that help to improve the overall growth, progress and development of all individuals, community and nations. Individuals

who are educated are eager to succeed and achieve desired goals and objectives. Additionally, functional education can promote and contribute to community welfare and well-being (Dube & Mlotshwa, 2018). This implies that education is an agent of change and tool for national development.

In Nigeria, the structure of education includes universal basic education (that is, primary and junior secondary education combine), senior secondary education (including pre-technical and vocational education and training) and higher education. The Federal Republic of Nigeria (FRN) (2013) in her education policy document referred to Technical Vocational Education and Training (TVET) "...as a comprehensive term referring to those aspects of the educational process involving in addition to general education, the study of technologies and related sciences, the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of the economy and social life". The objectives of pre-TVET according to the FRN in her education policy document are to prepare students for the: (a) introduction into world of technology and appreciation of technology towards interest arousal and choice of vocation at the end of JSS and professionalism later in life; (b) acquisition of technical skills; (c) exposition of students to career awareness by exploring usable options in the world of work; and (d) enabler of youths to have an intelligent understanding of the increasing complexity of technology. These goals are pursued at the junior secondary school and technical college levels to inculcate a solid and lasting foundation of vocational skills so that students can secure employment at the end of their programme; set up their own businesses and become self-employed in order to be able to provide employment for others; and pursue further studies in advance programmes.

A close look at the above objectives reveals that the Government (both federal and state) recognizes the importance of TVET discipline for the acquisition of requisite skills, abilities and competencies that will enable individuals to live and contribute to the development of Nigeria. It is also responsible for the production of the skilled artisans, technicians, technologists, and craftsmen needed to positively turn the country's

economy around. TVET makes technological development easier, which is necessary for Nigeria to go from being a developing country to a developed nation and from a consumer nation to a producing nation. There are various trade subjects in TVET, the most important and common of all is technical drawing.

Technical drawing (T.D) is a crucial subject that pertains to the growth of technology in all countries, including Nigeria. As a result, it is a foundational subject in technological trades in technical colleges. Technical drawings, which include diagram, dimensions, and specifications, are useful tools for succinctly and clearly conveying all the information required to turn an idea into a reality. The National Board for Technical Education (NBTE) (2014) mandated that technical drawing should be taught as a trade-related subject at all technical colleges and be required of all students pursuing careers in engineering and construction. In order to stimulate students' interest in technology and reinforce a positive attitude towards entrepreneurship and national technological development, there is a need to recruit more competent and skilled technical drawing instructors who will help to stimulate students' personal characteristics, expose students to technical drawing activities during their three-year enrollment in technical colleges in Nigeria. The objectives of T.D include to: use and care for the different drawing instruments, equipment and materials; understand and interpret the essentials of graphical communication; illustrate the construction of simple geometric figures and shapes; demonstrates the construction of isometric drawing, oblique drawing and productions; understand the principles of orthographic projection; and explain the intersection of regular solid (NBTE, 2014). In other to achieve the goals of T.D, there is need for the development of personal characteristic of the student, in this study such characteristics is the students self-concept.

Self-concept is referred to as the image or perceptions that students hold about themselves which may include feelings, attitudes and knowledge about their abilities, skills and qualities (Ani & Ebe, 2017). The perception students have determined their self-concept which may be important for students' academic performance. Self-concept could be individuals' perception of their level of competence or ability within the academic realm. Self-concept is the term used to describe the way people think about and perceive themselves. It is the beliefs, perceptions, and judgments one has about one's own abilities, qualities, and characteristics. Self-concept is important because it influences a person's thoughts, feelings, and behaviors. The study conducted by Chamundeswari, et al (2014) found a significant correlation between self-concept, and academic achievement. Sikhwari (2014) investigated the relationship between motivation, self-concept and academic performance of university students. His results indicated that there was a significant correlation between motivation, self-concept and academic achievement in the sample of university students.

Self-concept is a complicated psychological construct that psychologists and educators must comprehend since it influences an individual's behavior, especially at school. To Jaiswal and Choudhuri (2017), self-concept is a set of personality traits based on self-awareness or experience. It comprises mental and intellectual grasp and devotion to one's knowledge and comprehension. Task completion, failure, success, and vocal performance, according to Amalu and Okon (2018), all affect an individual's judgment of their capacity to complete a task.

Tahir, et al (2023) carried out a study on relationship between self-concept and academic achievement. The study discovered a considerable positive association between academic self-concept and academic accomplishment. The findings also demonstrated a substantial positive relationship between social

self-concept and academic achievement, and regression analysis supported these conclusions. González-Nuevo, et al (2023). carried out a study to examine the progression of academic self-concept in relation to school performance for retained students and non-retained students. The findings have significant implications in relation to grade retention and its negative impact on students' academic self-concept. Abang (2021) conducted a study on the influence of self-concept on academic performance of secondary school students in mathematics in some selected public secondary schools in Calabar municipality Local Government Area, Cross River State, Nigeria. The findings were that self-concept significantly influence secondary school students' Mathematics academic achievement. Anierobi, et al (2022) carried out a study to determine the relationship among gender, academic self-concept and academic achievement of secondary school students. It was found that gender was not a significant factor in measuring students' academic self-concept. It also revealed that gender has no significant relation with students' academic achievement, while academic self-concept and academic achievement has a strong and positive correlation. The implementing of psycho-educational programmes, seminars and workshops to provide opportunities for students to express themselves and thus develop their self-esteem and self-confidence which will, in turn, positively impact their academic self-concept was recommended.

Amadi (2021) carried out a study to investigate the relationship between chemistry students' self-concept, study habit and academic achievement in secondary schools in Rivers State. Results of this study revealed a high positive relationship between chemistry students' self-concept and study habits with academic achievement respectively.

Academic performance is a foremost indicator as to whether the instruction is a process or it is the end result of teaching and learning process

(William & Shapiro, 2018). It is the extent to which the stated learning objectives have been achieved by the learners. Academic performance is the extent to which a learner, teacher or institution has achieved their educational goals. Students' academic performance is determined by some indicators such as scores or grade in examinations and continuous assessment. The success of technical drawing is measured by the scores or grades as depicted by the student's academic performance. This implies that student's academic performance in technical drawing serve as a yardstick for measuring the standard and quality of the course or subject. Academic performance proved the display of knowledge attained from skills that is done successfully using their own efforts and abilities developed in school subjects designated by test and examination scores or mark assigned by the subject's teacher. Various studies have been carried out on the factors that affect students' academic performance or achievement in schools, colleges and universities but none has been done as regard the relationship between student's self-concept and academic performance in technical drawing in Edo State technical colleges.

Statement of the Problem

Almost all the students in technical colleges in Nigeria seem to be performing poorly academically in technical drawing. To support this assumption, the NBTE (2022) posited that students' academic performance in technical drawing has been poor over the years. The analysis of students' results according to the NABTEB Chief examiner's report from 2015 to 2021 revealed that the percentage of failure is higher than the percentage of credit pass annually. This depicts a negative trend in the examination held in the year 2015, 2016, 2017, 2018, 2019, 2020 and 2021. This report stressed that the overall performance of students in technical drawing has been quite low with the highest mean scores of 41.5% in the year 2015, 37.8% in the year 2016, 42.5% in year 2017, 45.8% in the

year 2018, 40.7% in the year 2019, 28.7% in the year 2020 and 43.56% in the year 2021 respectively (NBTE, 2022).

The low level of academic performance of students in technical drawing in Nigeria revealed by the NBTE suggests that students in technical colleges are trained in un-resourceful and demotivated learning environment and as such exert low level of personal characteristics. Although, successive government through its agencies (for example, the Ministry of Education and the Post Primary Education Board) have devised a strategic means (for example, supervisory role) of ensuring that students are trained in a resourceful and motivating learning environment that would reinforce their personality characteristics which would, in turn, provide opportunity for them to better perform academically in technical drawing in technical colleges. Despite all efforts exerted and strategic means put in place by the successive government to surmount this precarious situation, students still perform poorly academically in technical drawing in technical colleges in Edo State.

Therefore, the problem of this study is that almost all the students in technical colleges in Edo State appear to be performing poorly in technical drawing academically, which may be attributed to their exertion of personal characteristics (such as, self-concepts). It is on this premise that the researcher decided to provide an empirical data on the extent to which students' self-concepts correlates with academic performance in technical drawing in technical colleges in Edo State.

Purpose of the Study

The purpose of the study was to investigate the extent to which students' self-concepts correlates with academic performance in technical drawing in Edo State technical colleges. Specifically, the purpose of this study was to: ascertain the relationship between self-concept and students'

academic performance in technical drawing in Edo State technical colleges.

Method of Study

A correlational research design was used to achieve the specific purpose of the study. The research investigates the relationship between self-concept and students' academic performance in technical drawing in technical colleges in Edo State. This type of design involves collecting data to determine whether and to what degree, a relationship exists between two or more quantifiable variables. The population of the study consisted of 834 technical drawing students in engineering and construction trade from the five technical colleges in Edo State. Using purposive sampling Techniques, 322 Tech II students were used for the study because Tech III students were preparing for external examinations and Tech I were still an introduction class. The instruments used for the study were standardized technical drawing achievement test (TDAT), and Academic self-concept Scale (ASCS). Technical drawing achievement test (TDAT), was adopted from National Technical Certificate Examination past questions, based on the topics that the students have been taught. 40 objectives questions for (TDAT) were drawn from NABTEB past questions. The ASCS was adapted from a 20 items self-report questionnaire from Liu, et al (2005). These questions were administered to Tech II Students in engineering and construction trade in the five technical colleges in Edo State. It was divided into section A, B, and C. Section A deals with the personal data of the respondents, section B deals with objectives questions on technical drawing achievement test (TDAT), and section C deals with Academic self-concept scale (ASCS). In section B, the respondents supplied the correct answer provided from option A to E in TDAT, 2 marks each for every correct option and 0 marks

for every wrong option. A total score of 70-80 were regarded as Strong Agreed (SA), 50-68 as Agreed (A), 40-49 as Undecided (UD), 30-44 Disagreed (D) and 0-28 Strongly Disagreed (SD). In section C, Respondents were provided with response option in a four-point scale from which they were required to choose only one option. Strongly Agree (SA) - 5 points, Agree (A) 4 points, Undecided (UD) 3 point, Disagree (D) 2 points, Strongly Disagree (SD) 1 point, the bench mark for these section were 3.00.

The instrument on (TDAT) was a standardized instruments and as such does not need any validation, however the instrument for (ASCS) was validated by three research experts, two in Vocational and Technical Education Department of Ambrose Alli University, (AAU) Ekpoma and one from Measurement and Evaluation Department, University of Benin (UNIBEN), both from Edo State. The corrections were incorporated in the final questionnaire. To measure the internal consistency of the instruments, the split half reliability technique was employed. The technique was carried out by administering copies of the instruments to a group of 20 respondents (Tech II students in engineering and construction trade) from Technical Colleges in Asaba, Delta State which is not part of the target sample. In carrying out the split-half reliability techniques, copies of the instruments were distributed to 20 respondents on the pilot study. The data retrieved from them were collated and the items split into two equal halves of odd and even numbers. The Pearson Product Moment Correlation Coefficient was used in establishing the relationship between both responses and it yielded a coefficient of .87. This reliability coefficient is adjudged as high. Pearson Product Moment Correlation coefficient (PPMCC) was used to answer the research question and simple linear regression was used to test the hypothesis at .05 level of significance. The null hypothesis is rejected if the P-value is less than .05 and accepted if the p-value is

greater than .05.

Results

Research Question 1: What is the relationship between self-concept and students' academic performance in technical drawing?

Table1: Correlations between Self-concept and Students' Academic Performance in Technical Drawing

Variables	M	SD	N	Pearson r	p-value	Remark
Self-Concept	4.13	.213	303	.791	.000	High Correlation
Performance	3.91	.191				

$p < .05$.

Table 1 revealed that there was a high and positive correlation ($r = .791$) between self-concept and students' achievement in technical drawing. This positive correlation ($r = .791$) indicated that there is a direct relationship between self-concept and students' performance in technical drawings. To this end,

as students' self-concept improves, the student academic performance in technical drawing also improves.

Research Hypothesis 1: There is no significant relationship between self-concept and students' academic performance in technical drawing.

Table 2: Linear Regression on the Relationship between Self-concept and Students' Academic Performance in Technical Drawing

Self-concept → students' academic performance						
R/β	R ²	Adj.R ²	F	T	P <	Decision
.826	.721	.542	321.114	12.240	.001	Sig

Note Sig – Significant, Adj.- adjusted.

Data presented in Table 2 revealed that the correlation ($r = .826$) between self-concept and students' academic achievement in technical drawing is high and positive. These results showed that increase in self-concept will lead to improved students' academic performance in technical drawing. For the test of the hypothesis, the table revealed that the role of self-concept on students' academic performance in technical drawing is significant ($F = 321.114$, $t = 12.240$, $\beta = .826$, $P < .001$). The hypothesis that there is no significant relationship between self-concept and students' academic performance in technical drawing was therefore rejected.

Discussion of Findings

Table 1 demonstrated a strong, favorable, and statistically significant correlation between the students' academic achievement in technical drawing test and their self-concept. This indicates that students' academic success in technical drawing test grows in tandem with their growth in self-concept. Many academics agreed that children with good self-concepts are far more likely than those with negative ones to develop positive attitudes toward learning and education. Meanwhile, students with negative

self-concepts are the reverse. This is consistent with the research done by Amadi (2021), who examined the connection between students' academic success in chemistry at River State University and their study habits and self-concept. This research included the result that students' academic achievement and their self-concept were positively correlated. Anierobi, et al (2022) carried out a study to determine the relationship among gender, academic self-concept and academic achievement of secondary school students. It was found that gender was not a significant factor in measuring students' academic self-concept. The results of this study are also consistent with those of Abang (2021) carried a study to investigate influence of self-concept on academic performance of secondary school students' in Mathematics in some selected public secondary schools in Calabar Municipality Local Government Area, Cross River State, Nigeria. The findings were that self-concept significantly influence secondary school students' Mathematics academic achievement. Tahir, et al (2023) carried out a study on relationship between self-concept and academic achievement. The study discovered a considerable positive association between academic self-concept and academic accomplishment. The findings also demonstrated a substantial positive relationship between social self-concept and academic achievement, and regression analysis supported these conclusions.

Furthermore, the results of this study are consistent with those of the study conducted by Chamundeswari, et al (2014) that found a significant correlation between self-concept, and academic achievement. Sikhwari (2014) investigated the relationship between motivation, self-concept and academic performance of university students. His results indicated that there was a significant correlation between motivation, self-concept and academic achievement in the sample of university students.

Conclusion and Recommendations

The relationship between students' academic performance and their self-concept in technical drawing in Edo State Technical Colleges has been demonstrated by the study. In Edo State technical Colleges, it was shown that students' academic achievement in technical drawing tasks had a strong and favorable correlation with their self-concept.

The following recommendations are made on the basis of the findings of the study:

1. In order to create confidence in students and their ability to overcome academic problems and reach their desired academic goals, students should work to cultivate and develop positive beliefs about themselves and their self-worth.
2. In order for students to develop improved self-concept, school management, teachers and parents should equip the library with motivational books for the students to read.
3. In order for students to develop improved self-concept, motivational speech should be encouraged on the assembly ground in school and also be given to students by parents at home at regular interval.
4. All school should encourage employing the services of a school counsellor to counsel students with low self- esteem.

References

- Abang, A. (2021). Influence of self-concept on academic performance of secondary school students' in mathematics in some selected public secondary schools in Calabar municipality local government area, Cross River State, Nigeria. Available at SSRN: <https://ssrn.com/abstract=3982424> or <http://dx.doi.org/10.2139/ssrn.3982424>
- Amadi, J. N. (2021). Relationship between self-concept, study habit and students' academic achievement in chemistry.

Rivers State University Journal of Education (RSUJOE), 24(2), 140-146.

- Amalu, M. N., & Okon, A. E. (2018). Psychological factors and perception towards examination malpractice among secondary school students in Cross River State, Nigeria. *Journal of Realities*, 6(1), 22-31.
- Ani, D. N., & Ebe, K. N. (2017). Relationship between learners' academic self-concept and academic performance in English language in Enugu State, Nigeria. *International Journal of Education, Development, Society and Technology*, 5(15), 151-158.
- Anierobi, E. I., Nwogbo, V. N., Ogbe, I. J., & Oyeyemi, A. A. (2022). Academic motivation and self-efficacy as determinants of academic performance of secondary school students in Anambra State, Nigeria. *Asian Journal of Advances in Research*, 16(1), 22-31.
- Chamundeswari, V., Sridevi, V., & Kumari, A. (2014). Self-concept, study habit and academic achievement of students. *Int. J. Human. Soc. Sci. Educ.* 1, 47–55.
- Dube, M.B., & Mlotshwa, P.R. (2018). Factors influencing enrolled nursing students' academic performance at a selected private nursing education institution in KwaZulu-Natal. *Curationis, AOSIS*, 41(1), a1850-a1857.
- Federal Republic of Nigeria (2013). *National policy on education*. Abuja: NERDC press.
- González-Nuevo, C., Postigo, Á., García-Cueto, E., Menéndez-Aller, Á., Muñiz, J., Cuesta, M., ... & Fernández-Alonso, R. (2023). Grade retention impact on academic self-concept: A longitudinal perspective. *School Mental Health*, 15(2), 600-610.
- Jaiswal, S. K., & Choudhuri, R. (2017). Academic self-concept and academic performance of secondary school learner. *America Journal of Educational Research*, 5(10), 1108-1113.
- Liu, W. C., Wang, C. K. J. & Parkins, E. J. (2005). A longitudinal study of students' academic self-concept in a streamed setting: The Singapore context. *British Journal of Educational Psychology*, 75(4), 567–586. <https://doi.org/10.1348/000709905X42239>
- National Business Board for Technical Education (2014). *Vocational and technical education in Nigeria*, Benin City: NABTEB press.
- National Business Board for Technical Education (2022). *Examiners report on academic achievement in vocational and technical education*, Benin City: NABTEB press.
- Sikhwari, T. D. (2014). A study of the relationship between motivation self-concept and academic achievement of students at a university of Limpopo province, South Africa. *Int. J. Educ. Sci.* 6, 19–25. Doi: 10.1080/09751122.2014.1189 0113
- Tahir, T., Batool, S., Gul, R., & Ishfaq, U. (2023). Relationship between self-concept and academic achievement: an evidence of female students. *Russian Law Journal*, 11(5S), 11-23.
- Williams, K. M., & Shapiro, T. M. (2018). Academic achievement across the day: Evidence from randomized class schedules, 67(2), 749-762.

INFLUENCE OF GAME-BASED LEARNING ON ACADEMIC PERFORMANCE IN MATHEMATICS OF SECONDARY SCHOOL STUDENTS IN ONDO STATE

¹AKINTEWE, B.N., & ²IKECHUKWU, M. F.

Department of Mathematics, Adeyemi Federal University of education, Ondo, Ondo State.

¹Correspondence email: akintewebn@aceondo.edu.ng. +2348034655108

²email: ikechukwumichaelfriday@gmail.com

Abstract

The study investigated the influence of game-based learning on the academic performance of secondary school students in mathematics within Ondo State. Utilizing a descriptive survey research design, the study focused on students within the Ondo West Local Government Area. A sample of 250 secondary school students was randomly selected to participate in the study. Data was collected through a structured questionnaire developed by the researchers, and both descriptive and inferential statistical tools were employed for analysis to include frequency counts and mean scores were used to address research questions, while a t-test was conducted to test the hypotheses at a significance level of .05. The findings of the study revealed the availability of various types of games used in teaching mathematics, including puzzle games for logic, sports games for algebra, role-playing games for simultaneous equations, action games for trigonometry, and adventure games for indices and logarithms. Significantly, the study indicated a positive influence of game-based learning on students' academic performance in mathematics within secondary schools. Furthermore, it found no significant difference between male and female students regarding the influence of game-based learning on academic performance in mathematics. Based on these findings, several recommendations were proposed, including the adoption of game-based learning as a teaching strategy across secondary schools, the organization of seminars and workshops to train teachers on effective teaching strategies, and the inclusion of game-based learning in the curriculum of trainee teachers. These recommendations aim to leverage the benefits of game-based learning to enhance mathematics education in secondary schools.

Keywords: Games, Game-based, Learning, Academic Performance, Mathematics

Introduction

Secondary education holds a pivotal position within Nigeria's educational framework, serving as the bridge between primary and tertiary institutions. Following primary education and preceding tertiary studies, it caters to students typically aged between 11 and 17. This educational stage not only nurtures future professionals but also lays the groundwork for exploring and delineating various fields or vocations.

Before Nigeria's independence up to 1982, secondary education spanned five years.

Following this period, those meeting the necessary criteria proceeded to a two-year Higher School Certificate program, enabling eligibility for university enrolment (Wahab, 2019). This structure comprised three years of junior secondary and two years of senior secondary education. Recognizing the imperative to integrate science, technical subjects and mathematics, the curriculum was expanded, extending the duration to six years. The significance of this educational phase cannot be overstated.

Mathematics holds not only significant importance within secondary education but is also

revered as the foundational pillar of all scientific disciplines. It encompasses the study of numbers, counting, and measurement, while also delving into logical reasoning and quantitative computations (Gouba, 2008). Regarded as indispensable for fostering scientific and technological advancements within a nation (Anaduaka & Okafor, 2013), Mathematics has been designated a core and compulsory subject by the Nigerian government at the secondary school level. Despite this acknowledgment, secondary school students in Nigeria often struggle to grasp the fundamentals of Mathematics (Akinsola, 2010). The efficacy of understanding mathematical concepts largely hinges on the teaching methodologies employed by educators in the classroom.

In secondary education, the adoption of non-traditional instructional strategies like game-based learning fosters creativity among students and facilitates first-hand comprehension of subject matter. Game-based learning entails leveraging games to reinforce learning objectives, motivate students, and cultivate engagement. Trybus (2015) described it as the application of gaming principles to real-life scenarios to immerse users in effective teaching-learning processes, engaging them in educational content through dynamic and playful means.

Furthermore, Sadeghi and Dousti (2013) highlighted the benefits of game-based learning, including enhanced learning efficacy, immediate feedback, repetition and practice of essential skills, student-centred learning, increased motivation, and enjoyment. By actively involving students in mathematical exercises through hands-on participation within a secure environment, game-based learning diminishes the perceived difficulty associated with learning secondary school Mathematics. However, despite the potential benefits of game-based learning, secondary school educators encounter challenges hindering its effective integration into mathematics instruction. One significant barrier is

the lack of sufficient knowledge among teachers regarding how to utilize games effectively, which can adversely impact student performance in mathematics (Demirbilek & Tamer, 2010). Additionally, students often perceive mathematics as a challenging subject, leading to avoidance of mathematics classes and subsequently, poor performance in both internal and external examinations.

Areagok (2021) explored how game-based teaching approaches found in various curricula affect academic attainment. The study used the meta-analysis method, which involved pooling similar studies on that issue or theme based on specific criteria and merging the quantitative data acquired. For this reason, 412 studies published between 2000 and 2020 were analysed, with 54 experimental studies on game-based teaching approaches included in the analysis. Data from 54 experimental investigations were examined using the Comprehensive Meta-Analysis Program (CMA) and MetaWin tools. The study found that game-based teaching approaches used in various curricula improve students' academic achievement when compared to traditional practices. The effect sizes of game-based curricula were shown to vary greatly depending on education level, treatment duration, sample size, and publication style.

Hui and Mahmud (2023) analysed journal articles published between 2018 and 2022 about the impact of Game-Based Learning in mathematics teaching and learning on students' cognitive and affective domains. The survey was conducted using a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) research technique utilizing the Scopus and Web of Science (WOS) databases, which yielded 773 papers on game-based learning (GBL) in mathematics. Depending on the subject topic, study technique, and analysis, only 28 open-access papers were chosen for further review. Two cognitive domains and five affective domains were found as being connected to the

effects of GBL on students' mathematical T&L. The study's findings demonstrate that GBL has a good impact on children who are learning mathematics. It consists of two cognitive domains (knowledge and mathematical abilities) and five affective domains (achievement, attitude, motivation, interest, and engagement). The study's findings are expected to improve the effectiveness of educators in the classroom.

Purpose of the Study

The primary purpose of this study was to assess the influence of game-based learning on the academic performance of students in mathematics within secondary schools in Ondo State. Specifically, the study sought to:

1. Determine the available games that teachers use in teaching mathematics in secondary schools.
2. Evaluate the advantages associated with the implementation of game-based learning for teaching mathematics in secondary schools.
3. Determine the influence of game-based learning on students' academic performance in mathematics in secondary schools.

Method of the Study

The study adopted a descriptive survey design, which is suitable for investigating the opinions of a representative population without manipulating variables. This design is well-suited for this research as it allows for the exploration of perceptions and attitudes without experimental manipulation.

The target population comprised of 2,454 senior secondary school students from five

randomly selected secondary school Ondo West Local Government Area of Ondo State.

A sample of 250 senior secondary school students was randomly selected from the target schools in Ondo West Local Government Area using a simple random sampling technique. This represents 10% of the target population being studied.

The survey instrument was a structured questionnaire developed by the researchers. The questionnaire comprised two sections: Section A collected demographic information, while Section B consisted of three parts. Part I, II, and III each contain five-item statements structured on a five-point Likert scale (Strongly Agree SA-5, Agree A-4, Neutral N-3, Disagree D-2, and Strongly Disagree SD-1). These sections sought responses from respondents regarding the availability of games used in teaching mathematics, the benefits of game-based learning in teaching mathematics, and the influence of game-based learning on students' academic performance in mathematics in secondary schools.

The instrument was reviewed by experts for validity and reliability. Comments and suggestions made by experts were used to produce final copy used for this study.

The copies of the questionnaire were administered to the respondents by the researchers and were collected immediately after the completion by the respondents.

Descriptive and inferential statistical tools were employed for data analysis. Frequency counts and mean scores were used to address research questions, while t-tests were conducted to test hypotheses at a significance level of .05.

Results and Discussion

Research Question 1: What are the available games that teachers use in teaching mathematics in

secondary schools?

Table 1: Available Games that Teachers Use in Teaching Mathematics in Secondary Schools

S/N	ITEMS	SA	A	N	D	SD	Mean	Remarks
1	Puzzle games are available for use in teaching logic in secondary schools	109	79	2	20	40	3.79	Agreed
2	Sports games are available for use in teaching algebra in secondary schools	43	123	30	36	18	3.55	Agreed
3	Role-playing games are available for use in teaching simultaneous equation in secondary schools	79	75	39	36	21	3.62	Agreed
4	Action games are available for use in teaching trigonometry in secondary schools	69	86	27	41	27	3.52	Agreed
5	Adventure games are available for use in teaching indices and logarithms in secondary schools	79	67	32	29	43	3.44	Agreed

Key: SA = Strongly Agreed, A = Agreed, N = Neutral, D = Disagreed, SD = Strongly Disagreed; Cut-off Point = 3.00

The data presented in Table 1 illustrates the availability of various games utilized by teachers for teaching mathematics in secondary schools. The majority of respondents concurred that puzzle games are accessible for teaching logic in secondary schools (mean = 3.79). Similarly, sports games were reported to be available for teaching algebra in secondary schools, with a mean score of 3.55. Role-playing games were indicated as accessible for teaching simultaneous equations in secondary schools,

with a mean score of 3.62. Furthermore, action games were cited as available for teaching trigonometry in secondary schools, with a mean score of 3.52. Lastly, adventure games were noted to be available for teaching indices and logarithms in secondary schools, with a mean score of 3.44.

Research Question 2: What are the advantages of using game-based learning in teaching mathematics in secondary schools?

Table 2: Advantages of Using Game-based Learning in Teaching Mathematics in Secondary Schools

S/N	ITEMS	SA	A	N	D	SD	Mean	Remarks
1	Game-based learning helps students in retaining learning insights in mathematics	108	92	12	17	21	4.00	Agreed
2	It makes the students to learn mathematics through familiar devices	68	110	30	29	13	3.76	Agreed
3	It stimulates the imagination of students in mathematics	84	92	49	17	8	3.91	Agreed

4	It helps the students to simplify the difficult concepts in mathematics	63	94	47	28	18	3.62	Agreed
5	It improves the students' retention of the topics learnt in mathematics	78	78	38	21	35	3.57	Agreed

Key: SA = Strongly Agreed, A = Agreed, N = Neutral, D = Disagreed, SD = Strongly Disagreed; Cut-off Point = 3.00

Table 2 illustrates the benefits of employing game-based learning in teaching mathematics in secondary schools. The data shows that a significant portion of respondents agreed on various advantages associated with game-based learning. Specifically, the majority expressed agreement that game-based learning aids students in retaining learning insights in mathematics (mean = 4.00). Additionally, respondents indicated that game-based learning facilitates learning mathematics through familiar devices, with a mean score of 3.76. Furthermore, respondents agreed that game-based learning stimulates students' imagination in mathematics,

with a mean score of 3.91. Moreover, respondents reported that game-based learning assists students in simplifying difficult concepts in mathematics, with a mean score of 3.62. Finally, respondents acknowledged that game-based learning improves students' retention of topics learned in mathematics, with a mean score of 3.57.

Research Question 3: What is the effect of game-based learning on students' academic performance in mathematics in secondary schools?

Table 3: Influence of Game-based Learning on Students' Academic Performance in Mathematics in Secondary Schools

S/N	ITEMS	SA	A	N	D	SD	Mean	Remarks
1	Game-based learning has positive impacts on students' academic performance in mathematics	105	97	13	15	20	4.01	Agreed
2	It improves the knowledge of students in mathematics	74	108	28	29	11	3.82	Agreed
3	It increases the mathematical skills of students in mathematics	85	79	45	33	8	3.80	Agreed
4	Game-based learning boosts the ability of students to reason and understand the underlying concepts in mathematics	68	105	26	31	20	3.68	Agreed
5	It motivates the students to find creative solutions and drive them to accelerate their learning in mathematics.	93	71	31	25	30	3.69	Agreed

Key: SA = Strongly Agreed, A = Agreed, N = Neutral, D = Disagreed, SD = Strongly Disagreed; Cut-off Point = 3.00

Table 3 presents the influence of game-based learning on students' academic performance in mathematics in secondary schools. It reveals

that majority of the respondents agreed that game-based learning has positive influences on students' academic performance in mathematics

(mean = 4.01), It improves the knowledge of students in mathematics (mean = 3.82), it increases the mathematical skills of students in mathematics (mean = 3.80), game-based learning boosts the ability of students to reason and understand the underlying concepts in mathematics (mean = 3.68), it motivates the students to find creative solutions and drive

them to accelerate their learning in mathematics (mean = 3.69).

Hypotheses Testing

HO₁: There is no significant effect of game-based learning on students' academic performance in mathematics in secondary schools

Table 4: Summary of t-test Analysis on Significant Influence of Game-based Learning on Students' Academic Performance in Mathematics in Secondary Schools

Variables	N	Mean	St. D.	df	t-calc.	t-table	Decision
Game-based learning	250	3.80	.708	248	2.849	1.984	Significant
Academic performance	250	3.62	.705				

Table 4 provides a summary of the t-test analysis regarding the significant influence of game-based learning on students' academic performance in mathematics in secondary schools. The analysis indicates that the calculated t-value (2.849) exceeds the critical t-value (1.984) at a significance level of .05, with degrees of freedom (df = 248). Consequently, the null hypothesis, which posits that there is no significant effect of game-based learning on students' academic

performance in mathematics in secondary schools, is rejected. Thus, it can be inferred that there is a significant influence of game-based learning on students' academic performance in mathematics in secondary schools.

HO₂: There is no significant difference between the responses of males and females regarding the influence of game-based learning on students' academic achievement in mathematics within secondary schools.

Table 5: Summary of t-test Analysis on Significant difference between Male and Female responses on the Influence of Game-based Learning on Students' Academic Performance in Mathematics in Secondary Schools

Variables	N	Mean	St. D.	df	t-calc.	t-table	Decision
Male	103	3.81	1.103	248	.155	1.984	Not significant
Female	147	3.79	.925				

Table 5 presents a summary of the t-test analysis concerning the presence of a significant difference between male and female responses regarding the influence of game-based learning on students' academic performance in mathematics in secondary schools. The analysis indicates that the calculated t-value (.155) is lower than the critical t-value (1.984) at a significance level of .05, with degrees of freedom (df = 248). Therefore, the null hypothesis, which posits that there is no significant difference between male

and female responses on the influence of game-based learning on students' academic performance in mathematics in secondary schools, is accepted. Consequently, both male and female respondents share similar views and opinions regarding the effect of game-based learning on students' academic performance in mathematics in secondary schools.

Discussion of Findings

Finding of the study revealed the available games that teachers use in teaching mathematics

in secondary schools. It was revealed that puzzle games are available for use in teaching logic, sports games are available for use in teaching algebra, role-playing games are available for use in teaching simultaneous equation, action games are available for use in teaching trigonometry, and adventure games are available for use in teaching indices and logarithms in secondary schools. The finding of this study is in disagreement with the study of Oluwatayo, et.al. (2020) who revealed that teachers do not use the available games such as circle race game, binary tic tac game geo-board game among others to teach mathematics in schools.

The study showed the benefits of using game-based learning in teaching mathematics in secondary schools. It was revealed that game-based learning helps students in retaining learning insights in mathematics, makes the students to learn mathematics through familiar devices, stimulates the imagination of students in mathematics, helps the students to simplify the difficult concepts in mathematics and also improves the students' retention of the topics learnt in mathematics. This finding is in agreement with the study of Pratama and Setyaningrum (2018) who revealed that students, who were exposed to the game-based learning within problem-solving method, obtain positive effect on cognitive and affective aspects. Through this research, it provided evidence that the use of educational games could support and increase the mathematics learning outcome.

The finding of the study discovered the influence of game-based learning on students' academic performance in mathematics in secondary schools. It was revealed that game-based learning has positive influence on students' academic performance in mathematics, improves the knowledge of students in mathematics, increases the mathematical skills of students in mathematics, boosts the ability of students to reason and understand the underlying concepts in mathematics and also motivates the students to

find creative solutions and drive them to accelerate their learning in mathematics. This finding is in agreement with the study of Areagok (2021) who revealed that game-based teaching practices applied in different curricula affect the students' academic achievement positively compared to traditional practices. Also, the study of Dele-Ajayi, et al (2019) is in agreement with this finding. Their study revealed that results demonstrate significant improvements in attitude to and engagement with mathematics across the target group, after two weeks of using SpeedyRocket. Learners became co-creators of their own knowledge, sharing ideas, forging new learning pathways, competing, and cooperating with one another. Furthermore, the findings from this study provide insights into the changes that occur in the dynamics of the traditional classroom through the introduction of digital technology, especially in settings where it has not been previously used.

The study showed that there is a significant influence of game-based learning on students' academic performance in mathematics in secondary schools. Hence, game-based learning has influence on students' academic performance in mathematics in secondary schools. This finding is in consonance with the study of Hui and Mahmud (2023) who revealed that game-based learning positively impacted students when they are learning mathematics. It is comprised of two types of cognitive domain (knowledge and mathematical skills) and five types of affective domain (achievement, attitude, motivation, interest, and engagement). The findings of this study are anticipated to encourage educators in the classrooms more effectively.

Finding of the study discovered that there is no significant difference between male and female responses on the influence of game-based learning on students' academic performance in mathematics in secondary schools. Hence, both male and female respondents have the same views/opinions on the effect of game-based

learning on students' academic performance in mathematics in secondary schools.

Conclusion and Recommendations

The study reports the influence of game-based learning on the academic performance of secondary school students in mathematics. From the data gathered and analyzed, it shows that using game-based learning as stimulating strategy for the teaching of mathematics had a significant influence on the academic performance of secondary school students in mathematics. The use of game-based learning made teaching and learning more fun, competitive, collaborative and challenging which assisted the students to actively focus and master the concept taught in mathematics faster.

Based on the findings and conclusions drawn from the study, the following recommendations are proposed:

1. **Implementation of Game-Based Learning:** The adoption of game-based learning should be integrated into the teaching strategy across all secondary schools for mathematics instruction. This approach can enhance student engagement and understanding of mathematical concepts.
2. **Teacher Training Programs:** Seminars and workshops should be organized for secondary school teachers to familiarize them with effective teaching strategies, including game-based learning. Additionally, teacher training curriculum should explicitly incorporate game-based learning methods to prepare future educators.
3. **Curriculum Development:** Nigerian secondary school curriculum planners should include game-based learning as a formal component of effective teaching strategies. By incorporating this approach into the curriculum, it can further support and enhance student learning outcomes.
4. **Specialized Training:** Efforts should be made to train and encourage specialists in the design and implementation of game-based learning for instructional purposes. This would ensure the development of high-quality and effective educational games tailored to the needs of students.
5. **Professional Development Initiatives:** Professional associations such as the Nigerian Union of Teachers (NUT) and the Educational Media Technologist Association of Nigeria (EMTAN) should organize seminars, workshops, symposia, and in-service training sessions to update educators' knowledge on the benefits and implications of game-based learning.
6. **Gamification of Lessons:** Teachers are encouraged to incorporate gamification techniques into their lesson contents to enhance student motivation, engagement, and academic performance in the classroom. By making learning more interactive and enjoyable, gamification can effectively support student learning outcome

References

- Akinsola, E. F. (2010). Correlation between parenting styles and sexual attitudes of young people in Nigeria: Comparison of two ethnic groups. *Gender and Behaviour*, 8(1), 2771-2788.
- Anaduaka, U.S., & Okafor, C.F. (2013). The universal basic education (UBE) programme in Nigeria: Problems and prospects. *Journal of Research in National Development*, 11(1), 152-157.
- Dele-Ajayi, O., Strachan, R., Pickard, A. J., & Sanderson, J. J. (2019). Games for teaching mathematics in Nigeria: What happens to pupils' engagement and traditional classroom dynamics? *IEEE Access*, 7, 53248-53261.
- Demirbilek, M., & Tamer, S. L. (2010). Math teachers' perspectives on using educational computer games in math education. *Procedia-Social and Behavioural Sciences*, 9, 709-716.
- Gouba, L. (2008). The importance of mathematics in everyday life. *African Institute for Mathematical Sciences*, 6 Melrose Road, Muizenberg 7945, South Africa
- Hui, H. B., & Mahmud, M. S. (2023). Influence of game-based learning in mathematics education on the students' cognitive and affective domain: A systematic review. *Frontiers in Psychology*, 14, 1105806.
- Oluwatayo, J. C., Anyikwa, N. E., & Obidike, N. D. (2020). Challenges of game-based learning strategies in teaching mathematics in primary schools in Nkanu west local government area of Enugu State. *Journal of Early Childhood and Primary Education*, 2(1), 15-26.
- Pratama, L. D., & Setyaningrum, W. (2018, September). Game-Based learning: The effects on student cognitive and affective aspects *Journal of Physics: Conference Series*, 1097(1), 0121-131.
- Sadeghi, K., & Dousti, M. (2013). The effect of length of exposure to call technology on young iranian efl learners' grammar gain. *English Language Teaching*, 6(2), 14-26.
- Trybus, J. (2015). Game-based learning: What it is, why it works, and where it's going. *New Media Institute*, Received from <http://www.newmedia.org/game-based-learning-what-it-is-why-it-works-and-where-its-going.html>
- Wahab, T.A. (2019). Higher education in Nigeria: A status report. *Higher Education Policy*, 16, 259-281.

IMPACT OF TECHNOLOGY-ASSISTED INSTRUCTION ON SECONDARY SCHOOL STUDENTS ACHIEVEMENT IN CHEMISTRY

OYAKHIROME, A.H. Ph.D

Department of Curriculum and Instructional Technology, Faculty of Education,

University of Benin, Benin City, Edo State,

E-Mail: hoyakhirome@uniben.edu.

Abstract

This study focused on secondary school chemistry students' achievement in chemistry. The study was carried out in Ovia North East Local Government Area of Edo State, , Nigeria. A quasi-experimental design was employed in the study involving 200 secondary school students from four schools were selected. In selecting the sample for the study, stratified simple random sampling technique was used. Data were collected using chemistry achievement test (CAT) and a questionnaire involving Challenges in the Use of Technology in Chemistry (CUTC). The instruments were validated and reliability determined the strength of the instrument and reliability index of .82 and .70 respectively were obtained before it was used. Independent samples t-tests statistics was use to analyze the data. Results indicated a significant difference in the academic achievement of the treatment group compared to the control group; a non-significant difference in the academic achievement of male and female students achievement in the treatment group. Qualitative findings highlighted several challenges, including technical issues, lack of resources, and insufficient training for teachers as challenges impacting the use of technology-assisted instruction in teaching.

Keywords: *Technology-Assisted Instruction, Chemistry Education, Academic Achievement*

Introduction

Technology Assisted instruction is relevant in the teachings of science in general and Chemistry in particular because it enhance the visualization of concept to be taught through the technological visual aids and this gives the students opportunities to have a concrete idea of what they are learning. The usage of technology in the teaching of chemistry also provides interactive simulation that help students visualize complex chemical concepts (molecular structures and chemical reactions). With the use of 3Dmodels developed through technology, illustrations of chemical structures and process are possible and this makes them easier to understand. The advent of technology in education has brought transformative changes on how subjects are

taught and learned, with significant implications for science education. One of the important science subjects that is taught at the senior secondary school level is Chemistry.

Chemistry defined as the scientific study of the composition of matter, its properties and the reactions that they undergo. The study of Chemistry, involves the analysis of the structure and the properties of matter in terms of their reactions and how they transform into other substances. Chemistry plays an important role in the development of a nation. It contributes significantly to various sectors of a nations' economy in the aspect of economic growth, it

provides opportunities for industrial development through creation of textiles, plastics, pharmaceuticals and agrochemical industries which in-turn job opportunities. The knowledge of Chemistry also helps in achieving environmental sustainability through production of clean energy, environmental monitoring and waste management techniques. Also, in food security and Agriculture, the knowledge of Chemistry has helped in the manufacturing of fertilizers, pesticides, food processing and preservation, improved animal health. Going further, in infrastructure development the knowledge of chemistry has helped in the production of construction materials and transportation. In scientific research and innovation, chemistry drives basic research by advancing humans understanding of the natural world leading to new discoveries.

Chemistry, a subject that requires both theoretical understanding and practical application, stands to benefit greatly from technology-assisted learning tools. These tools provide dynamic simulations, virtual experiments, and interactive content that make abstract concepts more tangible and experiments more accessible. The adoption of technology in educational settings aimed to address several pedagogical challenges, including the need for interactive and engaging learning experiences, the ability to visualize abstract concepts, and the facilitation of individualized learning process. In the context of chemistry education, technology can offer simulations, virtual labs, and interactive tutorials that augment traditional laboratory experiments, potentially leading to a deeper understanding of the subject matter. Previous studies have demonstrated that technology-enhanced learning environments can improve student engagement, understanding, and retention of complex scientific concepts (Barak, 2017; Hegedus & Roschelle, 2013).

In situations where educational resources are often limited, the potential benefits of integrating

technology in classrooms are particularly pertinent. According to Iyoha (2023), teachers in Ovia North East Local Government Area face significant challenges due to inadequate facilities and resources, which hamper the effective teaching of technology-related subjects. This limitation extends to the teaching of chemistry, where practical, hands-on experience is crucial. The lack of adequate laboratory facilities in many Nigerian schools restricts students' opportunities for practical learning, leading to a reliance on theoretical instruction (Yusuf & Afolabi, 2010).

International studies provide a robust foundation for understanding the impact of technology in education. For instance, Schmid et al. (2014) conducted a meta-analysis showing that the use of technology in post-secondary education significantly enhances learning outcomes. Similarly, Sung, Chang, and Liu (2016) found that integrating mobile devices with teaching and learning improves students' learning performance. In the context of virtual laboratories, Tatli and Ayas (2013) demonstrated that such tools positively affect students' achievement in chemistry from the findings of Gambari, et al. (2017), who reported improved achievement levels and attitudes toward chemistry among secondary school students using virtual labs.

In Nigeria, research specific to secondary schools, particularly in rural or less urbanized areas, remains sparse. The few existing studies, such as those by Eya and Ezeh (2020), highlight gender disparities in academic achievement in chemistry, emphasizing the need for inclusive and effective teaching methods. Additionally, Kapici, et al. (2020) explored how different laboratory environments influence students' attitudes towards science courses and laboratories, providing valuable insights into the potential benefits and challenges of implementing technology-assisted learning in diverse educational contexts.

This study aims to address the gap in the literature by investigating the impact of technology-assisted learning in chemistry in secondary schools in Ovia North East Local Government Area, Edo State, Nigeria. It seeks to evaluate the impact of these tools on students' academic achievement in chemistry, and to identify the challenges and limitations associated with its implementation.

Statement of the Problem

Despite the global push towards incorporating technology into education, many Nigerian secondary schools still rely on lecture methods. In subjects like chemistry, this often translates to limited hands-on experience due to inadequate laboratory facilities. The lack of resources not only hampers students' practical understanding but also diminishes their engagement and interest in the subject. Additionally, there is a disparity in the distribution of technological resources, with rural and less urbanized areas often being left behind. This digital divide exacerbates educational inequalities, limiting students' access to the benefits of technology-enhanced learning. The challenges are further compounded by insufficient training for teachers on how to effectively integrate technology into their teaching practices. Many educators lack the necessary skills and confidence to utilize these tools, which can lead to suboptimal implementation and reduced educational outcomes. As noted by Iyoha (2023), teachers in Ovia North East Local Government Area, Edo State face significant difficulties due to inadequate professional development opportunities, which impacts their ability to adopt innovative teaching methods.

Moreover, the introduction of technology in classrooms may encounter resistance from both educators and students who are accustomed to traditional methods of teaching and learning. This resistance can stem from a variety of factors, including fear of the unknown, discomfort with new technologies, and concerns about the

reliability and effectiveness of these tools.

There is a critical need to evaluate whether integrating technology can mitigate these challenges and enhance the educational experience for students in these settings. Specifically, this study seeks to investigate the impact of technology-assisted learning in improving students' academic performance, engagement, in chemistry. By addressing these issues, the study aims to provide evidence-based recommendations for the successful implementation of technology in Nigerian secondary schools.

Purpose of the Study

The main purpose of this study was to investigate the impact of technology-assisted learning on student performance and engagement in chemistry labs within secondary schools in Ovia North East LGA, Edo State. Specifically, the study sought to:

- 1 Investigate the difference in the academic achievement of secondary school student taught chemistry using technology-assisted instruction and those exposed to the traditional method
- 2 Evaluate the difference in the academic achievement of male and female secondary school students exposed to technology-assisted instruction
- 3 Identify the challenges and limitations associated in the use of technology – assisted instruction in chemistry.

Research Questions

- 1 What is the difference in the academic achievement of secondary school students taught chemistry using technology-assisted instruction and those to the traditional method

- 2 What is the in the academic achievement of male and female secondary school students exposed to technology-assisted instruction?
- 3 What are challenges faced in implementation of technology assisted instruction in chemistry ?
- 4 What are the challenges associated in the use of technology-assisted instruction in chemistry?

Hypotheses Testing

To address the research objectives, the following hypotheses were tested:

H₀₁: There is no significant difference in the academic achievement of secondary school students taught chemistry using technology-assisted instruction and those exposed to traditional method.

H₀₂: There is no significant difference in the academic achievement of male and female secondary school students exposed to technology-assisted instruction.

Method of the Study

The study employed a pre-test –post –test non-equivalent group quasi-experimental design. In this design, there is no randomization of subjects into groups but rather intact classes were used. This is to avoid the disruption of class activities. This design is considered appropriate because it will not be possible to randomly assign subjects into groups and as such, intact classes were used. According to Johnson and Christensen (2000), any design which randomization is a condition for true experimental design is omitted, such design is described as quasi-experimental design.

The sample consist of 200 secondary school students from all the secondary schools in Ovia North East Local Government Area Edo State. This consist of 75 students in the control group while 135 students were in the treatment

group. The sample technique employed was stratified random sampling method. The difference in the number of students allocated to the treatment and control group was because intact classes were used for the experiment.

Two instruments were used for data collection. Chemistry Achievement Test (CAT) and a questionnaire involving Challenges in the Use of Technology in Chemistry (CUTC). The chemistry achievement test (CAT) consists of two sections. Section A elicits information on students' bio-data and section B contains 50 items with one correct answer and four distracters raised on the concepts taught. The 50 items were picked from West Africa Examination Council past questionnaire from 2015 to 2024. While the challenges and limitations associated with the implementation of technology in chemistry laboratory instrument is a structured questionnaire with twenty items on a four scale of Strongly Agreed, Agreed, Disagree and strongly disagreed designed by the researcher to elicit information on the challenges and limitations associated with the implementation of technology Assisted instruction in teaching chemistry. Both instruments were administered on the students to respond to.

Two validity measures were conducted on the instrument CAT (face and content) and face validity was carried out on the CUTC. For the CAT, the face validity of the instrument was determined by three experts: one in science education, one expert in science Educator, one experienced Chemistry Teacher and one expert in measurement and evaluation. They specifically looked at the CAT questions, the research questions and the hypotheses with the aim of establishing if the instrument could give the needed data to answer the research questions and test the hypotheses. They suggested that two items should be reframed and this was effected after which it was approved for data collection. The content validity was done using a table of

specification based on Bloom taxonomy of educational objectives to ensure that content was properly represented.

The CUTC face validity was determined by a panel of three experts, made up of one science educator, one chemistry teacher and one expert in measurement and evaluation. The instrument was given to them with the research questions and hypotheses to enable them to determine the suitability of the questionnaire and they all suggested that the instrument will be able to generate data needed to answer the research questions.

In determining the reliability of the instrument (CAT), the instrument was administered to twenty SS II students in school who were not part of the sample used for the study. Data collected were analyzed using Kuder-Richardson Formula 21 to determine the reliability value. The formula was used because the instrument was an achievement test with one mark for correct answer and zero for wrong answer. From the analysis of the data collected, an r-value of .82 was obtained for the achievement test. With this value which is above .70, the instrument was considered reliable. This is because according to Ajaja (2013) any instrument with a reliability value of .70 and above is reliable. Also, in order to determine the reliability of the CUTC a set of questionnaires was administered to 20 students on the same student. The data collected were analyzed using Cronbach's Alpha Statistical Procedure. This procedure was adopted because the questionnaire options have varying values. In this case, the questionnaire administered was found to have a reliability value of .78. This shows that the instrument is reliable.

In order to collect data for analysis, the treatment group teachers that were used the

technological Assisted instruction were trained for two weeks how to use the methodology with a training manual developed by the researcher. In the training the teachers were exposed to the concept of technology Assisted Instruction, Types of technology assisted instruction, importance of Technology Assisted instruction, devices used in technology assisted instruction, theory backing the use of technology assisted instruction and steps to follow in using technology assisted instruction. The training came to an end with practice after the researcher was convinced that the teachers (research assistant) have mastered the usage of the technology assisted instruction in teaching

After the training of the teachers for the treatment group, both group students were pre-tested using the instruments for data collection and taught the concepts using the different teaching strategies respectively. The pre-test was used to establish a baseline of academic achievement. During the intervention phase, the treatment group was exposed to various technology-assisted learning tools, such as virtual lab simulations, educational software, interactive whiteboards, and online tutorials, over a period of one semester (approximately three months). At the end of the treatment, both groups were post-tested and data collected where analyze using mean, standard deviation, and independent sample t-test statistics.

The result from data analysis are presented in the Tables along with the research questions and hypotheses:

Research Question 1: What is the difference in the academic achievement of secondary school students taught chemistry using technology-assisted instruction and those to the traditional method

Table 1 : Post test Mean and Standard Deviation Scores of both Groups

Groups	N	Mean	Mean Diff	SD
Technology Assisted Instruction	75	58.54	18.28	12.67
Lecture Group	135	40.28		5.17

The Table revealed that the students in the technology assisted Instruction had a mean of 58.54 with a standard deviation of 12.67 and the lecture group students had a mean of 40.28 with a standard deviation of 5.17. The students taught with Technology Assisted Instruction had a higher mean score, with a difference of 18.28. In order to determine if the difference is significant,

was tested using independent sample t-test statistics.

Hypothesis 1: There is no significant difference in the academic achievement of secondary school students taught chemistry using technology-assisted instruction and those exposed to traditional method

Table 2 : Independent Sample t-test Statistics

Groups	N	Mean	Mean Diff	SD	df	t.cal	Sig(2-tailed)
Technology Assisted Instruction	75	58.54	18.28	12.67	198	13.04	.00
Lecture Group	135	40.28		5.17			

The result in table 2 showed a significant difference in the post-test scores of the Technology Assisted instruction group and the lecture group since the calculated sig.value of .00 obtained is less than critical sig value of .05, indicating that students taught using technology-assisted learning tools performed better academically compared to those taught using lecture method. Thus, the null hypothesis which

states that there is no significant difference in the academic achievement of secondary school students taught chemistry using technology-assisted instruction and those exposed to traditional method .is rejected.

Research Question 2: What is the in the academic achievement of male and female secondary school students exposed to technology-assisted instruction?

Table 3: Gender mean and standard deviation scores for students exposed to TAI

Sex	N	Mean	Mean Dif	SD
Male	33	59.91	2.32	14.82
Female	42	57.59		10.90

The Table revealed that the male students in the technology assisted Instruction had a mean

of 59.91 with a standard deviation of 14.82 and the female students had a mean of 57.59 with a

standard deviation of 10.90. The male students taught with Technology Assisted Instruction had a higher mean score, with a difference of 2.32. In order to determine if the difference is significant, H_{02} was tested using independent sample t-test statistics.

Table 4: Independent Sample t-test Statistics

Sex	N	Mean	Mean Dif	SD	df	tcal	Sig (2-tailed)
Male	33	59.91	2.32	14.82	73	1.1	.205
Female	42	57.59		10.90			

The result in Table 4 revealed a non-significant difference in the post-test scores of the male and female students taught with Technology Assisted instruction since the calculated sig value of .205 which is greater than the critical sig value .05 was obtained, indicating that students taught using technology-assisted learning tools performed better academically compared to those taught using lecture method.

Hypothesis Two: There is no significant difference in the academic achievement of male and female secondary school students exposed to technology-assisted instruction.

Thus, the null hypothesis which states there is no significant difference in the academic achievement of male and female secondary school students exposed to technology-assisted instruction is not rejected

Research Question 3: What are the challenges associated in the use of technology-assisted instruction in chemistry?

Table 5: Mean and standard deviation scores indicating the Challenges associated with Using Technology Assisted Instruction

Theme	Mean	SD
Technical issues (e.g., software)	2.94	1.00
Lack of resources (e.g., devices)	3.15	.85
Insufficient training	2.86	.84
Distraction due to pop ups	2.88	1.01
Resistance to apply new innovation	2.74	.93

Table 5 revealed that the mean and standard deviation scores on the challenges faced by students in using technology Assisted instruction strategy. For technical issues (e.g., software) the of 2.94 and standard deviation of 1.00 was obtained, for lack of resources (e.g., devices) a mean of 3.15 and a standard deviation of .85 was obtained, in the case of insufficient training a mean of 2.86 and a standard deviation of .84 was obtained, for the distraction due to pop ups a mean of 2.88 and a standard deviation of 1.01 and lastly for resistance to apply new innovation a

mean of 2.74 and a standard deviation of .93 was obtained. With the means higher than the criterion mean of 2.50, it can be concluded that technical issues (e.g., software), lack of resources (e.g., devices), insufficient training, distraction due to pop ups and resistance to apply new innovation are challenges associated in the use of technology-assisted instruction in chemistry.

Discussion of Findings

This study investigated the Impact of Technology-Assisted instruction on secondary

school students' achievement in Chemistry. This study is timely considering the importance of the use of Technology-Assisted instruction in teaching.

The first finding of the study revealed a significant difference in the academic achievement of students taught using technology-assisted instruction when compared with those taught using lecture method. This significant difference observed in favour of the treatment group is due to the fact that the technology-assisted Instruction gave the students in the treatment group opportunities to have concrete experience with the concepts taught and they were both involve with hands on and minds on activity during the teaching and learning process. This aligns with that of Adalikwu and Iorkpilgh, (2013) whose findings revealed that students who used interactive multimedia resources in learning chemistry performed significantly better than their peers taught with lecture method. Similarly, Yusuf and Afolabi (2010) study demonstrated the positive impact of computer-assisted instruction on students' achievement in biology. Also, a meta-analysis by Schmid et al. (2014) found that digital learning tools significantly enhance student achievement in science subjects across various educational levels. Furthermore, studies of Harris et al., (2016) and Ambusaidi et al., (2018) revealed that virtual labs and simulations effectively improved students' understanding and retention of complex scientific concepts.

The second finding showed a non-significant difference in the male and female chemistry students achievement taught using Computer Assisted Instruction. This finding is due to the fact that the male and female chemistry students were exposed to same activities irrespective of their sex and this would have influenced the achievement equally. This finding also confirmed the findings of Agboro-Eravwoke, (2022), Asuquo, and Anaekwe (2023), who found no significant difference between male and female students' achievement.

The third finding revealed that technical issues, lack of resources, insufficient training and Distraction due to pop ups facing the usage of Technology Assisted Instruction in teaching are challenges faced with the usage of Computer Assisted Instruction in the teaching of chemistry. These challenges are consistent with those reported by Adewoye and Akinde (2023); Iyoha (2023); Ndlovu and Lawrence (2012) and Ertmer and Ottenbreit-Leftwich (2010).

Conclusion and Recommendations

In conclusion, this study demonstrated that technology-assisted instruction significantly enhanced academic achievement more than lecture method. It was also concluded that technology assisted instruction is not sex biased. Based on the one the third finding of the study, it was concluded that technical issues, lack of resources, insufficient training and distraction due to pop ups are challenges that affects the usage of Technology Assisted Instruction in the teaching of chemistry.

Based on the findings of the study, the following recommendation were drawn:

- To maximize the benefits of using Technology-Assisted Instruction in the teaching of chemistry, it is crucial to provide comprehensive training and ongoing support for teachers. This training should focus on the effective integration of technology into the curriculum, familiarizing educators with digital tools, and equipping them with strategies to overcome potential technical challenges.
- Ministry of Education should invest in robust technological infrastructure, including reliable internet access, up-to-date devices, and maintenance of equipment
- Also, it is recommended that digital learning resources tailored specifically to

the Nigerian secondary school chemistry curriculum should be developed and used for teaching. These resources should include interactive simulations, virtual labs, and multimedia content that align with the learning objectives to address the unique educational needs of Nigerian students.

- Lastly, surveys, focus groups, and academic achievement assessments should be used to gather feedback from both students and teachers, ensuring that the technology remains responsive to their needs and contributes to continuous improvement in educational outcomes.

References

- Abou Faour, M., & Ayoubi, Z. (2017). The effect of using virtual laboratory on grade 10 students' conceptual understanding and their attitudes towards physics. *Journal of Education in Science Environment and Health*, 4(1), 54-68.
- Adewoye, M. T., & Akinde, T. A. (2023). Perceived usefulness of web 2.0 tools for knowledge management by university undergraduate students: A review of literature. *American Journal of Information Science and Technology*, 7(3), 101-109.
- Ambusaidi, A., Al-Musawi, A., Al-Balushi, S., & Al-Balushi, K. (2018). The impact of virtual lab learning experiences on 9th grade students' achievement and their attitudes towards science and learning by virtual lab. *Journal of Turkish Science Education*, 15(2), 13-29.
- Agboro-Eravwoke, O.U. (2022). Using ethno-chemistry approach to improve students' achievement in chemistry: A case study of senior secondary school students in Delta State, *Innovations*, 68, 190-201.
- Ajaja P. (2013). Which strategy best suits biology teaching? Lecturing, concept mapping, cooperative learning or learning cycle? *Electronic Journal of Science Education* 17(1), 1- 37.
- Asuquo, U.A., & Anaekwe, M.C. (2023). Effects of computer assisted instruction on integrated science students' interest and achievement in Uyo, Akwa Ibom State. *International of Arts, Communication and Pedagogy (LIACOP)*, 2(2):106-118.
- Barak, M. (2017). Science teacher education in the twenty-first century: A pedagogical framework for technology-integrated social constructivism. *Research in Science Education*, 47(2), 283-303.
- Dori, Y. J., & Belcher, J. (2005). How does technology-enabled active learning affect undergraduate students' understanding of electromagnetism concepts? *The Journal of the Learning Sciences*, 14(2), 243-279.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.
- Eya, N. M., & Ezeh, D. N. (2020). Meta-Analysis of influence of gender on students' academic achievement in chemistry in Nigeria. *Journal of Chemical Society of Nigeria*, 45(4).
- Gambari, A. I., Obielodan, O. O., & Kawu, H. (2017). Effects of virtual laboratory on the achievement levels and gender of secondary school chemistry students in individualized and collaborative settings in Minna.
- Harris, J., Mishra, P., & Koehler, M. (2016). Teachers' technological pedagogical content knowledge and learning activity types: Curriculum-based technology

- integration reframed. *Journal of Research on Technology in Education*, 41(4), 393-416.
- Hegedus, S., & Roschelle, J. (2013). *The SimCalc vision and contributions: Democratizing access to important mathematics*. Springer Science & Business Media.
- Ibrahim, A., & Shiring, E. (2022). The Relationship between Educators' Attitudes, Perceived Usefulness, and Perceived Ease of Use of Instructional and Web-Based Technologies: Implications from Technology Acceptance Model (TAM). *International Journal of Technology in Education*, 5(4), 535-551.
- Iyoha, M. E. (2023). Challenges encountered by teachers teaching basic technology in Ovia North East Local Government Area of Edo State, Nigeria. *The Journal of Industrial Education and Training (JIET)*, 5(1), 89-99.
- Jegede, P. O., & Adesina, A. O. (2014). Relationship between ICT competence and attitude among Nigerian tertiary institution lecturers. *Education and Information Technologies*, 19(1), 155-171.
- Kapici, H. O., Akcay, H., & de Jong, T. (2020). How do different laboratory environments influence students' attitudes toward science courses and laboratories?. *Journal of Research on Technology in Education*, 52(4), 534-549.
- materials on academic performance of senior secondary school students in chemistry in Cross River State. *Global Journal of Educational Research*, 12(1), 39-46.
- Ndlovu, M., & Lawrence, D. (2012). The quality of ICT use in South African classrooms. *Educational Technology Research and Development*, 60(1), 23-45.
- Schmid, R. F., Bernard, R. M., Borokhovski, E., Tamim, R. M., Abrami, P. C., Surkes, M. A., & Woods, J. (2014). The effects of technology use in postsecondary education: A meta-analysis of classroom applications. *Computers and Education*, 72, 271-291.
- Sung, Y. T., Chang, K. E., & Liu, T. C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and research synthesis. *Computers and Education*, 94, 252-275.
- Tatli, Z., & Ayas, A. (2013). Effect of a virtual chemistry laboratory on students' achievement. *Journal of Educational Technology and Society*, 16(1), 159-170.
- Yusuf, M. O., & Afolabi, A. O. (2010). Effects of computer-assisted instruction on secondary school students' performance in biology. *The Turkish Online Journal of Educational Technology*, 9(1), 62-69.

INFLUENCE OF SOCIAL MEDIA USAGE ON SENIOR SECONDARY SCHOOL STUDENTS' ACADEMIC ACHIEVEMENT IN ESAN WEST LOCAL GOVERNMENT AREA, EDO STATE

OMI-UJUANBI, Gloria Omolegho (Ph.D)

*Institute of Education,
Ambrose Alli University, Ekpoma, Edo State
Gloriaujanbi@aauekpoma.edu.ng
+2348074560716*

Abstract

The study investigated the influence of social media usage on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State. Specifically, the objectives are to examine the influence of social media visit frequency, time spent on social media and number of memberships with social media on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State. The correlational survey design was employed in this study. The population of the study was 3,636 Senior Secondary School (SSS) students in the (16 public secondary schools in Esan Local Government Area, Edo State. The simple random sampling technique was adopted to select 20 Senior Secondary School Students from each of the 16 schools given a total of 320. The instrument was a "Social Media Usage Questionnaire (SMUQ)". The test-retest method was used to determine the reliability of the instrument. The researcher personally collected students' raw performance scores from the sampled schools. The simple linear regression analysis was used to test the hypotheses and all the hypotheses were tested at 0.05 level of significance. The result showed that influence of social media visit frequency, time spent on social media and number of memberships with social media significantly influence senior secondary school students' academic achievement in Esan West Local Government Area, Edo State. It was recommended that student should set their priority right by taking advantage of social media more for learning, online discussion, seeking academic help from academic faculty, downloading materials for reading and research purpose, and for solving academic related problems.

Keywords: *Social Media Usage, Visit frequency, Time spent, Number of Membership, Students' Academic Achievement*

Introduction

Secondary education is the level of education learners receive after primary but before tertiary education. The Federal Republic of Nigeria (FRN, 2013) stated succinctly that the broad goals of secondary education shall be to prepare the individual for useful living within the society and for higher education. In order to achieve these goals, schools are established as a formal agency of education where teaching and learning takes place to promote learners' academic achievement. Academic achievement refers to the learning outcome of a student on a subject or group of subjects after a period of class

instructions. Ojo (2022) defined it as the degree of a student's accomplishment on his/her studies. Hence, a student could be said to have passed or have a high level of performance if he/she made an average score of 70%, 60% or even 50% in an examination; depending on the examiner, educational institution or researcher.

Students' academic achievement in the past few decades has recorded abysmal performance in both external and internal examinations (Ojo, 2022). Poor academic performance can be very frustrating and its effects can be equally grave on the society. For instance, In August 2018, the West African Examination

Council (WAEC) gave the outcome of the May/June 2018 examination exercise as achieving a 75% failure in English Language and mass failure in some major science subjects like among others. Their report further showed that only 24.95% of the candidates who sat for the examinations, made five credits, including English Language, Mathematics and Biology.

Biology is one of the science subjects that senior secondary school students offer at the senior levels in the Nigerian secondary schools (FRN, 2013). Biology is a very important science subject and a requirement for further learning of a number of science-related professional courses like Medicine, Agriculture, Pharmacy, among others. In contemporary Nigeria, greater emphasis is placed on science and technological development. As a result, students are being encouraged to take up science-related subjects. Today, Biology pervades literally every field of human endeavour, and plays a fundamental role in educational advancement. This is seen in all the technological advancement in the world today, which is because of scientific investigations. However, the issue remains that in most secondary schools in Nigeria, there is high rate of failure in the subject. Secondary school students are exhibiting low interest (Folorunso, 2014).

This low interest of students has been traced to poor achievement in examinations. In our march towards scientific and technological advancement, we need nothing short of good achievement at all levels of schooling. Unfortunately, achievement of students at the end of the secondary school has not improved in the last decade. Folorunso (2014) has linked poor achievement trend particularly to the lack of instructional resources in schools due to poor funding of schools. The poor funding of schools has hindered the principals from providing the teachers with adequate instructional resources.

Asikhia (2010) argued that the abysmal or poor performances of students are unavoidable

and traceable to the school system and their teachers - who are at the centre of curriculum implementation in the classroom level. From the school system, he noted that factors such as availability of school laboratory, adequacy of practical equipment in the laboratory, site and instructional planning can be attributed as causes of students' poor academic performance in schools. In addition, the use of technology such as the internet and its associate resources has revealed that majority of students use social networking for social connections and entertainment, and seldom use it for educative purposes, which implies that a significant amount of their time is spent on social networking with distant and cyber friends as against the time spent on academic activities.

Social media are sites or mobile applications that enable people of common interest and purpose to interact through an electronic and internet-enabled medium such as personal computers, smartphones or an equivalent device. It is in the course of engaging oneself in these practices that users share activities, events, ideas and interest within their individual network. These practices are carried out primarily on the internet, through social web applications such as Facebook, WhatsApp and Instagram among others. In all these cases, the original idea was to allow people from different locations to instigate debates and share information using different kinds of support, such as pictures, videos, and notes (Osharive, 2018). However, their usage among Nigerian students at tertiary level has become so frequent and time consuming, that students now tend to spend more time surfing Facebook and other social networks. The interference of these media usage may therefore affect their emotional balance, self-concept, social life, ability to plan study time and also affect their learning readiness.

Generally, the use of social networking sites among students could affect their learning readiness in three ways. The first is the frequency

of visit to the sites which can be measured in terms of how often a user of social media visit a social media site on an hourly basis, daily basis, weekly basis or monthly basis (Fatokun, 2018). The second can be seen as the length or duration of time they spend on a daily basis using social media for various engagements such as chatting, liking, pinging, pasting of pictures, sharing of messages and commenting and also the number of memberships with these sites. For instance, most social media are integrated with a notification feature that allows users to get alert on recent activities shared on the platform through their internet enabled phones.

These notifications which usually come in form of a beep tone, phone vibration or short message are usually quite compelling enough to make user visit the site for a look up. Consequently, some students who often have their smartphones close to them during study times, or lectures may momentarily suspend their academic work, take their phones to reply new messages, check comments, like pictures, and watch videos shared by friends and eventually end up getting distracted. On the other hand, some students who put aside such distractions by turning off their phone notifications for social media message alert may not visit the social media sites regularly. Ejoh and Lawan (2022) asserted that this situation can be more complicated for students that hold membership with more than one social media site and therefore have to shuffle between or among several sites for new updates on the social media accounts or handles.

Posting a new status, reply messages, checking likes, dislikes, comments, sharing pictures and watching videos are just some of the very many things that could compete with student's time for study and other academic achievement. It is a common sight in school campuses in Nigeria to see students fondling with their cell phones during lectures, when walking on pathways, and even when eating in restaurants. This is because most of the students have social

networking sites running at the background of their smart/cell phones and as such get distracted when messages pop up on their phones with an alert tone which they spend lengths of hours browsing through, replying and pasting posts. Shehu and Shehu (2018) asserted that this situation can be more complicated for students that hold membership with more than one social media site and therefore have to shuffle between or among several sites for new updates on the social media accounts or handles

Frequency of visit to social media sites among undergraduate students has been investigated and similar findings have been reported in studies (Iordache & Lamanauskas, 2018; Shehu & Shehu, 2018). Iordache and Lamanauskas (2018) examined Romanian student opinions regarding Social Networking Websites (SNWs). 172 university students participated. From them, 130 are from the University of Bucharest and 42 from the Academy of Economic Studies in Bucharest. Descriptive statistics are applied (absolute and relative frequencies, standard deviations). The statistical analysis software SSPS 15 for Windows was used for data processing. Findings of this study among others show that majority of the respondents use social networking websites a few times a day. Specifically, the result shows showed, that 71(41.3%) of the respondents at least, visited social networking websites, a few times a day; 51(29.7%) - at least once a day. Only a small part visits the internet a few times a week or less. Lastly, the result showed that the higher the frequency of visit to social media, the lower the students' academic achievement.

Shehu and Shehu (2018) investigated the challenges of social media usage on Ahmadu Bello University students. The study adapted the survey research method, using a sample size of 200 respondents drawn from the population of 2,733 students of Faculty of Social Sciences Ahmadu Bello University, Zaria (as at the 2011-2012 academic sessions). This population did not

include post-graduate. The sample size of 200 respondents was drawn from the five Departments in Faculty of Social Science (Mass Communication, Economics, Political Science, Sociology and International Studies). This means 40 respondents were drawn from each department. In each department the respondents were selected through a simple random sampling procedure respectively. Survey method was adopted using questionnaire as instrument for data collection. Copies of questionnaires were administered and retrieved from 200 undergraduate. Findings (among other results) revealed that majority of the students totally 136 (68%) respondents use social site several times a day, 44 (22%) of the respondents indicated that they use it once a day influences their academic achievement.

Recent studies have tried to investigate the possibility of the amount of time devoted by students to social networking on their self-directed learning readiness. For instance; Auday and Coleman (2019) in their study investigated the impact of social networking activities on evangelical Christian college students. 1,342 students participated in the study. Of the four Christian colleges represented, at least 25% of their overall enrollments completed the questionnaire. 70% of all participants were women. There is an equal representation from the four classes of undergraduates (freshmen, sophomores, among others). Nearly all of the participants were between the ages of 18 and 27 years of age. An 83-item electronic questionnaire was developed and made available to participants using Survey Monkey. Frequency count and percentages were used to describe the data collected from the field. Based on findings, it was found that much total time is spent using Facebook. During an average day, over one third (33.2%) of the students, report between 1–2 hours. The result further shows that time spent on online social media significantly influences students' academic achievement

Iordache and Lamanuskas (2018)

explored the usage of social networking websites. The study aimed at identifying the Romanian student opinions regarding social networking websites (SNWs). 172 university students participated in the study. From them, 130 are from the University of Bucharest and 42 from the Academy of Economic Studies in Bucharest. According to sex, 140/81.4% of girls and 32/18.6% % of boys participated in the research. According to the course level, 96/55.8% of the students were enrolled in a Master degree and 76/44.2% where enrolled in a Bachelor degree. In order to analyze research data, measures of descriptive statistics are applied (absolute and relative frequencies, standard deviations). The statistical analysis software SPSS 15 for Windows was used for data processing. Among other findings, the study showed, that of the respondents visit internet social media websites at least a few times a day, two weeks while spend less than two weeks.

Ejoh and Lawan (2022) examined the impact of social media use on academic achievement in science subjects among senior secondary school students in Anambra State, Nigeria, was studied using a descriptive survey design. The study's goals are to determine the relationship between social media usage and academic performance in science subjects among Anambra State senior secondary school students, as well as to determine whether there is a difference in the relationship between social media usage and academic performance in science subjects between male and female Anambra State senior secondary school students. The study's participants are all senior secondary school students in Onitsha, Anambra State. The population in its entirety is 1,450. According to the research advisers' requirements, the study's sample size is 260 senior secondary school students from Onitsha North and South. To test hypothesis one, the data was analyzed using Pearson Product Moment Correlation (r). The use of PPMC was based on the assumption that it can

be used to form relationships. Because hypothesis two had multiple independent variables, regression analysis was utilized to test them. There is no significant association between social media usage and academic performance in science subjects among Anambra State senior secondary school students, although there is a significant difference.

Amponsah (2022) explored the usage of the internet and its impact on the academic performance of Senior High School (SHS) students in the Cape Coast Metropolis. A questionnaire was used to gather data from 105 second-and third-year students through random sampling and was then analyzed using descriptive statistics and an independent samples t-test. The result revealed that Internet outlets for SHS students include school ICT labs, mobile phones, internet facilities for families, and public internet cafes. Furthermore, internet access influences academic standards among students, as those with internet access have shown a higher improvement in academic performance than those without. Different internet use, on the other hand, has no impact on academic performance, as revealed by the results.

Amin, et al. (2016) determined the effect of growing use of social media sites on the academic performance of the students of universities and colleges in Pakistan. A target population for data collection of this study is educational sector of Pakistan including the University of Education Lahore (Okara campus), Comsats University, University of Central Punjab, District Public School and College Okara, Suffa Educational Complex, Punjab College Okara. On the basis of random sampling a sample of 300 students was selected. Questionnaire was used as an instrument for data collection. 97% questionnaire received back from respondents on which descriptive statistics apply for data analysis. Results indicated that the effect of social media can be positive as in this study closely determined students' academic achievement.

Mass failure of students in public examinations could be traced to several factors that can be compartmentalized into the domains of parents, students, teachers, schools, government and the society. In other words, the causes of mass failure of students in public examinations are multi-dimensional in nature. Aremu and Sokan (2003) found out that the students' factors responsible for poor academic achievement were poor study habits, psychological adjustment problems, lack of interest in school programme, low retention, association with wrong peers, low achievement motivation and emotional problems. Asanga et al. (2023) submitted that the search for the factors responsible for poor academic achievement is unending and some of the teacher related factors they put forward are: teachers' consultation, class interaction, academic qualification, mastery of subject content, professional development/continuing teacher training problems.

Usually, principals and teachers among other school administrators have often been consulted in making conclusions on the predictors of students' academic achievements in previous studies (Ojo, 2022.; Ejoh, & Lawan, 2022). The use of social networking sites among science students has become a source of concern to many parents, school administrators because of the distraction they create within the school. Some of the manifestations of these are lateness to class, low readiness to involve in individual and group practical, unwillingness to carry out their assignment and decline in the time set aside for their study engagement.

Some studies have been carried out on social media-achievement nexus. The study by Asanga et al. (2023) examined the effect of social media (SM) on the academic performance (AP) of senior secondary school (SSS) students in Uyo, Akwa Ibom State, Nigeria who found that there is a link between SM addiction and a student's AP. In order to prevent students from falling behind

academically, it is suggested that SM be used for educational purposes, that social networking sites (SNSs) be launched with new pages developed to effect academic activities, and that teachers and parents monitor students' use of these sites. Fatokun (2018) examined the effect of social media on undergraduate students' achievement and interest in Chemistry in the North-Central geo-political zone of Nigeria using students from Nasarawa State University Keffi, University of Abuja, and Federal University of Agriculture, Makurdi. The result further showed that visit frequency to social media affects students' academic engagement in the north-central geo-political zone of Nigeria. In spite of several studies on social media in Nigeria, it is not to the researcher's knowledge that enough studies have established the influence of social media usage on senior secondary school students' Biology achievement in Edo State. Hence, a knowledge gap exists. This study therefore was carried out to fill this knowledge gap by investigating the influence of social media usage in senior secondary school students' academic achievement in Esan West Local Government Area, Edo State.

Research Questions

The following research questions guided the study:

- 1) What is the influence of visit frequency to social media on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State?

Method of the Study

The correlational survey design was employed in this study to investigate the influence of social media usage on senior secondary school students' academic achievement in Esan West Local Government area of Edo State. This research design was adopted because the variables of the study were correlated to determine the relationship that exists between the

- 2) What is the influence of time spent on social media on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State?
- 3) What is the influence of number of memberships with social media on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State?

Hypotheses

The following research hypotheses were formulated and tested in this study at .05 level of significance

- 1) Frequency of visit to social media has no significant influence on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State.
- 2) Time spent on social media has no significant influence on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State.
- 3) Number of memberships with social media has no significant influence on senior secondary school students' academic achievement in Esan West Local Government Area, Edo State.

dependent variables (academic performance) and the independent variable (social media usage) in public secondary schools in Esan West Local Government Area, Edo State. The population of the study covered the 3,636 Senior Secondary School (SSS) students 16 public Senior Secondary Schools in Esan Local Government Area of Edo State. A sample of 320 students was drawn for the study. The simple random sampling technique was adopted to select 20 Senior Secondary School Students from each of the 16

schools given a total of 320. Students in Senior Secondary School I and II (SS I and SS III) were drawn as sample for the study.

The instrument for the study was Social Media Usage Questionnaire (SMUQ). The inventory (SMUQ) was divided into two Sections: Section A and B. Section A was used to collect data about the students and their social media usage behaviour in terms of frequency of visit to social media, average time spent using social media and number of memberships held with social media. In other to collect data on academic performance of students in schools, a letter of permission was given to teachers to solicit their cooperation in providing records of their students' academic performance in their last promotional examination. The data was collected from teachers in each of the sampled schools. Students' scores as conventionally reported in the school's broad sheet: 70-100% (Excellent/ Distinction), 60-69% (Very Good), 50-59 (Good/credit/Average), 40-49% (pass), and below 40% (Fail) was collated. However, to match the four-point scale of other variables on school environment in Section B, the overall score or grade of each student in Economics was operationally rated as: 60-100% (Pass) - 4, 50-59% (Average) - 3; 40-49% (Poor) - 2; 39% &

below (Failed) - 1

The test-retest method was used to determine the reliability of the instrument. This method was used to obtain responses from a total of 20 teachers from public schools in the study area. The instrument was administered to them and re-administered after a few weeks to the same set of teachers. Their responses in the first and second test were correlated using the Pearson Product Moment Correlation. The result of the coefficient produced an r-value of .74 which shows that the instrument is reliable. The simple linear regression analysis was used to test the hypotheses of the study. All hypotheses were tested at .05 level of significance.

Results

The three research questions in the study were hypothesized and tested. Hence, the results from the test of hypotheses are presented below:

Hypothesis 1: Frequency of visit to social media has no significant influence on senior secondary school students' academic achievement in Biology in Esan West Local Government Area, Edo State.

The simple regression coefficients are clearly presented in Table 1.

Table 1: Simple Regression on Frequency of visit to Social Media and Senior Secondary School Students' Academic Achievement in Biology in Esan West Local

R = .256*							
R-square (R ²) = .066							
Adjusted R-square = .062							
F _(1,228) = 18.844*							
	Unstandardized Coefficients		Standardized Coefficients		t-val.	p-val.	Remark
	B	Std. Error	Beta				
Model							
(Constant)	2.034	.116			17.566	.000	Significant
Frequency of visit to social media	.247	.057	.256		4.341	.000	Significant

a. Dependent Variable: Academic Achievement

b. Predictors: (constant), Frequency of Visit to social media

*t-value and f-values are statistically significant (p<0.05)

The result in Table 1 showed that the F-value of 18.44 which tested for the relationship of the

predictor was significant ($p < .05$). The researcher therefore rejects the null hypothesis. This indicates that frequency of visit to social media o significant influence on senior secondary school students' academic achievement in Biology in Esan West Local. The r-value (R) of .256 showed that the strength and direction of the predictor (frequency of visit to social media) with the dependent variable (Students' Academic Achievement in Biology) was weak, positive but significant ($.00 \geq R \leq .39$). The probability value of the t-value and β -coefficient ($t = 4.341$, $\beta = .247$,

$p < .05$) confirms that frequency of visit to social media significantly influence secondary school students' academic achievement in Biology in Esan West Local Government area, Edo State.

Hypothesis 2: Time spent on social media has no significant influence on senior secondary school students' academic achievement in Biology in Esan West Local Government area, Edo State.

The simple regression coefficients are clearly presented in Table 2.

Table 2: Simple Regression on Time Spent on Social Media and Senior Secondary School Students' Academic Achievement in Biology in Esan West Local

R = .376^a
R-square (R^2) = .141
Adjusted R-square = .138
 $F_{(1,228)} = 43.994^*$

	Unstandardized Coefficients		Standardized Coefficients		t-val.	p-val.	Remark
	B	Std. Error	Beta				
Model							
(Constant)	1.212	.198			6.108	.000	Significant
Time spent on social media	.716	.108	.376		6.633	.000	Significant

a. Dependent Variable: Academic Achievement

b. Predictors: (constant), Time Spent on Social Media

*t-value and f-values are statistically significant ($p < .05$)

The result in Table 2 showed that the F-value of 43,994 which tested for the relationship of the predictor was significant ($p < .05$). The researcher therefore rejects the null hypothesis. This indicates that time spent on social media has significant influence on senior secondary school students' academic achievement in Biology in Esan West Local. The r-value (R) of .256 showed that the strength and direction of the predictor (time spent on social media) with the dependent variable (Students' Academic Achievement in Biology) was weak, positive but significant ($.00 \geq R \leq .39$). The probability value of the t-value and

β -coefficient ($t = 6.633$, $\beta = .716$, $p < .05$) confirms that time spent to social media significantly influence secondary school students' academic achievement in Biology in Esan West Local

Hypothesis 3: Number of memberships with social media has no significant influence on senior secondary school students' academic achievement in Biology in Esan West Local Government area of Edo State.

The simple regression coefficients are clearly presented in Table 3.

Table 3: Simple Regression on Number of Membership and Senior Secondary School Students' Academic Achievement in Biology in Esan West Local

R = .291^a

R-square (R²) = .085

Adjusted R-square = .081

F_(1, 268) = 24.752*

	Unstandardized Coefficients		Standardized Coefficients	t-val.	p-val.	Remark
	B	Std. Error	Beta			
Model						
(Constant)	1.967	.116		17.008	.000	Significant
Number of memberships with social media	.279	.056	.291	4.975	.000	Significant

a. Dependent Variable: Students' Academic Achievement

b. Predictors: (constant), Number of memberships with social media

*t-value and f-values are statistically significant ($p < .05$)

The data in Table 3 showed that the F-value of 24.752 which tested for relationship of the predictors was significant ($p < .05$). The researcher therefore rejects the null hypothesis. This indicates that number of memberships with social media has significant influence on senior secondary school students' academic achievement in Biology in Esan West Local Government area of Edo State. The r-value (R) of .291 showed that the strength and direction of the correlate (number of memberships with social media) with students' academic achievement in Biology was weak, positive but significant ($.00 \geq R \leq .39$). The probability value of the t-value and β -coefficient ($t = 4.975$, $\beta = .279$, $p < .05$) confirms that number of memberships with social media significantly influence students' academic achievement in Biology.

Discussion of Findings

The result of hypothesis 1 showed that frequency of visit to social media has a significant influence on senior secondary school students' academic achievement in Biology in Esan West Local area, Edo State. The result agreed with that of Iordache and Lamanauskas (2018) who found that the higher the frequency of visit to social media, the lower the students' academic achievement. The result corroborated that of Shehu and Shehu (2018) who found that majority of the students totally 136 (68%) respondents use

social site several times a day, 44 (22%) of the respondents indicated that they use it once a day influences their academic achievement. The result is in line with that of Mehmood and Taswir (2017) who found that there was a relationship between use of social media and students' academic achievement among undergraduate students at the College of Applied Sciences (CAS), Nizwa, Oman

The result of hypothesis 2 showed that time spent on social media has a significant influence on senior secondary school students' academic achievement in Biology in Esan West Local. The result is in line with that of Auday and Coleman (2019) who found that time spent on online social media significantly influences students' academic achievement. The result is in line with that of Heffner (2016) who found that a student's GPA is more likely to decrease due to the amount of time spent using social media.

The result of hypotheses 3 showed that number of memberships with social media has a significant influence on senior secondary school students' academic achievement in Biology in Esan West Local. The result agreed with that of Mingle and Musah (2015) who found that there was a relationship between social media network participation and academic achievement of students in senior high schools in Ghana. The result is in line with that of Amin, et al. (2016)

who found that the effect of social media can be positive as in this study closely determined students' academic achievement.

Conclusion and Recommendations

The use of social networking sites among students could affect their learning readiness in three ways. The first is the frequency of visit to the sites which can be measured in terms of how often a user of social media visit a social media site on an hourly basis, daily basis, weekly basis or monthly basis. Based on findings, it was concluded that influence of social media visit frequency, time spent on social media and number of memberships with social media significantly influences senior secondary school students' academic achievement In Biology in Esan West Local area, Edo State. The following recommendations are given:

- 1) Student should set their priority right by taking advantage of social media more for learning, online discussion, seeking academic help from academic faculty, downloading materials for reading and research purpose, and for solving academic related problems.
- 2) Biology students should invest their time wisely and concentrate more on their studies rather than spend their precious time on social media platforms for non-beneficial academic achievement.
- 3) Lecturers should restrict students from using their phones when lectures are on-going. This will help to curb the extent to which students are distracted during lecture periods.
- 4) Lecturers can adopt the strategy of online learning by channelling assignments or discussions on social media platforms to help inculcate the habit of using these media platforms for academic work by the students.
- 5) Awareness programmes relating to social media usage should be arranged at the

institutional, faculty and departmental levels, to enlighten students on the impact of Internet addiction as a means of lessening their chances of falling prey to the harmful impacts of social media.

References

- Amin, Z., Mansoor, A., Hussain, S.R., & Hashmat, F. (2016). Impact of social media of students' academic performance. *International Business and Management Invention*, 5(4),22-29.
- Amponsah, K. D. (2022). The impact of internet usage on students' success in selected senior high schools in Cape Coast metropolis, Ghana. *European Journal of Educational Sciences*, 9(2), 1-18.
- Aremu, H., & Sokan, G. (2003). A multi causal evaluation of academic performance of Nigerian learners: issues and implications for national development. *International Journal of Current Research*, 10(09), 73520-73523.
- Asanga, M. P., Essiet, U. U., Ukhurebor, K. E., Afolorunso, A., & Hussaini, P. (2023). Social media and academic performance: A survey research of senior secondary school students in Uyo, Nigeria. *International Journal of Learning, Teaching and Educational Research*, 22(2), 323-337.
- Asikhia O. A. (2010). Students and teachers' perception of the causes of poor academic performance in Ogun State secondary schools (Nigeria): Implications for counseling for national development. *European Journal of Social Sciences*, 13(2), 229-242.
- Auday, I., & Coleman, A. (2019). A study on the impact of social media on students' academic performance: University of Tabuk an example. *American Scientific*

- Research Journals for Rngineering, Technology and Services (ASJETS)*, 40(1), 77-88.
- Ejoh, N., & Lawan, M. (2022). Effects of students' use of social media on academic performance (A case study of secondary school students in Onitsha). *Journal of Education, Society and Multiculturalism*, 3(1), 17-33.
- Fatokun, K.V. (2018). Effect of social media on undergraduate students' achievement and interest in chemistry in the north-central geo-political zone of Nigeria. *International Journal of Science and Technology Educational Research*, 10(2), 9 -15.
- Federal Republic of Nigeria (2013). *National policy on education*. (6th Edition). Abuja: NERDC press.
- Folorunso, I. O. (2014). Alternative sources of funding ICT resources for OTM programme in polytechnics in Osun State. *Journal of Professional Secretaries and Office Administrators*, 22(1), 278-288.
- Heffner, T. (2016). The effects of social media use in undergraduate students. *Theses and Dissertations*. 1440. <http://rdw.rowan.edu/etd/1440>
- Iordache, D.D., & Lamanauskas, V. (2018). Exploring the usage of social networking websites: perceptions and opinions of Romanian University Students. *Informatica Economica*, 17(4), 18-25.
- Mehmood, S., & Taswir, T. (2017). The effects of social networking sites on the academic performance of students in College of Applied Sciences, Nizwa, Oman. *International Journal of Arts and Commerce*, 2(1), 111-125.
- Mingle, J., & Musah, A. (2015). Social media network participation and academic performance in senior high schools in Ghana. *Library Philosophy and Practice (e-journal)*. Paper 1286. Retrieved from <http://digitalcommons.unl.edu/libphilprac/1286>
- Ojo, A. A. (2022). Social media: Negative effect on academic performance of secondary school students in Nigeria. *British Journal of Education*, 10(3), 126-131.
- Osharive, P. (2018). Influence of social media and academic engagement of students in University of Lagos. *An unpublished thesis submitted to the Department of Educational Administration, University of Lagos*.
- Shehu, N., & Shehu, A. (2014). Challenges of social networking on students' reading habit in Ahmadu Bello University, Zaria. *Research on Humanities and Social Sciences*, 4(19), 34-39.

IMPACT OF CHEMISTRY STUDENTS' CONCEPTIONS AND MISCONCEPTIONS ON THEIR ACADEMIC ACHIEVEMENT IN STOICHIOMETRY

OYAKHIROME, A.H. Ph.D

Department of Curriculum and Instructional Technology, Faculty of Education,
University of Benin, Benin City, Nigeria.

Email: hoyakhirome@uniben.edu

Abstract

The study is on evaluating the impact of school location, school type and academic achievement on chemistry students' alternative conceptions and misconceptions in stoichiometry. Two research questions were raised to guide the study and one hypothesis formulated. The descriptive survey design was used for the study. The stratified random sampling technique was used to assign the strata into school types (public and private schools). 673 SS II Chemistry students were selected from 10 senior secondary schools in Warri South Local Government Area of Delta State. The instrument for the study was a two-tier Chemistry Achievement Test (CAT). The research instrument has two sections. Section A contains general information about the school and the students while section B was a 30 multiple choice test items with reasons for choosing the option. The research questions were analyzed using frequency, percentages and mean and standard deviation, and independent sample t-statistics was used to test the hypothesis at .05 level of significance. The results showed that a high percentage of the students holds correct conceptions about stoichiometry in Warri South Local Government Area. The result also showed that there is no significant difference between male female secondary school student correct conception and misconception of stoichiometry. From the findings, it was recommended that secondary school students should be taught stoichiometry using electronic centred teaching methods and that teachers should be trained through seminar and workshop for them to acquired skills needed for their usage.

Keywords: *Stoichiometry, Alternative Conceptions, Misconceptions and Chemistry Learning Difficulties*

Introduction

Science can be viewed as a continuing human effort to systematize knowledge for describing and understanding nature. Chemistry as a science subject deal with the composition, structure, properties and interaction of matter and is of use to human beings in daily life. These aspects can be best described and understood in terms of basic constituents of matter that are atoms and molecules. That is why chemistry is also called the science of atoms and molecules. Chemistry as a subject has many topics in its syllabus of which Stoichiometry and chemical equilibrium are one of them. Stoichiometry is an important part of many practicing chemists' work. This concept in

chemistry calculates the maximum amount of product that can be obtained from a reaction, with the assumption that it is the only reaction occurring and all products are collected. It is about determining the theoretical yield of a chemical reaction (Eya & Ugah, 2022).

Stoichiometry cuts across many sub disciplines of chemistry such as analytical chemistry, physical chemistry and organic chemistry. Hence, the instruction of stoichiometry problem solving is considered an essential part of the curriculum for senior secondary school chemistry students. Stoichiometry and chemical equilibrium are

chemistry topics studied by secondary school science students and these topics consist of abstract concepts. Abstract concepts can only be visualized at the atomic level, then to understand the chemical phenomenon requires the integration of three levels of representation, namely macroscopic, submicroscopic and symbolic (Blosser, 2018). Nakhleh (2019) asserted that in order to obtain a complete understanding of chemical concepts, integration of conceptual and algorithmic understanding is required. More students successfully balanced the equations. However, few of them could not explain the equation in the microscopic system. This makes the subject matter for the Stoichiometry and Chemical Equilibrium difficult to understand by senior secondary school student. These difficulties can lead to misconceptions if it happens continuously (Gabel & Sherwood, 2020). Misconceptions are also called alternative concepts or Spontaneous Knowledge (Dahsah & Coll, 2017). Studies such as: Opara (2014); Ajayi (2017); Mandina and Ochnogor (2018); Etokeren, et al, (2019); Mahafa, et al, (2022) all reported that two of the many reasons behind student's inability to understand stoichiometry: are that stoichiometry is an abstract topic and secondly, the chemical vocabulary associated with solving stoichiometric problems seems to prevent students from applying their mathematical skills to chemical phenomena in the learning process. Learning process is an active process and what students do with facts and ideas with which they have.

Learning is an active process, and what students do with facts and ideas with which they have been presented depends to a very high degree on what they already think and believe. Teachers' recognition and working with these student-held ideas and conceptions is thus a key component of an effective educational strategy. Students who do not fully understand the mole experience difficulties in understanding the subsequent topics (Taha, et al., 2014). Especially, in stoichiometry

problems since the calculations revolve around the mole concept. Stoichiometry calculations have been considered difficult by secondary school students in general chemistry (Hanson & Wolfskill, 2018). This is due to the many different facets a student must master, such as the mole concept, balancing chemical equations, algebraic procedures, and interpretation of a word problem into mathematical equations that serve as procedural steps which would then lead to the correct answer. Tarha and Ishmail (2019) have shown that secondary students have difficulties in dealing with the abstract concepts required of them to perform stoichiometric calculations using the mole concept. They also found that for students to solve stoichiometric problems, they must also be able to apply a thorough understanding of the principle involved in mole ratio and proportion calculations.

Mulford and Robinson (2022) asserted that alternative conceptions play a larger role in learning chemistry than simply producing inadequate explanations to questions. Students at secondary school level either consciously or subconsciously construct their concepts as explanations for the behaviour, properties or theories they experience. They believe most of these explanations are correct because these explanations make sense in terms of their understanding of the behaviour of the world around them. Consequently, if students encounter new information that contradicts their alternative conceptions it may be difficult for them to accept the new information because it seems wrong.

Misconceptions are delineated as ideas or insights from students who provide incorrect meaning constructed based on an event or personal experience (Martin, 2011). Science misconceptions are individual knowledge gained from educational experience or informal events that are irrelevant or not having the meaning according to scientific concepts (Allen, 2014; Soeharto, et al., 2019). In summary, the misconception in science can be described as

secondary school students' ideas from life experience or informal education, which is not structured well and resulting in the incorrect meaning according to a scientific concept. It causes the students, mostly those with low academic achievement, to understand related concepts wrongly. In chemistry, this problem is very obvious since it involves scientific terms that are rarely heard by the students. Essentially, when students enter the classroom, they go through the learning process by having different thoughts or knowledge based on their past experiences. This sort of thinking influences their ways of learning which is often based on non-scientific belief or naive conception (Blosser, 2019).

Statement of the problem

One of the challenges that have been found in today's chemistry education is the effective instructional strategies (Agboro-Eravwoke, 2020), and adequate laboratory resources. The consequence is learning misconceptions, particularly in balancing basic stoichiometry. The content of basic stoichiometry in the senior. Errington and Bubna-Litic (2015) described learning objectives and questions in the current textbooks as inappropriate for promoting critical thinking secondary school textbook does not seem to engage the students in meaningful thinking. Particularly, if teachers' chemistry content knowledge and teaching strategies are inappropriate, conceptual understanding of basic stoichiometry will continue to be challenging. However, inadequate instructional hours could be very challenging too for a teacher to accomplish and eloquently address the demand of learning objectives and questions. This may pose difficulties to students' learning, and as they move from one class to another, content also changes from simpler to complex. Hence, it seems that instructors must first focus on developing students' knowledge base and skills base. Without these, students could not succeed in true problem solving. Thus, highlighting the relevance of the study on chemistry students'

conceptions about stoichiometry. An analysis of students' achievement from 2010-2022 the percentage number of students made a credit pass in chemistry ranged from 44.16%-46.16%. From 2010-2012, the percentage of students who obtained a credit pass was below 50% except in 2010 with 50.7%. From 2013-2016, there was a persistent decline in the percentage of those who made a credit pass from 72.34% in 2013, to 62.49% in 2014, to 60.6% in 2015 and 57.74% in 2016.

From 2017-2022, reports on the worst academic achievement of students in chemistry were observed. This is because in 2018 through 2022, students' highest point of decline was observed. This has resorted to the upspring of so many researches into students' alternative conceptions and misconceptions about chemistry topics as it is perceived to be vital to their academic achievement in the subject.

Method of the Study

The study adopted the descriptive survey design. The population of the study was made up of public and private senior secondary class two chemistry students, with total population of 2,446. There are 16 public and 22 private senior secondary schools in Warri South Local Government Area in Delta State. The sample for the study was 673 SS II Chemistry students was from 10 senior secondary schools in Warri South Local Government Area of Delta State. The simple random sampling technique was adopted. The schools were stratified based on type of school: public and private. Five schools from each stratum were selected. All the SS III Chemistry students in each selected school participated in the study.

The instrument for the study was a 30 multiple choice test item two tier Chemistry Achievement Test. Each item has two parts, an answer and a reason part. A correct answer with correct reason indicates a correct conception and a correct

answer with wrong reason or vice versa indicates an alternative conception while wrong answer with wrong reason or vice versa indicates misconception. The answer part of the items was constructed from previously standardized WAEC (West African Examination Council) examination questions also the reasons were constructed from the recommended and approved Chemistry texts. SPSS package was used for data analysis. Descriptive statistics such as mean and standard deviation was used to answer the research questions. One-Way ANOVA was used to test the hypotheses at 0.5 level of significance.

Results

Research Question 1: Examine the alternative conceptions and misconceptions of secondary school students about stoichiometry in Warri South Local Government Area.

Table 1: Frequency and Percentages showing Misconceptions of students about stoichiometry in Warri South Local Government Area

S/N	MISCONCEPTIONS	ANSWER	Correct Conception F(%)	Misconception/ Alternative Conception F(%)
1	Derived dimensions are those that can be developed in terms of fundamental dimensions.	Correct	370 (55%)	303 (45%)
2	lb mole = mass in lb/molecular weight.	correct	532 (79%)	141(21%)
3	lb mole = mass in lb/mass	Not correct	301 (44.7%)	372 (55.3%)
4	To covert, first convert 15 g mole of NaOH to grams of NaOH, and then use the conversion of 1 lb = 454g.	Correct	458 (68%)	215 (32%)
5	Number of moles = mass/mole	Not correct	298 (44.3%)	375 (55.7%)
6	Number of moles = mass / molecular weight.	Correct	431 (65%)	242 (36%)
7	Standard dimensions are those that can be developed in terms of fundamental dimension.	Not correct	372 (55.3%)	301 (44.7%)
8	Fundamental units are not those that can be measured independently.	Not correct	307 (45.6%)	366 (54.4%)
9	This chemical equation is balanced: Moles of Oxygen = Moles of NaOH + Moles of H ₂ O + 4(Moles of H ₂ SO ₄).	Not correct	341(50.7%)	332 (49.3%)
10	Fundamental unit does not require measurement	Not correct	401(59.6%)	272 (40.4%)
11	Weight percentage = Total mass / mass of the component	Not correct	395 (58.7%)	278 (41.3%)
12	It is called Molecular weight because it	Not correct	367 (54.5%)	306 (45.5%)

	contains 6.022×10^{23} amount of substance			
13	Mole percentage = Moles of the component / Total moles	Correct	431 (65%)	242 (36%)
14	It is called Mole because it contains 6.022×10^{23} amount of substance.	Not correct	369 (54.8%)	304 (45.2%)
15	A gm mole is composed of 6.022×10^{23} molecules and 1 lb mole is 453.6 times a gm mole.	Correct	486 (72.2%)	187 (27.8%)
16	Molecular weight is the ratio of mass and mole	Not correct	370(72.2%)	303(45%)
17	Number of moles = mass/ molecular weight can be used to calculate the number of moles of a substance when the mass of the substance and its molecular weight are known	Correct	395 (58.7%)	278 (41.3%)

The result in Table 1 showed that 370 of the secondary school students representing 55% hold correct conception while 303 of them representing 45% of students hold misconception/alternative conception about derived dimensions are those that can be developed in terms of fundamental dimensions. Also, the result in the table showed that 532 of the secondary school students representing 79% of them hold correct conception while 141 of them representing 21% of secondary school students hold misconception about lb mole = mass in lb/molecular weight, of the students do not. More so, 372 of the secondary school students representing 55.3% of them hold correct conception while 301 of the students representing 44.7% of the them hold misconception about lb mole = mass in lb/mass, Also, the student's response to; to covert, first convert 15g mole of NaOH to grams of NaOH, and then use the conversion of 1 lb = 454g, showed that 458 of them representing 68% of the secondary school students hold correct conception while 215 of them representing 32% of secondary school students have misconception about. The result in the table above also showed that 375 of the secondary school students representing 55.7% have correct conception about the statement that Number of moles = mass/mole while 298 of them representing 44.3% of the secondary school students hold misconception. Also, the result in the table showed that 431 of the secondary school

students representing 65% of the them hold correct conception while 242 of them 36% of the secondary students hold misconception about the statement that Number of moles = mass/molecular weight. Furthermore, the result in the table also showed that while 301 of the secondary school students representing 44.7% of them have correct conception while 372 of them representing 55.3% of the secondary school students hold misconception about the statement that Standard dimensions are those that can be developed in terms of fundamental dimension. More so, 272 of the students representing 40.4% of the students have correct conception while 401 of them representing 59.6% of the secondary school students hold misconception about the statement that Fundamental unit does not require measurement. The result in the table also showed that 306 of the secondary school students representing 45.5% of them hold correct conception while 367 of them representing 54.5% of secondary student hold misconception about the statement that it is called Molecular weight because it contains 6.022×10^{23} amount of substance. More so, the result in the Table also showed that 242 of the secondary school students representing 36% of the them holds correct conception while 431 of them representing 65% of them hold misconception about the statement that Mole percentage = Moles of the component/Total moles. Furthermore, the result

in the table also showed that 486 of the secondary school students representing 72.2% of them have correct conception while 187 of the secondary school students representing 27.8% of them hold misconception about the statement that A gm mole is composed of 6.022×10^{23} molecules and 1 lb mole is 453.6 times a gm mole. The result in the table also showed that 303 of the secondary school students representing 45% of them hold correct conception while 370 of them representing 55% of secondary school students hold misconception about the statement that Molecular weight is the ratio of Mass and Mole Lastly, the result in the table also showed that 395 of the secondary school students representing 58.7% of them have correct conception while 278 of the secondary school students representing 41.3% of students hold misconception about the statement that Number of moles = mass/molecular weight can be used to calculate the number of moles of a substance when the

mass of the substance and its molecular weight are known. This implies that student's misconception about stoichiometry are that: lb mole = mass in lb/mass, Number of moles = mass/mole, Standard dimensions are those that can be developed in terms of fundamental dimension, Fundamental units are not those that can be measured independently, this chemical equation is balanced: Moles of Oxygen = Moles of NaOH + Moles of H₂O + 4(Moles of H₂SO₄), Fundamental unit does not require measurement, Weight percentage = Total mass/mass of the component, it is called Molecular weight because it contains 6.022×10^{23} amount of substance, and Molecular weight is the ratio of Mass and Mole.

Research Question 2: What is the difference between the male and female conceptions and misconceptions of School secondary about stoichiometry in Warri South Local Government Area.

Table 2: Mean and Stand deviation showing Male and Female Secondary School Students correct Conceptions and Misconceptions about Stoichiometry in Warri South Local Government Area

Sex	Correct conception				Misconception			
	N	Mean	Mean Diff	SD	Mean	Mean Diff	SD	
Male	310	26.38	6.06		20.98	3.81		
		.31			.41			
Female	363	26.69	6.18		21.41	6.06		

Table 2 showed that the male students have a correct conception mean score of 26.38 and a standard deviation of 6.06 while their female counterpart had a correct conception mean score of 26.69 with a standard deviation of 6.18. There exists a correct conception mean difference of .31 in favour of the females. Also, the table shows that the male students had a misconception mean score of 20.98 and a standard deviation of 3.81 while their female counterpart had a misconception mean score of 21.41 with a

standard deviation of 6.04. There exists a misconception mean difference of .31 in favour of the females. To determine if these differences are significant, independent sample t-test statistics was used to test H₀₁ Government Area. **H₀₁:** There is no significance difference between the mean scores of male and female secondary students' correct conceptions and misconceptions about stoichiometry in Warri South Local Government Area

Table 3: Independent Sample Statistics Comparing Male and Female Secondary School Students Correct Conceptions and Misconceptions about Stoichiometry in Warri South Local Government Area

Sex	Correct conception					Misconception				
	N	Mean	Mean	SD	df	tcal	Sig (2tailed)	Mean	Mean	SD
Male	310	26.38	6.06			20.98	3.81			
		.31	671	.664	.520		.41		671	1.505
Female	363	26.69	6.18			21.41	6.06			

Table 3 showed that the difference between the male and female chemistry students correct conception and misconception of stoichiometry is not significant since the calculates significant value of .520 and .133 are greater than .05 alpha level of significant with this, H_{01} which states that

there is no significance difference between the mean scores of male and female secondary students' correct conceptions and misconceptions about stoichiometry in Warri South Local Government Area is retained.

Discussion of Findings

The first finding of the study shows that a high percentage of the secondary school students holds correct conception of stoichiometry compared to the misconception. The study revealed that students' misconception about stoichiometry are that: lb mole = mass in lb/mass, Number of moles = mass/mole, Standard dimensions are those that can be developed in terms of fundamental dimension, Fundamental units are not those that can be measured independently, this chemical equation is balanced: Moles of Oxygen = Moles of NaOH + Moles of H₂O + 4(Moles of H₂SO₄), Fundamental unit does not require measurement, Weight percentage = Total mass/mass of the component. It is called Molecular weight because it contains 6.022×10^{23} amount of substance, and Molecular weight is the ratio of Mass and Mole. This finding is in line with Gabel and Sherwood (2020) who asserted that some senior secondary school students could not explain the equation in the microscopic system. This makes the subject matter for the Stoichiometry and Chemical Equilibrium difficult to understand by students and also in consonance with Hanson and

Wolfskill (2018) who asserted that stoichiometry calculations have been considered difficult by students in general. This is due to the many different facets a student must master, such as the mole concept, balancing chemical equations, algebraic procedures, and interpretation of a word problem into mathematical equations that serve as procedural steps which would then lead to the correct answer.

The second finding of the study shows that there is no significant difference between male and female secondary students' correct conception and misconceptions mean scores about stoichiometry in Warri South Local Government Area. This shows that male and female students have same level of understanding and lack of understanding of the concept of stoichiometry. This may be due to the method that is used to present the concept to them by their teachers. This finding is in line with that of Samuel, et al (2024) whose findings shows no significant gender-based difference on students' conception.

Conclusion and Recommendations

This study examined the impact of students' correct conceptions and misconceptions on their

academic achievement in stoichiometry. Based on the findings of the study, the researcher concludes that a high percentage of secondary school students have correct conception about stoichiometry and that the misconception held about stoichiometry includes: lb mole = mass in lb/mass, Number of moles = mass/mole, Standard dimensions are those that can be developed in terms of fundamental dimension, Fundamental units are not those that can be measured independently, this chemical equation is balanced: Moles of Oxygen = Moles of NaOH + Moles of H₂O + 4(Moles of H₂SO₄), Fundamental unit does not require measurement, Weight percentage = Total mass/mass of the component, It is called Molecular weight because it contains 6.022×10^{23} amount of substance, and Molecular weight is the ratio of Mass and Mole. And that there is no significant difference in the male and female secondary school students mean conception scores of stoichiometry.

Based on the finding of the study, the researcher recommends that electronic centred teaching methods should be used in teaching the concept of stoichiometry so that students will be able to observe the concept visually and participate effectively in the teaching and learning process and teachers should be trained through seminars and workshops on how to use these methodologies in order to enable them acquire the skills needed for their usage

References

- Allen, M. J., & Yen, W. M. (1979). *Introduction to measurement theory*. Belmont: Brooks/Cole Publ. Co.
- Agboro-Eravwoke. O. U. (2020). Effect of role-play analogy as an activity based instructional strategy on students' retention of isomerism in chemistry; *ABSU Journal of Education Studies*, 7(3), 1-11.

- Ajayi, V.O. (2017). Effects of hands-on activities on senior secondary chemistry students' achievement and retention in stiochemistry in Zone C of Benue State. *Unpublished M.Ed dissertation of Benue University in partial fulfilment of the requirement for the award of masters degree in Science Education*
- Blosser, P. E. (2017). Science misconceptions research and some implications for the teaching of science to elementary school students. ERIC/SMEAC Science Education Digest No.
- Diambilpadatanggal dari <http://www.ericfacility.net/ericdigests/ed282776.html>
- Dahsah, C., & Coll, R. K. (2007). Thai grade 10 and 11 students' conceptual understanding and problem-solving ability in stoichiometry. *Research in Science and Technology Education*, 25, 227-241.
- Errington, A., & Bubna-Litic, S. (2015). Management by textbook: The role of textbooks in developing critical thinking. *Organisation Behaviour Teaching Review*, 39(6), 111-116.
- Etokeren, I., Ibemenji. K.G., & Alamina, J. (2019). Effect of problem-solving teaching technique on students' stoichiometry academic performance in senior secondary chemistry in Nigeria. *Asian Journal of Advanced Research and Report*, Retrieved from <http://www.google.com>
- Eya, N.M., & Ugah, C.K. (2022). Students difficulties in stiochemistru: Sources and strategies for resolving them. *AJSTME*, 8(7), 581-588.
- Gabel, D. L., & Sherwood, R. D. (2014). Analysing difficulties with mole-concepts tasks by using familiar analog tasks. *Journal of Research in Science Teaching*, 21(8), 843 – 851.
- Gauchon, L., & Méheut, M. (2007). Learning about stoichiometry: From students'

- preconceptions to the concept of limiting reactant. *Chemical Education Research and Practice*, 8, 362-375.
- Hanson, D., & Wolfskill, T. (2018). Improving teaching and learning process in general chemistry. *Journal of Chemical Education*, 75(2), 143 – 148.
- Mohafa, L.J., Qhobela. M., & George, M.J. (2022). Evaluating the interactive simulation on learners' academic performance in stiochemistry. *South African Journal of Chemistry*, 6, 1-17.
- Mulford, D. R., & Robinson, E.R. (2016). An inventory for measuring college students' level of misconceptions in first semester chemistry. Diambilpadatanggal, dari <http://faculty.pepperdine.edu/dmulford/default.htm>.
- Mandia, S. & Ochonogor, C. (2018). Comparative effects of two problem-solving instructional strategies on students' achievement in Stoichiometry. *Eurasia Journal of Mathematics, Science and Technology Education*. Retrieved from <http://www.google.com>
- Nakhleh, M. C. (2019). Are our students' conceptual thinkers or algorithmic problem solvers? *Journal of Chemical Education*, 70, 52 – 55.
- Opara, M.F. (2014). Improving students' performance in stiochemistry through implementation of collaboration learning. *Journal of Education and Vocational Research*, 5(3), 85-93.
- Samuel, N.N.C., Akobundu, G.G., & Okonkwo, I.G. (2024). Relationship between students' misconception and academic achievement in organic chemistry in Awka Education Zone, Anambra. *Unizik Journal of Educational Research and Policy Studies*, 18(2), 34-39.
- Soeharto, S., Csapo, B., & Sariamanah, E. (2019). A review of students' common misconception in science and their diagnostic assessment tools. *Jurnal Pendidikan IPD Indonesia*, 8(2), 247-266.
- Taha, H., Hashim, R., Ismail, Z., Jusoff, K., & Yin, K.Y. (2014). The influence of students' concept of mole, problem representation ability and mathematical ability on stoichiometry problem solving. *WEI International Academic Conference Proceedings*, 122-136.

OUTSOURCING AND ORGANISATIONAL PERFORMANCE OF LISTED CONSUMER GOODS' FIRMS IN LAGOS STATE

MARADESA, Wakeel Olalekan

Department of Business Education, Tai Solarin University of Education, Ijagun.
Maradesawo@tasued.edu.ng; +2349019367558

OJO, Tokunbo Oluwaseun

Department of Business Education, Sikiru Adetona College of Education, Science and Technology,
Omu-Ajose, Ogun State.
ojooluwaseuntokunbo@gmail.com; +2348165531207

GARUBA, Qudus Ajibola

Department of Educational Management, Tai Solarin University of Education, Ijagun.
Garubaqa@tasued.edu.ng; +2349077895280

SHOLANKE, Afeez Abiodun

Sholankea44@gmail.com +2348121123272
Accounting and Finance Department, Avis Nigeria.

Abstract

This study examined outsourcing and organization performance of listed consumer goods' firms in Lagos State, focusing specifically on cost reduction, market expansion, and risk-sharing abilities. To achieve the objective of the study, three hypotheses were formulated and tested at 0.05 level of significant. Employing a correlational research design, data were collected from employees in the procurement or purchasing departments. The population comprised 105 respondents, and a proportionate stratified random sampling technique was utilized. The instrument for data collection comprised of a well-structured questionnaire. Simple linear regression was used to analyze the data collected for the hypotheses using SPSS. The findings revealed that there was a significant relationship between cost reduction, market expansion, and risk-sharing abilities of listed consumer goods' firms in Lagos State. The findings also revealed that outsourcing contributes positively to organization performance by enhancing cost efficiency, expanding market reach, and improving risk management. Based on these findings, the study recommends that listed consumer goods' firms in Lagos State should further integrate outsourcing strategies into their operations. This includes identifying core and non-core activities for outsourcing to reduce cost, prioritizing market expansion efforts, enhancing risk management practices and regularly evaluating outsourcing activities to optimize their benefits.

Keyword: Outsourcing, Organization Performance, Listed Consumer Goods Firms

Introduction

The economic state of affairs of the market is characterized by a competitive and unpredictable business environment which potentially affects the long-term organizational performance and survival of businesses. Business environment especially in today's world is severely dynamic. Diaka and Anza (2017) posited that rapidly changing and increasingly complex

business issues are creating key shift in organizations and the manner in which they do business. Therefore, in order to achieve its set goals in the presence of technological advancement, sophistication of business processes, knowledge explosion and need for constant growth, an organization looks out for strategies to enhance and optimize performance which outsourcing is an option.

The concept of organizational performance has been central in outsourcing research and encompasses most other questions that have been raised in the field. Organizational performance refers to the effectiveness of the organization in fulfilling its set goals. Performance is one of the measurements that show what the company achieved for a certain period of time. The ability of the company to gain and manage the resources in different ways in order to develop competitive advantage is being reflected on its performance (Daprova, 2021). Nowadays with increasing competitive pressures, firms have to diminish their costs and create new opportunities through optimized utilizing of external resources and in this case, outsourcing is one of the ways firms can optimize external resources.

Outsourcing is a strategy used by contemporary managers or visionary business operators to navigate through troubled business 'waters' by hiring a third party to perform business tasks; handle operations or provide services for the growth of the company. They do this as a way of reducing operational costs such as salaries, overhead, equipment, and new technology. Ugbomhe, et al. (2021) noted that outsourcing, which is the method of assigning duties that are typically done internally by the firm to a professional outside to achieve goals, is known as an outsourcing strategy. In other words, outsourcing is an agreement whereby a firm employs the services of a third party to handle a task that was previously handled internally because of the expertise of the third party. This arrangement occasionally entails the transfer of assets and workers from one organization to another.

Generally, most of the organizations search for the best service providers to whom to outsource their function and this give them an opportunity to get their work done by professional. Outsourcing has become one of the most important approach a business should adopt due

to the increase of globalization and through this strategy, organizations can acquire a competitive advantage if their products and services are implemented more effectively by outside service providers (Christine, 2019). Therefore, for an organization to be able to adapt and thrive in the competitive market, they have to concentrate their resources on activities that they have core competencies and abilities. Thus, outsourcing is allocation of services that should be performed inside the company to an external service provider and has become one of the essential factors in several business strategies. Outsourcing improves the company's focus on important business-related matters because the management has enough time by utilizing external resources (Egiyi, et al., 2020). Furthermore, outsourcing enables a company to free-up resources and redirect them to core activities that have a greater impact on business performance. And of course, a lower cost structure by having access to external providers is a compelling factor for outsourcing (Egiyi et al., 2020).

Outsourcing can also include the transfer of both people and physical assets to service provider and with the rapid speed of technology, companies are looking for new ways to generate value. This is consistent with Iheriohanma and Austin-Egole (2020) who affirmed that organizations in the last decades have turned to outsourcing in order to achieve their operational goals because it has been argued that contracting services through outside providers can be more economical than using their own facilities. Outsourcing has been implemented over last two decades with purpose to reduce cost. However, today the focus is to improve productivity, flexibility, speed, skills, innovation and access to new technologies.

The growth of any company is largely determined by how well it can manage its costs. This is partly because to be able to maximize profit, cost must be reduced to the barest minimum. Cost reduction has become a vital tool

for companies to constantly stay ahead of the increased competition in the business environment. Indeed, even organizations that are gainful can profit by implementing cost-lessening techniques to make a considerably higher overall revenue on its items or administrations.

Ben-Caleb, et al. (2019) defined cost reduction as the achievement of real and permanent reduction in the unit cost of goods manufactured or services rendered without damaging the ability of the product to serve the purpose for which it was intended. Therefore, concept of continuously searching for new ways and avenue of reducing costs needs to be constantly promoted at all levels of an enterprise, which signifies that the enterprise has a strategic approach to this issue.

The term “risk sharing” refers to the tendency to choose unique methods of carrying out tasks or to depart from well- established patterns in order to pursue unforeseeable results (Denuit et al., 2022). Risk sharing is a management strategy that companies or individuals use to transfer risk to third party. Firms take risks when involved in business and use risk sharing to cover the potential loss from an uncertain event. Sharing risk decreases uncertainty and improves the stability of a business.

Vargas and Omar (2021) mentioned that the diversification and expansion of competition and technological knowledge in certain specializations areas of a business company ensure a strong position in the market and greater durability of the same. The variables that determine the available administrative organizational services and the need required for these, are leading to determine the highest rate of growth and expansion of the business company. A market expansion strategy seeks to enter new market segments, before being threatened by the offensive of another company that could apply flanking strategies, in this way this policy is

proactive and not reactive.

Furthermore, firms endeavour to perform well in a number of areas of organization. Most importantly, they strive to do well financially in terms of achieving superior profitability and realizing good returns on investment. In order to acquire as much market share as possible, it is imperative that companies produce a product that is in demand and offer it at a price that allows them to compete in the market.

Statement of the Problem

Outsourcing is a good business strategy for companies seeking a competitive edge in the market. This allows these companies to boost profits and pass lower costs on to consumers. The decision to manufacture in-house or outsource is a critical strategic choice that companies must make. This decision can have a significant impact on a company's cost structure, quality control, flexibility, and overall performance. The main reason many companies choose to outsource in manufacturing industry is to reduce the costs and the time it takes to produce certain products. However, it has been observed that most manufacturing industries tends to produce all their products knowing fully it is best if they outsource some part of the production process to third party companies who has expert knowledge on the particular activities. Therefore, this study aims to understand the factors and considerations that influence manufacturing companies' decision-making process regarding the production strategies, and explore the underlying motivations and trade-offs that lead them to prioritize in-house production over outsourcing despite the perceived advantages of outsourcing in terms of cost effectiveness, scalability, market expansion, risk sharing and expertise.

Objectives of the Study

The overall objective of this study was to examine outsourcing and organizational performance of listed consumer goods' firms in

Lagos State. Specifically, the study examined:

- i. the relationship between cost reduction ability and organizational performance of listed consumer goods' firms in Lagos State.
- ii. how market expansion ability influences organizational performance of listed consumer goods' firms in Lagos State.
- iii. the influence of risk sharing ability on the organizational performance of listed consumer goods' firms in Lagos State.

Literature Review

Supo and Wale (2017) examined the axiomatic relationship between outsourcing strategy and organizational performance in Nigeria manufacturing sector. The study adopted a stratified sampling technique to arrive at 120 sample elements for the study. Some of the top and middle level managers of Cadbury Nigeria Plc and Nestle Foods Plc were interviewed to further elicit information on the key variables. Copies of the questionnaire were administered and the data obtained were analyzed using Regression analysis. The questionnaire for this study was subjected to test- re-test reliability assessment. Opinions and observations of experts and professionals were incorporated into scale questions in order to ensure the content validity. The findings revealed that firms that outsource experience reduce average cost, increased sales turnover and profitability, enhance expertise, improve service quality, reduce staff strength, streamline the production process, reduced administrative burden and save time for core activities. It was recommended that companies that outsource should continue to monitor the contractor's activities in order to ensure compliance with best practices.

Ben-Caleb, et al. (2019) examined cost reduction strategies and the growth of selected manufacturing companies in Nigeria using data from annual reports of 40 manufacturing

companies quoted on the Nigeria Stock Exchange within the period of 2012-2016. 40 manufacturing companies were sampled purposively for this study. The study took changes in material cost, changes in labour cost and changes in administrative overhead as variables for cost reduction strategies while changes in turnover as the variable for Growth. Correlation analysis was conducted to determine the association between cost reduction strategies and growth while, regression analysis was used to determine the impact of cost reduction strategies on the growth of manufacturing companies. Results showed a positive significant relationship between cost reduction strategies and growth of manufacturing companies in Nigeria. The study recommends that manufacturing companies should implement value analysis in order to reduce material costs and the implementation of cost reduction strategies in all manufacturing companies in Nigeria.

Diaka and Anza (2017) examined the effect of outsourcing strategies on the performance of small and medium scale enterprises (SMEs) in Benue state. Survey research design was adopted with Gboko, Makurdi and Otukpo Metropolis of Benue state as survey area with population of 563 SMEs gotten from the records of Benue Board of Internal Revenue Service (BIRS) and a sample of 233 SMEs was selected using Taro Yemane's formula and distributed among five categories of SMEs. Simple random sampling technique was used in selecting respondents that provides answers to the self-administered questionnaire. The data was statistically analyzed using multiple regression technique. At the end of the research, the study found that; there is a significant relationship between outsourcing of primary activities and performance of SMEs in Benue but outsourcing of accounting activities has no significant effect on performance of SMEs in Benue. This study therefore recommends among others that SMEs should embark more on outsourcing of primary

activities to attain the benefits of cost savings/restructuring which results in better customer service and consequently profitability; also, outsourcing process management through follow up steps like effective communication and monitoring should be employed and taken seriously to better reap the benefits of this maintenance/growth strategy.

Christine (2019) investigated the effect of outsourcing on the organizational performance (cost efficiency, productivity and profitability) in Rwanda. Three sample companies have been selected from Telecom and manufacturing Industry of Rwanda. The results of study were based on a sample of 111 staff selected by using convenient and purposive sampling; source of data was obtained using primary and secondary source of data and collected using questionnaire and documentation. Data has been treated with Statistical Package for the Social Sciences (SPSS)'s software and presented in tables. The findings of the study were presented and analyzed in detail following the objectives of the study. The specific objectives of this study were to identify activities or services outsourced by organizations in Rwanda, to find out the main reasons of outsourcing for organizations in Rwanda; to assess the level of their performance as a result of outsourcing strategy and finally, to establish the relationship between outsourcing activities and organizational performance. Three hypotheses were formulated to measure the relationship between outsourcing and performance. The findings of this research have shown that all organizations part of this research outsource some of their core activities (such as operation management, service management, advertisement and sales) and non-core activities (such as information system, maintenance, human resources activities, distribution, logistics, security, cleaning, man power). The results have shown that organizations in Rwanda outsource in order to access special expertise as shown by all respondents at rate of 100% and to reduce costs as

shown by respondents at rate of 96%. Furthermore, the findings shown that outsourcing activities contributed to the organizational performance as revealed by respondents regarding their views on effect of outsourcing on cost efficiency, productivity and profitability. Moreover, the findings show that there is a weak positive and significant relationship between outsourcing activities and cost efficiency while it shows a weak and moderate positive insignificant relationship between outsourcing activities with productivity and profitability respectively. This study therefore recommended that organizations in Rwanda should continue to improve how they manage their outsourcing activities by emphasizing on non-core activities instead of outsourcing their core activities. This will help the organizations to produce better quality which will lead to the increase of product demand and profitability by reducing competitiveness. Furthermore, organizations should never allow external service provider to perform all the responsibility because this can lead to the loss of control over certain production or operation activities. Therefore, service provider should only manage particular risks that can't affect or damage the entire organization performance.

Method of the Study

The study employed a correlational survey research design. The reason for using correlational research design was because it does not give room for manipulation of data.

The total population for this study comprised 105 employees from the Procurement and Purchasing Department of the 21 listed consumer goods' firms on the Nigeria stock exchange that has branches in Lagos State (June 30, 2024).

The study adopted the whole 105 respondents as sample using a proportionate stratified random sampling technique as the total population is manageable.

The data was collected using self-structured questionnaire tagged: “Outsourcing and Organizational Performance Questionnaire (OOPQ)”. The instrument is made up of 25 items and the responses of the items were based on four scales of Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree.

The instrument was validated by experts in the field of Business of Education and in Educational Management Department of Tai Solarin University of Education, Ijagun, Ogun State. The reliability co-efficient of the instrument was .81. The data collected from the pilot study were used to calculate the reliability coefficient and test re-test method was used.

A letter of introduction was given to the participants stating the purpose of the data collection and the distributed questionnaires were retrieved back from the respondents immediately

after the completion. The exercise was carried out within four weeks. No form of incentives was offered to the respondents.

The data collected on demographic data were analyzed using Pearson Product Moment Correlation and the research hypotheses were analysed using simple linear regression and were tested at .05 level of significance with the aid of Statistical Package for Social Sciences (SPSS).

The mean rating was coded as follows: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. Thus, items with a mean rating of 2.5 and above were considered as agreed while items with a mean rating value below 2.5 were considered as disagreed. For hypotheses, when p_{value} is less than significance level ($p < .05$), the null hypotheses were rejected, otherwise, accepted.

Results

Research Hypothesis 1: There is no significant relationship between cost reduction ability and organizational performance of listed consumer goods firms in Lagos State.

Table 1: Model Summary

Model	R	R-Square	Adjusted R-Square	Standardized Error of Estimate	Durbin Watson
1.	.251	.063	.054	.541	1.242

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), cost reduction ability

To test the first hypothesis, simple regression was also used to regress the independent variable against the dependent variable to make our prediction. Table 1 above indicates the model summary of the simple regression equation that predicted cost reduction ability. The explanation of the values is presented in Table 2.

Table 2: *Coefficients of cost reduction ability and organizational performance*

Model	Unstandardized Coefficient	Standardized Coefficient		t.	Sig.
		Std Error	Beta		
I Constant	1.763	.171		10.330	.000
Cost Reduction Ability	.151	.057	.251	2.632	.010

Dependent Variable (organizational performance)

The values presented in Table 2 summarized the test of the first hypothesis. The value of the intercept (β_0) indicates that the value of organizational performance, when the explanatory variable is zero is 1.763. Specifically, one percent change (improvement) in cost

reduction ability leads to 15.1% increase in organizational performance. Therefore, the null hypothesis that state that there is no significant relationship between cost reduction ability and organizational performance of listed consumer goods' firms in Lagos State is rejected.

Research Hypothesis 2: There is no significant relationship between market expansion ability and organizational performance of listed consumer goods' firms in Lagos State

Table 3: Model Summary

Model	R	R-Square	Adjusted R-Square	Standardized Error of Estimate	Durbin Watson
1.	.275	.075	.066	1.149	1.955

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), market expansion ability

To test the second hypothesis, simple regression was also used to regress the independent variable against the dependent variable to make our prediction. Table 3 above indicates the model summary of the simple regression equation that predicted market expansion ability. The explanation of the values is presented in Table 4.

Table 4: Coefficients of Market Expansion Ability and Organizational Performance

Model	Unstandardized Coefficient	Standardized Coefficient		t.	Sig.
		Std Error	Beta		
I Constant	1.651	.279		5.929	.000
Market Expansion Ability	.304	.105	.275	2.898	.005

Dependent Variable (Organizational Performance)

The values presented in Table 3 above summarized the test of the second hypothesis. The value of the intercept (β_0) indicates that the value of organizational performance, when the explanatory variable is zero is 1.651. Specifically, one percent change (improvement) in market

expansion ability leads to 30.4% increase in organizational performance. Therefore, the null hypothesis that state that there is no significant relationship between market expansion ability and organizational performance of listed consumer goods' firms in Lagos State is rejected.

Research Hypothesis 3: There is no significant relationship between risk sharing ability and organizational performance of listed consumer goods firms in Lagos State

Table 5: Model Summary

Model	R	R-Square	Adjusted R-Square	Standardized Error of Estimate	Durbin Watson
1.	.294	.087	.078	1.20	1.463

a. Dependent Variable: Organizational performance

b. Predictors: (Constant), risk sharing ability

To test the third hypothesis, simple regression was also used to regress the independent variable against the dependent variable to make our prediction. Table 5 above indicates the model summary of the simple regression equation that predicted risk sharing ability. The explanation of the values is presented in Table 6 below.

Table 6: Coefficients of Risk Sharing Ability and Organizational Performance

Model	Unstandardized Coefficient	Standardized Coefficient		t.	Sig.
		Std Error	Beta		
K					
I Constant	1.418	.299		4.748	.000

Risk Sharing Ability	.448	.143	.294	3.125	.002
----------------------	------	------	------	-------	------

Dependent Variable (Organizational Performance)

The values presented in Table 6 above summarized the test of the third hypothesis. The value of the intercept (β_0) indicates that the value of organisational performance, when the explanatory variable is zero is 1.418. Specifically, one percent change (improvement) in risk sharing ability leads to 44.8% increase in organisational performance. Therefore, the null hypothesis that state that there is no significant relationship between risk sharing ability and organizational performance of listed consumer goods’ firms in Lagos State is rejected.

Discussion of the Findings

The results of the first hypothesis revealed that there is significant relationship between cost reduction ability and organizational performance of listed consumer goods’ firms in Lagos State. The finding implies that when firm outsource, they reduce their cost of operation and this can persistently influence their growth. Thus, cost saving realizes through outsourcing can be reinstalled into market expansion effort.

This is in line with the study of Ben-Caleb, et al. (2019) which concluded that the combined effects of changes in material costs, changes in labour costs and changes in administrative overheads explained 36% of the variation in the growth of manufacturing companies while the remaining 63.98% was due to other variables not captured. Growth was found to be positively correlated with changes in material costs. This implies that decrease in direct material by 1% will cause an increase in growth by .01. The result is also consistent with the study of Nyameboame and Haddud (2017) who examined the impact of outsourcing on organizational performance. The authors concluded that the key outsourcing reasons why firms may outsource were reducing

operational costs, avoiding major investment costs in technology, providing consistent and improved service delivery, accessing current technology and expert knowledge and focusing more on core business activities

The result of the second hypothesis revealed that there is significant relationship between market expansion ability and organizational performance of listed consumer goods’ firms in Lagos State. This implies that outsourcing provide access to specialized skills and technology that may not be readily available in-house and this can give the organization a competitive edge when entering new market. In addition, outsourcing partners companies often have experience serving clients in multiple market and this can provide valuable insight and best practices for expansion. This finding is in line with the findings of Diaka and Anza (2017) who examined the effect of outsourcing strategies on the performance of small and medium scale enterprises. The result also conforms with the study of Daprova (2021) who examined the impact of outsourcing accounting services on small and medium enterprises growth and performance.

The results of the third hypothesis revealed that there is significant relationship between risk sharing ability and organizational performance of listed consumer goods’ firms in Lagos State. The results shows that there is a relationship between risk sharing ability and organizational performance. This implies that by outsourcing certain business operation, organization can transfer a portion of their operational risk to other outsourcing partnering companies since these firms usually have specialized expertise and resources to manage various types of risk. In

addition, the content term and service level agreement with outsourcing partner companies can include provision for shared risk and liability, allowing the company to off load some of their risk. Thus, the performance of organizations increases when people share risk with other organizations. This is in line with Supo and Wale (2017) who examined the axiomatic relationship between outsourcing strategy and organizational performance in Nigeria manufacturing sector. The study is also consistent with the study of Kusnanto, et al. (2024) who examined dynamics of risk sharing and performance-based compensation in professional work places.

Conclusion and Recommendation

The findings of this study suggest that outsourcing significantly influences the cost reduction, market expansion, and risk-sharing abilities of listed consumer goods' firms in Lagos State. These results are in line with existing literature and offer practical implications for business leaders, and industry practitioners. It emphasizes the importance of outsourcing as a strategic approach to enhancing organizational performance in the face of competitive and unpredictable business environments. Further research avenues may explore the long-term effects of outsourcing strategies on organizational performance and competitiveness, providing deeper insights into the evolving dynamics of modern business operations.

The study recommended that:

- i. Given the significant positive impact of outsourcing on organizational performance, companies should consider further integrating outsourcing strategies into their operations. This involves identifying non-core activities that can be outsourced to specialized third-party vendors. By doing so, firms can

benefit from cost reduction opportunities related to outsourcing.

- ii. As market expansion emerged as one of the most influential variables affected by outsourcing, it is advisable for companies to prioritize and invest in strategies that facilitate market growth. This may involve leveraging outsourcing to penetrate new geographical markets, deepen market penetration in existing markets, and improve the efficiency and reach of distribution channels. By focusing on market expansion, firms can increase their customer base and revenue streams.
- iii. While outsourcing positively influences risk-sharing abilities, companies should continuously enhance their risk management practices. This includes closely monitoring and managing financial, operational, compliance, and regulatory risks associated with outsourcing. By diversifying the supplier base, defining and sharing risks through outsourcing contracts, and improving business continuity planning, firms can effectively mitigate risks and ensure organizational resilience.

References

- Ben-Caleb, E., Eshua, R., Otekunrin, A., Rasak, B., Adewara, S., & Oladipo, O. (2019). Cost Reduction Strategies and the Growth of Selected Manufacturing Companies in Nigeria, *International Journal of Mechanical Engineering and Technology*, 10(3), 305–312.
- Christine, U.K. (2019). Effect of Outsourcing on Organizational Performance in Rwanda. *Master's thesis in Business Administration*

III, Umea School of Business and Economics.

business process outsourcing. *European Scientific Journal, ESJ, 11(4).*

- Daprova, J.C. (2021). The impact of outsourcing accounting services on small and medium enterprises growth and performance. *Global Scientific Journal, 9(7).*
- Diaka, J. I., & Anza, N. C. (2017). Effect of outsourcing strategies on the performance of small and medium scale enterprises (SMEs). *Journal of Global Entrepreneurship Research, 7(1), 26.* <https://doi.org/10.1186/s40497-017-0084-0>
- Egiyi, M., & Florence, A. (2020). Outsourcing accounting functions: Risks and benefits. 3-7.
- Iheriohanma, E.B., & Austin-Egole, I.S. (2020). Outsourcing and employment trends: An exploratory discourse. *Issues in Business Management and Economics, 8(3), 48-56.*
- Kolawole, I.O., & Agha, E.A. (2015). Achieving organizational performance through
- Kusnanto, E., Amelia, Y., & Yulianti, G. (2024). Understanding the dynamics of risk sharing and performance-based compensation in professional workplaces: Bridging the theory and the practice. *International Journal of Management, Accounting and Finance, 2(2).*
- Nyameboame, J., & Haddud, A. (2017). Exploring the impact of outsourcing on organizational performance. *Journal of Global Operations and Strategic Sourcing, 10(3).*
- Ugbomhe, U., Olu, O., & Monday, E. (2021). Strategic Outsourcing and Corporate Performance in Nigerian Banking Industry. *Journal of Business Theory and Practice, 9, 68.* doi:10.22158/jbtp.v9n2p68
- Vargas-Hernandez, J.G., & Vargas-Gonzalez, O.C. (2021). Business Growth from the perspective of resources and capabilities: The case of micro enterprise. *University of South Florida, 5(2020).*

PRAGMATISM AND LEARNING IN NIGERIAN SCHOOLS

¹ KEHINDE, Destiny Ilemobayo (Ph.D) & ² ADEYEMI, Emmanuel Gboyega
Department of Arts Education, Adekunle Ajasin University, Akungba-Akoko, Ondo State
ik13destiny@gmail.com & gboyegaemmanuel63@gmail.com

Abstract

Observation has revealed that the current education system in Nigeria is the type that seems to revolve around too much of theory and encourage rote learning. Therefore, this paper advocated the incorporation of pragmatism into the Nigeria's education system, and is concerned with how it could enhance learning in Nigerian schools if incorporated into the system. This study is qualitative in nature. It is expository and primarily focused on library sources for its data. Being philosophical in orientation, the study adopted the analytical, the speculative and the prescriptive methods. These philosophical techniques are employed in this study to deal with issues and problems such as rote learning, discovery learning, creativity, collaboration tendencies, innovation, invention and receptacle, among others. The paper described rote learning as memorization without proportionate understanding. It examined pragmatism as a theory which believes that an idea should be accepted based on its observable practical consequences rather than in any metaphysical attributes. The study found out that Dewey's pragmatism is like a hunch, and discussed some of the possible implications of pragmatism for learning, if employed, in Nigerian schools. This study revealed that if pragmatism is incorporated into Nigeria's system of education, it is likely to facilitate independent thinking and originality in learning, could enhance critical thinking development, discovery learning, creativity, innovation and invention. It equally revealed that pragmatism has the enablement to engender democratic learning situation and the fostering of collaboration tendencies among the Nigerian students. The paper concluded that the Nigerian education system could become transformed and more productive if pragmatism is incorporated into it.

Keywords: Collaboration Tendencies, Creativity, Discovery Learning, Receptacle, Rote Learning

Introduction

It appears as if education in Nigeria at present revolves around too much of theory and promotes rote learning, which Paulo Freire describes as banking education. By this type of education, learners are made to look like mere receptacles into which the teacher, occupying an indispensable all-knowing position in the classroom, empties himself. To solve this problem, this paper advocated the incorporation of pragmatism into Nigeria's system of education. The study explained pragmatism as a theory

which believes that an idea should be accepted based on its observable practical consequences rather than in any metaphysical attributes.

The study found out that pragmatism is likely to expose learners to an appreciation of their immediate environment and the curiosity to explore more, in order to add value. Besides, pragmatism could enhance discovery learning, originality in learning, critical thinking development, creativity, innovation, invention, democratic learning situation, and foster collaboration tendencies among the Nigerian

students. The paper concludes that pragmatism is likely to transform the Nigerian system of education and make it more productive.

State of Education in Nigeria

The claim that western education was introduced in Africa to facilitate imperialism could be substantiated by Aboluwodi's (2015) submission that "the postcolonial education experienced in Nigeria does not differ remarkably from that of the previous colonial years" (p. 123). Although, one may not be able to rule out the role of western education in the developmental process of Nigeria, it appears as if this traditional system of education in Nigeria revolves around too much of theory and is based on rote learning. According to Hurd (2019), too many facts, too little conceptualizing and much memorizing characterize the traditional system of education. Paulo Freire as cited in Luis (2017) called this traditional type of education 'banking education' or 'banking pedagogy'. In the opinion of Freire cited in Ramos (2006), this traditional form of education is based on very unequal roles, with the teacher as active, powerful, and knowledgeable and the learner as passive recipient of the teacher's knowledge. Freire further argued that the traditional form of education reduces learners to receptacles and creates dependent, uncritical, ignorant and passive members of society.

Freire in Curtis (2011) observed that banking pedagogy encourages rote learning. Rote learning connotes cramming, memorization or committing learning material or information into the memory without proportionate understanding. Tuoyo (2003) condemned this type of learning, describing it as 'no learning'. In this case of rote learning, there is the fear of the possibility of 'forgetting'. Alao (2004) described forgetting as the inability to recall the materials retained in the memory. In contrast with the traditional system of education, Freire advocates a classroom situation in which teachers and students are co-investigators. In this spirit, Dewey in Arogundade

(2001); and Curtis (2011) suggested that the process of education should reflect democratic way of life.

Aside the possibility of forgetting, rote learning may degenerate to pro-active or retroactive learning inhibition (interference). Pro-active learning inhibition is a learning problem in which the information or learning material a learner has earlier stored in his memory inhibits him from picking what he is being taught anew. That is, the previously learnt lesson prevents the student from learning what he is expected to learn in the new class. On the other hand, retro-active learning inhibition is a learning problem whereby the new learning disturbs the learner (student) on what he has earlier learnt. In other words, the new knowledge being acquired makes the learner lose firm grip of the knowledge earlier acquired. Given Alao's description of these three issues as negative interference in learning, banking education needs to be discouraged among the Nigerian students.

Another problem usually associated with the traditional type of education in Nigeria is that teaching is made to look like a mere talking process at times. Perhaps Ryle in Bamisaiye (1996) described teaching on this ground as "didactic talk" (p. 61). Here, the students are constituted into mere passive listeners, with their initiatives and opinions suppressed in the class, and all kept to themselves. In such a situation, the learners just sit down and receive information from the teacher who is occupying an indispensable authoritative position in the class. The teacher is seen as knowledgeable, and the students as just in the classroom to receive from the teacher. Such students simply give information back to the teacher, in the case of academic competition or examination. It might be better if teaching is made to take the form of communication. Communication usually involves the source of information (teacher), the message/information (learning content), the channel (methodology), the receiver (student) and

feedback (evaluation outcome/result).

Pragmatism

The word “pragmatism”, according to Baliga (2017), is of Greek origin. It takes its root in two Greek words “pragma” and “matos”, which mean “deed”, “from” or “to do”. As explained by Aboluwodi (2019), it could be argued that pragmatism actually started with the Soviet Union in the 1960s but later turned out to become a typical American school of thought. Aboluwodi (2008) noted that the word pragmatism was first used by Charles Sanders Peirce to explain the meaning of an idea as some scientists contended that metaphysical statements are meaningless since they cannot be verified. However, William James later attached a slightly different interpretation to pragmatism, using it to connote the truth of an idea. William James’ slight shift from Peirce’ idea of pragmatism seems to generate a little bit of rift between the two. As a result, according to Apel (1981), Peirce renamed his view “pragmaticism”, presenting it to the world as his new ‘baby’ which he “hoped was ugly enough to be safe from kidnappers” (n. p). However, in an attempt to reconcile these two divergent conceptualizations of pragmatism, McDermott (2006) reasoned that pragmatism could be perceived from the angle of the notion that both the meaning and the truth of any idea are a function of its practical outcome.

It appears as if the firing of V-2 rocket, a ballistic missile, into the space by Germany during the WW II birthed the American pragmatism. According to Gregersen (2022), “developed in Germany from 1936 through the efforts of scientists led by Wernher Von Braun, it was first successfully launched on October 3, 1942, and was fired against Paris in 1944” (p. 1). Probably this development challenged America, and the Americans felt that they needed an education system that could help them in meeting their needs and solving their problems. Meanwhile, as explained by Engerman (2006),

Dewey had visited Russia in 1928, and got fascinated by Soviet events. Engerman affirms that Dewey wrote excitedly, after his visit to Russia, about the “Soviet experiment” and especially about Soviet educational theorists, and enthusiastically hoped that the USA and the USSR could learn from each other.

Although pragmatism had been in existence since the days of Charles Sanders Peirce and William James, it could be argued that John Dewey popularized it, and brought it into the American education system. For instance, Ormerod (2017) reveals that the main originators of pragmatism are Oliver Wendell Holmes Jr, Charles Sanders Peirce, William James and John Dewey. This might be a justification for Aboluwodi’s (2008) declaration that the relevance of pragmatism in education should be credited to Dewey. Curtis (2011) averred that Dewey brought pragmatism into American education, before it later became a philosophy that closely relates to the American life and mind. At their own end, Misak and Talisse (2019) argued that pragmatism first started as a philosophical theory of meaning “by Charles Peirce in the 1870s; revived primarily as a theory of truth in 1898 by William James; and further developed, expanded and disseminated by John Dewey” (para. 3). As could be inferred from the foregoing, John Dewey actually gave pragmatism a voice in the world of educational philosophy.

Pragmatism may be interpreted as the product of practical experiences of life. According to Arogundade (2001), for the pragmatist, education should be about life and growth. Pragmatism makes activity the basis of all teaching and learning. It is a philosophical thought which is based on the concept that learning is the outcome of mental construction. It is a philosophy that advocates the experimental method of science and the rejection of unpractical ideas. It is, hence, called experimentalism. The pragmatist believes that an idea or a proposition is true if it works satisfactorily. Pragmatism opposes

metaphysics. The pragmatist believes that an idea should be accepted based on its observable practical consequences rather than in any metaphysical attributes. Baliga (2017) observed that the pragmatist believes that all philosophical concepts should be judged according to their practical uses and successes, not on the basis of abstractions. Charles Sanders Peirce's pragmatism emphasizes *meaning of an idea*, while William James pragmatism is on *truth of an idea*.

John Dewey and pragmatism

In one of his works, Arogundade (2001) asserted that John Dewey was one of the greatest pragmatic philosophers in history. As explained by Arogundade, Dewey was the son of a village shop-keeper born in 1859 in Burlington Vermont in America. He had a good university education, and later became a lecturer and professor of philosophy. Dewey had lectured in many universities before he finally settled down in Columbia University. After securing the approval of the university, Dewey set up an Experimental School. The school was set up especially for research and to experiment on his new ideas and methods. It seems as if Dewey popularizes pragmatism in the course of his academic activities. Dewey was a philosopher, psychologist, practical teacher and great writer. Dewey's pragmatism, otherwise known as instrumentalism, has been said to be like a hunch.

Before Dewey brought pragmatism into the American education system, the traditional teaching-learning method was in vogue in the country just like it was in operating in many countries of the world that time. The traditional method of education encompasses memorization, drilling, rote learning and recitation. Based on Dewey's pragmatistic educational ideas, he ties up the aim of education with reform and revision of the society. Dewey sees education as an unending process which has no final goal except to promote democratic way of life. On this note, he advocates the kind of education that reflects a

democratic way of life.

In his pragmatism, Dewey advocates that what the child learns should be determined by his outlook and interest, and indicates that there should be close understanding between the pupils and the teacher. For him, education should not only be concerned with transferring of knowledge from the adults to the youths but also with helping the youths to become agents of progress or improvement in the society. As such, he conceives education as the reconstruction of experience. He went further to posit that education should help the child to grow in his experiences and direct further experiences in meaningful ways. Seeing the development of social life in the society as one of the aims of education, Dewey maintains that civilized society exists because education is transmitted from generation to generation. Without this, social life cannot exist.

Generally, pragmatists believe that there should be one pattern or method for educating a child. Dewey, a leading pragmatist, shares this idea. However, he recognized that there are individual differences. As a result, he believes that no stereo-typed methods of teaching can be of much use to a class of students with differing abilities. He, therefore, recommends that the school should provide a rich social opportunity where each individual can learn on his own. Nonetheless, Dewey recommends a number of methods. As an experimentalist, he is of the opinion that the best method of acquiring knowledge is through experiments. As further explained by Arogundade, Dewey sets out five steps to follow in experimental investigation. They are the consciousness of a problem or an obstacle, mental survey and analysis of the situation, listing out of possible solutions, thinking out of the possible implications of each so that comparison will indicate the most suitable, and the actual putting into practice of the decision for either success or failure.

As Dewey's pragmatism places emphasis on creation of knowledge rather than the acquisition of it, the project method constitutes part of his teaching/learning method. A project is usually undertaken to solve a particular problem or task arising out of practical need. In a school or class project, the teacher becomes the Coordinator, while the pupils are assigned definite roles. The teacher and the pupils work cooperatively to achieve the goals of the project. Dewey also suggests other methods, namely, the play way method, use of material objects or object learning, and through excursion where children could see things for themselves. These are very useful methods that seem to have gained entrance into the Nigerian educational system.

One may not be able to argue convincingly that Dewey's idea about the curriculum is different from that of the other pragmatists. They all seem to advocate that the child's total experience (the society around him) should be the basis of the Curriculum. Dewey feels that the curriculum should consist of the study of the occupations and associations which provide man's basic needs. In following this curriculum, the essentials (food, shelter, clothing and household furniture, among others) should come first, and the luxuries second. He also argues that the interests of the children should form the basis of the curriculum. As far as Dewey is concerned, learning should not be a predetermined or fixed programme. Rather, it should be constantly revised according to the changing interests and life of the children. All these mean that children should be given freedom to engage in self-activity and develop self-initiative. Dewey is opposed to traditional education because it is bookish. He is in favour of practical education. For him, learning should be mainly through practical experience. Discipline should not be free to allow freedom of action.

Imperative of pragmatism for learning in Nigerian schools

Learning may be viewed as a behavioural process in man. Learning takes place as one constantly interacts with, and is influenced by one's environment. According to Tuoyo (2003), learning is characterized by relative permanence in behaviour, and could be simple, complex, part or whole. Relatedly, Sharma (2023) posited that any relatively permanent change in behaviour that occurs as a result of practice and experience as learning. One may, therefore, want to conclude that learning has not taken place in an individual until it begins to reflect in the learner. Some of the possible implications of pragmatism for learning in Nigerian schools are discussed below.

Independent thinking and originality in learning

Independent thinking and originality in learning may be achieved among the Nigerian students if pragmatism is applied in Nigerian schools. For instance, Aboluwodi (2019) asserted that Dewey's pragmatism has been discussed as the teaching-learning process that allows the learner to develop his own idea. This, by implication, suggests independent thinking and originality in learning. Developing one's own idea entails independent thinking. Education, according to Fieser and Lillegard (2002), should be targeted at teaching students 'how to think', rather than 'what to think'. Any education system that encourages independent thinking may serve this purpose. Besides, any idea personally generated or developed as one learns tends to be original. It follows, by logical consequence, that pragmatism is capable of enhancing independent thinking and originality in learning among the Nigerian students if employed in the schools.

Critical Thinking Development

Closely related to the above is that pragmatism could facilitate critical thinking among the students. Critical thinking, by nature,

is strategic, skillful, analytical, progressive, purposeful and productive thinking. To think critically is to reflect on one's thinking. Dewey in Olalekan (2017) conceived and uses critical thinking as reflective thinking. Ability to think critically is very important to function effectively in this modern world. Blake (2018) opined that students require critical thinking ability to be successful. Blake, in furtherance, describes a critical thinker as someone who is habitually flexible, trustful of reason, diligent in seeking relevant information, reasonable in the selection of criteria, orderly in complex matters and prudent in making judgments. Pragmatist classroom situations in Nigeria could enhance the students' critical thinking skills.

Discovery learning

Discovery learning could be engendered by pragmatism as it entails learning by doing. Tuoyo (2003) conceptualized discovery learning as learning by doing. As such, discovery learning seems to be subsumed in pragmatism, or, at least, intersects with it. As further explained by Tuoyo, discovery learning is the type of learning in which the learner is exposed to activities that would enable him to understand the subject matter. It involves the doing method. By doing, the learner has the opportunity to see, hear, feel or perceive. This, no doubt, is experimental method. Here, the learner is exposed to his mistakes and made to learn from them. As the learner constantly interacts with his immediate environment (in the pragmatic learning situation) in an attempt to generate practicable knowledge, there is the likelihood that he discovers a lot of new things. This is discovery learning. Pragmatism could help these students to develop in constructivism and constructionism. Constructivism, as pointed out in Unit 1-Pedagogy Strand (2018), is an educational theory that advocates Problem-Based Learning. On the other hand, constructionism, as explained in Constructionism (2014), advocates Project-Based Learning.

Creativity

Creativity may be arguably described as a possible outcome of pragmatism. According to Doyle (2019), to be creative is to be able to come up with something new or look outside the box. For Tracy (2015), the most important part of creativity is the ability to generate new ideas. Something may be seen as creative, or created, if it is new and useful to the society judging and admiring it. Pragmatism, by nature, as could be inferred from the above, is a kind of education theory that may help in developing the creative ability of the Nigerian students if applied. Independent learning for creating practicable knowledge, which is part of the focus of pragmatism, can lead learners into being creative. A creative learner identifies problems or difficulty, makes guesses about the problems (or difficulty), evaluates those guesses, and communicates the result. A pragmatist learner is expected to possess these same qualities to make headway in learning.

Innovation and invention

Innovation may be conceived as renewing, changing or creating more effective processes, products or ways of doing things. In the opinion of Drucker cited in Jeff (2018), innovation may be defined as "change that creates a new dimension of performance" (p. 1). As a learning-by-doing theory, pragmatism could lead to or aid innovation and invention process. Sometimes, being innovative may not necessarily mean inventing, although they often go together. Where there is invention, innovation may not be far-fetched. Therefore, as pragmatism could enhance discovery, so it could enhance innovation and invention and support the processes among the Nigerian students if incorporated into the Nigerian education system.

Enhancement of democratic learning situation

John Dewey is known to be a leading pragmatist, and his educational ideas reflect his

view of pragmatism. He advocates a democratic classroom situation in schools. This advocated democratic approach may be regarded as part of Dewey's immense positive impact on the Nigerian students and on the country's entire education system. This system would allow learner's greater freedom of expression and action in the class. Teachers and school heads will have to welcome, with greater understanding and sympathy, the students' complaints and/or opinions. Teachers and students would become co-investigators in the classroom. Thus, students are not made to look like mere receptacles into which the teacher should empty himself. By consequence, this may help in relatively reducing the possible authoritarian tendencies of teachers over the learners. As Dewey discourages corporal punishment in schools, the school environment is likely to be more psychological conducive for learning for the students.

Fostering of collaboration tendencies

Collaboration connotes the ability to cope with, or work together with others towards achieving common goal(s). Kenton and Abbott (2019) considered collaboration to be a soft skill. Pragmatism, if incorporated into the Nigerian education system, could foster or enhance collaboration tendencies among the Nigerian students. By implication, learners that are brought up under the influence of pragmatism are likely to develop into individuals that can work with other people to achieve a common goal. Besides, an individual who has trudged the path of group activities may have the understanding of individual differences. Such an individual would understand why people behave the way they do, and have respect for others opinions. This is likely to enhance brotherhood, patriotism and peaceful coexistence among Nigerian youths.

Conclusion

The traditional system of education that operates in Nigeria at present seems not to be

adequately problem-solving. A practically functional, reforming and productive type/system of education is urgently needed. Granted this, a pragmatist system of education may be recommended. Pragmatism advocates learning by experience and applying idea or knowledge for practical result. Judging from its nature and characteristics, pragmatism, if adopted in Nigerian schools, is likely to engender discovery learning, independent thinking and critical thinking among the students. It could, as well, facilitate democratic learning situation, enhance creativity, innovation, invention, and foster collaboration tendencies among the students. Since pragmatism involves learning by doing, it could help in the area of vocational/technical studies. As such, the Nigerian education system would become transformed and more productive.

References

- Aboluwodi, A. (2008). *Introduction to Philosophy of Education*. Akure: Stabak Books and Publishers.
- Aboluwodi, A. (2015). Education for social transformation in Nigeria. *The Caribbean Educational Research Journal*, 3(2), 122-131.
- Aboluwodi, A. (2019). Pragmatism. *A classroom lecture delivered on Wednesday August 1 at Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria*.
- Alao, I. F. (2004). *Psychological perspective of education: Psychology education series*. Ibadan: Revelation books.
- Apel, K. (1981). *Charles S. Peirce: From pragmatism to pragmaticism*. Amhest: University of Massachusetts Press.
- Arogundade, J. B. (2001). *Philosophical foundations of education for schools and colleges*. Ondo: Ola-Jesu printing press.
- Baliga, A. P. (2017). *Pragmatism and reconstructionism*. Retrieved from <https://www.slideshare.net/aaronpaulbaliga/pragmatism-and-reconstructionism>

- Bamisaie, R. (1996). *Philosophical research methods in education*. Department of Teacher Education, University of Ibadan. Retrieved from <https://www.investopedia.com/terms/s/soft-skills.asp>
- Blake, C. (2018). *Try these tips to improve students' critical thinking skills*. Retrieved from <https://education.cu-portland.edu/blog/classroom-resourceful/improve-critical-thinking>
- Constructionism (2014). *Constructionism and learning with due respect to creativity*. Retrieved from <http://constructionism2014.ifs.tuwien.ac.at/home>
- Curtis, W. (2011). *Studying education: An introduction to the key disciplines in education studies*. McGraw Hill, England.
- Doyle, A. (2019). *Creative thinking, definition, skills, and examples*. Retrieved from <https://www.thebalancecareers.com/creative-thinking-definition-with-examples-2063744>
- Engerman, D. C. (2006). *John Dewey and the Soviet Union: Pragmatism meets revolution*. Retrieved from https://www.researchgate.net/publication/232001613_John_dewey_and_the_soviet_union_Pragmatism_meets_revolution
- Gregersen, E. (2022). *A-4, V-2 missile*. Retrieved from <https://www.britannica.com/technology/V-2-rocket>
- Fieser, J., & Lillegard, N. (2002). *A historical introduction to philosophy: Texts and interactive guides*. New York: Oxford University Press.
- Hurd, P. (2019). *The state of critical thinking today*. Retrieved from <https://www.criticalthinking.org/pages/the-state-of-critical-thinking-today/523>
- Jeff, D. (2018). *What is innovation?* Retrieved from <https://www.freshconsilting.com/what-is-innovation/>
- Kenton, W., & Abbott, B. (2019). *Soft skills*. Retrieved from <https://www.radioenciclopedia.cu/cultural-news/exclusivo/paulo-freire-and-critical-pedagogy-20170515/>
- Luis, E. A. (2017). *Paulo Freire and critical pedagogy*. Retrieved from <https://www.radioenciclopedia.cu/cultural-news/exclusivo/paulo-freire-and-critical-pedagogy-20170515/>
- McDermott, J. J. (2006). *American pragmatism*. Retrieved from <https://www.philosophytalk.org/shows/american-pragmatism>
- Misak, C., & Talisse, R. (2019). *Thinkers and theories, history of ideas, comparative philosophy*. Retrieved from <https://aeon.co/essays/pragmatism-is-one-of-the-most-successful-idioms-in-philosophy>
- Olalekan, O. M. (2017). Critical thinking in Nigeria's pre-service teachers' education: A philosophical investigation. *Journal of Teacher Education and Educators*, 6(2).
- Ormerod, R. (2017). *The history and ideas of pragmatism*. Retrieved from <https://doi.org/10.1057/palgrave.jors.2602065>
- Ramos, M. B. (2006). *Paulo Freire's pedagogy of the oppressed*. New York: .
- Sharma, A. (2023). *Learning: Meaning, nature, types and theories of learning*. Retrieved from https://www.psychologydiscussion.net/learning/learning/meaning_nature_types_and_theories_of_learning/652
- Tracy, B. (2015). *Creativity and problem solving*. Retrieved from <https://www.goodreads.com/book/show/22238488-creativity-and-problem-solving>
- Tuoyo, M. U. (2003). *School Organization*. Ondo: Adex production.
- Unit-1 Pedagogy Strand (2018). *Constructivism and constructionism and differences between problem-based and project-based learning*. Retrieved from Unit-1-PedagogyStrand-1.pdf

QUALITY ASSURANCE CHALLENGES TO TECHNICAL EDUCATION ASSESSMENT IN NIGERIA: THE WAY FORWARD

SULEIMAN, Abdurrazaq, PhD
Department of Accountancy, Kaduna Polytechnic, Kaduna
furqaniyy@live.com

Abstract

The study assesses challenges to quality assurance in the assessment of technical and vocational education run by polytechnics and mono-technics in Nigeria, with focus on entry assessment, institutional examination draft, project writing, supervision and assessment, examination scoring and practical facilities. Educational training and skills required in the learning process are found to have been much compromised of vested interests and politics from various stakeholders in the educational system. Obtaining five credit passes in the Senior School Certificate Examination (SSCE) has been much business oriented than allowing merit to count. Admissions into ND and HND programmes have also been much of revenue generation than true human capital development. Internal examination questions being administered are less concerned of technical and logical designs. Project writing is much of recycling and plagiarizing with lots of grammatical inadequacies. Correcting the research and project writing in the system is being resisted and discouraged. Scoring and grading true achievement of students in tests and examinations have been a subject of low commitment to thorough marking and financial inducement. Practical appreciation of various techniques of handling issues in various specialties is limited due to shortage of functional machines and equipment. The major recommendations intensify merit rating in the student intakes and academic staff employed in managing teaching and learning in technical and vocational education.

Keywords: *Entry Assessment, Examination Question Draft, Project Writing and Assessment, Scoring, Practical Facilities.*

Introduction

Polytechnic and mono-technic education is a sub-degree education run in National Diploma (ND) and Higher National Diploma (HND) Programmes. It is administratively called Technical Education, being regulated by the National Board for Technical Education (NBTE). The ND entry requirements have from inception been four credits passes obtainable from Senior Secondary Certificate Examination (SSCE), marking completion of secondary education in Nigeria, plus Joint Admission and Matriculation Board (JAMB)'s scores. The bodies with statutory mandate to manage the SSCE have been the West African Examinations Council (WAEC), National Examinations Council (NECO),

National Business and Technical Examinations Board (NABTEB) and recently, National Board for Arabic and Islamic Studies (NBAIS). The entry requirements for HND have been ND plus one year or two year post ND industrial experience, as the case may be. The provisions for quality assurance in technical education have been recognized to include curriculum design and redesign, instructional supervision and inspection, accreditation and reaccreditation of programmes, physical facilities, continuous professional development, industry partnerships with polytechnics, students-lecturer assessment and valid evaluation of students' learning outcomes (Korter, 2023; Emuhowho & Joseph, 2023; Mensah, 2016).

With the prevalence and pervasiveness of examination malpractice at the SSCE level, obtaining better grades becomes easy for many candidates seeking admission into tertiary institutions of learning in Nigeria and abroad (Jerome, 2023; Munkaila, 2017). The many candidates seeking admission into polytechnic education are teenagers much below the age of 18 years. In further attempt to ascertain quality content in such candidates, the JAMB strategizes to move away from Pen-Paper Test (PPT) to Computer-Based Test (CBT). Still, cases of impersonation, deliberate system failure of accredited CBT centres and parents colluding with unaccredited CBT centres, to write the objective test, are contemporary issues which the JAMB has been relentlessly fighting and safeguarding against, in its Unified Tertiary Matriculation Examination (UTME) electronically attempted by candidates seeking admission into universities, polytechnics and colleges of education in Nigeria (JAMB Bulletin, 2021). This paper thus attempts to have focus on five areas of the challenges: entrance assessment challenges; institutional examination draft challenges; project supervision and assessment challenges; scoring challenges; practical facilities challenges.

Entrance Assessment Challenges

These series of challenges to quality assessment of true performance in candidates at SSCE and JAMB levels, have one time informed the policy makers in the Nigerian government to recommend admitting institutions to re-assess the successful candidates. This reassessment is called post UTME test (Munkaila, 2017). Subsequently, it got to the public knowledge that the many admitting institutions are much interested in income generation from the post UTME than the post UTME itself (Ikoghode, 2015). So, candidates with the requirements from the SSCE and the UTME are eventually being admitted after the payment without post UMTE test. So, policy makers at the centre arguably called for the

scrap of the post UTME test (Munkaila & Adeyinka, 2017; Abdulraheem, 2013).

Again, in the recent years, the JAMB has been lowering UTME scores to 120 out 400 marks, as a benchmark for universities to admit candidates into their proposed programmes of study while candidates with 100 out of 400 marks are to be admitted to programmes of study in polytechnics and colleges of education in Nigeria (Eketu, 2017). The quality of learning content in many new intakes for National Diploma and Higher National Diploma has continued to raise a lot of questions on their prior knowledge and reading culture which in most cases do not align with revised topics in various courses, expected to have been taught and appreciated at their respective previous levels. Thus, low content and learning inefficiency are carried forward to HND by ND holders who manage their ways to graduate with pass classification or lower credit. These challenges have been underscored by political factors, ethnicity, nepotism and corruption (Stephen, 2016)

Institutional Examination Draft Challenges

Administrative functions of various departments running these ND and HND programmes include vetting and moderation of examination questions set with model marking guides. These set questions with the marking guides are expected to satisfy certain functions which include course comprehensiveness, objectivity, item differentiation, item difficulty, item discrimination, item analysis, validity and reliability of learning outcomes, etcetera (Hussien & Al-Hussein, 2022; Azzopardi & Azzopardi, 2019; Sylvanus, 2015; Talebi et al., 2013). External assessors are less engaged in vetting these questions while many examination question drafts are submitted late and close to the examination dates. Instances of discovering low standard questions and marking schemes thus scale through likely assessor's comments and recommendations for adjustments. Such set

questions without moderation are eventually administered while the students write the examinations.

Coming to examination rooms for corrections of typing errors and omissions to students has been a common practice since the questions are not vetted and corrected before being administered. Ohiri and Oscar (2023) presented these constraints as low professional competence of teachers and lecturers when investigative skills of such examiners and those of assessors are slim-focused of quality and quantity of instructional objectives. Cases of cheating and dishonesty during and after examinations are underreported and shrouded in secrecy while greedy and unreliable staff among lecturers do not refrain from giving examination questions to students as pre-seen (Jerome, 2023).

Project Writing, Supervision and Assessment Challenges

Project writing is a tool for research skills aimed at communicating findings and recommendations to problems being investigated in practical skills and innovations which are expected to reflect polytechnic education. The technical education and skills that will propel identification of practical problem with a view to findings solutions are not much prevalent in the Nigerian polytechnic system (Innocent, 2019). Research and project writing have been taken as daunting task for graduating students of ND and HND programmes to undertake. When they are assigned for project supervision, they take away several weeks and months without reporting to the supervisors. The common practice with them has been going to business centre operators where a number of projects of earlier researchers are obtained and presented at their respective departments for one to be approved. After approval, the whole work of the earlier researcher is then being copied by business centre operator for supervisees to present to their supervisors. Samuel and Kisugu (2019) find low level of

awareness of these students/supervisees in plagiarism and copyright infringement. Thus, the practice to them is not considered criminal.

These students then attach less interest and importance to research as supervisor tries to interact in understanding the statement of problem that makes the research to develop objectives and hypotheses. The academic system of the sector also does not help to improve the situation of project writing as plagiarism level is high among lecturers' writings and the attitude to encourage students in their communication and intellectual skills through project writing (by themselves) is not much supported by the many academic staff who are supervisors (Olayinka & Femi, 2022; Ude-Akpeh & Ezequile, 2022). Factors which promote students to go into plagiarism in project writing include similarity of research topic approved, much lump of information on the research topic available on the internet and lack of adequate skills of citing and referencing authors (Esieve et al., 2024). Consequences of plagiarizing research project, according to Osumah (2020), include: robbing of originality and research value by recycling stolen findings with no new findings added; preventing advancement in existing body of knowledge; bringing morale of researchers down in critical analysis of research procedure and contributing to underperformance of undergraduate students in their entire programmes of study.

Scoring Challenges

Scoring the achievement of students in tests, assignments and examinations forms the basis of assessment of each course in programmes of study. Arts, social and management sciences and humanities are known with developing students to internalize and externalize elucidation of concepts and theories in their respective disciplines. Some course lecturers choose to ease themselves from strain of marking by setting multiple choice questions and 'fill in the blank' in their Continuous Assessment (CA) tests. This

CA test, as is popularly called, is expected to spread across the weeks and the topics which are delivered. But in most cases the CA is carried out one-off (Okoye, 2023). Okoloeze et al. (2015) identified one of the factors responsible for this summative assessment as large class size. They are of the opinion that the lecturer is much concerned of the results to be produced and submitted than the quality content internalized in the learners.

Low level of technical competence among lecturers being recruited promotes less concern for consequences of arbitrary award of CA scores (Aliberi, 2017) while they save their energy of marking and shield students who might score so low from the tests (Ohiri & Oscar, 2023; Stephen, 2016; Okoloeze, et al., 2015). Examination scripts are being marked with lump marks to points and explanations being assessed. At times, the internal examiner who is mostly the course lecturer does not critically read the scripts before the marks are dropped. External examiners in most cases are not engaged to sample and audit a number of scripts marked per course. Nansak (2019) in his empirical findings raises administrative recklessness (3.98 out of 5-point Likert scale) in the call for examination question drafts, moderation and vetting of the marked scripts and academic staff recruited not on merit (4.18) contribute to more teaching and assessment challenges.

The politics of academic staff recruitment and appointments then goes a long way in making a common place for lobbying to pass students who by content in their scripts deserve to fail (Dangara & Chinyere, 2021). Empirical findings by Oluwaleye (2017) revealed that undergraduates in Nigerian tertiary institutions go extra mile to buy examination scores by rewriting and replacing the original scripts submitted in the examination rooms, through paying money to some lecturers while some female students avail themselves sex-for-marks deal with corrupt male lecturers.

Practical Facilities Challenges

Laboratories, studios and workshops particularly for practical in science, mass communication, office management practice and engineering have been much identified to be inadequately provided while the few infrastructures available are poorly maintained (Philomena, 2021). Ngalburgi (2024) noted practical skills acquisition among polytechnic students to be challenged by inadequacy of certain instructional tools and methods of instructional delivery. Ile and Okafor (2021) and Ukala (2019) raised concern for challenge in ICT resources, material resources and human resources for Office Technology Management in polytechnics. The ICT challenges are expressed in terms of poor e-learning utilization, computer systems availability and functionality, periodic allocation for computer instructions and costs of maintenance. The material challenges include poor power and alternative energy supply and non-availability of office equipment for practice in the studio. The human resource challenges are perceived from poor staff recruitment system, shortage of computer technologists and poor supervision (Jacob et al., 2020) of practical instructions.

Okoye and Arimonu (2016) posited that workshop assessment of vocational and technical education faces challenges such as facilities inadequacy, brain-drain to other professions and overseas while many Nigerian academic staff on foreign scholarship refuse to return at the completion of study. Hence, practical assessment merely end up to favour Nigeria certificate value system without commensurate content to justify qualifications being held. The practical which in turn is required to make polytechnic graduates job producers makes them to end up job seekers, due to its inadequacy in curriculum delivery (David & Gabriel, 2020).

Conclusion and Recommendations

The study examined quality assurance challenges in the management of polytechnic education in Nigeria with focus on five areas of assessment – students’ entry procedure, internal test/examination question drafts, physical facilities for practical, project writing and supervision, scoring and grading students’ academic achievement. These areas are substantially identified to be inadequately functional in the Nigerian polytechnic sector. Thus, the sector apolitically needs policy review with independent implementation of reforms and suggestions for sustainable quality assurance in the technical and vocational education system in Nigeria.

From the literature findings and conclusion reached, it is pertinent to recommend the following suggestions for policy makers and collegiate managers in the technical educational system:

i. *Test-Retest System:* The admitting polytechnics and mono-technics should be sustaining test-retest system in order to ascertain candidates with real prior content of the SSCE and UTME, with a view to assuring total quality processing of ND programmes for HND programmes. This becomes necessary because SSCE results are cheaply and easily obtainable through miracle centres run in both private and government schools purposely for economic benefits and maintenance of SSCE enrolment patronage. The JAMB continues to battle impersonation and collusion for system failure of its accredited centres during UTME test. In Uzbekistani and Vietnamese higher education systems, high school graduation examinations have been recorded with unethical practices and negative wash-back effect. So, the colleges and institutions admitting have been

recommended to be conducting entrance examinations to the incoming students in their respective specialties, for quality control in student learning process and graduate skilful output at completion (Bao & Cho, 2022; Hotamova, 2023). In Portugal, Ferrao and Almeida (2018) established that entrance score of students by admitting institutions of higher learning strongly determine academic performance of students in their year one learning progression.

ii. *Remedial and Pre-ND Programmes:* Remedial and pre-ND programmes of one year duration should be reintroduced in correcting and reworking quality inadequacy in the candidates with lower achievements in the UTME and post UTME tests than mere admitting them for sole priority of institutional revenue increase. The SSCE has been much compromised that almost every candidate possess the five credit passes required for a programme of study. There are candidates with good grades in the SSCE but they may not meet 40% of the UTME scores which is naturally required as minimum level of performance. Instead of waiting for the year to turn round, such candidates can be availed with pre-ND and pre-degree programmes, for reworking, equipping and updating the SSCE content contemporarily missing in most candidates seeking admission into tertiary institutions of learning.

In a comparative study empirically conducted by Eke et al. (2023), pre-degree students were found to have better Cumulative Grade Point Average (CGPA) among UTME and direct entry students. Pegram (2023) also found that pre-college factors such as high school grades and standardized tests (like Scholastic

- Assessment Test – SAT) have strong relationship with students’ academic performance in their year one of undergraduate studies. Conversely, Bakawu et al. (2018) earlier established empirical findings that no significant difference exists in the academic performance of students who are admitted into ND programmes by Pre-ND and those who are admitted into ND programmes through UTME. This scenario may be better understandable that prior knowledge gap between the two groups has been bridged and as such, their respective understanding and learning appreciation are at par in the year one.
- iii. *Examination Question Draft Moderation Effectiveness:* The examination officers along with their heads of departments should step up their efforts and strategies in ensuring examination question drafts are submitted earlier before the examination dates. They should also ensure that internal moderation and external moderation, as the case may be, are conducted on the question drafts while corrections noted are effected before printing and administering to students. The moderation thus assures level of validity and various items of question quality. This goes a long way in discouraging repetition of examination questions in similar word and figure structures. It also sends messages to serious students to read hard and smartly prepare for decoding logical understanding and requirements of qualitative questions. Students with quantitative questions will also be pushed to practice more questions beyond examples and illustrations given in the lecture notes.
- iv. *Post Script Marking Review:* The college system should ascertain sustainable vetting of marked scripts by engaging external reviewers and establishing item analysis on students’ academic performance and quality of their learning outcomes. This sustainable effort of sampling and auditing appropriateness and distribution of marks on student achievement steps up meticulousness and professionalism in the course lecturers as they mark the scripts and return them to examination office. The active practice of this post marking assessment of scripts reveals dedication and technical competence of the internal examiners who are the course lecturers. The lecturers inadequately found could be paired with senior colleagues who will update them from such technical competence required. Departmental seminars could be from time to time held in order to equip such academic staff identified with marking skills deficiency.
- v. *Merit Rating and Appointment in Academic Staff Recruitment:* Recruitment of academic staff should be much less of politics while merit is allowed to discover lecturer competence and passion for the job, on the bases of qualifications, prior teaching experience, industrial work experience, professional affiliations and publications of research findings. Vested interests of top level management in recruitment decision making have been settling for their candidates who usually perform low in both written test and oral interview. Many of these candidates of interest who graduate with third class degree and pass in HND easily get employed as lecturers and instructors while their counterparts with second class degree and upper credit and above hardly get appointed without god-fathers. Due

process and transparency should be intensified to recognize and appreciate candidates with better classes of degree, advanced degree, prior teaching experience and industrial experience in selection process to lecturing appointments.

- vi. *Adequate Funding of Infrastructural Items:* More funding should be directed to infrastructural adequacy and maintenance with equipment for practical in the workshops and laboratories, to meet surge of admission and enrolment in technical and vocational education. TETFUND intervention should be adequately accessed for procurement of workshop and laboratory equipment in public polytechnics and mono-technics. The infrastructural items could be received from alumni of the institutions through donations they make from time to time, as their alma maters are being assessed of material and infrastructural needs. The institutions through their various departments should imbibe culture of maintenance at utilization. Those items should be better monitored when in use and also be kept under locks and keys after use, for security and durability.

References

- Abdulraheem, I. (2013). Changing scripts in Nigerian higher education: the case of Kwara State polytechnic. *Ph.D. thesis in Education, University of East London*.
- Aliberi, V. (2017). Academic misconduct and control measures among polytechnic lecturers in Delta State. *Dissertation for the Award of Master of Education in Educational Administration and Policy Studies, Delta State University, Abraka*.
- Azzopardi, M., & Azzopardi, C. (2019). Relationship between item difficulty level and item discrimination in biology final examinations. *Education and New Developments*, 3 – 7. DOI: 10.36315/2019v2end001
- Bakawu, M. A., Malik, A., & Chiroma, A. (2018). The impact of pre-national diploma programme on academic performance: a case study of selected polytechnics in northeast Nigeria. *International Journal of Innovative Research and Development*, 7(7), 503 – 507.
- Bao, N. V., & Cho, Y. (2022). How the high-stakes and college entrance examination affects student's perception: Implication on management policy in higher education. *East Asian Journal of Business Economics*, 10(1), 83 – 94.
- Dangara, U. Y., & Chinyere, M. G. (2021). Quality assurance in Nigerian education system: Prospect and challenges. *Journal of Education and Learning Innovation*, 1(2), 76 – 83. <https://doi.org/10.35877/454RI.eduline422>.
- David, E. M., & Gabriel, E. O. (2020). The challenges of Nigerian polytechnic education graduates employability. The way forward. *International Journal Humanity and Social Sciences*, 19(1), 242 – 250.
- Emuhowho, I. S., & Joseph, I. G. (2023). Quality assurance strategies to enhance polytechnics education: A sine qua non for skills acquisition and self-reliance in the era. *International Journal of Education and National Development*, 1(2), 1 - 9.
- Eke, F. M., Chima-James, N., & Moneke, P. O. (2023). Comparative study of academic performance of undergraduates admitted through UTME, pre-degree and direct

- entry into the federal university of technology, Owerri. *E-journal of Library Philosophy and Practice*, 8055. <https://digitalcommonsuni.edu/libphilprac/8055>.
- Eketu, C. A. (2017). Feed forward control and admission into Nigerian universities: implications of JAMB 120 cut-off mark. *HARD international Journal of Economics and Business Management*, 5(8), 101 – 105.
- Esieve, J. N., Anani, N. P., & Okunsanya, T. (2024). Factors contributing to plagiarism of intellectual property among undergraduate students of a tertiary institution in delta state Nigeria. *International Journal of Education and Research*, 12(4), 61 – 74.
- Ferrao, M., & Almeida, L. (2018). Differential effect of university entrance score on first year students' academic performance in Portugal. *Assessment & Evaluation in Higher Education*, 44(4), 610 – 622. <https://doi.org/10.1080/02602938.2018.1525602>
- Hotamova, Z. (2023). Unpacking the wash-back effect of university entrance exams: a qualitative study of Uzbekistan's student's exam preparation experiences. *Unpublished thesis for master's degree in education, Department of Education, Stockholm University*.
- Hussein, A. K., & Al-Hussein, A. M. A. (2022). Testing and the impact of item analysis in improving students' performance in end-of-year final exams. *English Linguistics Research*, 11(2), 30 – 36.
- Ikoghode, A. (2015). Post UTME screening in Nigerian universities: how relevant today? *International Journal of Education and Research*, 3(8), 101 – 116.
- Ile, C. M., & Okafor, C. V. (2021). Implementers' ratings of resource challenges facing office technology and management programme in polytechnics in South-East Nigeria. *NAU Journal of Technology and Vocational Education*, 6(1), 176 – 188.
- Innocent, O. (2019). The dilemma of polytechnic education in Nigeria: the way forward. Paper presented at the 5th national conference organized by Academic Staff Union of Polytechnics, Federal Polytechnic Idah Chapter, on Technological education: Catalyst for national development, 9th – 12th July.
- Jacob**, O. N., Samuel, A., Pajo, W., & Audu, E. I. (2020). Monitoring and evaluation in Nigeria: challenges and ways forward. *Middle European Scientific Bulletin*, 5, 63 – 69.
- JAMB Bulletin. (2021, February 15). Impersonation: education minister's directive on use of images and biometric yielding results. *Weekly Publication of the Office of the Registrar*, 2(11), 1.
- Jerome, A. (2023). Public examinations in Nigeria: challenges and prospects in the 21st century. *Global Academy Journal of Humanities and Social Sciences*, 5(1), 10 – 15.
DOI: 10.36348/gojhss.2023.v05i01.003.
- Korter, G. O. (2023). Quality assurance in Nigerian technical and vocational education and training institutions: strategies for improvement. *Journal of Health, Applied Sciences and Management*, 6(3), 109 – 120.
- Mensah, M. A. (2016). Implementation of internal quality assurance in polytechnics: evidence from Ghana. *European Scientific Journal*, 12(19), 221 – 243.

- Munkaila, D. (2017). Post-UME / UTME screening in Nigerian universities, merits and attributed problems. *International Journal of Scientific and Technical Research in Engineering*, 2(8), 30 – 34.
- Munkaila, D., & Adeyinka, A. S. (2017). Problems and prospects of post-UME/UTME in Nigerian universities. *Scientific Research Journal*, 5(7), 1 – 6.
- Nansak, L. N. (2019). Challenges to educational quality in Nigeria. *International Journal of Entrepreneurial Development Education and Science Research*, 5(1), 116 – 126.
- Ngalburgi, S. A. (2024). Challenges of practical skills acquisition among building trade students of federal polytechnics in North Eastern Nigeria. *International Journal of Innovative Research in Technology, Basic and Applied Science*, 7(1), 55 – 74.
- Ohiri, S. C., & Oscar, I. U. (2023). Educational evaluation: relevance, constraints and solutions. *Iconic Research and Engineering Journals*, 7(5), 133 – 160.
- Okoloeze, N. M., Iyoke, J. O., Okoh, S. C., & Akubuilu, B. N. (2015). Trends in educational evaluation in Nigeria: issues and challenges. *Journal of Education and Practice*, 6(21), 71 – 77.
- Okoye, R., & Arimonu, M. O. (2016). Technical and vocational education in Nigeria. Issues, challenges and a way forward. *Journal of Education and Practice*, 7(3), 113 – 118.
- Okoye, R. O. (2023). Issues in educational assessment in Nigeria. *International Journal of Studies in Education*, 19(1), 13 – 24.
- Olayinka, A. Y., & Femi, Q. R. (2022). Information literacy skills and plagiarism among academic staff of the federal polytechnic Offa, Kwara State, Nigeria. *International Journal of Advances in Engineering and Management*, 4(8), 1773 – 1782.
- Oluwaleye, J. M. (2017). Corruption and the Nigerian youth: Implication for development. *Advances in Social Sciences Research Journal*, 4(4), 146 – 156.
- Osumah, O. A. (2020). Consequences of plagiarism on academic research: A brief exposition. *Article on a PDF*, 251 – 273. Department of Public Administration, Ambrose Alli University, Ekpoma.
- Pegram, B. V. (2023). The relationship between student academic performance, pre and in-college factors, and trends since covid-19 at historically black colleges and universities. *Unpublished Dissertation for the Award of Doctor of Philosophy in Educational Leadership, Prairie View A and M University*.
- Philomena, O. U. (2021). Integrating sustainability into the management of Nigerian polytechnics: issues and strategic options. *Nigerian Academy of Management Journal*, 16(2), 115 – 127.
- Samuel, O. A., & Kisugu, O. A. M. (2019). Copy right infringement among students of the federal polytechnic Ilaro and federal college of education, Osiele, Abeokuta. *World Journal of Innovative Research*, 6(3), 11 – 16.
- Stephen, M. R. (2016). Academic staff development in Nigerian polytechnics. *International Journal of Public Administration and Management Research*, 3(4), 9 – 13.
- Sylvanus, E. E. (2015). Item analysis of test of number operations. *Asian Journal of Educational Research*, 3(1), 18 – 25.

Talebi, G. A., Ghaffari, R., Eskandarzadeh, E., & Oskouei, A. E. (2013). Item analysis an effective tool for assessing exam quality, designing appropriate exam and determining weakness in teaching. *Res. Dev. Med. Edu.*, 2(2), 69 – 72.

Ude-Akpeh, C. E., & Ezequile, C. J. (2022). Plagiarism and its effect on students' written communication skills in universities in Anambra State. *ASUU Journal of Humanities*, 6(1), 172 – 188.

RELATIONSHIP BETWEEN EATING HABITS AND MENTAL HEALTH OF UNDERGRADUATES STUDENTS IN UNIVERSITY OF NIGERIA, NSUKKA, NIGERIA

¹OGANAH-IKUJENYO, B. C., OKEZUE, S. E., ²NNUBIA, U. I. & ²NWAIZUGBO, J. S

¹Department of Home Economics, Lagos State University of Education, Oto/Ijanikin

²Department of Home Science & Management, University of Nigeria, Nsukka

Corresponding author's Email: ogannah-ikujenyobc@lasued.edu.ng 08023002528

Abstract

The major objective of the Study was to investigate the relationship between eating habits and mental health of undergraduates in the University of Nigeria. Specifically, the Study identified the eating habits of undergraduate students, assessed their mental health and determined the relationship between their eating habits and mental health. Descriptive cross-sectional research design was used. A total of 698 respondents were selected using multi-stage random sampling technique from Nsukka and Enugu Campuses. A structured questionnaire for eating habits and standardized instrument for Mental Health Continuum Short-Form was used to collect data. All data were analyzed using SPSS version 23.0, while Chi-square was used to determine relationship between variables. Results revealed that 33% of the respondents were critical eaters, 37.2% social eaters, 41.4% unconscious eater; 48% emotional eaters, 52.4% sensual eaters, 57.2% healthy eaters and 75.8% were habitual eaters. Respondents can belong to more than one eating habit category. Majority (49.1%) of the respondents had flourishing mental health, 42.1% had moderate mental health while 8.7% had languishing mental health. The finding showed that healthy, non-sensual and conscious eating habits were significantly ($p < .05$) associated with positive mental health. Majority of the respondents who were healthy, non-sensual and conscious eaters had flourishing mental health. While emotional, critical, habitual and social eaters were not associated with mental health because the P value was not significant ($p \geq .05$). Free Nutrition and mental health counseling services should be made readily available to the students upon resumption and follow up support groups should monitor and evaluate progress.

Keywords: *Mental Health, Consumption Pattern, Nutrition Education, Undergraduates.*

Introduction

The complex ways that diet can affect psychological well-being have been brought to light by the growing interest in the relationship between eating habits and mental health in recent years.

This may have led to a significant increase in research on the effect of nutrition and dietary habits on mental health of individuals (Granero, 2022). Understanding this connection may be one of the avenues to preventing mental health disorders in our society (Grajek, et al., 2022; Muscaritoli, 2021). To Granero (2022), there is an

existing controversy among nutritional and health scientists on the role of nutrition in the onset and progression of behavioural problems and mental health issues and how diet may contribute to the efficiency of therapy used in patients with different psychopathological conditions.

Historically, nutrition had been overlooked as a contributor to poor mental health, but there is an increasing focus to this relationship, largely due to understanding the fact that the central nervous system needs certain key nutrients for maintenance and to function optimally. The nutritional status of an individual is influenced by a variety of factor, including life stage,

environment, food access and socioeconomic status which in turn can influence mental health (Khalil, 2022; Stenfanska, et al., 2017).

The type of Food consumed influences to a great extent individual's disposition whereas the person's mood dictates their cravings and the type of nourishment they choose. To Constantin and Fonseca (2020), emotions affect eating while the nutritional properties of food impact on brain functions which relates to mood and feelings. They added that specific nutrition can affect cognitive processes and emotions whereas the lack of vitamins, essential fatty acids, minerals, some micronutrients and proteins may contribute to aggravating a poor psychological state. Furthermore, there is substantial evidence that many young people have abandoned healthy indigenous diets for more westernized and ultra-processed foods (Chukwu & Dogbe, 2023; Sitohang, 2022). Young people tend to exhibit dietary habits and eating habits acquired in adolescence, which are likely to persist throughout adulthood (Mahmood, et. al., 2021).

According to Medina et al. (2020), people's eating habits may be described as the intentional, group-based, and recurrent behaviors that affect people's selection, use, and intake of specific foods or diets. Included in this definition are the food's type, preparation, timing, and location of consumption. It involves eating a particular food on a regular basis and making consistent eating decisions in terms of food selection, quantity, and frequency. There are a few known conditions that influence people's eating patterns apart from family of orientation and culture, they include stress, lack of sleep, financial constraints, time constraints and changes in lifestyle (Sogari et al., 2018). There are six traditional types of eaters identified by St. Elizabeth Healthcare (2017). They include: Emotional eaters, unconscious eaters, habitual eaters, critical eaters, sensual eaters and energy eaters. These eating habits are further explained below.

Consuming food in reaction to feelings rather than physical hunger signals is known as emotional eating (Nair & Joseph, 2024). Emotional eaters usually eat when they are anxious, joyful, or depressed. When feeling depressed, eating foods heavy in fat or sugar may be very fulfilling and rewarding, providing a momentary reprieve from the negative emotions (Huntington, 2023). However, eating could also be a way to show contentment and joy. Unconscious eating, according to National Choice Medical Clinic (2021), occurs when the eater lacks awareness while eating due to certain factors which may cause them to be disinhibited from the eating experience. Five factors have been identified to contribute to unconscious eating namely; disinhibition, distraction, lack of awareness, emotional and external reasons (Cline, 2023). Habitual eating occurs when a person rarely deviates from their eating habits and finds comfort in routine; they buy and eat the same type of food repeatedly because the food they have chosen is convenient and easy to prepare (Cormier, 2020). While critical eating habit occurs when the eater is fully aware of the nutritional benefits of eating healthy food and has an obsessive dedication towards the food or diet. Finally, a sensual eater only enjoys trying out new food. Evidence abounds to suggest that there are categories of people who are social eaters, these group of people are those that social context exerts some pressure and persuasion on what and how much to eat (Higgs & Ruddock, 2020).

However, the ideal is the eating habit that promotes general health and well-being. A healthy eating habit involves regularly selection and consumption of a wide range of nutrient-dense meals in the right proportion (American Heart Association (AHA), 2021). This habit limits the intake of processed foods, sugar-sweetened beverages, salt and high fatty foods while emphasizing the consumption of whole or natural foods, such as fruits, vegetables, whole

grains, lean proteins and healthy fats (AHA, 2021).

Freeman (2022) modified the WHO (2022) definition of mental health as a 'state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well, work well and contribute to their communities. This means that mental health is an integral component of health and well-being and more than the absence of mental disorder'. In other words, the statement "mental health is a necessary (but not sufficient) pre-condition for well-being" suggests that mental health plays a significant role in human health (Wren-Lewis & Alexandrova, 2021). WHO (2022) proposed six factors of mental health as physical, psychological, social, cultural, spiritual and other interrelated factors. These factors contribute to mental health and there are inseparable links between mental and physical health therefore, it is important to note that mental health is generally conceptualized as predominantly experiencing positive emotions, marked by feelings of happiness and sense of mastery over the environment (Obumse & Egenti, 2021).

Studies have shown that some eating habits and patterns are detrimental to health and well-being of population groups. Predominant among this poor eating habit is the increased intake of soft drinks, mostly sugar-sweetened beverages, fast and convenience foods, with the accompanying decrease in physical activity (Mizia, et al., 2021). This behaviour pattern has been identified mostly among adolescents and young adults (Chukwu & Dogbe, 2023). Majority of the University students in Nigeria are in their late adolescents and young adults.

Another major eating habit that affects the mental health of undergraduates is skipping meals, especially breakfast (Aldubaybi, 2024). In a related study by Pengpid and Peltzer (2020) among university students in 28 countries, results

revealed that breakfast skipping, whether uncommon or regular, was linked to melancholy, poorer happiness, posttraumatic stress disorder, loneliness, short and extended sleep, sleep problems, restless sleep, and sleep problems brought on by traumatic events. All these eventually resulted in poor academic performance. Some of the reasons adduced for skipping at least one meal in a day include: busy schedules, early morning classes, financial constraints, inability to cook, weight control, poor appetite and demands schooling (Aldubaybi, 2024; Omage & Omuemu, 2018). For instance, students who had to skip their breakfast in order to attend a 7:00am class and had other classes consecutively till 2pm has the tendency to start losing concentration mid classes, appear stressed and dull. When these students get back to their hostels most of them would be too tired to prepare nutritious meals instead they will fall back to fast food, sweetened beverages, junks or snacks thereby not providing the brain with the nutrients it requires for replenishment. At the same time, food insecurity among students in higher institutions has become a major issue with possible consequences for mental health and nutritional sufficiency (Payne-Sturges, et al., 2018). The stress of academic activities has direct and indirect adverse effects on health of students, and one way stress may affect students' health is by influencing their food choices. Examples of the relationship between foods and mental health include; carbohydrate consumption which seems to alleviate depressive moods and this has been viewed as part of the link for developing obesity (Annesi, 2023).

The major objective of this study was to determine the relationship between eating habits and mental health of undergraduate students in the University of Nigeria, Nsukka (UNN). Specifically, the study examined their eating habits, evaluated the status of their mental health and determined the relationship between their eating habits and mental health status.

Method of the Study

This study adopted a descriptive cross-sectional survey design. Undergraduate students of the Enugu and Nsukka campuses of the University of Nigeria, Nsukka constituted the population. Multi-stage random sampling technique was used to select a total of 698 respondents from the 17 faculties of the university using the WHO guideline for calculation sample size. Data was

Figure 1: Eating habits data of respondents

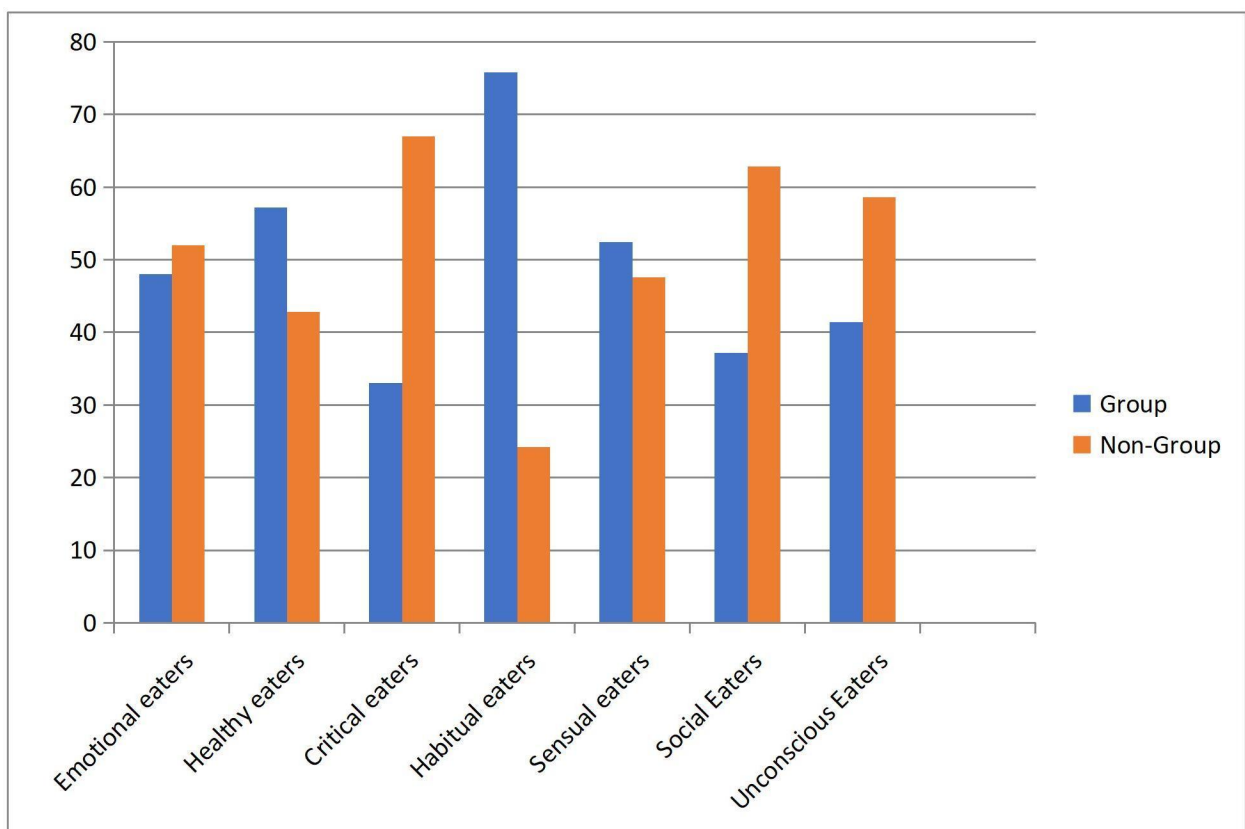


Figure 1 shows the eating habits of the respondents. Results shows that, 48% of them were emotional eaters, 57.2% of them belonged to the group of healthy eaters, 33% were critical eaters, 75.8% of the respondents were habitual

collected using two structured questionnaire to elicit information on eating habits and a standardized instrument for Mental Health Continuum Short-Form (MHC-SF). All data collected were analyzed using SPSS, version 23.0. While Chi-square analysis was used to determine relationship among variables.

Result

eatiers, 52.4% of them belonged to the group of sensual eaters, 37.2% of them were in the category of social eaters, and 41.4 % of them were unconscious eaters.

Fig 2. Mental health status of the respondents

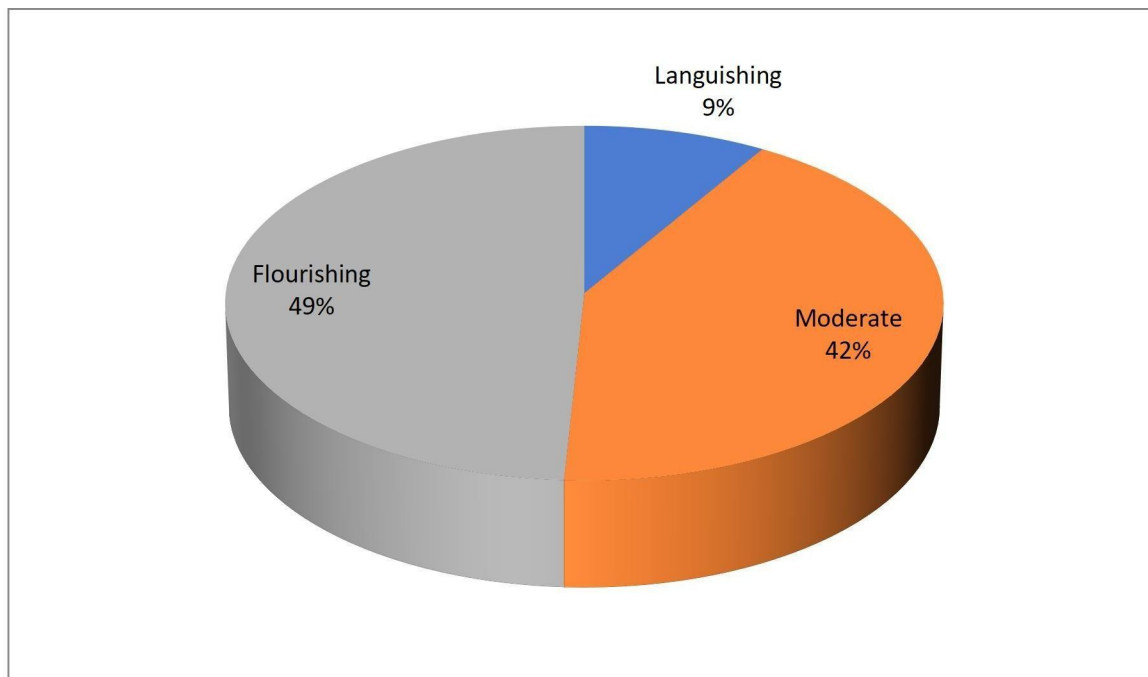


Figure 2 shows the mental health status of the undergraduates. From the figure above, almost half (49.1%) of the respondents had flourishing mental health, 42.1% of the respondents had moderate mental health while 8.7% of the respondents had languishing mental health.

Table1: Relationship between Eating Habits and Mental Health of Undergraduates

Eating habits	Languishing F (%)	Moderate F (%)	Flourishing F (%)	X ²	P value
Emotional eaters	38 (11.3)	141 (42.1)	156 (46.6)	5.87	.53
Non-emotional eaters	23 (6.3)	153 (42.1)	187 (51.5)		
Healthy eaters	25 (6.3)	160 (40.1)	214 (53.6)	11.25	.004**
Non-healthy eaters	36 (12)	134 (44.8)	129 (43.1)		
Critical eaters	16 (7)	87 (37.8)	127 (55.2)	5.33	.070
Non-critical eaters	45 (45)	207 (44.2)	216 (46.2)		
Habitual eaters	49 (9.3)	223 (42.2)	257 (48.6)	.824	.662
Non-habitual eaters	12 (7.1)	71 (42)	86 (50.9)		
Sensual eaters	42 (11.5)	149 (40.7)	175 (47.8)	7.23	.027*
Non-sensual eaters	19 (5.7)	145 (43.7)	168 (50.6)		
Social eaters	29 (11.2)	108 (41.5)	123 (47.3)	3.08	.214
Non-social eaters	32 (7.3)	186 (42.5)	220 (50.2)		
Unconscious eaters	38 (13.1)	117 (40.5)	134 (46.4)	12.06	.002*
Conscious eaters	23 (5.6)	177 (43.3)	209 (51.1)		

Table 1 shows the relationship between eating habits and mental health of undergraduates. The finding shows that healthy ($\chi^2 = 11.25$, $p = .004$), non-sensual ($\chi^2 = 7.23$, $p = .025$), and conscious ($\chi^2 = 12.06$, $p = .002$) eating habits were significantly ($p < .05$) associated with positive mental health. More respondents who were healthy, non-sensual and conscious eaters had flourishing mental health. Other eating habits such as; emotional, critical, habitual and social eaters were not associated with mental health because the P value was not significant ($p \geq .05$).

Discussion

Research suggests that undergraduates often fall into the category of unhealthy eaters due to factors such as time constraints, lack of cooking skills, limited budget or resources, convenient high calorie food, stress, high prices of healthy food, unhealthy snacking and easy access to junk food (Aldubaybi, 2024; Alsheweir, 2023; Sogari et al., (2018)). The findings from this study are in alignment with this trend as the result showed that almost half of the respondents were unhealthy eaters. A good number of them were also unconscious eaters. Unconscious eating occurs when the eater is unaware and lacks knowledge that of eating but eat because certain factors are causing them to be disengaged from the eating experience, for instance, students often engage in unconscious eating while reading or during leisure. The findings of this study is in correlation with the study by Lopez et al. (2020) which reported that undergraduate students consume a large amount of food while multitasking and are less mindful of what they are eating. Almost half of the respondents were emotional eaters, which mean they eat food when happy, or eat for comfort when feeling sad or stressed. This supports a study carried out by Sogari et al. (2018) which discovered that undergraduates often engage in emotional or stress eating, which can lead to overconsumption of high-calorie and high-fat food. This behaviour could be a coping mechanism for dealing with academic pressures and other stressors experienced by undergraduates (Annesi, 2023; Sogari et al., 2018). The majority of the respondents were also found to be habitual eaters, habitual eating occurs when a person rarely deviates from their eating habits and finds comfort in routine; they buy and eat the same type of food repeatedly because the food they have chosen is convenient and easy to prepare (Cormier, 2020). For instance, some students have formed the habit of eating bread sandwiches popularly known as meshai regularly because it is convenient and easy to prepare. The findings of this study were in accordance with the study

findings by Nasir and Tahir (2017) who stated that the availability and easy access to convenient low-cost food on campus encourages undergraduates to develop habitual patterns of consuming convenient and less nutritious options. More than a third of the undergraduates belong to the category of social eaters. A social eater can be defined as an individual who enjoys eating in the company of others and tends to consume more food when in the company of others.

Sogari et al (2018) found that students ate more when they are dining in a group, especially with friends, compared to eating alone. A very low percentage of the respondent are critical eaters. The critical eating habit occurs when the eater is fully aware of the nutritional benefits of eating healthy food and has an obsessive dedication towards the food or diet but students do not care about the nutritional benefits of food instead they opt for quantity rather than quality. This suggests a potential absence of critical evaluation of the nutritional quality of the meals they consume. More than half of the respondents were sensual eaters, which mean that they prefer visual appearance, aroma and taste over the nutritional content of food.

According to Sogari et al (2018) study, 49.1% of the respondents had flourishing mental health which means they have optimal mental well-being which helps them function effectively in their daily activities in school, maintain healthy relationships and are able to adapt to stress. 42.1% of the respondents had moderate mental health, indicating occasional negative emotions while a few number of them had languishing mental health which reflects poor mental health. The research regarded flourishing mental health as the optimal state of health; hence any other mental state is regarded as sub-optimal. The findings of this study suggest that more than half of the respondents were not in the best state of emotional, psychological and social well-being. Previous studies among undergraduate students in

Nigeria similarly found a high prevalence of poor mental health among the students. This is in line with a study conducted by Amawulu and Eniyekedidei (2018) which reported a high prevalence of mental health illness among students of tertiary institutions in Bayelsa state. The findings of this study are also consistent with a study conducted by Anosike et al. (2022) which shows a high prevalence of poor mental health among undergraduates of health sciences in Nigerian universities. This may be attributed to high academic stress, financial difficulties and other personal and/or family-related challenges faced by students.

The relationship between eating habits and mental health is significant, and indeed several research studies have shown strong associations between eating habits and the mental well-being of individuals (Grajek, et al., 2022; Pengpid & Peltzer, 2020). Results from the present research reveal that mental health of the undergraduates was significantly associated with healthy, non-sensual and conscious eating habits. Majority of individuals who incorporate enough protein, fruits, vegetables, drink lots of water and are careful of the fats and carbohydrate they eat has flourishing mental health. More than half of the respondents who were non-sensual eaters had flourishing mental health. Significant number of the respondents who had conscious eating habit had a flourishing mental health. Although emotional, social and habitual eating was not associated with mental health, there were a significant number of non-emotional, non-social and non-habitual eaters who had flourishing mental health. Critical eaters are those who have a regular schedule for eating, are conscious of food preparation methods, follow a strict diet plan and eat food with nutritional quality; though it was not associated with mental health, the majority of people who were critical eaters had flourishing mental health.

Conclusion and Recommendations

Eating habits involves the regular consumption of certain types of food; and the consistent choices one makes regarding eating such as food choices, amount of food consumed, frequency of eating, etc. Mental health is currently one of the biggest challenges facing young people in every country. The mental health status of undergraduates assessed in this study was found to be mostly at a sub-optimal level, indicating a need for a deeper enquiry into specific factors that could be protective or risky to the mental well-being of students. Unhealthy, sensual and unconscious eating habits were associated with poorer mental well-being. Poor eating habits could be harmful to students' mental health while healthy, conscious and non-sensual eating habits could be protective of mental wellbeing.

Based on the findings from the study, it is recommended that the university in collaboration with NGOs periodically organize seminars, workshops and awareness campaign on the need to eat right to ensure flourishing mental health and wellbeing. There is also the need for free nutrition and mental health counselling services first on admission of students and periodically. Finally, the need to raise advocacy groups amongst the students after training as champions of eating right. They would be involved in campaigning for the consumption of fruits and vegetables to replace the high calorie conventional snacks on campus.

References

- Aldubaybi, A. (2024). Factors affecting mental wellbeing among UK university students. *Doctoral dissertation, University of Nottingham.*
- Amawulu, E., & Eniyekedidei, P., K. (2018). Mental health status of students attending tertiary institutions in Bayelsa State, Nigeria. *Journal of Public Health and*

Epidemiology, 10(10), 363-369.
Doi:10.5897/JPHE2018.0999

American Heart Association. (2021). Healthy eating. <https://www.heart.org/en/healthy-living/healthy-eating>

Annesi, J. J. (2023). Effects of obesity treatment-associated changes in mood and self-regulation on high emotional eating. *Current Psychology*, 42(11), 8705-8708.

Anosike, C., Anene-Okeke, C. G., Ayogu, E. E., & Oshigbo, M. C. (2022). Prevalence of depression and anxiety, and attitudes toward seeking help among first-year pharmacy, medical, and nursing students in Nigerian universities. *Currents in Pharmacy Teaching and Learning*, 14(6), 720-728. <https://doi.org/10.1016/j.cptl.2022.06.002>

Alsheweir, A., Goyder, E., Alnooh, G., & Caton, S. J. (2023). Prevalence of Eating disorders and disordered eating behaviours amongst adolescents and young adults in Saudi Arabia: A systematic review. *Nutrients*, 15(21), 4643. <https://doi.org/10.3390/nu15214643>

Chukwu, E., & Dogbe, W. (2023). The cause and effect of the nutrition transition in Nigeria: Analysis of the value of indigenous knowledge and traditional foods in Enugu State, Igboland. *Journal of Ethnic Foods*, 10(1), 30 - .

Cline, R. (2023). *Blog: Mindful vs. Mindless eating*. <https://www.nchpad.org/1693/6799/Mindful-vs-Mindless-Eating>

Cormier, H. (2020). *What type of eater are you*. <https://econofitness.ca/en/blog-eat-type-of-eater#:~:text=%F0%9F%95%92%20HABITUAL&text=Habitual%20eaters%20buy%20and%20eat,convenient%20and%20easy%20to%20prepare>

Freeman, M. (2022). The world mental health report: Transforming mental health for all. *World psychiatry: Official Journal of the World Psychiatric Association (WPA)*, 21(3), 391 – 392. <https://doi.org/10.1002/wps.21018>

Elizabeth Healthcare (2017). *Six types of eaters*. <https://www.fox19.com/story/34630196/6-different-types-of-eaters-which-one-are-you/>

Grajek, M., Krupa-Kotara, K., Białek-Dratwa, A., Sobczyk, K., Grot, M., Kowalski, O., & Staśkiewicz, W. (2022). Nutrition and mental health: A review of current knowledge about the impact of diet on mental health. *Frontiers in Nutrition*, 9, 943998.

Granero, R. (2022). Role of nutrition and diet on healthy mental state. *Nutrients*, 14(4), 750. <https://doi.org/10.3390/nu14040750>

Higgs, S., & Ruddock, H. (2020). Social influences on eating. *Handbook of eating and drinking: Interdisciplinary perspectives*, 277-291.

Kandiah, J., Yake, M., Jones, J., & Meyer, M. (2006). Stress influences appetite and comfort food preferences in college women. *Nutrition Research*. 26(3), 118 – 123. <https://doi.org/10.1016/j.nutres.2005.11.010>

Khalil, N.A. (2022). Malnutrition of micronutrients and brain disorders. In: Mohamed, W., and Yamashita, T. (eds.). *Role of micronutrients in brain health. nutritional neurosciences*. Springer, Singapore. https://doi.org/10.1007/978-981-16-6467-0_10

Lopez, R. B., Heatherton, T. F., & Wagner, D. D. (2020). Media multitasking is associated with higher risk for obesity and increased responsiveness to rewarding food stimuli. *Brain*

Imaging and Behaviour, 14(4), 1050-1061.

Mahmood, L., Flores-Barrantes, P., Moreno, L., Manios, Y., & Gonzalez-Gil, E. (2021). The influence of parental dietary behaviours and practices on children's eating habits. *Nutrients*, 13, 1138. <https://doi.org/10.3390/nu13041138>

Medina, C. R., Urbano, M. B., Espinosa, A. J., & López, Á. T. (2020). Eating habits associated with nutrition-related knowledge among university students enrolled in academic programs related to nutrition and culinary arts in Puerto Rico. *Nutrients*, 12(5), 1408. <http://dx.doi.org/10.3390/nu12051408>

Mizia, S., Felińczak, A., Włodarek, D., & Syrkiewicz-Światała, M. (2021). Evaluation of eating habits and their impact on health among adolescents and young adults: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 18(8), 3996. <https://doi.org/10.3390/ijerph18083996>

Muscaritoli, M. (2021). The impact of nutrients on mental health and well-being: insights from the literature. *Frontiers in Nutrition*, 8, 656290.

Nair, T., & Joseph, S. (2024). Emotional eating, emotional regulation, and personality of college students. *Indian Journal of Health and Wellbeing*, 15(4).

Nasir, J., & Tahir, M. (2017). Factors affecting nutritional attitudes among university adults. *Pakistan Journal of Commerce Social Sciences*, 11(2), 644–652. <https://www.econstor.eu/bitstream/10419/188309/1/pjcss386.pdf>

Natural Choice Medical Clinic. (2021). Unconscious eating- the nemesis of mindful eating.

<https://naturalchoicemedicalclinic.com/health-tips/unconscious-eating-the-nemesis-of-mindful-eating/>

Obumse, N. A., & Egenti, U. P. (2021). Influence of mental health status on academic achievement of public secondary schools' students in Anambra State. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 3, 118-128.

Omage, K., & Omuemu, V. O. (2018). Assessment of dietary pattern and nutritional status of undergraduate students in a private university in southern Nigeria. *Food Science and Nutrition*, 6(7), 1890-1899. Doi:10.1002/fsn3.759.

Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, 32(2), 349-354.

Pengpid, S., & Peltzer, K. (2020). Skipping breakfast and its association with health risk behaviour and mental health among university students in 28 countries. *Diabetes, Metabolic Syndrome and Obesity*, 2889-2897.

Sitohang, Y., M. (2022). Reducing the consumption of sugar-sweetened beverages among children and adolescents. *Populasi*, 30(1), 74-89.

Sogari, G., Velez-Argumedo, C., Gómez, M.I., & Mora, C. (2018). College students and eating habits: A study using an ecological model

for healthy behavior. *Nutrients*, 10, 1823.
<https://doi.org/10.3390/nu10121823>

Stefanska, E., Wendołowicz, A., Cwalina, U.,
Kowzan, U., Konarzewska, B., Szulc, A., &

Ostrowska, L. (2017). Assessment of
dietary habits and nutritional status of depressive
patients, depending on place of residence.
*Annals of Agricultural and Environmental
Medicine*, 24, 581–586.
Doi:10.5604/12321966.1233554.

*World Health Organization (2022). World mental
health report. Transforming mental health for
all. Geneva: World Health Organization.*

Wren-Lewis, S., & Alexandrova, A. (2021).
Mental health without well-being. *The Journal of
Medicine and Philosophy: A Forum for
Bioethics and Philosophy of Medicine*, 46(6),
684–703.

<https://doi.org/10.1093/jmp/jhab032>

TEACHERS' UP-SKILLING AS A CORRELATE OF INSTRUCTORS' EFFECTIVENESS IN GOVERNMENT TECHNICAL COLLEGES IN OGUN STATE

Lemo, Olusiji O. (Ph.D.)

Department of Industrial Technical Education,
Tai Solarin University of Education,
Ogun State, Nigeria.
rossanlemo@yahoo.co.uk

Abstract

The study examined the relationship between teachers' up-skilling and instructors' effectiveness in technical colleges in Ogun State. Descriptive survey research design was adopted for the study, while the population comprised all 162 instructors in all the government technical colleges in Ogun State. The sample was made through simple random sampling technique. The sample size of this study was 120 instructors. One research instrument was used for data collection. The instrument was structured questionnaires and titled "Teachers' Up-Skilling and Instructors' Effectiveness Questionnaire (TUIEQ)". The reliability coefficients obtained were .82. Data collected were analyzed using Pearson Product Moment Correlation (PPMC) and at .05 level of significance. The result revealed that there was significant relationship between technical up-skilling and instructors' effectiveness ($r = .401, p < .05$), that there was significant relationship between soft skill up-skilling and instructors' effectiveness ($r = .210, p < .05$), that there was significant relationship between domain specific up-skilling and instructors' effectiveness ($r = .511, p < .05$). Also, there was that there was significant relationship between digital up-skilling and instructors' effectiveness ($r = .865, p < .05$). It is concluded that there was significant relationship between teachers' up-skilling instructors' effectiveness in technical colleges. The study recommended that technical colleges should establish partnerships with industry stakeholders and professional bodies to offer up-skilling opportunities. These initiatives should include certifications, specialized training, and access to cutting-edge resources to ensure instructors maintain competence and relevance in their specialized areas.

Keywords: *Teachers' Up-Skilling, Instructors' Effectiveness, Technical Colleges*

Introduction

Instructors, as important agents in the teaching-learning process, play a vital role in developing the manpower needed for the development of the society. They have been known to have influence on students' academic performance and also play crucial responsibilities in educational goal attainment because the instructor is ultimately responsible for translating educational policies and principles into actions based on practice during interaction with the students. In realization of the vital roles of instructors, the Federal Republic of Nigeria (FRN) (2013) stated that no education system can rise above the quality of its education and no

educational system could outgrow the quality and status of its instructors. This is because they are the agents through which educational goals could be realized. Opinmi (2014) described instructors as important change agents whom through their action of teaching and management of classroom activities transform the plan and objectives of education into reality. Instructors, therefore, ensure that school curricular and extra-curricular activities are properly planned and executed to bring about students' development.

The issue of declining academic performance of students in government technical colleges has generated much interest among stakeholders in the education sector in Ogun State.

The reason being that the laudable goals of technical education as contained in the (FRN, 2013) have become an illusion. The goals are; providing trained manpower in the applied sciences, technology and business particularly at craft, advanced craft and technical levels. By implication, the attainment of the nation's development goal through education can be largely determined by how effectively instructors perform their tasks at primary, secondary and tertiary levels of education. Since no educational system can rise above the quality of its instructors, the level of a nation's development therefore, could be traced to how effectively instructors perform their tasks. In order to achieve these goals, school management often employs the services of competent instructors who carry out various tasks to achieve the educational goal. It is essential to note that the performances of instructors determine largely the success or failure of the school system.

The quality of teaching pedagogy, subject mastery and lesson preparation are known to be key factors of instructors' effectiveness. Instructors' ability to teach is not achieved from their academic background only, but by the outstanding teaching pedagogy, lesson preparation, and subject mastery. It appears some instructors do not have good teaching pedagogy; some of them seem to have shallow subject mastery and poor lesson preparation. In recent times, instructors are faced with several challenges which affect their performance negatively. Challenges such as lack of motivation, meager wages among others could lead to poor classroom organization and management, shallow mastery of subject matter, lack of commitment to work, poor lesson preparation and ineffective teaching pedagogy, if they are not tackled appropriately. Shehnaz and Hadi (2015) affirmed that many instructors are not effective in the area of subject mastery, classroom management, teaching methods, commitment to work, and

lesson preparation. If these problems then persist and are not properly taken care of among secondary school teachers their effectiveness may be likely endangered.

According to Odu-Dikoro (2022), instructors' effectiveness is the extent to which instructors accomplish their tasks of teaching at a particular period in the school system in achieving educational goals. It is a net growth in intellectual aptitude and skills as measured by students' performance. Effective teaching is very important to students' learning because effective teaching involves aligning the three major components of instruction: learning objectives, assessments, and instructional activities. Since effectiveness measures the degree to which organizations including the school system achieves its goal, it therefore means that the degree to which objectives are achieved and the extent of which targeted problems are solved could be linked to teaching effectiveness (Wokoma, 2023). Teaching effectiveness refers to the ability of an instructor to adapt to global trend and determination to attain school objective (Nweke, 2022). Today's teaching calls for shift from traditional rote style and lecture style of teaching to the type of teaching that fosters critical and reflective thinking and developing problems solving skills in students. To meet the needs of students and the great demands in the profession of teaching, teachers have to be trained in the use of the different, old and new, approaches to teaching and assessment. That is to say, for educational reforms to take place and be of great benefit, effective professional development should also take place.

Teachers' Up-skilling deals with acquisition of contemporary skills as well as the skills required for the future in the field of teaching and learning. Teachers' up-skilling is the process of providing teachers with more relevant advanced skills through additional education and training (Drake, 2004). Rapid changes and

innovations in the process of education delivery have necessitated teachers and other workers in education sector to up-skill. Allan (2022) stated that up-skilling an employee may result to higher productivity, efficiency in resource use and competence of organizations staff leading to teaching effectiveness. Based on the emerging tasks of teachers, they may need to up-skill in the areas of use of digital resources, curriculum design, teaching styles and social support. Akin and Ok (2021) argued that it is only through up-skilling teachers that they will be well positioned to meet the needs of teaching and learning of the 21st century. Teachers' up-skilling in this study would be discussed in terms of technical, soft skill, domain specific and digital up-skilling.

Technical up-skilling refers to the process of acquiring, improving, and mastering specific technical competencies necessary for performing tasks effectively in a particular field. Unlike general skill development, technical up-skilling focuses on industry-specific or role-based skills that synchronize with emerging technological advancements, innovations, and professional development (Deloitte, 2022). Technical up-skilling is essential for enabling teachers to leverage digital tools, adopt modern pedagogical techniques, and improve instructional delivery. For example, the rise of educational technologies like smart boards and interactive simulations requires instructors to acquire the necessary technical proficiencies to enhance student engagement and learning outcomes (Baker et al., 2020).

Soft skills up-skilling are personal trait that enhances teacher's interaction and performance in teaching. More importantly, soft skill is one of the components to improve quality teaching in educational system. For teachers to perform and for effective and efficient result of educational objectives to be achieved, there is need for acquisition of soft skills. Soft skills are skills which characterize relationship with other

people, or which are about how an individual approaches life and work. Ginting (2016) defined soft skills as intra- and inter-personal (socio-emotional) skills, essential for personal development, social participation and workplace success. Tang (2018) affirmed that part of qualities and character traits of an effective teacher is to be diligent in discharging role assigned to him or her and possess ability to take the initiative when necessary which is related to soft skills.

Domain-specific up-skilling refers to the targeted enhancement of skills, knowledge, and competencies that are directly relevant to a particular field, profession, or discipline. Unlike general up-skilling, which focuses on broad and transferable skills such as communication, teamwork, or basic computer literacy, domain-specific up-skilling involves in-depth training and development tailored to the unique demands and requirements of a specific area of expertise. This approach ensures that professionals are equipped with the latest tools, methods, and knowledge that enable them to perform effectively and remain competitive in their respective fields (Bessen et al., 2020; OECD, 2021). For instance, in the education sector, teachers and lecturers must constantly update their subject knowledge and teaching methodologies to incorporate new curricula, emerging pedagogical techniques, and digital tools that enhance learning experiences (Darling-Hammond et al., 2019).

Digital up-skilling can be defined upgrading teachers skill in terms of operational skills, formal skills, information skills, and strategic skills. The operational skills meaning the ability to use the technology, formal skills are the ability to pass through digital media, information skills are the ability to search online, strategic skills ability of translating the digital information to a development that can be personal or professional (Gates & Wilson-Menzfeld, 2022).

Method of the Study

Objectives of the Study

The main objective of the study was to examine the relationship between teachers' up-skilling and instructors' effectiveness in technical colleges in Ogun State. The specific objectives were to:

1. examine the relationship between technical up-skilling and instructors' effectiveness in technical colleges in Ogun State
2. find the relationship between soft skill up-skilling and instructors' effectiveness in technical colleges in Ogun State
3. establish the relationship between domain specific up-skilling and instructors' effectiveness in technical colleges in Ogun State
4. ascertain the relationship between digital up-skilling and instructors' effectiveness in technical colleges in Ogun State

Descriptive survey research design was adopted for the study, while the population comprised all 162 instructors in all the government technical colleges in Ogun State. The sample was made through simple random sampling technique. The sample size of this study was 120 instructors. One research instrument was used for data collection. The instrument was a structured questionnaire titled "Teachers' Up-Skilling and Instructors' Effectiveness Questionnaire (TUIEQ)". The reliability coefficients obtained were .82. Data collected were analyzed using Pearson Product Moment Correlation (PPMC) and at .05 level of significance.

Results and Discussion

H₀₁: There is no significant relationship between technical up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Table 1: Relationship between Technical Up-Skilling and Instructors' Effectiveness in Technical Colleges in Ogun State

Variables	N	Mean	SD	df	r	P-value
Technical Up-Skilling	120	14.2234	1.3786	118	.401	.010
Instructors' Effectiveness	120	10.3167	1.0071			

Table 1 showed a significant relationship between technical up-skilling and instructors' effectiveness in technical colleges with correlation coefficient (r) = .401 which is greater than the P value .010. The result showed a significant relationship between technical up-skilling and instructors' effectiveness in technical

colleges. This implies that the null hypothesis one was rejected. Therefore, there was significant relationship technical up-skilling and instructors' effectiveness in technical colleges in Ogun State.

H₀₂: There is no significant relationship between soft skill up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Table 2: Relationship between Soft Skill Up-Skilling and Instructors' Effectiveness in Technical Colleges in Ogun State

Variables	N	Mean	SD	df	r	P-value
Soft Skill Up-Skilling	120	12.1056	1.1842	118	.210	.010
Instructors' Effectiveness	120	10.3167	1.0071			

Table 2 showed a significant relationship between soft skill up-skilling and instructors' effectiveness in technical colleges with correlation coefficient (r) = .210 which is greater than the P value .022. The result showed a significant relationship between soft skill up-skilling and instructors' effectiveness in technical

colleges. This implies that the null hypothesis two was rejected. Therefore, there was significant relationship soft skill up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Ho₃: There is no significant relationship between domain specific up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Table 3: Relationship between Domain Specific Up-Skilling and Instructors' Effectiveness in Technical Colleges in Ogun State

Variables	N	Mean	SD	df	r	P-value
Domain Specific Up-Skilling	120	11.4601	1.2477	118	.511	.010
Instructors' Effectiveness	120	10.3167	1.0071			

Table 3 showed a significant relationship between domain specific up-skilling and instructors' effectiveness in technical colleges with correlation coefficient (r) = .511 which is greater than the P value .030. The result showed a significant relationship between domain specific up-skilling and instructors' effectiveness in technical colleges. This implies that the null

hypothesis three was rejected. Therefore, there was significant relationship domain specific up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Ho₄: There is no significant relationship between digital up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Table 4: Relationship between digital Up-Skilling and Instructors' Effectiveness in Technical Colleges in Ogun State

Variables	N	Mean	SD	df	r	P-value
Digital Up-Skilling	120	11.9174	1.7742	118	.401	.010
Instructors' Effectiveness	120	10.3167	1.0071			

Table 4 showed a significant relationship between digital up-skilling and instructors' effectiveness in technical colleges with correlation coefficient (r) = .865 which is greater than the P value .012. The result showed a significant relationship between digital up-skilling and instructors' effectiveness in technical

colleges. This implies that the null hypothesis four was rejected. Therefore, there was significant relationship digital up-skilling and instructors' effectiveness in technical colleges in Ogun State.

Discussion of Findings

The first hypothesis revealed that there

was a significant relationship between technical up-skilling and instructors' effectiveness in technical colleges in Ogun State. This result revealed the importance of continuous technical up-skilling in equipping instructors with up-to-date skills and knowledge necessary for effective teaching. The finding of the study corroborates with Suleiman et al. (2021), who emphasized that institutions that prioritize technical up-skilling report improved instructional quality, better curriculum delivery, and higher student satisfaction. These outcomes are particularly critical in technical colleges, where the pace of technological advancements demands instructors who can adapt quickly and effectively.

The second hypothesis revealed that there was a significant relationship between soft skill up-skilling and instructors' effectiveness in technical colleges in Ogun State. The finding agreed with the findings of Aluko and Adebayo (2022) who emphasized that the integration of soft skills training into professional development programmes for technical instructors leads to improved conflict resolution, collaboration, and mentorship within technical colleges. This is particularly significant in a technical education setting where practical and collaborative activities require instructors to guide students not only in technical competencies but also in interpersonal interactions.

The third hypothesis showed a significant relationship between domain specific up-skilling and instructors' effectiveness in technical colleges in Ogun State. Domain specific up-skilling which refers to the acquisition of advanced knowledge and skills within an instructor's specialized field, ensures that educators remain competent and relevant in their respective technical disciplines. The finding of the study is in consistent with Eze and Olowolafe (2023), who found that domain-specific up-skilling enhances instructors' confidence and capacity to deliver content effectively. In technical colleges, where

instructional quality is directly linked to industry relevance, the importance of domain up-skilling cannot be overemphasized. Educators who are well-versed in their fields are better equipped to introduce innovative teaching methods and apply real-world examples that resonate with students.

The fourth hypothesis showed a significant relationship between digital up-skilling and instructors' effectiveness in technical colleges in Ogun State. In a rapidly digitizing world, technical instructors must possess not only technical knowledge but also the digital skills required to effectively integrate technology into teaching and learning processes. The finding is in consistent with United Nations Educational, Scientific and Cultural Organization (UNESCO) (2021) who concluded that digital literacy is an essential competency for educators in the 21st century. Technical instructors who are proficient in digital tools can more effectively prepare students for the challenges and opportunities of a technology-driven workforce.

Conclusion and Recommendation

In conclusion, the findings of the study revealed the relationship between teachers' up-skilling instructors' effectiveness in technical colleges. Technical up-skilling enhances instructors' ability to deliver practical and industry-relevant content, while soft skill up-skilling fosters improved communication, collaboration, and classroom management. Domain-specific up-skilling ensures instructors remain knowledgeable and competent in their specialized fields, enabling them to provide high-quality education aligned with industry standards. Furthermore, digital up-skilling equips instructors with the necessary tools to integrate technology into teaching, creating dynamic and engaging learning environments.

Based on the findings, the study recommended that:

1. Technical colleges should institutionalize regular and comprehensive professional development programmes focusing on technical up-skilling.
2. Educational policymakers and administrators should design and implement targeted soft skills training programmes for instructors.
3. Technical colleges should establish partnerships with industry stakeholders and professional bodies to offer domain-specific up-skilling opportunities. These initiatives should include certifications, specialized training, and access to cutting-edge resources to ensure instructors maintain competence and relevance in their specialized areas.
4. Digital literacy and technology integration should be prioritized in the training agenda for technical instructors. Colleges should provide access to modern teaching tools, online platforms, and digital resources, along with tailored training programs to enhance instructors' ability to leverage technology for effective teaching and learning outcomes.

References

- Akın, S., & Ok, A. (2021). *Essential qualities for elementary teachers of the 21st century: Voices of key stakeholders*. *İlköğretim Online*, 20(1), 532-552.
- Allan, S. O. (2022). *Organization theory*. Ibadan: God's time Publishers (Ltd).
- Aluko, T. O., & Adebayo, L. K. (2022). The impact of soft skills on the teaching performance of technical instructors. *African Journal of Educational Studies*, 18(1), 45-57.
- Baker, R. S., Smith, J., & Choi, K. (2020). The role of technology in modernizing education: Perspectives and implications. *Computers and Education*, 158, 10-39.
- Bessen, J., Goos, M., Salomons, A., & Van den Berge, W. (2020). The impact of automation on skills demand: Evidence from job postings. *Journal of Economic Perspectives*, 34(4), 163-187.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2019). *Effective teacher professional development*. Palo Alto, CA: Learning Policy Institute.
- Deloitte Reports (2022). *The skills imperative: Addressing the global need for technical up-skilling*. Retrieved from <https://www.deloitte.com>.
- Drake, S. (2004). Rethinking education for national development. *International Journal of Development Economics*, 3(1), 82-89.
- Eze, C. C., & Olowolafe, K. A. (2023). Enhancing teaching performance through domain-focused professional development. *Nigerian Journal of Education*, 17(3), 22-35.
- Federal Republic of Nigeria (2013). *National policy on education*. Abuja: NERDC press.
- Gates, J.R., & Wilson-Menzfeld, G., (2022). What role does Geragogy play in the delivery of digital skills programs for middle and older age adults? A systematic narrative review. *Journal of Applied Gerontology*, 41(8), 1971-1980. <https://doi.org/10.1177/07334648221091236>
- Ginting, H. (2016). Developing soft skills measure in an Indonesian university. Procedure, validity, and reliability. *International Journal of Learning and Teaching*, 10(1), 140-147.

- Nweke, E. O. (2022). Electronic records and administration of educational tertiary institutions in Rivers State. *African Journal of Humanities and Contemporary Education Research*, 1(3), 18-32.
- Odu-Dikoro, T. (2022). Principals' managerial competencies and teachers' job effectiveness in public and private secondary schools in Delta State. *Scholarly Journal of Management Sciences Research*, 1(7), 44-64.
- OECD. (2021). *Teachers and leaders in schools: Professional development and innovation*. Paris: Organization for Economic Co-operation and Development.
- Opinmi, G. D. (2014). Demographic and organizational factors as determinants of secondary school teachers' perception of staff training effectiveness in Lagos State, Nigeria. *PhD thesis, University of Ibadan*.
- Shehnaz, T., & Hadi, N. U. (2015). *Introduction to Educational Administration in Nigeria*. Spectrum Book Ltd.
- Suleiman, A. M., Idris, M., & Hassan, Y. A. (2021). Professional development and teaching effectiveness: Evidence from technical colleges. *African Journal of Technical Education*, 12(4), 67-79.
- Tang, K. N. (2018). Beyond employability: Embedding soft skills in higher education. *The Turkish Online Journal of Educational Technology (TOJET)*, 18(2), 1-9.
- UNESCO. (2021). *Reimagining the future of education: The role of technology and digital literacy*. Paris UNESCO education report.
- Wokoma, B.I. (2023). Impact of principals' development skills on administrative effectiveness in public secondary schools in Rivers State. *Journal of Educational Administration and Management*, 9(1), 1-8.

TECHNOLOGICAL INTEGRATION FOR EFFECTIVE CLASSROOM MANAGEMENT: IMPLICATIONS FOR EDUCATIONAL PSYCHOLOGY

OBIYAN, Daniel Oseghale

*Department of Guidance and Counselling,
Ambrose Alli University, Ekpoma, Edo State*
danieloseghale@aauekpoma.edu.ng +2347031384329

ODIOWAYA, Clementina Osasere

Ambrose Alli University, Ekpoma, Edo State
clementinaos@aauekpoma.edu.ng +2348165942360

&

BALOGUN, Mabel Ashe

Auchi Polytechnic, Auchi, Edo State
balogunmabel@gmail.com Tell +2348064680064

Abstract

This paper explored the impact of technological integration on classroom management in examining how educational technologies could facilitate positive behavioural outcomes could improve student engagement, and foster an environment conducive to learning. In analyzing relevant research in educational psychology and effective classroom management, we argued that the strategic use of technology in classroom management not only supports instructional goals but also could address the psychological needs of students. This paper therefore highlighted the implications of effective classroom management and technological integration for learners, educators, administrators, and psychologists in enhancing educational outcomes.

KEYWORDS: *Technology, Integration, Educational Psychology, Technological Integration, Effective Classroom Management,*

Introduction

Education has undergone a paradigm shift from conventional approaches towards the integration of technology as an integral part of the learning process (Raharjo, et al., 2023). This transformative shift aims not only to enhance the effectiveness and efficiency of education but also to prepare students to confront the increasingly

complex challenges in the global landscape. The incorporation of technology in education is seen as a strategic move to equip students with the necessary skills and competencies needed to thrive in a rapidly evolving world (Malik, 2018). By embracing this evolution, educators seek to cultivate a dynamic and innovative learning environment that fosters critical thinking, problem-solving, and adaptability, thereby

empowering students to navigate the complexities of the contemporary global society.

Classroom management remains a critical aspect of teaching, influencing both the quality of learning and the overall student experience. With the rise of digital technologies in education, new tools and strategies have emerged that allow teachers to create more dynamic and effective classroom environments. Technologies such as Learning Management Systems (LMS), classroom apps, digital behaviour trackers, and interactive tools offer significant opportunities to transform traditional approaches to classroom management. Educational psychology, which focuses on the relationship between psychological principles and educational practices, offers a valuable framework for understanding how these technological tools can influence students' behaviour, motivation, and cognitive engagement.

The integration of technology into classroom management is not merely a matter of adopting new tools; it requires a deeper understanding of how these tools interact with students' psychological needs, learning processes, and emotional responses. This paper explores the implications of technological integration for classroom management from an educational psychology perspective, highlighting the role of technology in fostering positive classroom environments, shaping student behaviour, and enhancing overall educational outcomes.

The advancements in Information and Communication Technology (ICT) have ushered in new opportunities for the management and dissemination of educational information (Fauzi et al., 2023). The utilization of technology in educational management is anticipated to foster the creation of a more open, transparent, and responsive system that aligns with the evolving needs of society (McCarthy et al., 2023). The integration of ICT in educational administration not only facilitates efficient information flow but

also promotes accessibility and inclusivity. By leveraging technology, educational institutions can establish dynamic platforms that enhance communication, collaboration, and engagement among stakeholders. This transformative approach aims to cultivate an educational ecosystem that is not only adaptive to the demands of a rapidly changing world but also fosters a culture of innovation and lifelong learning, ultimately contributing to the advancement of education on a broader scale.

The involvement of the community plays a pivotal role in the advancement of education. The integration of technology is anticipated to elevate community participation by enhancing their involvement in decision-making processes, monitoring educational progress, and providing more effective feedback (Haleem et al., 2022). Through the incorporation of technology, there is an opportunity to establish interactive platforms that empower the community to actively contribute to shaping the educational landscape. This may involve real-time access to information, collaborative forums, and digital tools that facilitate meaningful engagement. By fostering a symbiotic relationship between technology and community participation, education systems can become more dynamic, responsive, and inclusive. This holistic approach not only strengthens the connection between educational institutions and the community but also promotes a sense of shared responsibility for the continuous improvement of the education sector.

Despite its positive potential, the implementation of technology in effective classroom management encounters various constraints and challenges that need careful consideration. Issues such as unequal access, insufficient technological skills among educators and the community, as well as the risks associated with inappropriate technology use, pose significant hurdles. The digital divide, manifested in unequal access to technology and internet

connectivity, may exacerbate educational disparities (Amirova et al., 2023). Additionally, the lack of technological proficiency among educators and community members can impede the effective integration of technology into educational practices. Furthermore, there is a risk of misusing technology, which underscores the importance of promoting responsible and ethical use within educational contexts. Addressing these challenges requires a comprehensive and inclusive approach, involving not only the provision of technological resources but also targeted training programs to enhance digital literacy and a concerted effort to foster a mindful and purposeful integration of technology in education.

In assessing the success of technology integration in educational management, it becomes imperative to conduct an impact evaluation focusing on community participation. This evaluation serves as a valuable tool to gain a nuanced understanding of the extent to which technology can enhance the involvement and contribution of the community in the realm of education. Examining the impact on community participation involves gauging not only the quantitative aspects, such as increased access and interaction facilitated by technology, but also the qualitative dimensions, including the depth and quality of community engagement (Haldane et al., 2019). A comprehensive evaluation can provide insights into the empowerment of the community, the strengthening of collaborative decision-making processes, and the overall enrichment of educational outcomes. Moreover, it aids in identifying areas for improvement, ensuring that the integration of technology aligns with the overarching goal of fostering a more inclusive, informed, and participatory educational environment.

The use of information technology has become indispensable in this 21st century (Ahiatrogah & Barfi, 2016). In education,

Information and Communication Technology (ICT) has played an important role in the process of teaching and learning. ICT has transformed how teachers use information in teaching (Waddell, 2015); the integration of technology in teaching makes learning more interesting; and Kohnke (2019) and Ghavifekr and Rosdy (2015) agreed that integrating technology into teaching makes teaching and learning more thought-provoking.

Teaching is a timeless profession, and every country needs dedicated teachers to impart knowledge to their present and future generations (Saavedra & Opfer, 2012). ICT facilities have devices used to support teaching and learning (Fidelis & Onyango, 2021). ICT facilitates not only the delivery of teaching content but also the learning process itself (Tarus, et al., 2015). This includes computer-based technologies, digital imaging, the internet, file servers, data storage devices, network infrastructure, desktops, laptops, and broadcasting technologies, namely radio, television, and telephone, which are used as instructional tools at schools (Livingstone, 2011).

Technology

Technology refers to the application of scientific knowledge and practical skills to design, create, and utilize tools, machines, systems, and software with the aim of solving problems, meeting needs, or enhancing performance in various fields (Suherlan & Okombo, 2023). In its evolution, technology encompasses not only hardware such as computers and electronic devices but also software, algorithms, and system integration that enable automation, information processing, and communication (Rijal & Saranani, 2023). Technology has become a primary driver of change across various sectors, pioneering new innovations, and opening opportunities for increased efficiency and productivity (Wanof, 2023). Continuously evolving, technology also plays a crucial role in shaping how we interact,

learn, work, and communicate in modern society (Suherlan, 2023).

Information and Communication Technology (ICT)

Oboegbulem and Ogbonnaya (2008) defined Information and Communication Technology (ICT) as the application of computers to retrieve, transmit, and manipulate data in education or other systems. It seems that ICT as a scientific, technological, and engineering discipline and management technique used in handling information, its application, and its association with social, economic, and cultural matters. ICT lays the foundation of every industrial and social life in the 21st century. It is the driving force of all social changes in most countries worldwide. With the advent of ICT, it is observed that people can work from home and engage in distance learning, e-government, and e-banking with an Internet connection and a computing device. ICT can support and enhance teaching. With access to computers, laptops, mobile devices, and the internet, lecturers can search for information and acquire knowledge beyond what is available in the traditional library system. ICT can be used for accessing, gathering, manipulating, and presenting or communicating information to users or clients.

It is also perceived that ICT facilities can also assist teachers and lecturers with new approaches to practice their skills, such as maintaining a personal webpage or online publication, programming computers, teaching and assessing students online, or preparing a multimedia presentation. Livingstone (2011) asserted that ICT facilities bring together traditionally separated education media (books, writing, audio recordings, video recordings, databases, games, and so forth), thus, using or integrating the range of time and places where teaching and learning can take place. ICT facilitates not only the delivery of teaching

content but also the learning process itself (Tarus et al., 2015). This includes computer-based technologies, digital imaging, the Internet, file servers, data storage devices, network infrastructure, desktops, laptops, and broadcasting technologies, namely radio and television, and telephones used as instructional tools at school (Livingstone, 2011).

The Roles of Technology in Classroom Management

In recent years, the integration of technology in education has transformed various aspects of teaching and learning, including classroom management. As schools increasingly adopt digital tools, technology's role in supporting effective classroom management has garnered attention from both educators and researchers. Technology not only enhances the delivery of content but also offers new avenues for teachers to manage student behavior, monitor progress, and foster a positive and engaging learning environment. However, the roles of technology in classroom management are not limited as follows:

- i. *Digital Behaviour Tracking and Monitoring:* Classroom management relies heavily on monitoring student behaviour, addressing disruptions, and reinforcing positive actions. Digital tools, such as behaviour-tracking software and apps, allow teachers to monitor student progress in real time. These tools often include features for tracking attendance, recording behavioural incidents, and offering instant feedback (Feldman & Houghton, 2021). By providing objective data, teachers can make informed decisions regarding interventions and adapt their strategies to meet the individual needs of students. Educational psychology research emphasizes the importance of immediate feedback in shaping student behaviour (Koehler, et al., 2013). Technologies like ClassDojo, which allows teachers to provide

instant feedback on student behaviour, create a positive reinforcement system that motivates students to maintain good behaviour and engage with classroom activities. Moreover, digital systems can be integrated with algorithms that predict potential behavioural challenges, enabling proactive intervention (Koehler et al., 2013).

- ii. *Learning Management Systems (LMS) and Student Engagement:* Learning management systems such as Google Classroom, Moodle, or Blackboard play an essential role in structuring the classroom experience, managing assignments, and tracking student progress. These platforms can facilitate better organization, reduce confusion, and ensure that students stay on task. They also support differentiated instruction by offering tailored resources that match students' individual learning needs. From a psychological perspective, LMS platforms align with principles of cognitive load theory, which suggests that reducing extraneous cognitive load helps students focus on learning (Sweller, 1988). By streamlining access to materials, assignments, and communications, LMS platforms help create an environment where students can direct their cognitive resources toward meaningful learning rather than logistical issues.
- iii. *Interactive Whiteboards and Student-Centered Learning:* Technologies like interactive whiteboards (IWBs) and digital tablets enable a more student-centered approach to learning, where students actively participate in their own learning process. This can enhance engagement and reduce classroom disruptions by providing interactive, visually stimulating, and hands-on learning opportunities. Educational psychology supports the idea that active

learning, where students engage with content in meaningful ways, promotes better retention and deeper understanding (Bransford, 2000). IWBs, for instance, can be used to display collaborative group work, incorporate multimedia resources, and provide immediate feedback during lessons. It is observed that this approach taps into the concept of "flow," a psychological state where students are fully immersed in a task, leading to optimal learning experiences. It seems that by integrating technology in ways that maintain student engagement and reduce passive learning, teachers can effectively manage the classroom environment and minimize disruptions.

An interactive whiteboard, other than being a projected computer screen, provides interface between the computer and the instructor via touching the screen. It typically has touch sensors on the screen, which translate the user's writing on the board, and the software package that projects the writing to the screen. One can think of it as a huge tablet PC that the whole class can look at. It is often referred as a "SMART board", which is a commercial product of this technology. Although some teachers just use it as a white board or flipchart replacement, it enables the user to capture or record his or her board writings, which later can be posted on the Web or transferred via other digital media such as a memory stick or thumb drive for sharing or review.

- iv. *Classroom Management Software:* The Classroom Management Software projects the student's computer screen onto the classroom via typically a wireless network and enables the student to share what is happening on his or her desktop. This helps instructor to illustrate the examples of desirable or undesirable work as well as the

class material. It also helps instructor to control the Internet access and desktop management of the class.

- v. *Student Response System*: A Student Response Systems (SRS), sometimes called “clickers”, consists of remote-controller type wireless transmitters, unit receiver connected to the classroom computer, and a software package that manages the system. The students can ‘click’ their votes or choose answers via wireless computer network. It is favored by the instructors of a large class because of its functionality to assess student learning from a large group of students. The newer generation of SRS is being developed to support software deployment of the system via Personal Digital Assistants (PDA), laptop computers, or cell phones.
- vi. *Weblog (Blog)*: Richardson defines Blog as a “an easily created, easily updateable, Website that allows an author (or authors) to publish instantly to the Internet from any Internet connection.” (Richardson, 2006). Because of this easiness of posting new information in multimedia or text format, it can be a very powerful collaboration tool for class assignments or projects. Some examples of the educational use of Blog are class portals, online filing cabinets for student work, e-portfolios, collaborative space, knowledge management, and school websites.
- vii. *Wiki*: A wiki is a collaborative Webpage where anyone with permission can publish new content or edit the content that has been published (Richardson, 2006). It is different from Weblog in that wiki does not track who does the publishing and editing whereas Weblog typically list the entry and the author in a reverse chronological order.

The famous Wikidpedia is an on-line encyclopedia based on wiki technology. Its suggested use is similar to the Blog’s.

- viii. *RSS*: Really Simple Syndication (RSS) is a technology that allows Web users to subscribe to particular Web content feeds of interest, which often are updated frequently. The feeds can be headline pages of a news media website, certain Blog entries, or podcasts. This tool can help the teacher or student to better organize the Web resources for the lecture or research.
- ix. *Multimedia Publishing*: Podcasting and screen casting are examples of this. Podcasting is producing a digital audio recording and publishing it on a website for sharing. Screen casting is done with an audio and video recording. There are free software packages available for download to help learners and teachers to do this. We can use them for project presentations, instruction aids, or distance learning.
- x. *Robots*: Robots provide tremendous opportunities for mathematics, science, and engineering classrooms. From design process to testing and application, using robots in appropriate classrooms can promote project-based learning, problem-based learning, engaging students in “authentic activities (in which they do “real things” to produce a “real effect” in their world)”, “alternative assessment (in which the students’ product or performance is evaluated instead of test scores)”, collaborative learning, and “applied learning” (Gura, 2007).

Effective Classroom Management

Classroom management is a comprehensive concept for various actions of teacher designed to facilitate teaching and learning in the classroom. It entails planning,

supervising, controlling and coordinating the activities of pupils in teaching learning process (Asiyai, 2011). Classroom management aims at establishing student self-control through a process of promoting positive student achievement and behaviour (Chandra, 2015). According to Evertson and Weinstein (2022) Classroom management has two distinct purposes: "It not only seeks to establish and sustain an orderly environment so students can engage in meaningful academic learning, it also aims to enhance student social and moral growth". Class control and conducive teaching and learning environment are made possible through classroom management. Effective classroom management means the process of organizing and conducting a classroom so that it maximizes student learning (Emmer & Sabornie, 2015). Oliver and Reschly (2007) asserted that effective classroom management consisted of teacher behaviours that produced high levels of student's involvement in classroom activities, adherence to classroom rules and routines, minimal amounts of student behavior that interfere with teachers or other students' work, and efficient use of instructional time. Evertson and Weinstein (2022) also confirmed that effective classroom management is generally based on the principle of establishing a positive classroom environment encompassing effective teacher-student relationships. As a matter of fact, effective classroom management borders on a broad range of teacher behaviours, and has remained one of the most precarious in managing student behavior. Effective teaching and learning cannot take place in poorly managed classrooms (Jones & Jones, 2012; Van de Grift, et al., 2011).

In effective classroom management teachers play various roles in a typical classroom, but surely one of the most important is that of classroom manager. Effective teaching and learning cannot take place in a poorly managed classroom. Effective teachers appear to be

effective with students of all achievement levels regardless of the levels of heterogeneity in their classes. If the teacher is ineffective, students under that teacher's tutelage will achieve inadequate progress academically (Evertson, et al., 2016). Shields (2009) pointed out that student performance is impacted when they (students) learn from experienced or effective teachers. Money (2016) equally confirmed that a teacher's efficacy is directly linked to student achievement. The effective teacher performs many functions that can be organized into three major roles: (i) making wise choices about the most effective instruction strategies to employ; (ii) designing classroom curriculum to facilitate student learning; and (iii) making effective use of classroom management techniques (Marzano, et al., 2001). Therefore, effective teachers have a wide array of instructional strategies at their disposal, are skilled at identifying and articulating the proper sequence and pacing of their content, are skilled in classroom management techniques.

Classroom management is one of the key factors in achieving optimal learning effectiveness (Arfani & Sugiyono, 2014; Fitriani, et al., 2019; Suryana, 2017). In the context where students are at the upper secondary education level, effective classroom management has a very important role in shaping a conducive learning environment, increasing student participation, and enhancing academic achievement.

Educational Management

Educational management refers to a series of planning, organizing, directing, and controlling processes for resources within the context of an educational institution (Prastyaningtyas et al., 2023). Its goal is to achieve effectiveness and efficiency in the delivery of the education system. Educational management involves strategic decision-making related to the allocation of human, financial, physical, and information

resources to achieve predefined educational objectives (Harahap et al., 2023). It plays a significant role for educational leaders, such as school principals or administrators, in guiding, motivating, and coordinating the efforts of all stakeholders to create an effective learning environment. Aspects of educational management include curriculum planning, teacher development, student performance monitoring, physical facility management, technology utilization, as well as active engagement with external parties such as parents and the community (Cahyono et al., 2023). Educational management is not just about administration but also involves the ability to adapt to environmental changes, implement innovative strategies, and create an environment that supports continuous learning

Integrating Technology in the Teaching Management

Integrating technology in teaching has become one of the basic building blocks of modern society, influencing all aspects of life, including education (Abdelrahman, et al., 2019). Most developed countries such as the US, Germany, Canada, Chile, France, and Finland have embraced the integration of ICT in the teaching of subjects/courses in their educational institutions (Abdelrahman et al., 2019; Mynařiková & Novotný, 2020). Integrating technology in teaching refers to the extent to which ICT has been adopted into the school environment and the degree of influence on its users. For developing countries such as Nigeria, Ghana, among others, the integration of ICT in teaching is a new domain (Smith, 2020).

In trying to demonstrate the relevance of integrating technology in teaching at the tertiary level, Ghavifekr, et al. (2014) posited that because technology has become the knowledge highway in recent times, universities and other higher education institutions should consider ICT integration in their curriculum. To Finger and

Trinidad (2002), integrating technology into teaching makes the teaching and learning process more fulfilling, engaging, and meaningful by way of using educational videos, stimulation, mind mapping, guided discovery, music, and brainstorming. ICT has proved relevant in building society; installing technology is not easy, especially in developing countries such as Nigeria, where infrastructure and other ICT facilities are difficult to procure (Buabeng-Andoh & Yidana, 2015).

Factors Influencing Technology Integration in the Teaching and Learning Process

The integration of ICT in the teaching of any subject is not an easy process. While this conclusion may not be completely accurate for Western countries, the case is different in most developing countries where there are many barriers to developing and successfully implementing such programs (Runhaar, 2017). Previous studies have identified the factors that influence the integration of ICT in education. A study by Barfi, et al. (2021) revealed that most tutors have knowledge of information and communication technologies and integrate them into their teaching and learning process. Furthermore, the tutors' level of knowledge of ICT positively affects their technology integration in the teaching and learning process.

Harrel and Bynum (2018) identified the reasons as poor infrastructure, inadequate ICT facilities, lack of enough technological tools, ineffective professional development, low teacher self-efficacy, and teacher perception. Ahiatrogah and Barfi (2016) reported the lack of confidence, competence, and access to resources as the main barriers to the successful implementation of technology in education. For Pelgrum (2001), these factors may be categorized into material (lack of computers) and non-material (lack of teachers' knowledge and skills). Hew (2007) found knowledge, skills, institution, attitudes, and

culture as the major barriers to the effective integration of technology in education, while Herzig (2004) identified the lack of expertise and inadequate training of teachers.

Following the preceding review, the factors influencing technology integration in teaching were grouped into two for this study: (i) the availability of ICT facilities, and (ii) the accessibility of ICT facilities. Nevertheless, the authors are aware that there could be some other barriers, but the availability of ICT facilities and the accessibility of ICT facilities are fundamental in most learning settings (Edumadze, 2016). Access to ICT facilities is one of the factors for the integration of ICT facilities into teaching (Plomp et al., 2009). If teachers do not have access to ICT facilities such as computers and strong Internet connectivity, obviously, they cannot use them (Gillwald & Stork, 2008). Access to ICT facilities, therefore, is a crucial requirement for successful integration of technology in teaching (Livingstone, 2011), and several studies have confirmed this. A study by Yildirim (2007) revealed that access to ICT facilities is a major factor in the teachers' pedagogical use of ICT in teaching. Livingstone (2011) also found that access to ICT facilities is integral to teacher learning.

Similarly, in a study that investigated the effectiveness of ICT integration in schools, Ghavifekr and Rosdy (2015) found that teachers' access to ICT facilities was an inevitable factor in ensuring the success of technology-based teaching and learning. The availability of ICT facilities, such as tele-conferencing, email, audio conferencing, television lessons, radio broadcasts, smart boards, interactive notice boards, projectors, laptops and CD ROMs. The supply and timely delivery of ICT facilities is a major factor influencing technology integration in education. As noted by Smith (2020), even when teachers are adequately trained and willing to integrate ICT into their teaching, they cannot do so if they

lack ICT facilities.

Implications for Educational Psychology

1. *Student Motivation and Behaviour:* The integration of technology in classroom management has clear implications for understanding and influencing student motivation. Self-determination theory (Wang & Lee, 2020) posits that when students are given autonomy, competence, and relatedness, they are more likely to be motivated and engaged. Technologies that allow students to track their own progress, participate in interactive learning activities, and engage in collaborative tasks support these psychological needs, fostering a positive learning environment. Moreover, the use of digital behaviour tracking tools aligns with operant conditioning principles, where reinforcement and punishment are used to shape behaviour (Diliberti, et al., 2021). Teachers can leverage technology to deliver timely and consistent feedback, which can increase the likelihood of desired behaviours and improve overall classroom management.
2. *Individualized Learning and Inclusivity:* Technology provides opportunities for individualized learning, addressing diverse student needs. For students with learning disabilities or those who require additional support, assistive technologies like speech-to-text software, screen readers, and personalized learning platforms can help overcome barriers to learning. Educational psychology emphasizes the importance of scaffolding and differentiation in supporting student development (Tomlinson, 2021). Technologies that adapt to students' unique needs enable teachers to provide targeted interventions that promote learning success and behavioural improvement.
3. *Professional Development for Teachers:*

Teachers' ability to integrate technology effectively in classroom management requires ongoing professional development. Educational psychology highlights the importance of teacher self-efficacy and teachers' beliefs in their ability to manage classrooms and implement effective strategies (Hoy & Spero, 2005). Technology can empower teachers by providing them with the tools and resources to be more effective managers, but these tools are most useful when teachers feel confident and skilled in using them. Therefore, it is essential that teacher training programs incorporate technological competency as a core component, preparing educators to use technology to support both classroom management and student learning.

Conclusion

Technological integration has a profound impact on classroom management, with far-reaching implications for educational psychology. Digital tools enhance teachers' ability to monitor behaviour, engage students, and provide personalized learning experiences. They also support psychological principles such as motivation, self-regulation, and engagement, contributing to an effective classroom environment. As the educational landscape continues to evolve, the role of technology in classroom management will only become more critical. Teachers, administrators, and educational psychologists must work together to leverage technological innovations to create classrooms that support both the cognitive and emotional development of all students.

References

- Abdelrahman, A., Yousif, A. A., Asaid, A. Z., & Sulaiman, A. (2019). An investigation of faculty members beliefs and barriers to successful ICT integration into teaching at Sultan Qaboos University. *Journal of Educational Technology*, 16(2), 50–61.
- Ahiatrogah, P. D., & Barfi, K. A. (2016). The attitude and competence level of basic school teachers in the teaching of ICT in Cape Coast metropolis. *Conference proceedings. INCEDI*, Accra, Ghana.
- Amirova, A., Nurumov, K., Kasa, R., Akhmetzhanova, A., & Kuzekova, A. (2023). The impact of the digital divide on synchronous online teaching in Kazakhstan during COVID-19 school closures. *Frontiers in Education*, 7, 1–13.
- Arfani, J. W., & Sugiyono, S. (2014). MANAJEMEN KELAS YANG EFEKTIF: PENELITIAN DI TIGA SEKOLAH MENENGAH ATAS. *Jurnal Akuntabilitas Manajemen Pendidikan*.
- Asiyai, R. I. (2011). Effective classroom management techniques for secondary schools. *International Multi-Disciplinary Journal, Ethiopia*, 5(1), 282-291.
- Barfi, K. A., Ato-Davies, C., & Jackson, A. (2021). Tutors' perspectives on integrating information and communication technology into teaching: Evidence of colleges of education. *Journal of Education Online*, 18(2), 11–18.
- Cahyono, A. S., Tuhuteru, L., Julina, S., Suherlan, S., & Ausat, A. M. A. (2023). Building a generation of qualified leaders: Leadership education strategies in schools. *Journal on Education*, 5(4), 12974–12979. <https://jonedu.org/index.php/joe/article/view/2289>
- Chandra, R. (2015). Classroom management for effective teaching. *International Journal of Education and Psychological Research*, (IJEPR), 4(4), 13 – 15.
- Diliberti, M., Schwartz, H. L., & Grant, D. (2021). The role of technology in student behavior and classroom management. *Educational*

- Psychology Review*, 33(2), 487-502.
- Edumadze, J. K. E. (2016). The integration of information and communication technology for teaching and learning at Ghanaian colleges of education: ICT tutors' perception. *African Journal of Teacher Education*, 4(2), 1–16.
- Emmer, E. T., & Sabornie, E. J. (2015). *Handbook of Classroom Management*, (2nd ed.). Routledge.
- Evertson, C. M., & Weinstein, C. S. (2022). *Handbook of Classroom Management* (3rd ed.). Routledge.
- Evertson, C. M., Emmer, E. T., & Worsham, M. E. (2016). *Classroom management for elementary teachers*, (7th ed.). Boston: Pearson Education.
- Fauzi, F., Tuhuteru, L., Sampe, F., Ausat, A. M. A., & Hatta, H. R. (2023). Analyzing the role of ChatGPT in improving student productivity in higher education. *Journal on Education*, 5(4), 14886–14891.
- Feldman, R. S., & Houghton, M. (2021). *Classroom management for today's classrooms: A systems approach*, (5th ed.). Pearson.
- Fidelis, F., & Onyango, D. O. (2021). Availability of ICT facilities and teachers' competence in the use of ICT among public secondary schools in Ngara district, Tanzania. *East African Journal of Education and Social Sciences*, 2(2), 34–40.
- Finger, G., & Trinidad, S. (2002). ICTs for learning: An overview of systemic initiatives in the Australian states and territories. *Australian Educational Computing*, 17(2), 3–14.
- Fitriani, A., Kusuma, C. W., Kusuma, C. W., Ahmad, H., & Ahmad, H. (2019). MANAGEMEN PENGELOLAAN KELAS DI TK KARTIKA II-26 BANDAR LAMPUNG. *ThufuLA: Jurnal Inovasi Pendidikan Guru Raudhatul Athfal*.
- Ghavifekr, S., & Rosdy, W. A. (2015). Teaching and learning with technology: Effectiveness of ICT integration in schools. *International Journal of Research in Education and Science*, 1(2), 175–191.
- Ghavifekr, S., Razak, A. Z., Ghani, M. F. A., Ran, N. Y., Meixi, Y., & Tengyue, Z. (2014). ICT integration in education: Incorporation for teaching and learning improvement. *Malaysian Online Journal of Educational Technology*, 2(2), 24–46.
- [Gillwald, A., & Stork, C. \(2008\). *Towards evidence-based ICT policy and regulation: ICT access and usage in Africa*, 1\(Policy Paper 2\). Johannesburg: Research ICT Africa. Retrieved from \[https://www.researchictafrica.net/new/images/uploads/ria-policy-paper_ict-access-and-usage-2008.pdf\]\(https://www.researchictafrica.net/new/images/uploads/ria-policy-paper_ict-access-and-usage-2008.pdf\).](#)
- Gura, M. & King, K.P. (2007). *Classroom robotics: Case stories of 21st century instruction for millennial students*. Charlotte, NC: Information Age Publishing.
- Haldane, V., Chuah, F. L. H., Srivastava, A., Singh, S. R., Koh, G. C. H., Seng, C. K., & Legido-Quigley, H. (2019). Community participation in health services development, implementation, and evaluation: A systematic review of empowerment, health, community, and process outcomes. *PLOS ONE*, 14(5),
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275–285. <https://doi.org/10.1016/j.susoc.2022.05.004>

- Harahap, M. A. K., Ausat, A. M. A., Sutrisno, S., Suherlan, S., & Azzaakiyyah, H. K. (2023). Analyze the role of family in entrepreneurship education: Effective support and assistance. *Journal on Education*, 5(4), 14563–14570.
- Harrel, S., & Bynum, Y. (2018). Factors affecting technology integration in the classroom. *Alabama Journal of Educational Leadership*, 5(1), 12–17.
<https://files.eric.ed.gov/fulltext/EJ1194723.pdf>
- Herzig, B. (2004).** *Teaching and learning with technology: A review of the research literature.* ERIC Clearinghouse on Information and Technology.
- Hew, K. F. (2007). Integrating technology into K-12 teaching and learning: Current knowledge gaps and recommendations for future research. *Educational Technology, Research and Development*, 55, 223-252.
- Hoy, A. W., & Spero, R. B. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education*, 21(4), 343-356.
- Jones, V. F., & Jones, L. S. (2012). Comprehensive classroom management, creating communities of support and solving problems (10th ed). Pearson, NJ: Upper Saddle River.
- Koehler, M. J., Mishra, P., & Cain, W. (2013). What is technological pedagogical content knowledge (TPACK)? *Journal of Education*, 193(3), 13-19.
- Livingstone, S. (2011). *Children's and young people's rights in the digital age: An emerging agenda.* *New Media and Society*, 13(4), 591-607
- Malik, R. S. (2018). Educational challenges in 21st century and sustainable development.
- Journal of Sustainable Development Education and Research*, 2(1), 9–20.
- Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001).** *Classroom instruction that works: research-based strategies for increasing student achievement.* Association for Supervision and Curriculum Development (ASCD).
- McCarthy, A. M., Maor, D., McConney, A., & Cavanaugh, C. (2023). Digital transformation in education: Critical components for leaders of system change. *Social Sciences Humanities Open*, 8(1), 100479.
<https://doi.org/10.1016/j.ssaho.2023.100479>
- Money, J. N. (2016). Pilot study: Student behavior in inner-city schools: The impact of teacher-student relationships. *A Doctor of Education Dissertation Presented to the Faculty of the Education of the Carson-Newman University.*
- Oliver, R. M., & Reschly, D. J. (2007). *Effective classroom management: Teacher preparation and professional development.* Washington DC: National Comprehensive Centre for Teacher Quality.
- Pelgrum, W. J. (2001).** *Obstacles to the integration of ICT in education: Results from a worldwide educational assessment.* *Computers and Education*, 37(2), 163-178.
- Plomp, T., Anderson, R. E., Law, N., & Quale, A. (2009).** *Cross-national information and communication technology policy and practice: A review of the second information technology in education study (ITiES).* *Educational Media International*, 46(2), 129-146.
- Prastyaningtyas, E. W., Sutrisno, S., Soeprajitno, E. D., Ausat, A. M. A., & Suherlan, S. (2023). Analysing the role of mentors in

- entrepreneurship education: Effective support and assistance. *Journal on Education*, 5(4), 14571–14577.
- Raharjo, I. B., Ausat, A. M. A., Risdwiyanto, A., Gadzali, S. S., & Azzaakiyyah, H. K. (2023). Analyzing the relationship between entrepreneurship education, self-efficacy, and entrepreneurial performance. *Journal on Education*, 5(4), 11566–11574.
- Richardson, W. (2006). *Blogs, wikis, podcasts, and other powerful web tools for classrooms*. Thousand Oaks, CA: Corwin Press.
- Rijal, S., & Saranani, F. (2023). The role of blockchain technology in increasing economic transparency and public trust. *Technology and Society Perspectives (TACIT)*, 1(2), 56–67.
- Runhaar, P. (2017). How can schools and teachers benefit from human resources management? Conceptualizing HRM from content and process perspectives. *Educational Management Administration and Leadership*, 45(4), 639–656.
- Saavedra, A. R., & Opfer, V. D. (2012). Learning 21st century skills require 21st century teaching. *Phi Delta Kappan*, 94(2), 8–13.
- Shields, D. (2009). Keeping urban teachers: A national necessity. *Schools: Studies in Education*, 1(6), 77-98. Retrieved from <http://www.jstor.org>
- Smith, J. (2020). The impact of ICT integration in education in developing countries. *International Journal of Education*, 45(2), 125-140.
- Suherlan, S. (2023). Digital technology transformation in enhancing public participation in democratic processes. *Technology and Society Perspectives (TACIT)*, 1(1), 10–17. <https://journal.literasisainsnusantara.com/index.php/tacit/article/view/34>
- Suherlan, S., & Okombo, M. O. (2023). Technological innovation in marketing and its effect on consumer behaviour. *Technology and Society Perspectives (TACIT)*, 1(2), 94–103.
- Suryana, E. (2017). Manajemen Kelas Berkarakteristik Siswa. *Edukasi Islami: Jurnal Pendidikan Islam*.
- Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. *International Review of Research in Open and Distance Learning*, 16(1), 1–10.
- Tomlinson, C. A. (2021). *How to Differentiate Instruction in Academically Diverse Classrooms* (3rd ed.). ASCD.
- Van de Grift, W., Van der Wal, M., & Torenbeek, M. (2011). Development in the pedagogical didactic skills of primary school teachers. *Pedagogical Studies*, 88, 416-432.
- Waddell, J. (2015). *The role of technology in the educational process*. Allen & Unwin.
- Wang, L., & Lee, H. (2020). *Impact of technology on student motivation and learning*. <https://scholar.google.com>
- Wanof, M. I. (2023). Digital technology innovation in improving financial access for low-income communities. *Technology and Society Perspectives (TACIT)*, 1(1), 26–34. <https://journal.literasisainsnusantara.com/index.php/tacit/article/view/35>

TECHNOLOGICAL SKILLS REQUISITE BY MOTOR VEHICLE MECHANICS TRAINEES OF TECHNICAL COLLEGES FOR OPTIMAL PRODUCTIVITY AND SUSTAINABILITY IN OGUN STATE NIGERIA

Lemo, Olusiji O. (Ph.D.)

Department of Industrial Technical Education,
Tai Solarin University of Education,
Ogun State, Nigeria.
rossanlemo@yahoo.co.uk

Abstract

The study examined the technological skills requisite by motor vehicle mechanics trainees of technical colleges for optimal productivity and sustainability in Ogun State, Nigeria. The study employed descriptive survey research design. Three hundred and fifty-four (354) professionals comprising of 28 MVM teachers in nine technical colleges and 326 registered automobile industrial technicians in Ogun State constituted the study population. Total enumeration was used to select all the 28 MVM teachers because of manageable size while proportionate stratified random sampling techniques was used to select 89 registered automobile industrial technicians in Ogun State as study sample. The instrument used for data collection was a 17-item structured questionnaire which was designed on a modified 4-point scale titled: Technology Skills Requisite Trainees Questionnaire (TSRTQ). .86 reliability coefficient (r) value was obtained through Cronbach's Alpha coefficient. 117 copies of the questionnaire were retrieved by the researcher with the help of three research assistants. Mean and standard deviation were used to answer the research questions while t-test was used to test the hypotheses. It was found out that it is essential for trainees to be equipped the skills in handling modern diagnostic equipment to perform On-Board Diagnoses and servicing electronics control units (ECUs) in motor vehicle. Therefore, it was recommended that curriculum planners and policy makers should ensure that MVM curriculum is review to incorporate technological skills requisite in motor vehicle industry to enable trainees' suite in and enhance their sustainable development upon graduation.

Keywords: *Motor Vehicle Mechanics Trainees, Productivity, Sustainability and Technological Skills*

Introduction

It is no longer new that every sector of life has experienced a vast change as a result of technology development. Automobile industry is one of the most significant sectors which have become more technologically advanced with the way modern vehicles are designed based on computerized system. Therefore, the survival of this industry lies on several factors which is not limited to competent workforce group who can adequately understand the system working

principle among which are trainees of motor vehicle mechanic of technical colleges. Technical college is a post-primary institution in Nigeria which is established to offer vocational and technical education programmes. This educational institution is selectively established to train and equip students with requisite technical skills and competences for earning a living. Students exposed to technical school educational training are provided with requisite basic scientific knowledge, practical skills and work-related attitudes as craftsmen and as technicians at sub-

professional level (Umar, 2016). The institution is basically saddled with the responsibilities of producing qualified skill personnel for specific career lines, trades and special areas such as motor vehicle mechanic (MVM) for meeting engineering-based needs of the immediate society.

Motor vehicle mechanic (MVM) is one of the mechanical engineering trades offered in technical colleges which involve the acquisition of scientific knowledge in design, selection of materials, construction, operation and maintenance of motor vehicles. MVM work trade at the technical college consists of three components grouped as service station mechanic work, engine maintenance and refurbishing and auto-electricity. Abubakar and Abutu (2019) described MVM trainee as a person who, for compensation, engages in the diagnosis or repair of faulty motor vehicles components or systems. This means that motor vehicle mechanic trainees are responsible for the service and repair of motor vehicles including undertaking work on engine and electronics control units (ECUs) in motor vehicle. However, for trainees to achieve an optimum productivity in the above aforementioned task it is essential that they are adequately equipped the requisite technological skills needed in bridging the gap between what is learnt in college and required in the industry.

Diagnosing faults in motor vehicle engine and its support system involves a thorough understanding of how the interrelated system in a vehicle functions. This knowledge can be referred to as the technological skills posited by Abubakar and Abutu (2019) and Adeniran et al. (2024) to include ability to conduct engine testing, examination, inspection to engine performance for wear such as lubrication system, ignition system, fuel system, cooling system and starter circuit components. In addition, Abdulkadir, et al. (2022) and Thomas et al. (2023) outlined some required technological skills in diagnosing faults to include; ability to conduct engine performance

test using engine analyzer, ability to distinguish abnormal sounds in the engine and localize such sounds to specific components or systems, ability to determine confidently needed repairs on components and systems being diagnosed. Automotive vehicles are nowadays equipped with a significant number of networks of electronics systems by which advanced vehicle control, elimination of bulky wiring and sophisticated features are achieved. Most of the features are enabled by the use of distributed electronic systems including sensors, switches, actuators and electronics control units (ECUs) (Isaac, 2015).

In a study conducted by Adeniran et al. (2024) found that current technical abilities in the repair of ignition systems, carburetors, including wheel balancing and alignment, are necessary for automobile mechanical apprentices to graduate as artisans and build a quality automobile mechanical firm. Similarly, Thomas et al. (2023) recorded that automobile engineering graduates needed improvement in skills areas for servicing, diagnosing faults, repairing faults on hybrid car engines and support systems. Therefore, a sound technological skill is essential for optimum productivity as it provides MVM trainees with the basic capacity to earn a living which in turn enhances their sustainability. It is against this background that this study tends to examine the technological skills requisite by motor vehicle mechanics trainees of technical colleges for optimal productivity and sustainability in Ogun State Nigeria.

Statement of the Problem

Despite the regular appraisal of MVM curriculum of technical colleges in fostering economic growth and development, there is a dearth of research specifically addressing the technological skills requisite of trainees for diagnosing faults and servicing electronics control units (ECUs) of modern motor vehicle which are being operated and controlled by computerized

electrical sensors. The existing literatures predominantly addresses basic skills requisite in repairing mechanical faults in conventional vehicles which might not be in vogue and full of doubt as recent development in technology have eroded some operations in which modern motor vehicle operates. In addition, it is evident that most MVM trainees who generally enjoyed the regular flow of customers for effective maintenance and repairs of conventional vehicles are now faced with the challenges of diagnosing and servicing modern vehicles. This knowledge gap is particularly pronounced in Ogun State, where access to quality technology education is limited and demand for skilled automotive technicians continues to increase. Thus, understanding the specific technological skills requisite of motor vehicle mechanics trainees of technical colleges in this context is imperative for improving the productivity. Hence, this study examined the technological skills requisite by motor vehicle mechanics trainees of technical colleges for optimal productivity and sustainability in Ogun State Nigeria.

Objectives of the Study

The main objective of this study is to examine the technological skills requisite by motor vehicle mechanics trainees of technical colleges for optimal productivity and sustainability in Ogun State Nigeria. Specifically, the study sought to examine the technological skills requisite in:

- i. diagnosing faults in motor vehicle engine and its support system
- ii. servicing electronics control units (ECUs) in motor vehicle

Method of the Study

A descriptive survey research design was employed for this study. Three hundred and fifty-four professional comprising of 28 MVM

teachers in nine technical colleges and 326 registered automobile industrial technicians in Ogun State constituted the study population. Total enumeration was used to select all the 28 MVM teachers because of manageable size while proportionate stratified random sampling techniques was used to select 89 registered automobile industrial technicians in Ogun State as study sample.

The instrument for data collection was a 17-item structured questionnaire titled 'Technology Skills Requisite Trainees Questionnaire (TSRTQ) designed based on the existing literatures. The questionnaire was made of two section A and B. Section A was designed to solicit demographic data from the respondents while section B focused on the research questions. It was based on four point modified scale of Highly Required (HR-4); Required (R-3); Slightly Required (SR-2) and Not Required (NR-4).

The questionnaire was face and content validated by three research experts from the Department of Industrial Technical Education, Tai Solarin University of Education, Ijagun. A pilot study of the instrument was carried out on 12 MVM teachers in the five Government Technical Colleges in Oyo State and 44 registered automobile industrial technicians in Oyo metropolis.

The result obtained from the pilot study was subjected to reliability of internal consistency test using Cronbach's Alpha coefficient which yielded a coefficient of .86. The researcher employed the aid of three research assistants in data collection and 100% return rate was obtained. Mean and standard deviation was used to answer the research questions while t-test was used to test the hypotheses at .05 level of significance.

Results and Discussion

Research Question 1: What are the technology skills requisite of motor vehicle mechanics

trainees in diagnosing faults in motor vehicle engine and its support system?

Table 1: Respondents Mean Score on Technology Skills Requisite of Motor Vehicle Mechanics Trainees in Diagnosing Faults in Motor Vehicle Engine and Its Support System

S/N	Items	Mean	SD	Remark
1	Read and comprehend charts, technical drawings, and blue prints.	3.67	.60	HR
2	Think critically and approach things with an inquisitive mindset.	3.25	.58	R
3	Handle well, modern diagnostic equipment to perform On-Board- Diagnoses (OBD)	3.71	.54	HR
4	Critically analyze and interpret faults from diagnosis results	3.76	.59	HR
5	Conduct engine performance test using engine analyzer	3.55	.58	HR
6	Distinguish abnormal sounds in the engine	3.72	.57	HR
7	Localize such sounds to specific components or systems	3.18	.57	R
8	Confidently determine needed repairs on components and systems being diagnosed	3.45	.59	R
Average Mean		3.53	.57	HR

Data presented in Table 1 showed the mean score of the data from the respondents' view about the technology skills requisite of motor vehicle mechanics trainees in diagnosing faults in motor vehicle engine and its support system. Item 4 showed the highest mean score of 3.76 which pointed out for a skill to critically analyze and interpret faults from diagnosis results. All the eight items had a mean score above 2.50 cut off point. An average mean score of 3.23 was obtained meaning that the respondents agreed

positively to the stated items. The results also showed the standard deviation ranged from .54 to .60 indicating that the respondents were not too far from one another in their responses, proving that respondents' opinions or responses were similar.

Research Question 2: What are the technology skills requisite of motor vehicle mechanics trainees in servicing electronics control units (ECUs) in motor vehicle?

Table 2: Respondents Mean Score on the Technology Skills Requisite of Motor Vehicle Mechanics Trainees in Servicing Electronics Control Units (ECUs) in Motor Vehicle

S/N	Items	Mean	SD	Remark
1	Critically analyze and interpret faults from diagnosis results	3.79	.57	HR
2	Knowledge in locating the position of ECU in different vehicles	3.54	.60	HR
3	Knowledge of the working principle of ECU	3.56	.62	HR
4	Basic skills in safe handling and maintenance of ECU	3.41	.61	R
5	Knowledge of the concept of On-Board Diagnostics (OBD) in motor vehicles	3.43	.58	R
6	Skills in the programming and reprogramming of ECU to manufacturers' specification	3.67	.58	HR
7	Skills in determining the failure of semi-conductor components linking the ECU to the vehicle	3.65	.60	HR
8	Skills in recognizing and interpreting signals from the ECU	3.67	.59	HR
9	Knowledge in understanding and interpreting electrical circuits in vehicle	3.54	.61	HR
Average Mean		3.58	.59	HR

Based on the data presented in Table 2 it was evident that all the five items were rated above 2.50. Item 1 showed the highest mean score of 3.79 which outlined need for a skill in analyzing and interpreting faults from diagnosis results. 3.58 average mean was obtained from the items which proved that all the respondents reacted positively to the statement showing the technology skills requisite of motor vehicle mechanics trainees in servicing electronics control units (ECUs) in motor vehicle. The results

also showed the standard deviation ranged from .57 to .62 indicating that the respondents were not too far from one another in their responses, proving that the respondents' opinions or responses were similar.

Hypothesis 1: There is no significant difference between the mean rating of MVM teachers and automobile industrial technicians on technological skills requisite in diagnosing faults in motor vehicle engine and its support system.

Table 3: t-test of differences between the Mean rating of MVM Teachers and Automobile Industrial Technicians on Technological Skills Requisite in Diagnosing Faults in Motor Vehicle Engine and its Support System

Group	N	Mean	SD	t	df	Sig.	Remarks
MVM teachers	28	9.02	1.73	1.02	116	0.12	NS
Automobile industrial technicians	89	7.37	1.65				

Data from Table 3 revealed a not significant difference between MVMW teachers (M = 9.02; SD = 1.73) and automobile industrial

technicians (M = 7.37; SD = 1.65) ($t = 1.02$; $df = 116$; $p > .05$). The hypothesis was therefore not rejected in the light of the result. Hence, there is

no significant difference in the mean rating of MVM teachers and automobile industrial technicians on technological skills requisite in diagnosing faults in motor vehicle engine and its support system

Hypothesis 2: There is no significant difference between the mean rating of MVM teachers and automobile industrial technicians on technological skills requisite in servicing electronics control units (ECUs) in motor vehicle

Table 4: t-test of differences between the Mean rating of MVM Teachers and Automobile Industrial Technicians on Technological Skills Requisite in Servicing Electronics Control Units (ECUs) in Motor Vehicle

Group	N	Mean	SD	t	df	Sig.	Remarks
MVMW teachers	28	13.38	3.83	2.19	116	.24	NS
Automobile industrial technicians	89	13.26	3.81				

Data from Table 4 revealed a not significant difference between MVMW teachers (M = 13.38; SD = 3.83) and automobile industrial technicians (M = 13.26; SD = 3.81) (t = 2.19; df = 116; p < .02). This implies that the hypothesis was upheld. Therefore, there is no significant difference between the mean rating of MVM teachers and automobile industrial technicians on technological skills requisite in servicing electronics control units (ECUs) in motor vehicle.

Discussion of Findings

Findings from research question 1 showed that respondents agreed with all the items on the technology skills requisite of motor vehicle mechanics trainees in diagnosing faults in motor vehicle engine and its support system. The findings revealed that it is essential for trainees to be equipped the skills in handling modern diagnostic equipment to perform On-Board Diagnoses (OBD). This is in-line with the opinion of Abdulkadir, et al. (2022); Adeniran et al. (2024) and Thomas et al. (2023) who outlined skills required in diagnosing faults in automobile engine to include; reading and understanding blue prints, technical drawings, charts, critical thinking, handling modern diagnostic equipment, understanding computer controls, conducting

engine testing, inspection, and examination of lubrication system and components. On hypothesis 1 the respondents did not differ in the items identified. This implies that the identified technological skills are required in diagnosing faults in motor vehicle engine and its support system to ensure optimum productivity among MVM trainees.

Findings from research question 2 showed that respondents agreed with all the items on the technology skills requisite of motor vehicle mechanics trainees in servicing electronics control units (ECUs) in motor vehicle. The skills identified are in consonance with the findings of Abubakar and Abutu (2019) and Thomas et al. (2023) Who posited that it is imperative for automotive mechanics to be updated with the required skills in handling ECU of motor vehicles because of the multiple functions performed by the ECU in terms of receiving and transmitting signals and On-Board Diagnostic information between sensors and actuators in modern vehicles. On hypothesis 2 the respondents did not differ in the items identified. This implies that the identified technological skills are required in servicing electronics control units (ECUs) in motor vehicle to ensure optimum productivity among MVM trainees. **Conclusion and**

Recommendations

The study concluded that the identified technological skills are basic requisite for optimum productivity in automobile industry. Therefore, MVM trainees are expected to be equipped with these skills in other to be relevant in the automobile industry. These technological skills will distinguish the MVM trainees out among several automobile mechanics in the industry thereby building confidence and believe in clients that they are competent enough to have their vehicles fixed by them. This productivity will continue to leads to increase in patronage thereby enhancing their sustainability in turn.

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

- i. Curriculum planners and policy makers should ensure that MVM curriculum is review to incorporate technological skills requisite in motor vehicle industry to enable trainees' suite in and enhance their sustainable development upon graduation.
- ii. Government, automobile industries and professional vocational associations should organize seminars and workshops for MVW trainees to improve their skills in maintaining modern vehicles.

References

Abdulkadir, M.; Abubakar, M. I., Mustapha, A., Hamidu, Y. M., Nma, T. N., & Ayoko, S. O., (2022). Emerging technology competencies needed for establishing automobile enterprises by motor vehicle

mechanics in federal capital territory Abuja, Nigeria. *Nigerian Online Journal of Educational Sciences and Technology*, 4(1), 37- 45.

Abubakar, M. I., & Abutu, F. (2019). Technical skills requisites of auto-mechanics students in the maintenance of modern vehicles in Nigeria. *Journal of Association of Vocational and Technical Educators of Nigeria*, 1(1), 32-42.

Adeniran, A. O., Olorunfemi, S. O., Akinsehinwa, F. O., & Ilugbami, J. O. (2024). Technical skills required by standard automobile mechanical workshop in Akure, Nigeria. *Journal of Contemporary Research in Business, Economics and Finance*, 6(1), 13-22. Retrieved from DOI: 10.55214/jcrbef.v6i1.803.

Isaac, E. (2015). Technology and modern automobile industry – challenges and opportunities for roadside mechanics in Ghana. *International Journal of Scientific Research and Innovative Technology*, 2(6), 58-63.

Thomas, C. G., Amaechi, O. J., & Bassey, I. S. (2023). Technological skill improvement needs of automobile engineering graduates to effectively maintain hybrid vehicles in Nigeria. *Iconic Research and Engineering Journals*, 7(6), 139-146.

Umar, K. B. (2016). Safety practice improvement needs in building technology technical college workshop in Niger State. *Journal of Vocational Education Training and Research*, 1(1), 35-42.

**EFFECT OF DESIGNATED COMPUTER APPLICATIONS ON ACADEMIC
PERFORMANCE OF BUSINESS EDUCATION STUDENTS IN FEDERAL COLLEGE OF
EDUCATION (TECHNICAL) EKIADOLOR BENIN EDO STATE**

AIWANSEDO, Ikponmwosa Alexander
OFFICE TECHNOLOGY AND MANAGEMENT EDUCATION DEPARTMENT
FEDERAL COLLEGE OF EDUCATION (TECHNICAL) ASABA DELTA STATE
EMAIL: aiwansedo@yahoo.com PHONE NUMBER: 08069381366

&

IDUWE, Edwin
BUINSESS EDUCATION DEPARTMENT
FEDERAL COLLEGE OF EDUCATION (TECHNICAL) EKIADOLOR BENIN, EDO STATE
EMAIL: oghoghoedwin1@gmail.com PHONE NUMBER: 08038737428

Abstract

This study examined the effect of designated computer applications on the academic performance of business education students in federal college of education (technical) Ekiadolor- Benin, Edo State. 162 year II and year III students of Business Education were used for the study. Four research questions and hypotheses guided the study. Quasi experimental research design was used and the major instruments of the study were Cognitive Achievement Test and Lesson note. Data collected were analyzed using t-test, Mean, Standard Deviation and ANCOVA. Results of the analysis showed that there is significance difference in academic performance of students taught with designated computer applications than those taught with traditional method of teaching. It was recommended among others that government should equip the college with modern computer and internet facilities in order to enhance students' academic performance.

Introduction

Computer is a general-purpose device that can be programmed to carry out a set of arithmetic or logical operations automatically. It is a system that is made up of input unit, processing unit and output unit (Leeners, 2016). There are different types of computers based on size and function. They include Analog, Digital, Hybrid, Super Computers, Mainframe Computers, Mini Computers and Micro Computers are classification of computer based on sizes. Others

are based on functions which include: Desktop computers, In-car computers, Game consoles, Laptops, notebook, Palmtop computers, Tablet computer, Smartphones, smart books, Programmable calculator among others (Leeners, 2016). The advantages of computers in education primarily include: storage of information, quick data processing, audio-visual aids in teaching, better presentation of information, access to the internet and quick communication between students, teachers and parents. Students find it easier to refer to the Internet than searching for

information in books. The process of learning has gone beyond learning from prescribed textbooks. When it comes to storing and retrieval of information, it is easier done on computers than maintaining hand-written notes (Alake, 2018). Computers facilitate audio-visual representation of information, thus making the process of learning interactive and interesting.

Computer application software is an interface between the user of the computer and the operating system of the computer. This software allows an infinite number of uses for a computer. Computer applications include: Microsoft word, Spreadsheet, PowerPoint, Email, Internet. Microsoft word is a programme that allows students to create, edit, format and print document. Spreadsheets use a grid of cells arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations. It has a battery of supplied functions to answer statistical, engineering and financial needs. In addition, it can display data as line graphs, histograms and charts. PowerPoint is an application package that consists of a number of individual pages or "slides". The "slide" analogy is a reference to the slide projector. PowerPoint provides numerous features that offer flexibility and the ability to create a professional presentation. One of the features provides the ability to create a presentation that includes music which plays throughout the entire presentation or sound effects for particular slides.

E-mail or Electronic Mail is a method of exchanging digital messages from an author to one or more recipients. Email servers accept, forward, deliver, and store messages. Neither the users nor their computers are required to be online simultaneously (Garthy, 2015). All these packages could be effective for teaching and learning process in all subjects including Business Education courses.

Business Education is a vocational course that

prepares students for employment and/or continuing education opportunities in business through technical instruction in the classroom, experiential education in the laboratory, student internships, and through leadership and personal development by participating in student leadership organizations (Jimoh, 2018). In a specific term, Business Education involves teaching students the fundamentals, theories, and processes of business. In tertiary institutions, it comprises of business law, office practice, accounting, word processing, shorthand, typewriting, commerce, economics, computer appreciation, company law, secretarial duties and business communication. At the tertiary level, business education is divided into two broad options namely, Secretarial Studies or Office Education and Accounting option.

Secretarial Education courses include Office Practice, Commerce, Shorthand, Typewriting, Business mathematics, Marketing, Principles of Management, Computer appreciation, Labour economy, Office Technology and Management, Word processing, Teaching practice, SIWES, Business communication and Information technology. Accounting Education courses are: Financial accounting, Public sector economics, Principles of management, Advanced financial accounting, International economics, Auditing, Business communication, Taxation, Business statistics, Business law, Company law, Entrepreneurship, Economics, Teaching practice and SIWES. All these courses can conveniently be taught using Microsoft word, Excel, PowerPoint, Internet and Email (Hosler & Mary, 2017).

Ojo (2018) opined that the conventional mode of teaching Business courses are lecture, tutorial, case studies, practical, simulations, excursions and other appropriate methods. Practical method is compulsory for teaching Shorthand, Typewriting and Word Processing. With the advent of computer technology, several computer

applications are now used for teaching in place of the conventional method (Ojo, 2018). Hosler and Mary (2017) opined that Microsoft word, Excel/Spread sheet, PowerPoint, email, Internet are effective computer applications for teaching different subjects including Business Education courses. The accounting option of Business Education finds spreadsheet package as very essential in that it aid accounting, mathematics and graphical presentation. Secretarial Studies option will embrace Microsoft word which can be used for practicing typewriting, word processing and other courses. (Ojo, 2018). PowerPoint application package is very useful for presentation and teaching, be it large or small classroom. Through projector, the PowerPoint displayed content against a white board. Leeners (2016) added that PowerPoint cannot be ruled out in any class including Business Education classes.

Garthy (2015) and Blaisse (2016) added that learning with computer applications enhances students' assimilation rate and create friendly learning environment. Through e-learning, email, tutorials, game applications of learning make learning more interesting and fun. There is a great deal of interaction between the students and computer application.

Nunes and Cunha (2017), Harmelen (2017), Robert (2018), Vanderdonckt and Berquin (2019) opined that human-computer interaction is focused on user interface requirements. These approaches use graphical models such as use cases, task diagrams, or sequence diagrams in order to obtain user interface specifications. The essence of these methods is the design of user interfaces with their visual components and the identification of the window activation sequence. The ultimate goal of these approaches is to obtain design models at the solution space level.

The theoretical framework relevant to this study will be based on the cognitive theory of multimedia learning developed by Richard-Mayer

(2019) which states that people learn more deeply from words, pictures and sound than words alone. This attribute can mainly be found in computer system. During the teaching-learning process, students learn faster from multimedia devices than the conventional way of learning. Computer's ability to development students' creativity; can be related to the unique capability of computers to create highly interactive learning environments, to provide a variety of learning activities, to offer independence to users in the process of learning, to improve learners' self-confidence as a result of security in learning, and to encourage learners and motivate them to learn in a better way with technology-based tools.

Statement of the Problem

The Federal government through TETFund is currently providing computers (laptops) to colleges of Education lecturers and training them through Digital Bridge Institute (DBI) to ensure that classroom lecturers are computer literate. Despite this laudable development, it seems that many lecturers are yet to make use of computer for instructional delivery. Many Nigerian teachers appear unable to find effective ways to use computer technology in their classrooms or any other aspect of their teaching and learning activities. The duration of DBI computer training programme for lecturers; appears to be too short so as to make a meaningful impact on them.

The inability of lecturers to effectively use computer for teaching and learning processes have been traceable to lack of computer training by lecturers (Akande, 2016). A careful observation of the activities of lecturers will reveal that majority of them are not computer literate and cannot utilize computer facilities in teaching. The problem of computer technology illiteracy is a serious one in all strata of Nigerian educational system be it primary, secondary schools and tertiary institutions (Makiwa, 2018). From studies, it appears that lecturers do not have

basic computer appreciation skills and this may be a hindrance to efforts at achieving the use of computers for educational purposes in schools.

The academic performance of Business Education students from 2022 to 2025. 2023, 18% passed all course while 82% failed one or more courses. 2024. 23% passed all courses without failing while 77% failed one or two course (Departmental comprehensive result book 2024 edition).

From the above record, students' performance in Business Education courses is on the decline which may lead possibly to the production of ill-equipped N.C.E graduates. Could this low performance of students be connected to traditional method of teaching business education courses? This study seeks to find out if designated computer applications may improve the performance of Business Education Students in Federal College of Education (Technical) Ekiadolor Benin Edo State.

Purpose of the Study

The purpose of this study was to examine the effect of Designated Computer Applications on the academic performance of Business Education students in Federal College of Education (Technical) Ekiadolor Benin Edo State.

Specifically, the study sought to determine the:

- (1) difference in mean performance of students taught with Designated Computer Applications and those taught using traditional method.
- (2) Difference in pre-test and post-test scores of students taught with designated computer applications.
- (3) Difference in mean performance of male and female students taught with designated computer applications.
- (4) Difference in mean performance of Accounting and Office Education students taught with designated computer applications.

Research Question

The following research questions guided the study.

- 1) What is the mean difference in performance between students taught with designated computer applications and traditional method of Teaching?
- 2) What is the difference in pre-test and post-test scores of students taught with designated computer applications?
- 3) What is the mean difference in performance between male and female students taught with designated computer applications?
- 4) What is the difference in mean performance of Accounting and Office Education students taught with designated computer application?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

- 1). There is no significant difference in performance between students taught with designated computer applications and traditional method of Teaching
- 2). There is no significant difference in pre-test and post-test scores of students taught with designated computer applications
- 3). There is no significant different in performance between male and female students taught with designated computer applications
- 4). there is no significant different in the performance of Accounting and Office Education students taught with designated computer application.

Method

The design for this study is quasi experimental. It employs pre-test and post-test. According to Barua (2015), Quasi-experiments aim to demonstrate causality between an intervention

and an outcome that do not use randomization. Quasi experimental design is appropriate for this study in that the study is aimed at finding the academic outcome of Business Education students taught with designated computer applications and those taught with traditional method.

The group was non-randomized involving the control and experimental groups. The control group was taught using the traditional method of teaching while the experimental group was taught using designated computer applications. This is symbolically represented as follows:

	Pre-test	Treatment	Post-test
Control Group:	O_1	X_1	O^2
Experimental Group:	O_1	X_2	O

Where O_1 is the pre-test

Where O_2 is the post-test

Where X_1 is the traditional method

Where X_2 is the experimented method, using designated computer applications

The instruments that were used to gather data for this study was cognitive achievement test and lesson note that was used to teach the students. The lesson note was designed by the researcher based on the topic covered. (Business Communication) while cognitive achievement test was drawn from the instructional objectives of the topic covered.

Treatment plan:

The designated computer applications which include ms word, and ms power point was used to teach the experimental group while the traditional method of teaching were used to teach the control group. The experiment lasted for 6 weeks. Lesson note developed by the researcher guided the experimental process while the cognitive achievement test was used for data collection.

The pre-test were administered on both the experimental and control group before the commencement of the experiment. After the pre-

test, the regular class teachers in the two schools were used to start the experiment. In the control group the regular class teacher carried on with the teaching all through but with the guidance of the researcher. For the experimental group class, the class teacher was allowed to carry out the experiment because the class teacher can use the designated computer applications.

The reliability of the instrument was determined using test-retest. The instrument was administered to 30 Business Education Students in College of Education Agbor Delta State. This College operates the same N.C.C.E curriculum as the ones to be used for this study. Two weeks later, the instrument was re-administered to the same students. Their scores for both administrations were correlated using Pearson Product-Moment Correlation Coefficient statistics of alpha level of .05. The (r) value obtained was .72. This according to Udoh (2016) is reliable.

The cognitive achievement test was administered to all the students (both control and experimental) before and after the treatment with the help of the class teacher. The marking and scoring were done by the researcher in order to generate the pre-test and post-test scores.

T-test and ANCOVA (Analysis of Covariance) were used to test the null hypotheses at .05 level of significance. ANCOVA was used to test

hypothesis 1 while t-test was used to test hypotheses 2 to 4. Mean and standard deviation were used to answer the research questions. The purpose of ANCOVA is to compare two or more linear regression lines. It is a way of comparing the Y variable among groups while statistically controlling for variation in Y caused by variation in the X variable; while t-test is to compare two groups treatment versus control groups.

Table 1: mean performance between students exposed to Designated Computer Applications and those exposed to traditional method of teaching.

Group	n	Mean	SD	Mean Difference	Remark
Control	81	20.84	4.036	1.26	Higher
Experimental	81	22.10	3.488		
Total	162	42.94	3.811		

Data presentation in Table 1 showed that the mean performance of those exposed to Designated Computer Applications and Traditional method of teaching are 22.10 and 20.84 respectively. The mean difference of 1.26 reveals that the students exposed to Designated

Results

Research Question 1: what is the mean difference in performance between students taught with designated computer applications and traditional method of teaching?

Data collected to address Research Question 1 were summarized as in Table 1.

Computer Applications performed higher than those exposed to traditional method of teaching.

Research Question 2: what is difference in pretest and post test scores of students taught with designated computer applications?

Table 2: Mean difference in pretest and post test scores of students taught with designated computer applications.

Test	Mean	SD	Mean Difference	Remark
Pretest	21.25	3.397		
Post test	22.10	3.488	.85	Higher
Total	43.35			

Data presentation in Table 2 showed that the mean difference in pretest and post test scores of students taught with designated computer applications are 21.25 and 22.10 respectively. The mean difference of .85 revealed that the post test scores of students exposed to designated

computer applications is higher than the pretest.

Research Question 3: what is the difference in performance between male and female students taught wit designated computer application?

Table3: Difference in performance between male and female students taught wit designated computer application.

Sex	Mean	SD	Mean Difference	Remark
Male	20.94	4.007		
Female	22.12	3.472	.535	Higher
Total	43.06			

Data presentation in Table 3 showed that the mean difference in performance between male and female students taught with designated computer applications are 20.94 and 22.12 respectively. The mean difference of .535 revealed that the female students taught with designated computer applications performed

better than their male counterparts.

Research Question 4: what is the difference in performance of accounting and office practice students taught with designated computer applications?

Table 4: Difference performance of Accounting and Office Education students taught with designated computer application.

Option	Mean	SD	Mean Difference	Remark
Accounting Education	21.97	3.365		
Office Education	21.35	3.917	.552	Higher
Total	43.32			

Data presentation in Table 4 showed that the mean difference in performance of year two and year three students taught with designated computer applications are 21.97 and 21.35 respectively. The mean difference of .552 revealed that the year two students taught with designated computer applications performed

slightly better than their year three counterparts.

Hypotheses 1: there is no significance difference in performance between students taught with designated computer applications and traditional method of teaching

Table 5: The t-test analysis of mean performance between experimental and control group.

Group	n	Mean	SD	df	T-Value	P-Value	Decision
Experimental	81	22.10	3.488	160	2.125	.035	Significant
Control	81	20.84	4.036				
Total	162						

The results presented in Table 5 revealed that the t-value of 2.125 at degree of freedom (df) of 160 is significant when p-value is .035. Since the p-value is less than the alpha value of .05, the null hypothesis is rejected. This means that there is significant difference between the mean performance of students taught using designated

computer applications and those taught using traditional method of teaching.

Hypotheses 2: there is no significant difference in pre-test and post test scores of students taught with designated computer applications. Data collected to address the Hypothesis are

summarized as in Table 6

Table 6: The t-test analysis of mean performance of the pre-test and post-test scores of students taught using designated computer application.

Test	n	Mean	SD	df	T-Value	P-Value	Decision
Pre-test	81	21.05	3.397	80	-2.268	.026	Significant
Post- test	81	22.10	4.488				
Total	162						

The results presented in Table 6 revealed that the t-value of -2.268 at degree of freedom (df) of 80 is significant when p-value is .026. Since the p-value is less than the alpha value of .05, the null hypothesis is rejected. This means that there is significant difference between the pre-test and

post-test scores of students taught using designated computer applications.

Hypotheses 3: there is no significant difference in performance between male and female students taught with designated computer applications.

Table 7: Analysis of the difference in mean performance between male and female students taught with designated computer application.

Sex	n	Mean	SD	df	T-Value	P-Value	Decision
Male	90	20.94	4.007	160	-1.976	.50	Not Significant
Female	72	22.12	3.472				
Total	162						

Data presented in Table 7 shows that the t-value of -1.976 at df of 160 is not significant when p-value is .050. Since the p-value is greater than the alpha value of .05, the null hypothesis is retained. It therefore means that there is no significant difference in the performance of male and female students taught with designated computer

applications.

Hypotheses 4: there is no significant difference in the performance of Accounting and Office Education students taught with designated computer application

Table 8: Analysis of the difference in mean performance of Accounting and Office Education students taught with designated computer applications.

Option	n	Mean	SD	df	T-Value	P-Value	Decision
Accounting Education	130	21.97	3.365	160	.827	.410	Not Significant
Office Education	32	21.35	3.917				
Total	162						

Data presented in Table 8 shows that the t-value of .827 at df of 160 is not significant when p-value is .410. Since the p-value is greater than the alpha value of 0.05, the null hypothesis is retained. It therefore means that there is no significant difference in the performance of Accounting and Office Education students taught with designated computer applications.

Discussion of Findings

In this study, four research questions were raised and four hypotheses formulated and tested at .05 level of significant. Findings from the analysis carried out on research question one and hypothesis one clearly indicated that there is significant difference between the mean performance of students taught using designated computer applications and those taught using traditional method of teaching. The students taught with designated computer applications performed higher than those taught with traditional method of teaching. This finding supports an earlier study conducted by Willis and Willis (2017) that the use of computer applications for teaching students have shown significance improvement on students' performance. Ohonba (2018) supported that students receiving lectures with computer facilities often perform better than students learning in a conventional way. Atagana (2017) argued that students learn and perform better when they are taught with what they are used to. Matty (2015) supported Atagana (2017)

Findings from analysis conducted on research question two and hypothesis two also revealed that there is significant difference between the pre-test and post-test scores of students taught using designated computer applications. This finding corroborates the study of Samad (2018) that when students are exposed to new teaching facilities, their scores are usually higher than the previous score if well conducted.

The result obtained in research question three and hypothesis three also showed that there is

no significant difference in the performance of male and female students taught with designated computer applications. This is in line with the Awoderu (2018) that the gender of the students has no influence on academic performance. The findings also supported the position of Ohonba (2018) that the gender of a student does not count when operating or using computer system for educational purposes.

The outcome of the analysis carried out on research question four and hypothesis four indicate that there is no significant difference in the performance of year two and year three students taught with designated computer applications. This finding agrees with Willis and Willis (2017) that students' academic levels have no influence on their performance when they are exposed to same academic activities. Jackson (2020), Makiwa (2018), that the students' levels of academic program do not affect their academic outcome.

Conclusion and Recommendations

It is evident from the study that there is significant difference in the performance of students taught using designated computer applications than those taught with conventional method of teaching. It therefore means that, business education students' performance will be higher when computer applications are used for teaching the students.

The outcome of the study has indicated a positive effect on the academic performance of business education students taught with designated computer applications over those taught with conventional method of teaching. These findings therefore have serious implications for students, teachers/lecturers, college management and curriculum planners on teaching business education courses in colleges of education. In the first instance there is need to review the curriculum to include designated computer applications for teaching business education courses and also, the

teacher/lecturers should be trained and retrained on how to use designated computer applications for teaching and learning purposes.

In view of what this study revealed, the following recommendations were made:

- 1) Government at various levels should endeavor to provide colleges of education with modern computer laboratory and internet facilities.
- 2) Teachers/lectures should be trained on the use of computer facilities for teaching.
- 3) Business education lecture rooms should be equipped with necessary facilities that will aid the use of designated computer applications.
- 4) Business education students should be encouraged to embrace the use of computer applications for their academic use.

References

Adetoyi, D., & Oludare, J. (2018). Impact of ICT in teaching and learning of economics in particular and education in general. *Associate Journal*, 4, pp45.

Adeyemi, B.A. (2017). Computer assisted instruction on students' achievement in social studies in Osun State. *Journal of Social Studies*, 3, , pp28.

Aduwa-Ogiegbaen, S. O., & Imogie, A. (2015). *Instructional communication and technology in higher education*. Ibadan: Stirling- Horden.

Atagana, A.B. (2017). *Methods of teaching statistics*. Benin City: Uri Publishing Ltd.

Alake, B.M., & Fernando, L.L. (2018). *A firm-level analysis of determinants of ICT adoption in Spain*. *Technovation*, 27, 352-366.

Alexander, N., & Colgate, M. (2020). Retail financial services: transaction to relationship

marketing. *European Journal of Marketing*, 34(8), 938-953.

Harmelen, I.J. (2017). Information systems professionals' development: A work-based learning model. *Journal of Continuing Professional Development*, 2(3), 86-92.

Atwert, B., & Makiwa, M. V. (2018). *Computer application and practice*. Manchesta: Stanford Publishers.

Bartelsman, E.J., & Doms, M. (2015). Understanding productivity: Lessons from longitudinal micro data. *Journal of Economic Literature*, 38(3), 569-594.

Barua, A., Kriebel, C.H., & Mukhopadhyay, T. (2015). Information technologies and business value: An analytic and empirical investigation. *Information Systems Research*, 6(1), 3-23.

Blaisse G., & Russell G (2016), Computer experience school support and computer anxieties. *Educ. Psychol.*, 17(3), 267-284.

Capper, C. (2000). *Computer in the classroom*. London: Apple Press.

Charchill, G. A., & Brown, T. J. (2000). *Basic Marketing Research*. USA: Thomson Corporation.

Cragg, P.B. & King, M. (1992). Information system sophistication and financial performance of small engineering firms. *Journal of Financial Business Enterprise*, 2 pp37,

Campbell-Kelly, B., Richard-Mayer, A., Aspray, K., & William, D. (2019). *Computer: A history of the information machine*. New York: Basic books.

Ekpenyong, L. E. (2001). *Foundations of vocational education: New directions and*

approach. Benin City: Supreme ideal publishers int'l ltd.

Garthy, S.J., & Shant, J. (2015). Age difference in attitudes toward computers. *Psychol. Sci. Soc. Sci.*, 53(5), 329-340.

Gassée, Q., & Nunes, C. (2017). The silly web vs. native apps debate. Retrieved from www.mondaynote.com

Harrington, K.V., McElroy, J.C., Morrow, P.C., & Vanderdonckt, J.L. (2019). Computer anxiety and computer-based training: A laboratory experiment. *J. Educ. Comput. Res.* 6(3), 343-358.

Hosler, R. & Mary, M. (2017). *A chronology of business education in the United States*. Reston, VA: National Business Education Association.

Iwuama, B.C., Ohen, F. R., Ogbemor, G. G., & Onwuegbu, O. C. (2017). *Research methods in education*. Benin City: World of books.

Jimoh, S. O. (2018). *Principles and method of teaching business subject*. Benin City: Courage Print.

Leeners, J. (2016). Small business acceptance and adoption of e-commerce in the Western-Cape Province of South Africa, *EJISDC*, 10(4), 1-13.

Markle, S. (2017). *Good frames and bad* (2nd ed.). New York: Wiley.

Ohonba, A. A. (2018). *General computer studies for schools*. Benin City: Ambik Press.

Ojo, B.U. (2018). *Contemporary methods of teaching business subjects*. Benin City: Newman publishers

Willis, E.R., & Willis, F.J. (2017). *Methods of teachin*. New York: Brownly publishing co.

IMPACT OF GOVERNMENT POLICY ON AGRICULTURAL PRODUCT DISTRIBUTION IN OWERRI-WEST LGA, IMO STATE

BY

¹Obuseh, Raphael, Ph.D., ²Nnamdi, E.A.E, Ph.D., ³Agu, Paul Chinedu

¹Department of Procurement and Supply Chain Management Federal Polytechnic Nekede Owerri, Imo State

²Department of Business Management, Dennis Asadebe University Asaba Delta State

³Department of Business Administration and Management Federal Polytechnic Nekede Owerri, Imo State

Corresponding Author: Obusehraphael396@gmail.com, 08033869524

ABSTRACT

Agriculture plays a crucial role in Nigeria's economy, contributing to food security, employment, and economic growth. However, the distribution of agricultural products faces significant challenges, many of which are influenced by government policies. This study examined the impact of government policies on agricultural product distribution in Owerri-West Local Government Area of Imo State, focusing on transportation regulations, taxation policies, and infrastructure development. A descriptive survey research design was adopted, and data were collected from 520 respondents, including farmers, traders, transporters, and government officials. The study utilized both descriptive and inferential statistical methods, including Chi-square tests, to analyze the data. Findings revealed that high transportation costs, multiple taxation, and poor road networks significantly hinder the efficient distribution of agricultural products. Over 80% of respondents agreed that excessive transport costs and multiple levies negatively impact their businesses. Additionally, inadequate storage facilities and poor market infrastructure contribute to post-harvest losses and inefficiencies in the supply chain. Hypothesis testing confirmed that government transportation and taxation policies ($\chi^2 = 18.42, p = .0002$) and infrastructure development ($\chi^2 = 21.15, p = .0001$) significantly affect agricultural distribution. The study concludes that policy reforms are necessary to reduce multiple taxation, improve road infrastructure, and invest in storage facilities. Recommendations include policy adjustments, investment in rural infrastructure, support for cooperative societies, and adoption of modern storage techniques. The study suggests further research on the role of technology, climate change, and public-private partnerships in agricultural distribution. Implementing these solutions will enhance efficiency, reduce costs, and improve food security in Owerri-West LGA.

Keywords: Agricultural Distribution, Government Policies, Infrastructure, Taxation, Transportation Cost

Introduction

Agriculture remains a cornerstone of Nigeria's economy, contributing significantly to the nation's Gross Domestic Product (GDP) and providing livelihoods for millions, particularly in rural areas (International Trade Administration, 2023; Nwogwugwu et al., 2023). Beyond its economic role, agriculture supports food security, employment, and industrial raw materials. However, the sector faces persistent challenges, particularly in the

distribution of agricultural products from producers to consumers, which affects both profitability and food availability. Government policies are crucial in shaping agricultural production and distribution through subsidies, infrastructural development programs, tax incentives, and regulatory frameworks (Lencucha et al., 2020; Oyeleke, 2021). Despite these interventions, unintended consequences such as multiple taxation, poor infrastructure, high transportation costs, and regulatory

bottlenecks often hinder effective product distribution (Sulaiman, 2021).

Owerri-West Local Government Area (LGA) of Imo State exemplifies these challenges. The area has a rich agricultural base, producing crops such as cassava, yam, maize, vegetables, and palm oil (Uhuegbulem et al., 2016). Yet, farmers and traders face significant hurdles in distributing these products, primarily due to inadequate road infrastructure, high transportation costs, and multiple levies imposed by various government agencies (Agbo et al., 2015). Poor road conditions, particularly in rural areas, worsen during the rainy season, leading to delays, increased costs, and product spoilage (Wudad et al., 2021). Multiple taxation further compounds the problem, with farmers, traders, and transporters enduring various levies, including road taxes, market fees, and vehicle permits, collected by multiple local government bodies and regulatory agencies (Sulaiman, 2021). These financial burdens raise the overall cost of distribution, making agricultural products more expensive for consumers and reducing farmers' profitability.

Transportation regulations also influence the movement of agricultural products within the LGA. Vehicle restrictions, loading limits, and road use regulations often cause delays, while security checkpoints and mandatory inspections create additional obstacles, increasing logistics costs and reducing supply chain efficiency (Sugri et al., 2021). Although, government policies aim to boost agricultural productivity and ensure food security, the unintended side effects — poor infrastructure, multiple levies, and restrictive transport policies — undermine distribution efficiency. For instance, subsidy programs intended to support farmers may lose effectiveness when poor road networks and high taxation overshadow their benefits (Sulaiman, 2021).

This study sought to examine the impact of government policies on agricultural product distribution in Owerri-West LGA. It aims to assess how transportation policies, taxation systems, and infrastructure development influence the efficiency of moving agricultural products from farms to markets. By identifying key challenges and proposing policy recommendations, the study aspires to

contribute to enhancing agricultural distribution in the region, promoting better market access for farmers, and improving food availability for consumers. The findings will benefit policymakers, farmers, traders, transporters, and researchers by providing practical recommendations for improving agricultural supply chains in Nigeria.

Statement of the Problem

Agricultural product distribution in Owerri-West Local Government Area (LGA), Imo State, faces significant challenges that hinder the efficient movement of goods from farmers to consumers. Poor road infrastructure is a major issue, with many rural roads in deplorable condition, especially during the rainy season. This leads to transportation delays, increased fuel costs, and post-harvest losses, limiting farmers' access to urban markets, reducing profitability, and discouraging agricultural investments.

Multiple taxation and government-imposed levies seem to further complicate distribution. Farmers, traders, and transporters appear burdened with various fees, including market levies, road taxes, and licenses, which increase overall costs. These expenses are often passed on to consumers, resulting in higher food prices. Additionally, transportation regulations such as vehicle loading limits, checkpoints, and movement restrictions create logistical delays, contributing to spoilage, higher operational costs, and reduced supply chain efficiency.

The lack of adequate storage and processing facilities worsens the situation, forcing farmers to sell produce immediately after harvest at lower prices. This seems to lead to seasonal price fluctuations, food wastage, and reduced income for farmers. While government policies aim to regulate and improve agricultural distribution, they often create unintended consequences that limit market access and increase costs. This study seeks to analyze how transportation policies, taxation systems, and infrastructure development influence agricultural distribution in Owerri-West LGA and provide recommendations to improve efficiency, reduce costs, and enhance food availability.

Objective of the Study

The general objective of this study is to assess the impact of government policies on the distribution of agricultural products in Owerri-West LGA, Imo State. While the specific objectives are:

1. To examine the effect of government transportation and taxation policies on agricultural product distribution in Owerri-West LGA.
2. To assess the role of government infrastructure development in enhancing or hindering agricultural product distribution in the study area.

Conceptual Literature Review

Transportation Infrastructure

Transportation infrastructure plays a vital role in agricultural product distribution, directly impacting supply chain efficiency, market access, and costs (Olawuyi & Adetunji, 2019; Amanor & Pabi, 2020). Government investments in roads, railways, ports, and storage facilities are essential for reducing transaction costs and minimizing post-harvest losses (Eneji et al., 2017; Perdana et al., 2023). In rural areas, improved road networks encourage agricultural commercialization by connecting farmers to urban markets, enhancing profitability (Abdo et al., 2021; Ogunlela & Mukhtar, 2020). Conversely, poor infrastructure limits farmers' ability to access markets, increases transportation expenses, and contributes to product spoilage, reducing overall agricultural productivity.

Developed economies often integrate transportation infrastructure with cold-chain systems, ensuring the quality of perishable goods during transit, which helps sustain food supplies (Perdana et al., 2023; Sugri et al., 2021). However, in many developing countries, the lack of such facilities leads to significant food losses and higher costs for farmers and consumers (Ayanwale et al., 2021). Strengthening transportation infrastructure is crucial to overcoming supply chain inefficiencies, promoting rural economic

integration, and enhancing food security (Ajibefun & Daramola, 2016). By investing in better roads and transport systems, governments can improve agricultural distribution, reduce costs, and support the growth of rural economies.

Taxation and Subsidies

Taxation and subsidy policies shape the agricultural distribution landscape by influencing the cost structures and incentives for producers and distributors (Eze & Ibekwe, 2022; Nwogwugwu et al., 2023). High taxes on agricultural products at local checkpoints discourage farmers from moving products to distant markets, raising distribution costs and reducing profit margins (Oyeleke, 2021; Obi & Chikaire, 2018). Conversely, targeted subsidies can enhance agricultural distribution efficiency. For example, fuel subsidies can lower transportation costs for moving products from rural to urban centers (Sulaiman, 2021). Input subsidies, such as those for fuel and fertilizers, can indirectly improve distribution by enabling farmers to scale production and expand market access (Agbo, et al., 2015). However, subsidies can also lead to inefficiencies and distort market signals, sometimes resulting in misallocation of resources (Lencucha et al., 2020).

Regulatory Frameworks

Regulatory frameworks, encompassing laws, quality standards, licensing, and operational guidelines, are crucial for ensuring food safety and enhancing access to both domestic and export markets (Nwogwugwu et al., 2023; Oyeleke, 2021; Obi & Chikaire, 2018). While effective regulations promote market confidence and improve product quality, overly complex or costly compliance requirements can hinder smallholder farmers and informal traders, creating an uneven playing field that benefits larger agribusinesses (Perdana et al., 2023; Lencucha et al., 2020; Uhuegbulem et al., 2016). Balancing food safety with inclusive market participation is essential to ensure that regulatory systems support, rather than restrict, agricultural product distribution (Sugri et al., 2021).

Trade Policies

Trade policies, including tariffs, export bans, trade liberalization agreements, and regional integration initiatives, significantly influence agricultural distribution (International Trade Administration, 2023; Ogunlela & Mukhtar, 2020). Liberal trade policies tend to reduce distribution costs by facilitating economies of scale and specialization (Ajibefun & Daramola, 2016). Regional trade agreements help to reduce intra-regional trade barriers, leading to more efficient agricultural product flows (Perdana et al., 2023; Nwogwugwu et al., 2023). However, protectionist trade policies, including export bans and high tariffs, can lead to inefficiencies and market distortions (Obi & Chikaire, 2018). Poorly coordinated trade policies exacerbate food price volatility, negatively affecting supply chain predictability (Ayanwale et al., 2021). At the same time, regional trade agreements can facilitate cross-border distribution networks, enhancing agricultural product distribution (International Trade Administration, 2023; Oyeleke, 2021).

Synthesis of Conceptual Perspectives

Government interventions in transportation infrastructure, fiscal policies, regulatory frameworks, and trade liberalization collectively shape agricultural distribution systems, each contributing uniquely to supply chain outcomes (Perdana et al., 2023; Olawuyi & Adetunji, 2019). Infrastructure enhances connectivity (Amanor & Pabi, 2020; Eneji et al., 2017), fiscal policies drive economic incentives (Eze & Ibekwe, 2022; Sulaiman, 2021), regulations set market standards (Nwogwugwu et al., 2023; Oyeleke, 2021), and trade policies enable global market access (International Trade Administration, 2023; Ogunlela & Mukhtar, 2020). However, policy incoherence — such as trade liberalization undermined by poor infrastructure or restrictive regulations — erodes efficiency (Perdana et al., 2023; Obi & Chikaire, 2018). An integrated, balanced policy approach is crucial for improving agricultural distribution, especially in developing economies (Ajibefun & Daramola, 2016).

Theoretical Framework

This study is grounded in Institutional Theory, originally proposed by John R. Commons (1931) and later expanded by scholars such as Douglass C. North (1990) and W. Richard Scott (1995). The theory explains how institutions — including formal rules like laws and regulations, and informal norms like cultural practices — shape the behavior of individuals and organizations. Commons viewed institutions as collective actions that control individual behaviors, while North emphasized that institutions reduce uncertainty by providing structure, lowering transaction costs, and improving market efficiency. Scott further defined institutions through three pillars: regulatory (laws), normative (social values), and cultural-cognitive (shared beliefs), all of which influence how organizations function within a system.

Institutional Theory is crucial for understanding how government policies affect agricultural product distribution in Owerri-West LGA. Policies on transportation, taxation, and infrastructure act as institutional mechanisms that impact market efficiency. High transportation costs, multiple taxation, and poor infrastructure raise transaction costs, causing inefficiencies in the supply chain (North, 1990; Scott, 1995). Additionally, inadequate road networks and limited storage facilities exacerbate food spoilage and price increases (Perdana et al., 2023; Sugri et al., 2021). Farmers and traders often conform to excessive levies to avoid disruptions, illustrating how institutional pressures influence economic behaviors (Scott, 1995; Obi & Chikaire, 2018). The study aligns with Institutional Theory's assertion that institutional structures significantly influence market outcomes. It underscores the need for policy reforms, such as streamlining taxation, improving road infrastructure, and reducing informal levies, to create a more efficient agricultural distribution system (Oyeleke, 2021; Lencucha et al., 2020). By addressing these regulatory barriers and lowering transaction costs, government interventions can enhance food security and economic sustainability in Owerri-West LGA (Nwogwugwu, et al., 2023; North, 1990). This

highlights the vital role of governance in shaping the efficiency and sustainability of agricultural distribution, reflecting Institutional Theory's emphasis on the power of institutional structures (Scott, 1995; Commons, 1931).

Empirical Review

Several empirical studies have examined the relationship between government policies and agricultural product distribution, particularly focusing on the roles of transportation policies, taxation, infrastructure development, and market efficiency. A study by Ajibefun and Daramola (2016) on agricultural supply chain inefficiencies in Nigeria revealed that government policies, especially those relating to taxation and transportation, significantly hinder the smooth distribution of agricultural products. The study found that multiple layers of formal and informal taxation increase distribution costs by up to 30%, reducing farmers' profitability and discouraging investment in rural agriculture. The authors stressed that these inefficiencies disproportionately affect smallholder farmers, who constitute the majority of producers in Nigeria.

Similarly, Obi and Chikaire (2018) in their study of agricultural product distribution in Imo State found that inconsistent policies and weak enforcement mechanisms at the local government level have created loopholes for rent-seeking behaviors by non-state actors, such as informal toll collectors and vigilante groups. The study concluded that uncoordinated taxation practices and poor governance contribute to product wastage, price hikes, and market dislocation, especially during peak harvest periods.

Olawuyi and Adetunji (2019) investigated the impact of transportation infrastructure on food distribution in rural Nigeria. Their findings indicate that poor road conditions account for up to 40% of distribution inefficiencies in rural agricultural markets. The study demonstrated that farmers in areas with poor road networks face higher transportation costs, leading to reduced market access, product spoilage, and post-harvest losses. They recommended that governments prioritize rural infrastructure as part of broader agricultural policy reforms to enhance food supply chain efficiency.

Further, Ogunlela and Mukhtar (2020) conducted a study on rural transport challenges in Northern Nigeria. Their research established that transportation bottlenecks caused by inadequate road infrastructure, coupled with rising fuel prices, contribute significantly to the high costs of agricultural distribution. The authors noted that the lack of investment in rural transportation networks perpetuates poverty by limiting farmers' ability to connect with profitable markets.

A comprehensive study by Ayanwale et al. (2021) on infrastructure and agricultural market performance in Southwest Nigeria revealed that the absence of key infrastructure—such as storage facilities, agro-processing centers, and rural roads—hinders the efficient flow of agricultural goods. The research found that areas with better infrastructure experienced 25-30% lower transaction costs and higher levels of product availability. The study emphasized that infrastructure directly impacts food security, farmer income, and rural livelihoods.

Eneji et al. (2017) also examined the role of government-driven infrastructural development on agricultural value chains in Nigeria. Their findings revealed that the lack of storage facilities leads to significant post-harvest losses, estimated at 35% annually for perishable goods. The study further established that infrastructural deficiencies have long-term effects on food inflation, consumer affordability, and regional trade competitiveness.

Eze and Ibekwe (2022) conducted a recent study on the impact of multiple taxation on agricultural product distribution in Southeastern Nigeria. The study found that excessive levies by local councils and state agencies account for approximately 20% of the total cost of agricultural products. The authors observed that traders often transfer these costs to consumers, making agricultural products less affordable and creating inefficiencies in the distribution network. They recommended harmonization of taxation policies to promote smoother and more affordable distribution processes.

Amanor and Pabi (2020) studied agricultural product distribution challenges in Ghana, with a focus on transportation and infrastructure. Their research found similarities with Nigeria's situation, including high distribution costs due

to poor roads and weak regulatory enforcement. Their study reinforced the argument that weak infrastructure and fragmented policy environments lead to substantial post-harvest losses and limit rural farmers' access to urban markets.

Gaps in the Reviewed Literature

The reviewed literature reveals several gaps in research on agricultural product distribution in Owerri-West LGA. First, most studies focus on broader regions rather than localized challenges specific to Owerri-West. Additionally, while government policies are widely examined, there is limited research on their direct impact on distribution networks, including transportation and storage. The role of private sector participation remains underexplored, as studies mainly emphasize government interventions. Furthermore, policy implementation challenges are not comprehensively analyzed, and empirical studies relying on primary data, such as field surveys and farmer interviews, are scarce.

Method of the Study

The study adopted a descriptive survey research design to examine the impact of government

policy on agricultural product distribution in Owerri-West LGA, Imo State. The population comprised farmers, traders, transporters, and government officials, with a sample size of 520 respondents selected using purposive and stratified random sampling techniques. Data were collected through a structured questionnaire that was validated by experts and pilot-tested for reliability, yielding a Cronbach Alpha coefficient of 0.82. The questionnaire captured key demographic variables including category (farmer, trader, transporter, government official), gender (male, female), occupation, and years of experience in agricultural distribution (1–5 years, 6–10 years, and above 10 years). The instrument was administered with the help of trained research assistants over a two-week period. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to analyze the data, while Chi-square tests were applied to test hypotheses at a 0.05 level of significance. The decision rule was to reject the null hypothesis if the calculated Chi-square value was greater than the critical value or if the p-value was less than 0.05, indicating statistical significance.

Data analysis and presentation

Table 1
 Demographic Profile of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	320	61.5
	Female	200	38.5
Occupation	Farmers	230	44.2
	Traders	160	30.8
	Transporters	110	21.2
	Government officials	20	3.8
Years of Experience	1-5 years	150	28.8
	6-10 years	200	38.5
	Above 10 years	170	32.7

Note. Source: Field survey, 2025.

As shown in Table 1 above, out of 520 respondents. 320 were male, making up 61.5% of the total participants. Female respondents were 200 in number, accounting for 38.5%. This shows that the majority of the respondents were male. The respondents were engaged in different occupations. Farmers made up the

largest group with 230 respondents (44.2%), followed by traders with 160 respondents (30.8%). Transporters were 110 in number, making up 21.2% of the respondents. Only a small portion, 20 respondents (3.8%), were government officials. This suggests that most of the participants were self-employed or involved

in informal sector jobs. Regarding years of experience, 150 respondents (28.8%) had between 1 to 5 years of experience in their field. A larger group, 200 respondents (38.5%), had worked between 6 to 10 years, while 170

respondents (32.7%) had over 10 years of experience. This distribution indicates that the majority of participants had a significant amount of work experience, especially those with over 6 years.

Descriptive and Inferential

Table 2
Impact of Government Transportation and Taxation Policies

Statement	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)
High transportation cost affects agricultural distribution	250 (48.1%)	180 (34.6%)	40 (7.7%)	30 (5.8%)	20 (3.8%)
Government taxation policies increase the cost of selling farm produce	270 (51.9%)	160 (30.8%)	30 (7.7%)	40 (7.5%)	20 (3.8%)
Multiple taxation by local authorities negatively impacts market accessibility	260 (50.0%)	170 (32.7%)	40 (7.7%)	30 (5.8%)	20 (3.8%)

The data in Table 2 shows that the majority of respondents believe government transportation and taxation policies negatively affect agricultural distribution and market access. Most respondents (48.1% strongly agreed and 34.6% agreed) indicated that high transportation costs hinder the effective distribution of farm produce. Similarly, 51.9% strongly agreed and

30.8% agreed that government taxation policies increase the cost of selling agricultural products. Additionally, 50% strongly agreed and 32.7% agreed that multiple taxation by local authorities negatively impacts market accessibility. These results suggest that transportation expenses and taxation practices are major challenges faced by farmers and traders in the agricultural sector.

Table 3
Impact of Infrastructure Development

Statement	SA n (%)	A n (%)	N n (%)	D n (%)	SD n (%)
Poor road network can delay in transporting farm produce	280 (53.8%)	180 (34.6%)	30 (5.8%)	20 (3.8%)	10 (1.9%)
Lack of storage facilities leads to post-harvest losses	250 (48.1%)	170 (32.7%)	40 (7.7%)	40 (7.7%)	20 (3.8%)
Market infrastructure development improves agricultural distribution	240 (46.2%)	180 (34.6%)	50 (9.6%)	30 (5.8%)	20 (3.8%)

The data in Table 3 highlights the impact of infrastructure development on agricultural activities. A large number of respondents (53.8% strongly agreed and 34.6% agreed) believe that poor road networks cause delays in transporting farm produce. Additionally, 48.1%

strongly agreed and 32.7% agreed that lack of storage facilities leads to post-harvest losses, showing concern about the preservation of agricultural products. Furthermore, 46.2% strongly agreed and 34.6% agreed that developing market infrastructure can improve

the distribution of farm produce. Overall, the responses indicate that inadequate infrastructure, such as roads, storage, and market facilities, significantly hinders agricultural efficiency and distribution.

Inferential Analysis (Hypothesis Testing)

Table 4
Chi-Square Test for the Impact of Transportation and Taxation Policies on Agricultural Product Distribution

Variable	χ^2 (Chi-square) Value	p-Value	Decision
Transportation & taxation policies	18.42	0.0002	Reject H_{01}

Since $p < .05$, the null hypothesis is rejected, indicating that government transportation and taxation policies significantly impact agricultural product distribution.

Table 5
Chi-Square Test for the Impact of Government Infrastructure Development on Agricultural Product Distribution

Variable	χ^2 (Chi-square) Value	p-Value	Decision
Infrastructure development	21.15	0.0001	Reject H_{02}

Since $p < 0.05$, the null hypothesis is rejected, suggesting that infrastructure development significantly influences agricultural product distribution.

Discussion of Results

The findings of Hypothesis 1, which states that government transportation and taxation policies significantly affect agricultural product distribution, align with several empirical studies. For instance, Ajibefun and Daramola (2016) highlight that multiple layers of taxation and poor transportation infrastructure increase distribution costs, making agricultural goods less profitable and discouraging investment in rural areas. Similarly, Obi and Chikaire (2018) emphasize how weak enforcement mechanisms at the local government level, coupled with inconsistent policies, create inefficiencies,

A Chi-square test was used to test the research hypotheses.

Hypothesis 1: Government transportation and taxation policies do not significantly affect agricultural product distribution in Owerri-West LGA.

Hypothesis Two

H_{02} : Government infrastructure development does not have a significant impact on agricultural product distribution in the study area.

including rent-seeking behaviors, which disrupt the agricultural distribution system. Contrastingly, Amanor and Pabi (2020) in their study of Ghana, argue that although taxation and transportation issues are challenging, they are not the only factors affecting distribution, suggesting that governance and other systemic inefficiencies are also at play. Despite this, the study reinforces the critical role of policy in distribution efficiency.

Hypothesis 2, which suggests that government infrastructure development significantly influences agricultural product distribution, is strongly supported by existing literature. **Olawuyi and Adetunji (2019)** found that poor road conditions significantly hinder transportation efficiency, contributing to higher transportation costs and post-harvest losses in rural Nigeria. Similarly, **Ayanwale et al. (2021)** revealed that regions with better infrastructure

experienced lower transaction costs and higher product availability, supporting the idea that infrastructure plays a vital role in agricultural distribution. In contrast, Eneji et al. (2017) highlight that while infrastructure is essential, its absence alone may not be the sole reason for distribution inefficiencies, as other factors like market dynamics and governance also influence distribution. Nonetheless, the majority of studies align with the importance of infrastructure development in reducing distribution barriers.

Conclusion and Recommendations

The study concludes that government policies on transportation, taxation, and infrastructure development significantly influence agricultural product distribution in Owerri-West LGA. While some policies aim to enhance distribution efficiency, challenges persist due to inconsistent taxation, poor road networks, and inadequate storage facilities. These issues increase costs, cause delays, and contribute to post-harvest losses. Addressing these gaps through improved road infrastructure, streamlined tax policies, and better storage systems is essential for enhancing agricultural distribution, reducing waste, and ensuring food security in the region.

Based on the study's findings, the following recommendations are proposed to improve agricultural product distribution in Owerri-West LGA:

1. The government should reduce multiple taxes on farmers and traders, repair rural and urban roads, and regulate transport costs while providing subsidies or incentives to agricultural transporters to lower distribution expenses.
2. Farmers and traders should form cooperative societies to negotiate better costs and access support programs, adopt modern storage methods to reduce losses, and leverage e-commerce platforms and social media to expand their market reach.
3. Transporters should invest in durable vehicles suited for carrying perishable goods, collaborate with local governments to push for better road maintenance, and advocate for reduced transport levies.

References

- Agbo, F. U., Iroh, I. I., & Ihemezie, E. J. (2015). Access to credit by vegetable farmers in Nigeria: A case study of Owerri Agricultural Zone of Imo State, Nigeria. *Asian Journal of Agricultural Research*, 9(3), 155–165.
- Ajibefun, I. A., & Daramola, A. G. (2016). Determinants of agricultural supply chain inefficiencies in Nigeria: A case study of rural agricultural markets. *Journal of Development and Agricultural Economics*, 8(3), 50–59.
- Amanor, K., & Pabi, O. (2020). Transportation infrastructure and agricultural market linkages in rural Ghana. *African Journal of Economic Policy*, 27(3), 90–107.
- Ayanwale, A. B., Ojo, O. A., & Oyekunle, J. O. (2021). Infrastructure and agricultural market performance in Southwest Nigeria. *International Journal of Agricultural Policy and Research*, 9(1), 1–12.
- Commons, J. R. (1931). Institutional economics. *American Economic Review*, 21, 648–657.
- Douglass, C. N. (1990). *Institutions, institutional change and economic performance* (p. 33). Cambridge University Press.
- Eneji, M. A., Mai-Lafia, D., & Weiping, S. (2017). Government infrastructure and agricultural value chains in Nigeria. *Journal of Sustainable Development Studies*, 10(2), 45–58.
- Eze, C. E., & Ibekwe, U. C. (2022). Multiple taxation and agricultural product distribution in Southeastern Nigeria. *Nigerian Journal of Agricultural Economics and Extension Research*, 13(4), 33–49.
- International Trade Administration. (2023). *Nigeria - Market overview*. U.S.

- Department of Commerce.
<https://www.trade.gov/country-commercial-guides/nigeria-market-overview>
- Lencucha, R., Pal, N. E., Appau, A., Thow, A.-M., & Drope, J. (2020). Government policy and agricultural production: A scoping review to inform research and policy on healthy agricultural commodities. *Global Health, 16*(11), 1–15. <https://doi.org/10.1186/s12992-020-0542-2>
- Nwogwugwu, U. C. C., Nwokoye, E., & Osai, V. A. (2023). The role of agriculture in economic development in Nigeria. *Journal of International Economic Relations and Development Economics, 3*(1), 103–111.
- Obi, K. E., & Chikaire, J. (2018). Inconsistent policies and agricultural distribution challenges in Imo State. *Nigerian Journal of Rural Sociology, 19*(2), 74–83.
- Ogunlela, Y. I., & Mukhtar, A. A. (2020). Rural transport and agricultural product distribution: The case of Northern Nigeria. *African Journal of Agricultural Research, 15*(8), 1197–1206.
- Olawuyi, S. O., & Adetunji, M. O. (2019). Transportation infrastructure and food distribution in rural Nigeria: Empirical evidence from Osun State. *Journal of Transport and Logistics, 6*(1), 45–60.
- Oyeleke, R. (2021). An overview of federal government policies and programmes for food security in Nigeria. *Economic and Financial Review, 59*(4), 53–65.
- Perdana, T., Kusnandar, K., Perdana, H. H., & Hermiatin, F. R. (2023). Circular supply chain governance for sustainable fresh agricultural products: Minimizing food loss and utilizing agricultural waste. *Sustainable Production and Consumption, 41*, 391–403. <https://doi.org/10.1016/j.spc.2023.09.001>
- Scott, W. R. (1995). *Institutions and organizations*. SAGE Publications.
- Sugri, I., Abubakari, M., Owusu, R. K., & Bidzakin, J. K. (2021). Postharvest losses and mitigating technologies: Evidence from Upper East Region of Ghana. *Sustainable Futures, 3*, 100048. <https://doi.org/10.1016/j.sftr.2021.100048>
- Sulaiman, Y. A. (2021). Refocusing agricultural subsidy for food security in Nigeria. *Central Bank of Nigeria Economic and Financial Review, 59*(4), 159–196.
- Uhuegbulem, I. J., Henri-Ukoha, A., Osuji, M. N., Ukoha, I. I., & Oshaji, I. O. (2016). Determinants of savings among small-scale food crop farmers in Owerri West Local Government Area of Imo State, Nigeria. *Journal of Agriculture and Social Research (JASR), 16*(1), 16–24.
- Wudad, A., Naser, S., & Lameso, L. (2021). The impact of improved road networks on marketing of vegetables and households' income in Dedo district, Oromia regional state, Ethiopia. *Heliyon, 7*(10), e08173. <https://doi.org/10.1016/j.heliyon.2021.e08173>

SOFT SKILLS AS A PREDICTOR OF ACADEMIC STAFF JOB PERFORMANCE IN PUBLIC COLLEGES OF EDUCATION IN OGUN STATE

GARUBA Qudus Ajibola

garubaqa@tasued.edu.ng

Department of Educational Management,
College of Specialised and Professional Education,
Tai Solarin University of Education,
Ijagun, Ogun State.

Abstract

The success of any educational institution depends largely on the effectiveness and efficiency of its academic staff. The study therefore examined how soft skills predicted academic staff job performance in public colleges of education in Ogun State. The descriptive research of survey type was adopted for the study and the population of the study comprised all the 497 academic staff in the two public colleges of education in Ogun State. The sample of the study was 250 academic staff which was selected using simple random sampling technique. Two researcher-self developed questionnaires tagged Soft Skill Questionnaire (SSQ) and Academic Staff Job Performance Questionnaire (ASJPO) were used to gather data. The instruments were validated by experts in the field of Measurement and Evaluation, Tai Solarin University of Education and the reliability co-efficient of the instruments were .74 and .70 respectively. The data collected were analyzed using Pearson Product Moment Correlation (PPMC) and the hypotheses were tested at .05 level of significance. The findings revealed that there was significant relationship between emotional intelligence and academic staff job performance ($r = .533, p < .05$); that there was significant relationship between emotional intelligence and academic staff job performance ($r = .718, p < .05$); that there was significant relationship between emotional intelligence and academic staff job performance ($r = .765, p < .05$). Lastly, that there was significant relationship between communication skills and academic staff job performance ($r = .659, p < .05$). The study therefore concluded that soft skills are crucial for effective teaching, efficient management of academic responsibilities, and fostering positive relationships with students and colleagues. It is therefore recommended that Open communication should be encouraged through feedback mechanisms, active listening exercises, and teaching aids can ensure clearer interactions with students and colleagues, thereby enhancing job performance.

Keywords: *Soft skills, Academic Staff Job Performance, Emotional Intelligence, Problem Solving Skills, Leadership Skills, Communication Skills*

Introduction

Colleges of Education in Nigeria are established to perform three core functions: teaching, research, and community service. To achieve these core mandates, this subset of higher education institutions requires professionally productive lecturers to impart useful knowledge and skills to students that are expected to teach in primary and secondary schools within and outside Nigeria, after their graduation (Oke, 2021). Also, lecturers are also expected to provide community services towards the growth and development of the nation

locally and internationally, aside their teaching and research outputs. However, it appears that the operation of colleges of education in Nigeria has not yet met the expectations of their stated goals and objectives. Adebayo and Akinwumi (2013), and Jaiyeoba and Atanda (2014) observed that the day to day activities of lecturers in colleges of education has not brought about the practical achievement of their core functions as stated in the national policy on education due to the perceived low teaching, research and community service experienced among them.

The job performance of academics is critical to the realization of college of education objectives. Ogunode and Eimuhi (2023) defined academic staff job performance as constituting all activities and functions expected of an academic to execute within a specific time. It has to do with the abilities of the academic to fulfil his/her duties in the institutions. Academic staff job performance means assigned responsibilities and functions given to an academic staff to actualize the aims and objectives of the institutions and the degree of execution or accomplishment. Job performance is the result of individual or group work that shows the level of achievement of job qualifications in organizations aimed to meet organizational goals (Al- Omari & Okasheh, 2017). Ogunode et al. (2023) defined job performance of academic staff as all non-teaching services done at a particular time. The job performance of academic staff matters in tertiary institutions because without their services the academic staff cannot go far in the attainment of teaching, researching and provision of community services.

In this present technological change, lecturers must disseminate good knowledge that will enable the learners to meet up with this present challenges. Yasmeeen Bano (2019) reported that every educational institution needs to shift their focus from theoretical knowledge to the skill-based education with practical and dynamic methods. It was further submitted that educational institutions should try as much as possible to focus on behavioural aspects such as leadership skills, emotional intelligence, communication skills, and problem solving skills that will play the main role in the success of a learner. This implies that soft skills should be embedded in the school curriculum for effectiveness of both the lecturers and students.

Soft skills are personal trait that enhances lecturers' interaction and performance in teaching. More importantly, soft skill is one of the components to improve quality teaching in educational system. For lecturers to perform and for effective and efficient result of educational objectives to be achieved, there is need for acquisition of soft skills. Soft skills are skills which characterise relationship with other people, or which are about how an individual approaches life and work. Ginting (2016) defined soft skills as intra- and inter-personal (socio-emotional) skills, essential for personal development, social participation and workplace success. Bellanca and

Brandt (2010) described soft skills as social and emotional capabilities that shape people's attitudes and behaviours. Employers consider this form of soft skills essential in the workplace, as artificial intelligence alters how people process and perform routine tasks in the workplace. Soft skills are uniquely human skill that machines cannot replicate. Cimatti (2016) referred to soft skills as character traits and personality skills that influence individuals' perceptions. In respect to this study, indicators such as emotional intelligence, problem solving skill, communication skill and leadership skill were used to measure soft skill.

Emotional intelligence (EI) is the ability to recognize, understand, manage, and use emotions effectively in oneself and others. People with high emotional intelligence are typically good at navigating social complexities, managing stress and making decisions that consider both logic and emotion. Intelligence among lecturers refers to their ability to understand, manage and effectively express their own emotions, as well as understand and respond to the emotions of their students and colleagues. It involves skills such as empathy, self-awareness, self-regulation, motivation, and social skills, which are essential for creating a positive and supportive learning environment. For lecturers, high emotional intelligence can enhance classroom management, improve relationships with students, and foster a learning atmosphere where students feel respected and motivated. When lecturers exhibit emotional intelligence, they will be better at handling conflicts, adapting to different personalities and learning styles and providing constructive feedback. This can lead to better student engagement, increased academic success, and a stronger overall connection between lecturers and students (Odunukwe et al., 2024). Also, Sambu (2019) opined that emotional intelligence is the cognitive dexterity an individual exhibits in managing his/her emotions that promote good thinking. In order words, it is the potentiality or expertness to precisely see feelings, to get to and create feelings, to help thought, to get feelings and passionate learning, and proactively responds to it.

Another important indicator of soft skill is problem-solving skill. Problem-solving skills involve how lecturers approach problems methodically, starting from known concepts and progressing to unknown ones, to enhance proficiency in teaching and learning. This skill encompasses the ability to identify a problem,

brainstorm and analyze potential solutions, and implement the most effective one. Chileya et al. (2020) described it as a process of working towards solutions to a problem. The problem-solving method in teaching involves strategies used to address and resolve issues. Problem-solving skills enable individuals to find meaningful solutions using effective and timely strategies. As Wang (2021) noted, problem-solving is prevalent in modern life and is crucial for overcoming daily challenges. According to Wilson (2020), problem-solving skills include a set of techniques for investigating phenomena, acquiring new knowledge, or correcting and integrating previous knowledge. This approach emphasizes lecturers' creativity and innovative thinking. It also aids lecturers in making instructional decisions, allowing students to learn at their own pace and explore problems independently. Problem-solving skills are essential for success in academic pursuits, professional endeavours, and everyday life, as they involve identifying challenges, generating and evaluating potential solutions, and implementing effective strategies.

Also, leadership skill is another indicator of soft skill. Adedigba (2019) submitted that leadership skill is the key to transform persistently low-performing classroom or group of students to high performing learners. Leadership skills give the lecturer the autonomy to manage and organise the classroom in such a way that he/she prefers to handle it that will make the learners to get along. Leadership skills have been associated with 21st century skills that are imperative for instructors whose pursuit is in a high performance environment, which will promote their efficiency (Tang, et al., 2015). Leadership skills play a vital role in lecturers' job effectiveness. These leadership skills are expected of lecturers to be zealous in performing their duties, loyalty to duty, delegating duties to right persons (students), diligence in supervision of student groups and classroom work, punctuality at classroom, and enthusiasm at work when in the classroom.

Another indicator of soft skill is communication skill. Communication skill is one of the essential tools in teaching. Lecturers use it as a means of impacting necessary knowledge to the learners in order to achieve educational objectives. It builds relationship between the lecturers and the

learners. This skill involves ability of the lecturers to communicate with his/her learner in such a way that can be understood before learning can take place. Lecturers' job performance comes in when the learner can interpret what the lecturers have communicated. Therefore, teaching profession is a social interaction in form of collaboration between instructors and learners (Lim, et al., 2013). The lecturer is expected to get his/her idea communicated to the learners without any ambiguity or misconception. This will assist the learners to understand and interpret correctly the intention of the lecturer. According to Alamgir et al. (2017), lecturers need good communication skills for facilitating the students and achieving good professional goals. They went further that performance of lecturers in the classroom totally depends upon the communication skills and that if the lecturer has good communication skills then he/she can easily convey his/her message or deliver the lecture in an understandable manner. This means that effective teaching cannot take place without effective communication skills. Ability of the lecturers to communicate well will enhance good performance of students in the school system. Communication skills involve oral, listening and speaking as well as reading and writing. Conceptually, good communication skills of lecturers are the basic need of academics' success of learners and professional success of life.

Statement of the Problem

In Ogun State, public colleges of education are faced with challenges such as declining instructional quality, inadequate mentorship for students and limited collaboration among staff. These issues may be linked to a lack of emphasis on soft skills, which are crucial for creating a cohesive and productive academic environment. The success of any educational institution depends largely on the effectiveness and efficiency of its academic staff. While technical expertise and subject knowledge are essential, soft skills such as emotional intelligence, problem solving skills, leadership skills and communication skills play a critical role in enhancing job performance. It is against this backdrop that the study examined how soft skills predicted academic staff job performance in public colleges of education in Ogun State.

Objectives of the Study

The main objective of the study was to

examine how soft skills predicted academic staff job performance in public colleges of education in Ogun State. Specifically, the study:

1. examined the relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State;
2. found the relationship between problem solving skill and academic staff job performance in public colleges of education in Ogun State;
3. established the relationship between leadership skill and academic staff job performance in public colleges of education in Ogun State;
4. ascertained the relationship between communication skill and academic staff job performance in public colleges of education in Ogun State;

Hypotheses

The following hypotheses formulated were tested in the study at .05 level of significance:

Ho₁: There is no significant relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State

Ho₂: There is no significant relationship between problem solving skill and academic staff job performance in public colleges of education in Ogun State

Ho₃: There is no significant relationship between leadership skill and academic staff job performance in public colleges of education in Ogun State

Ho₄: There is no significant relationship between communication skill and academic staff job performance in public colleges of education in Ogun State

Literature Review

Macquail et al. (2021) assessed whether the soft skills curriculum and instruction course has been effectively implemented in university teacher education programmes. The study was theory based designed to inculcate soft skills in would-be teachers within two semesters. The study used questionnaires and performed data analysis by way of partial least square structural

equation modelling (PLS-SEM) using SmartPLS software in a non-experimental procedure with a total of 722 prospective teachers. The analysis revealed that prospective teachers gained moderate soft skills, which, in turn, benefited them in classroom control and, ultimately, teaching success in terms of lesson planning, development, and results. The study suggested that the PLS-SEM model shows that participation in the curriculum and instruction course generates different kinds of benefits to teachers at the same time.

Wey-Amaehwule and Ogbonna (2024) examined emotional intelligence and effective job performance among lecturers of educational management in Rivers State Universities. The study was guided by three specific objectives, research questions, and hypotheses. A correlational design was employed for the research. The population of the study consisted of 104 lecturers of Educational Management in the 2023/2024 academic session, given the manageable size population, census sampling technique was adopted for the study. The instrument used for data collection was self-developed questionnaires, which were validated by three experts, two in the Department of Educational Management and one in Measurement and Evaluation all in Rivers State University. The reliability of the instrument was done with the aid of Pearson Product Moment Correlation (PPMC), resulting in coefficient index of .83 for the Educational Management Lecturers' Emotional Intelligence Questionnaire and .76 for the Effective Job Performance in Rivers State Questionnaire. The finding of the study showed that a positive relationship exists between self awareness, self-motivation, social skills and Effective Job Performance among Educational Management lecturers in Rivers State. Based on the findings, the study recommended that institutions should recognize and reward self-motivated behavior, provide professional development opportunities and set achievable goals to enhance lecturers' job performance. Additionally, institutions should also implement training programmes focused on communication, teamwork, and conflict resolution, fostering a supportive environment for constructive conflict management among students and staff for effective job performance.

Asogwa and Oboreh (2024) investigated

the effect of emotional intelligence on academic staff job performance of Federal Universities in the South East, Nigeria. The specific objectives were: to determine the extent to which self-awareness relates to academic staff job performance, to ascertain the extent to which self-management relates to academic staff job performance, and to establish the extent to which social awareness relate to academic staff job performance of federal universities in the south East, Nigeria. Correlation research design was employed because the study sought to establish the degree or extent of the relationships among the studied variables and the data were gotten through structured questionnaire designed in five-point Likert scale. The data collected was analyzed with Pearson Correlation Coefficient. The result indicated that there was positive and significant relationship between self-awareness and academic staff job performance ($r = .65, p < .05, n = 496$), that there was positive and significant correlation between self-management and academic staff job performance ($r = .59, p < .05, n = 496$), and that there was positive and significant relationship between social awareness and academic job performance ($r = .45, p < .05, n = 496$). The implication was that a holistic understanding of the dimensions of emotional intelligence would not only enable the individual workers to effectively manage their emotions but help the workers to overcome challenges and defuse conflict in pursuance to the attainment of goal.

Umirih and Oluwu (2023) investigated teachers' soft skills and job engagement in public secondary schools in Delta State, Nigeria. Two research questions and two hypotheses guided the study. The study adopted a correlational design. The population comprised 7,086 teachers in the 254 public senior secondary schools in the 25 Local Government Areas of Delta State. A sample of 379 teachers was drawn from 30 schools. The instruments that were used for data collection in this study were two self-structured questionnaire "Teacher's Soft Skills Questionnaire (TSSQ)" and "Job Engagement Questionnaire (JEQ)" developed by the researcher. The face and content validities of the instruments were assured by four experts in the Faculty of Education and the reliability coefficient was obtained using Cronbach method to determine the internal consistency of the instrument, which yielded a co-

efficient of .84 for the independent variable and .76 for the dependent variable. 398 copies of the questionnaire were administered but 379 copies were fully filled and retrieved. The research questions were answered using simple regression while the hypotheses were tested using t-test associated with simple regression at .05 level of significance. The findings revealed that communications skills and leadership skills predicted job engagement in public secondary schools in Delta State to high extent. Also, they both significantly predicted job engagement of teachers. Based on the findings of the study, the researcher recommended that teachers should ensure that they communicate properly in schools and also expect feedback. They should show good leadership qualities by attending to issues arising in schools promptly and giving room for students to air their views.

Oluwalola and Awodiji (2021) linked soft skills to business education teachers' job effectiveness. Three research questions guided the study. The study population included all the secondary school principals, Vice principals, Heads of Department and students that offer business education related subjects in Ilorin Metropolis, Nigeria. Random sampling and stratified techniques were used to select 316 participants. The study used adapted structured questionnaires tagged "Teachers' Soft Skills Questionnaire (TSSQ)" and Business Education Teachers' Job Effectiveness Questionnaire (BETJEQ). The study used descriptive statistics to answer the research questions and Pearson Products Moment Correlation (PPMC) to test hypotheses. The study found the level of business education teachers' soft skills and their job effectiveness to be high at 70.6% and 64.6 %. Also, the result revealed a strong, positive linkage between the two variables, $r = .866, n = 316, p < .000$. By implication, soft skills will promote teachers' job effectively positively. That is, the higher the soft skills in the teachers, the better their effectiveness. Therefore, the study recommended for practice based on the findings that special training in form of workshop should be organised for Business education teachers on regular basis by government in collaboration with professional bodies to promote up-to-date soft skills that are transferable and promote teaching effectiveness.

Methodology

The descriptive research of survey type was adopted for the study and the population of the study comprised all the 497 academic staff in the two public colleges of education in Ogun State. The sample of the study was 250 academic staff which was selected using simple random sampling technique. Two researcher-self developed questionnaires tagged Soft Skill Questionnaire (SSQ) and Academic Staff Job Performance Questionnaire (ASJPQ) were used to gather data. The reliability co-efficient of the

instruments were .74 and .70 respectively. The data collected were analyzed using Pearson Product Moment Correlation (PPMC) and the hypotheses were tested at .05 level of significance.

Results and Discussion

H₀₁: There is no significant relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State:

Table 1: Summary of PPMC on the relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State

Variables		Emotional Intelligence	Academic staff Job Performance
Emotional Intelligence	Pearson	1	.533
	Correlation		
	Sig. (2-tailed)		.000
	N	250	250
Academic staff Job Performance	Pearson	.533	1
	Correlation	.000	
	Sig. (2-tailed)		
	N	250	250

Table 1 summarizes the findings of a Pearson Product Moment Correlation analysis of the relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State. A correlation coefficient of $r = .533$ indicates a moderate degree of relationship between the two variables. There is a significant relationship between emotional

intelligence and academic staff job performance in public colleges of education in Ogun State.

H₀₂: There is no significant relationship between problem solving skills and academic staff job performance in public colleges of education in Ogun State:

Table 2: Summary of PPMC on the relationship between problem solving skills and academic staff job performance in public colleges of education in Ogun State

Variables		Problem Solving Skills	Academic staff Job Performance
Problem Solving Skills	Pearson	1	.718
	Correlation		
	Sig. (2-tailed)		.000
	N	250	250
Academic staff Job Performance	Pearson	.718	1
	Correlation	.000	
	Sig. (2-tailed)		
	N	250	250

Table 2 summarizes the findings of a Pearson Product Moment Correlation analysis of the relationship between problem solving skills and academic staff job performance in public colleges of education in Ogun State. A correlation coefficient of $r = .718$ indicates a high degree of relationship between the two variables. There is a

significant relationship between problem solving skills and academic staff job performance in public colleges of education in Ogun State.

H₀₃: There is no significant relationship between leadership skills and academic staff job performance in public colleges of education in Ogun State:

Table 3: Summary of PPMC on the relationship between leadership skills and academic staff job

performance in public colleges of education in Ogun State

Variables		Leadership Skills	Academic staff Job Performance
Leadership Skills	Pearson	1	.765
	Correlation		
	Sig. (2-tailed)		.000
	N	250	250
Academic staff Job Performance	Pearson	.765	1
	Correlation	.000	
	Sig. (2-tailed)		
	N	250	250

Table 3 summarizes the findings of a Pearson Product Moment Correlation analysis of the relationship between leadership skills and academic staff job performance in public colleges of education in Ogun State. A correlation coefficient of $r = .765$ indicates a high degree of relationship between the two variables. There is a

significant relationship between leadership skills and academic staff job performance in public colleges of education in Ogun State.

Ho₄: There is no significant relationship between communication skills and academic staff job performance in public colleges of education in Ogun State:

Table 4: Summary of PPMC on the relationship between communication skills and academic staff job performance in public colleges of education in Ogun State

Variables		Communication Skills	Academic staff Job Performance
Communication Skills	Pearson	1	.659
	Correlation		
	Sig. (2-tailed)		.000
	N	250	250
Academic staff Job Performance	Pearson	.659	1
	Correlation	.000	
	Sig. (2-tailed)		
	N	250	250

Table 4 summarizes the findings of a Pearson Product Moment Correlation analysis of the relationship between communication skills and academic staff job performance in public colleges of education in Ogun State. A correlation coefficient of $r = .659$ indicates a high degree of relationship between the two variables. There is a significant relationship between communication skills and academic staff job performance in public colleges of education in Ogun State.

Discussion of Findings

The first hypothesis revealed that there was a significant relationship between emotional intelligence and academic staff job performance in public colleges of education in Ogun State. The result supported the findings of Obiora and Igbinoba (2020) who found that emotional intelligence positively influences job satisfaction, organizational commitment, and productivity among academic staff in Nigeria. Their study revealed that lecturers with strong emotional intelligence were more effective in managing classroom dynamics, fostering positive student relationships, and meeting institutional goals.

The second hypothesis revealed that there was a significant relationship between problem solving skills and academic staff job performance in public colleges of education in Ogun State. The result corroborates with the findings of Adeoye and Elegbeleye (2021) that investigated the impact of problem-solving skills on teacher effectiveness in Nigerian higher institutions and found a positive relationship. The result also revealed that lecturers with strong analytical and critical thinking skills were more effective in delivering quality education, and achieving desired learning outcomes. In addition, Adeniran and Onuoha (2020) found that problem-solving skills significantly improve academic staff's ability to manage conflict, enhance student engagement, and meet institutional objectives. They emphasized that fostering problem-solving skills among lecturers could lead to better decision-making and improved academic outcomes.

The third hypothesis revealed that there was a significant relationship between leadership skills and academic staff job performance in public colleges of education in Ogun State. The

result agreed with the findings of Ogundele et al. (2022) who examined the role of leadership skills in enhancing lecturer effectiveness in Nigerian colleges of education. Their findings confirmed that leadership skills, such as conflict resolution, strategic planning, and team coordination, significantly influence lecturers' ability to meet academic and administrative goal.

The fourth hypothesis revealed that there was a significant relationship between communication skills and academic staff job performance in public colleges of education in Ogun State. The result supported the findings of Hargie (2016) emphasized that communication is the backbone of teaching and learning processes. Academic staff with strong communication skills are better equipped to explain complex concepts, engage students, and foster an interactive learning environment, which enhances their overall job performance. Similarly, communication skills help lecturers convey expectations, provide constructive feedback, and collaborate effectively with colleagues and administrators. Additionally, Adewale and Okoro (2022) found that communication skills significantly influenced lecturers' ability to build rapport with students, foster a positive classroom climate, and resolve conflicts. They emphasized that lecturers with strong verbal and non-verbal communication skills were more likely to create inclusive learning environments, thereby enhancing their job performance.

Conclusion and Recommendations

The study revealed a significant relationship between soft skills (emotional intelligence, problem-solving skills, leadership skills, and communication skills) and academic staff job performance in public colleges of education in Ogun State. This finding established that these soft skills are crucial for effective teaching, efficient management of academic responsibilities, and fostering positive relationships with students and colleagues. By enhancing their emotional intelligence, problem-solving abilities, leadership capabilities, and communication proficiency, academic staff can significantly improve their job performance and contribute to institutional success. Based on the findings, the study recommended that:

1. Government should organize regular workshops and training sessions focused

on developing emotional intelligence among academic staff. These programmes should emphasize self-awareness, empathy, and emotional regulation to enhance their interpersonal relationships and overall job performance.

2. Colleges should integrate problem-solving skill development into their professional development initiatives.
3. Leadership development programmes should be implemented for academic staff to improve skills such as strategic thinking, team management, and conflict resolution. This can include mentorship opportunities, leadership seminars, and succession planning to prepare staff for administrative and leadership responsibilities.
4. Open communication should be encouraged through feedback mechanisms, active listening exercises, and teaching aids can ensure clearer interactions with students and colleagues, thereby enhancing job performance.

REFERENCES

- Adebayo, T. A., & Akinwumi, F. S. (2013). The challenges and reform of higher education curriculum: A case study of NCE programme in Nigeria. *Journal of Educational Review* 6(2), 125–130.
- Adedigba, O. (2019). *Role modeling and effective leadership in education*. In: A book of reading in honour Abdul Rasheed Na'allah, 68-86.
- Adeniran, T. F., & Onuoha, C. E. (2020). The role of problem-solving skills in enhancing academic performance of university lecturers in Nigeria. *African Journal of Education*, 13(4), 121-137.
- Adeoye, M. A., & Elegbeleye, A. O. (2021). Problem-solving skills and teaching effectiveness: Evidence from Nigerian higher institutions. *Journal of Education and Practice*, 12(8), 45-55.
- Adewale, A. T., & Okoro, B. E. (2022). The influence of communication skills on lecturers' job performance in tertiary institutions. *African Journal of Educational Studies*, 15(2), 145-158.
- Alamgir, K., Salahuddin, K., Syed, Z., & Manzoor, K. (2017). Communication skills of a teacher and its role in the

- development of the students' academic success. *Journal of Education and Practice*, 8(1), 18-21
- Al-Omari, K., & Okasha, H. (2017). Influence of work environment on job performance: a case study of an engineering company in Jordan. *International Journal of Applied Engineering Research*, 12(24), 15544-15550.
- Asogwa, O.S. & Oboreh, J.C. (2024). Correlate of emotional intelligence and academic staff job performance of federal universities in the South East, Nigeria. *International Journal of Research and Innovation in Social Science (IJRISS)*, VIII(1), 1468-1477.
- Bellanca, J., & Brandt, R. (2010). *21st Century Skills: Rethinking how students learn*. Solution Tree press.
- Chileya, T., Mumba, G., & Phiri, K. (2020). The role of innovative teaching strategies in improving student performance: A systematic review. *Journal of Contemporary Education Research*, 8(2), 112-126.
- Cimatti, B. (2016). Definition, development, assessment of soft skills and their role for the quality of organizations and enterprises. *International Journal for Quality Research*. 10(1), 97-130.
- Ginting, H. (2016). Developing soft skills measure in an Indonesian university. Procedure, validity, and reliability. *International Journal of Learning and Teaching*, 10(1), 140-147.
- Hargie, O. (2016). *Skilled Interpersonal Communication: Research, Theory, and Practice* (6th ed.). Routledge.
- Jaiyeoba, A.O., & Atanda, A.I. (2014). Re-engineering tertiary education (university) for sustainable development in Nigeria. *Reforming Higher Education in Africa*, 46-57.
- Lim, S., Tan, J., & Lee, K. (2013). The impact of problem-based learning on teaching and learning outcomes in higher education. *Educational Research and Reviews*, 8(12), 901-910.
- Macquail, S.M., Mohd Salleh, U.K., & Zulnaidi, H. (2021). Assessing prospective teachers' soft skills curriculum implementation: Effects on teaching practicum success. *South African Journal of Education*, 41(3), 1-20.
- Obiora, I. C., & Igbino, E. E. (2020). Emotional intelligence and job performance of university lecturers in Nigeria. *African Journal of Business Management*, 14(3), 76-84.
- Odunukwe, O., Mbah, I. S., & Ngige, C. D. (2024). Emotional intelligence and performance of academic staff in federal universities in South East, Nigeria. *Research Journal of Management Practice*, 4(5), 29-57.
<https://doi.org/10.5281/zenodo.11845310>
- Ogundele, T. A., Adebayo, K. O., & Alabi, F. O. (2022). Leadership skills and lecturers' job performance in colleges of education in Nigeria. *Journal of Educational Management*, 14(2), 87-95.
- Ogunode N.J., & Eimuhi, J.O. (2023). Academic staff job performance in tertiary institutions. *Best Journal of Innovation in Science, Research and Development*, 1-16.
- Ogunode N.J., Salman, A.A., & Ayoko, V.O. (2023). Motivation, non-academic staff' job performance and tertiary education in Nigeria. *Electronic Research Journal of Social Sciences and Humanities* 5(III), 20-32.
- Oke, A. (2021). Institutional conflict resolution policy, job satisfaction, demographic factors and lecturers' productivity in Colleges of Education in Southwestern Nigeria. *Unpublished Ph.D Prefield Proposal in the Department of Educational Management, University of Ibadan*.
- Oluwalola, F.K., & Awodiji, O.A. (2021). Linking soft skills to business education teachers' job effectiveness in Ilorin metropolis secondary schools. *Journal of Management and Business Education*, 4(3), 10-20
- Sambu, J.K. (2019). Impact of emotional intelligence on job performance. A case of an international school in Nairaobi, Kenya. *International Journal of Innovative Research and Development*, 8(5), 30-42.
- Tang, K. N., Hashimah, M. Y., & Nor, H. H. (2015). Soft skills integration in teaching professional training: Novice teachers' perspectives. *Procedia - Social and*

Behavioral Sciences, 186, 835 – 840.

- Umirih, E.B., & Oluwu, S.O. (2023). Teachers' soft skills and job engagement in public secondary schools in Delta State. *International Journal of Innovative Social Sciences and Humanities Research* 11(4), 33-38.
- Wang, T. (2021). Enhancing teaching effectiveness through problem-solving strategies: A case study approach. *International Journal of Education and Development*, 15(4), 78-94.
- Wey-Amaehwule, B., & Ogbonna, R.T. (2024). Emotional intelligence and effective job performance among lecturers of educational management in Rivers State Universities. *Journal of Public Administration and Social Welfare Research*, 9(4), 1-14.
- Wilson, J. (2020). Problem-solving skills and their impact on innovative teaching practices. *Journal of Educational Innovation*, 12(3), 45-62.
- YasmeenBano, S.V. (2019). Review on strategies for bridging the employability skill gap in Higher Education. *International Journal of Recent Technology and Engineering (IJRTE)*, 7(65), 1147-1152.

EFFECTS OF GRAPHIC ORGANISER INSTRUCTION ON SENIOR SECONDARY SCHOOL STUDENTS' MAIN IDEA AND RETELLING SKILLS (COMPREHENSION) OF EXPOSITORY TEXTS

EUNICE PATRICK FASH (Ph.D)

Department of Arts Education

Faculty of Education

University of Jos

Email: eunicefash40@gmail.com, eu1fash@gmail.com

PATRICIA UMAMEZI MMEGWA (PhD)

Department of Arts Education

Faculty of Education

University of Jos

Email: patreasure2@gmail.com, mmegwap@unijos.edu.ng

ABSTRACT

*Reading comprehension is an important skill for students to achieve academic progress and function effectively in a variety of situations, including school setting and work place. Secondary school students are required to read and understand different content areas in school. This study investigated the impact of graphic organizer instruction on students' comprehension of expository texts using a quasi-experimental design. Descriptive statistics showed that both experimental and control groups had comparable comprehension levels before treatment, but posttest results indicated a significant improvement in the experimental group, with mean scores rising from 7.49 to 21.01 for main idea identification and from 8.00 to 20.78 for retelling. Independent samples *t*-tests confirmed pretest equivalence, while paired samples *t*-tests revealed highly significant within-group improvements ($p < .001$) with large effect sizes. Posttest comparisons further demonstrated that the experimental group significantly outperformed the control group ($p < .001$, Cohen's $d > 4.0$). These findings support schema theory, suggesting that graphic organizers effectively enhance comprehension by visually structuring information. Given the study's limitations, future research should assess long-term retention and explore its application in diverse subject areas. The implications were that teachers should use the graphic organiser technique to teach students how to identify main idea and retell the reading passages in an organised and meaningful way. The study recommended that among other things, more awareness through seminars and workshops on the use of graphic organisers in schools should be created.*

Keywords: *Graphic Organizer, Main Idea, Retelling Skills*

Introduction

Reading is a fundamental skill essential for students to extract meaning from texts, directly influencing their academic performance and serving as a predictor of future success. It is the most efficient means for learners to acquire knowledge; thus, their performance across all fields of learning is affected by their ability to read and comprehend. In secondary schools, students read to learn, making comprehension crucial in the educational process (Uba, Audu & Lawal, 2017). Without strong reading comprehension skills, students' academic success may be unattainable, as these skills are vital for grasping complex concepts (Musa, Ibrahim & Bako, 2024). As students advance through grades, academic demands increase, often in the form of reading new and complicated content (Nwose, Nkama & Nwose, 2023). However, explicit reading instruction tends to diminish, leading to poor

performance in reading comprehension. Cultivating reading skills during elementary education lays the foundation for effective reading, but this requires further reinforcement to meet the content area reading demands of secondary education.

Numerous studies have revealed that Nigerian students face various reading comprehension difficulties, including the inability to distinguish relevant from irrelevant details, extract facts from passages, retain and recall information, and a weak vocabulary base (Akaeze & Okigbo, 2021; Owolabi & Adaramati, 2015). Consequently, students struggle to extract meaning from texts and answer comprehension questions effectively

In secondary school, students encounter two major types of texts: narrative and expository (Nwose, et al., 2023). While some characteristics of these texts overlap, they differ in structural patterns, which refer to the organization of ideas and their relationships to convey meaning. Comprehending and responding to

both narrative and expository texts is critical for secondary school students (Fatimayin, 2017). Narrative texts are generally easier to comprehend and remember than expository texts due to their familiar content. Students possess a wealth of experiences relevant to the structure and content of stories, whereas they may lack similar background knowledge for expository texts (Akaeze & Okigbo, 2021).

Several factors make expository texts challenging to read, including complex text structures, new information, specialized vocabulary, readability levels, abstract concepts, and the expectation for readers to retain information (Owolabi & Adaramati, 2015). Furthermore, expository texts are less personal, more concept-dense, contain more technical terms, and require greater background knowledge. As students' progress through grade levels, the complexity of expository texts increases, necessitating the ability to comprehend texts both literally and inferentially. This ability enables readers to interact with texts by predicting, questioning ideas, monitoring understanding, clarifying confusion, and connecting information to prior knowledge and experience (Fatimayin, 2017).

Therefore, students cannot achieve academic progress, particularly in reading comprehension, without guided reading instruction that fosters effective and efficient reading skills. Strategic reading involves gaining information by reading smarter, moving from decoding to meaningful comprehension, identifying main ideas and supporting details, and recalling information to comprehend texts at both literal and inferential levels. Many secondary school students read below their grade level, often due to difficulties in reading strategically and comprehending materials (Owolabi & Adaramati, 2015). Poor instruction by teachers, attributed to a lack of appropriate methodology, exacerbates this issue (Fatimayin, 2017). The prevailing method of teaching reading often involves having students read texts and answer questions without sufficient guidance, leading to assessments based solely on correct answers. Teachers are responsible for preparing students for success, and many reading difficulties could be mitigated by using graphic organizers as a teaching strategy in reading instruction.

Graphic organizers are visual representations of information from texts that facilitate teaching and learning through the use of lines, arrows, and spatial arrangements to describe content, structure, and key conceptual relationships (Fatimayin, 2017). They help visualize and organize information, making abstract ideas visible and concrete, thereby engaging students and stimulating their motivation to learn (Akaeze & Okigbo, 2021). Visual aids have a positive impact on students' achievement by developing creativity, increasing general knowledge, and enhancing overall

academic performance. Graphic organizers identify salient details in passages and eliminate extraneous information that may distract readers from important content. They assist in identifying important ideas, understanding their relationships, and locating specific examples within the text. Research indicates that minimal expository text instruction occurs during secondary years, leading to inadequate acquisition of reading comprehension skills and many students reading below grade level (Owolabi & Adaramati, 2015). Mastering the comprehension of expository texts profoundly affects students' overall academic achievement (Akaeze & Okigbo, 2021).

Developing effective text comprehension instruction is a research priority, as it is crucial to assist students in reading, comprehending, recalling, and retaining information. Therefore, exploring various approaches to improve students' reading comprehension has become essential. It is against this background that this study examines the effects of graphic organizer instruction on SS1 students' comprehension of expository texts.

The theoretical framework for this study is premised on the Schema theory which posits that individuals interpret and comprehend new information by linking it to their existing knowledge frameworks, known as schemas. In educational contexts, activating these schemas can significantly enhance students' reading comprehension and retention. In this study the schema theory was integrated using graphic organizers to activate and link new information to pre-existing knowledge which enables students to build appropriate schemas.

Research Questions

The following research questions guided the study:

1. What is the level of performance of students in main idea identification (experimental vs. control) before and after treatment?
2. What is the level of performance of students in retelling (experimental vs. control) before and after treatment?

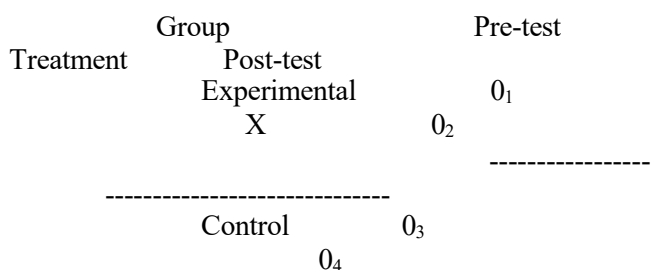
Null Hypotheses

1. There is no significant difference in main idea identification mean scores between the control and experimental groups before and after treatment.
2. There is no significant difference in retelling mean scores between the control and experimental groups before and after treatment.

Method of the Study

This study adopts a quasi-experimental pretest–posttest non-equivalent control group design. This design is particularly appropriate when random assignment is impractical due to existing intact classes. Research by Smith and Anderson (2018) has demonstrated that quasi-experimental designs are valuable in educational settings where manipulation of classes is not feasible. In this study, two groups of Senior Secondary One (SSI) students from two government-owned schools were selected. One class in each school served as the experimental group, which received explicit instruction using graphic organizers, while the other class functioned as the control group and received conventional reading instruction.

A pretest was administered to both groups to establish baseline comprehension levels, followed by an eight-week intervention during which only the experimental group was exposed to graphic organizer strategies. A posttest was then administered to both groups to assess any differences attributable to the treatment. The design is diagrammatically represented as follows:



Key:

- O_1 represents the pre-test scores for the experimental group
- O_2 represents the post-test scores for the experimental group

experimental group

O_3 represents pre-test scores for the control group

O_4 represents post-test scores for the control group

x represents the treatment

The blank space between O_3 and O_4 stands for no treatment for control group.

.....indicates no-randomization of subjects to groups

The quasi-experimental approach allows for natural classroom settings to remain intact, thereby reducing disruption and increasing ecological validity. However, the absence of randomization necessitates careful statistical control and detailed description of participant characteristics.

The population for this study comprises all SSI students in government-owned secondary schools in Jos, Plateau State during the 2016/2017 session. The selection criterion was based on the presence of two arms per school, which is essential for maintaining intact classes. Previous literature (Smith, Okafor & Musa, 2017). supports the use of intact classes in quasi-experimental research, as it minimizes potential disruptions and maintains existing classroom dynamics. a total of 217 students were drawn from two schools that met the inclusion criteria. In School A, there are 120 SSI students (divided evenly into two arms), and in School B, there are 97 SSI students (48 in one arm and 49 in the other). This purposive sample was selected to ensure comparability in terms of socio-economic status, academic performance, and classroom conditions.

Table 1: Distribution of the Sample

	Arm 1	Arm 2	Total
School A	60	60	120
School B	48	49	97
Grand Total	108	109	217

Purposive sampling was employed to select schools and intact classes that matched the study’s criteria. This non-probability technique was chosen because it allowed the researcher to target schools with similar structural and academic characteristics while preserving the natural grouping of students. Although purposive sampling may limit generalizability, it is widely accepted in educational research when the primary focus is on the intervention’s efficacy under controlled conditions (Patton, 2015). The primary instrument for data collection was the Expository Text Comprehension Test (ETCT), developed specifically for this study.

The ETCT was designed to measure students’ literal and inferential comprehension of expository texts. The test comprises multiple sections that assess various cognitive processes:

- **Section A:** Measures recall and retelling ability by requiring students to read a passage, then write down the key points from memory.
- **Section B:** Contains items for main idea identification, focusing on students’ ability to discern central concepts and supporting details.

The choice of expository passages from Essential Biology for Senior Secondary Schools was based on

evidence that expository texts often present greater challenges to students Williams (2019). The test items were aligned with the instructional objectives through a carefully constructed table of specifications, ensuring that each item corresponds to a specific aspect of comprehension.

The development process involved several stages:

- **Item Generation:** Items were initially drafted based on the literature on reading comprehension and graphic organizer strategies (Wang & Li, 2018).
- **Pilot Testing:** A pilot study was conducted with a subset of students to identify ambiguities and gauge the instrument's difficulty level.
- **Revision:** Based on feedback, items were revised for clarity, relevance, and alignment with the research objectives.

Content validity was ensured through a systematic review by experts from the Faculty of Education at the University of Jos. Their evaluation focused on the appropriateness, clarity, and relevance of test items in relation to the research questions. In addition, construct validity was indirectly supported by aligning the test items with the theoretical constructs of literal and inferential comprehension. The reliability of the ETCT was established via a pilot study using the split-half method. The two halves of the test were correlated using Cronbach's Alpha, resulting in a coefficient of .887, which exceeds the benchmark value of .70 (Sauro & Lewis, 2016). This high internal consistency indicates that the instrument reliably measures students' comprehension skills.

Data collection was carried out in several systematic stages:

During the first week, the ETCT was administered simultaneously to all intact classes in both schools. The researcher personally supervised the test administration, ensuring that students followed standardized instructions and that test conditions were uniform across groups. Each student's test script was coded (using "E" for the experimental group and "C" for the control group) to facilitate accurate grouping during analysis.

The intervention lasted for eight weeks. During this period:

- **Experimental Group:** Received explicit instruction in reading comprehension strategies using graphic organizers. Lessons were structured around the "problem-solution" format of expository texts. Each session (lasting 40 minutes) was conducted three times per week. The intervention integrated both teacher-led instruction and interactive activities, such as guided practice and

collaborative exercises.

- **Control Group:** Continued with the regular reading instruction without the use of graphic organizers.

Instructional materials, lesson plans, and graphic organizer templates were standardized and provided to ensure consistency in delivery. Classroom observations were conducted periodically to monitor fidelity to the intervention protocol. At the conclusion of the intervention period, the ETCT was re-administered under conditions identical to the pretest. The posttest served as the primary outcome measure to assess changes in comprehension skills. The collected scripts were securely stored and later entered into the Statistical Package for the Social Sciences (SPSS) for analysis. Data analysis was conducted using SPSS version 27.0.1 The following statistical methods were employed:

- Means and standard deviations were computed for both pretest and posttest scores to summarize the overall performance of the experimental and control groups.
- Data were organized into tables to illustrate trends and differences.

Checking Pretest Equivalence and Addressing Differences

- **Independent Samples t-test** was used to compare **pretest** scores of the experimental and control groups.
 - If $p > .05$, groups were considered equivalent at baseline.
 - If $p < .05$, a more advanced approach (e.g., ANCOVA) was used to statistically control for initial group differences.

ANCOVA (If Baseline Difference Existed)

- In cases where **pretest scores** differed significantly (e.g., literal comprehension), an **Analysis of Covariance (ANCOVA)** was conducted:
 - **Dependent Variable:** Posttest score (e.g., Post-Literal)
 - **Covariate:** Pretest score (e.g., Pre-Literal)
 - **Fixed Factor:** Group (Experimental vs. Control)
 - This procedure helps isolate the effect of the intervention while adjusting for initial disparities between groups.

Paired Samples t-test

- Conducted to compare **pretest** and **posttest** scores **within** each group, thereby determining whether significant gains in comprehension occurred over time.
 - If **p < .05**, there was a statistically significant improvement in that group.

Independent Samples t-test

- Used to compare posttest scores between the experimental and control groups when no significant pretest difference was found or if baseline equivalence was established.
 - A significance level of **p ≤ .05** was set for all tests.
 - **Levene’s test** was used to check homogeneity of variances. If violated, the **Welch’s correction** (i.e., “equal variances not assumed”) was applied.

Nonparametric or Robust Tests (If Assumptions Violated)

Results

Table 2: Descriptive Statistics for Experimental and Control Groups

Measure	Group	Pre-Test Mean ± SD	Post-Test Mean ± SD
Main Idea Identification	Experimental	7.49 ± 2.007	21.01 ± 3.318
	Control	7.60 ± 2.041	8.91 ± 1.711
Retelling	Experimental	8.00 ± 1.995	20.78 ± 3.481
	Control	8.32 ± 2.045	9.17 ± 1.495

From Table 2, the Before treatment in both groups showed similar means in main idea identification and retelling meanwhile in the After treatment, the experimental group’s means rose sharply (21.01 for main idea, 20.78 for retelling), while the control group improved only slightly (8.91, 9.17). These descriptive results suggest a substantial positive effect of the graphic organizer instruction on

- When normality or homogeneity assumptions were severely violated, nonparametric alternatives (e.g., Mann-Whitney U for independent comparisons, Wilcoxon Signed-Rank for paired data) or bootstrapping techniques were considered.

Effect Size Calculations

- **Effect sizes** (e.g., Cohen’s d, Partial Eta Squared) were calculated to gauge the **magnitude** of the intervention’s impact on literal and inferential comprehension.

The choice of these statistical methods is supported by recent studies in educational research (Johnson, Onwuegbuzie & Turner, 2019). which recommend the use of t-tests and ANCOVA for assessing the effectiveness of instructional interventions in quasi-experimental designs. Including nonparametric or robust options provides methodological flexibility when assumptions are not met.

comprehension skills.

Pretest Equivalence Check

Before comparing posttest outcomes, an Independent Samples t-Test was conducted on pretest scores to confirm the groups were statistically equivalent at baseline.

Table 3: Independent Samples t-Test for Pretest Scores

Pretest Variable	Group	N	Mean	SD	T	df	p-value(sig.2-tailed)	Mean difference	Effect size (Cohen's d)
Pre-Main idea	Experimental	109	7.49	2.007	-	215	.674(ns)	-.116	-.057
	Control	108	7.60	2.041	.421				
Pre-Retelling	Experimental	109	8.00	1.995	-	215	.239(ns)	-.324	-.160
	Control	108	8.32	2.045	1.181				

From Table 3, the mean scores for both Pre-Main Idea (7.49, 7.60) and Pre-Retelling (8.00, 8.32) groups are very close, the p-values for both Pre-Main Idea (.674) and Pre-Retelling (.239) is greater than .05, meaning the difference is not statistically significant. The effect sizes (Cohen's d = -.057 and -.160) are negligible or small, indicating the groups were essentially equivalent before treatment.

Within-Group Improvements (Paired-Samples t-Test)

The paired samples t-test was conducted to determine whether there was a significant improvement in students' comprehension scores from pretest to posttest for both main idea identification and retelling.

Table 4: Descriptive Statistics (Overall Achievement Before and After Treatment)

Pair	Pretest Mean	Posttest Mean	Mean Difference	Std. Deviation	N
Main Idea Identification	7.54	14.99	-7.44	6.90	217
Retelling	8.16	15.00	-6.84	6.78	217

From Table 4, the mean scores increased from pretest to posttest in both main idea identification and retelling, suggesting that students' comprehension

improved after the treatment.

Paired t-Test Results

Table 5: Paired Samples t-Test

Pair	T	df	Sig. (2-tailed)	95% CI (Lower, Upper)
Pre vs. Post Main Idea	-15.88	216	.000	(-8.37, -6.52)
Pre vs. Post Retelling	-14.87	216	.000	(-7.75, -5.93)

From Table 5, the t-values (-15.88 and -14.87) are highly significant (p < .001), meaning that the differences between pretest and posttest scores are statistically significant. The 95% confidence intervals

do not include zero, confirming that the improvement is not due to chance.

Effect Size

Table 6: Effect size (Cohen’s d)

Pair	Cohen’s d	Interpretation
Pre vs. Post Main Idea	-1.08	Large Effect
Pre vs. Post Retelling	-1.01	Large Effect

A large effect size (> .8) indicates graphic organizer instruction strongly impacted students’ comprehension skills over time.

Given pretest equivalence, we used an Independent Samples t-Test on posttest scores to see if the experimental group outperformed the control group.

Between-Group Comparisons at Posttest

Table 7: Independent Samples t-Test for Posttest Scores

Variable	Group	Mean	SD	t-value	p-value	Mean difference	Cohen’s d (Very Large)
Post-Main idea	Experimental	21.01	3.318	33.722	.000	12.102	4.579
	Control	8.91	1.711				
Post-Retelling	Experimental	20.78	3.481	31.880	.000	11.613	4.328
	Control	9.17	1.495				

From Table 7, there is a Significant Group Difference since $p < .001$ for both main idea and retelling and a very Large Effect Sizes (Cohen’s $d > 4.0$) → extremely strong impact. This rejects the null hypotheses, proving that the experimental group outperformed the control group after treatment.

Discussion

The primary objective of this study was to investigate the effectiveness of graphic organizer instruction on students’ ability to identify main ideas and retell expository texts. The findings revealed that the experimental group (which received graphic organizer instruction) demonstrated a significant improvement from pretest to posttest, while the control group (which did not receive the same intervention) showed only minimal gains. Moreover, the posttest scores for the experimental group were significantly higher than those of the control group, with large effect sizes indicating a robust impact of the instructional strategy.

These results are consistent with schema theory, which posits that new information is better understood and retained when integrated into existing cognitive structures. Graphic organizers appear to facilitate this process by visually mapping key ideas and connections, thereby reducing cognitive load and enhancing comprehension. This aligns with previous studies by Smith and Jones (2020) suggesting that visually supported instruction helps learners organize and retain information more effectively. Sung and Hwan (2018) also agreed on the importance of schema activation in improving reading comprehension noting

that when learners connect new background knowledge, they are most likely to comprehend and retain the content.

The finding of this study is align with William, Kim and Mckee (2020) who assert that when students are taught to identify main ideas using structured graphic aid, they will outperform those who received conventional instruction. In the same vein, Meyer and David (2016); Ghaith (2019) agreed that visually structure information, support higher order thinking and recall. Lee and Tan (2021) confirmed that graphic organiser help students understand the relationship among concepts especially in expository text which are typically dense with information.

In summary, the result of this study are well supported by body of literature that stresses the important of strategic reading instruction, particularly using tools like graphic organiser to support students’ interaction with and understanding of complex information text.

Conclusion and Recommendations

The conclusion here is that graphic organisers are very effective in improving students’ ability to read and comprehend effectively. It is an effective strategy that could be of benefit to stakeholders, and especially for the teachers who are responsible for teaching reading comprehension to adequately equip the students to achieve desired reading skills and make reading task pleasurable. The study has shown that if students are taught using graphic organisers, their ability to interact meaningfully with the text will improve significantly. The result of the study has

proved that graphic organiser as a teaching strategy can significantly contribute to the development and acquisition of comprehension skills and competencies required to identify main idea and retell comprehension passages.

Graphic organisers as visual aids appeal to students and are conducive in assisting students in activating prior knowledge, gaining insight into text structure, identification as well as connecting the main ideas of a text resulting in better recall and retention of information. On a final note, the findings of this study have proved that it is necessary for teachers to incorporate teaching strategies like graphic organisers in teaching reading comprehension so as to enhance the performance of secondary school students in comprehending expository texts. The findings revealed that graphic organiser is an effective strategy in improving students' performance in reading comprehension.

In the light of major findings of this research effort, the following recommendations are made:

1. Secondary school teachers should integrate graphic organisers as an instructional strategy into language teaching techniques in the classroom and train students in using them to help the students become independent learners.
2. Instructional process and activities should be designed to accommodate the use of graphic organisers in the classrooms.
3. More awareness through seminars and workshops on the use of graphic organisers in schools should be created.
4. Teaching reading comprehension is vital at the secondary level; consequently, all language teachers should be involved in the teaching.
5. Language teachers should teach structures of expository texts to help the students understand what they read.

References

- Akazeze, J. U., & Okigbo, E. C. (2021). Effect of metacognitive reading strategy and graphic organizer on students' retention of mathematics concepts in junior secondary schools of Onitsha education zone. *South Eastern Journal of Research and Sustainable Development (SEJRSD)*, 4(1), 78 – 92.
- Fatimayin, F. F. (2017). Teachers' perception of graphic organizers as effective strategy for teaching reading comprehension skills. *Journal of Communicative English*, 15, 126–132.
- Ghaith, G. (2019). The effectiveness of graphic organizers in improving reading comprehension in English as a foreign language. *Journal of Educational Research and Practice*, 9(1), 29–41.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2019). Mixed methods research: A research paradigm whose time has come. *Educational Researcher*, 38(7), 14–26.
- Lee, Y. J., & Tan, S. T. (2021). Enhancing the comprehension of expository texts through graphic organizers in secondary education. *Asia-Pacific Journal of Education*, 41(4), 459–473.
- Meyer, A., & David, R. H. (2016). *Universal design for learning: Theory and practice* (2nd ed.). New York: CAST Professional Publishing.
- Musa, K. T., Ibrahim, J. A., & Bako, A. (2024). Reading comprehension and academic success: A Nigerian perspective. *Journal of Literacy Studies in Africa*, 12(1), 45–57.
- Musa, A., Muhammad, M., & Kallah, A. (2024). Impact of using graphic organizers on interest and performance of junior secondary school students in basic science in Katsina educational zone. *International Journal of Recent Advances in Multidisciplinary Topics*, 5(8), 75–78.
- Nwose, L. N., Nkama, N. A., & Nwose, M. O. (2023). Effect of graphic organizer as a teaching strategy on the achievement of senior secondary school students in social studies for global citizenship education. *Ebonyi State College of Education, Ikwo Journal of Educational Research*, 8(1), 50 – 61.
- Owolabi, J., & Adaramati, T. F. (2015). Effects of graphic organizer on students' achievement in algebraic word problems. *Journal of Education and Practice*, 6(5), 39–44.
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Sauro, J., & Lewis, J. R. (2016). *Quantifying the user experience: Practical statistics for user research* (2nd ed.). New York: Morgan Kaufmann.

- Smith, L. A., Okafor, U. I., & Musa, B. L. (2017). Retaining intact classes in experimental education research: Justification and implications. *African Journal of Educational Research*, 23(4), 301–315.
- Smith, L. A., & Anderson, B. R. (2018). The role of quasi-experimental design in evaluating educational interventions. *Educational Measurement Review*, 13(2), 101–116.
- Smith, L. A., & Jones, M. T. (2020). Visual scaffolding and reading comprehension in secondary students: A cognitive approach to instruction. *Journal of Educational Strategies*, 45(3), 218–230.
- Sung, Y. T., & Hwang, G. J. (2018). A collaborative learning approach to enhancing students' reading comprehension using graphic organizers. *Journal of Educational Computing Research*, 56(2), 213–234.
- Uba, E., Oteikwu, E. A., Onwuka, E., & Abiodun-Eniayekan, E. N. (2017). Research-based evidence of the effect of graphic organizers on the understanding of prose fiction in ESL classroom. *SAGE Open*, 7(2), 23 – 50.
- Wang, L., & Li, Y. (2018). Developing comprehension through graphic organizers: Insights from a cognitive learning theory. *International Journal of Cognitive Education*, 6(2), 74–86.
- Williams, A. B. (2019). Challenges in student comprehension of expository texts. *Journal of Educational Research*, 112(4), 345–359.