

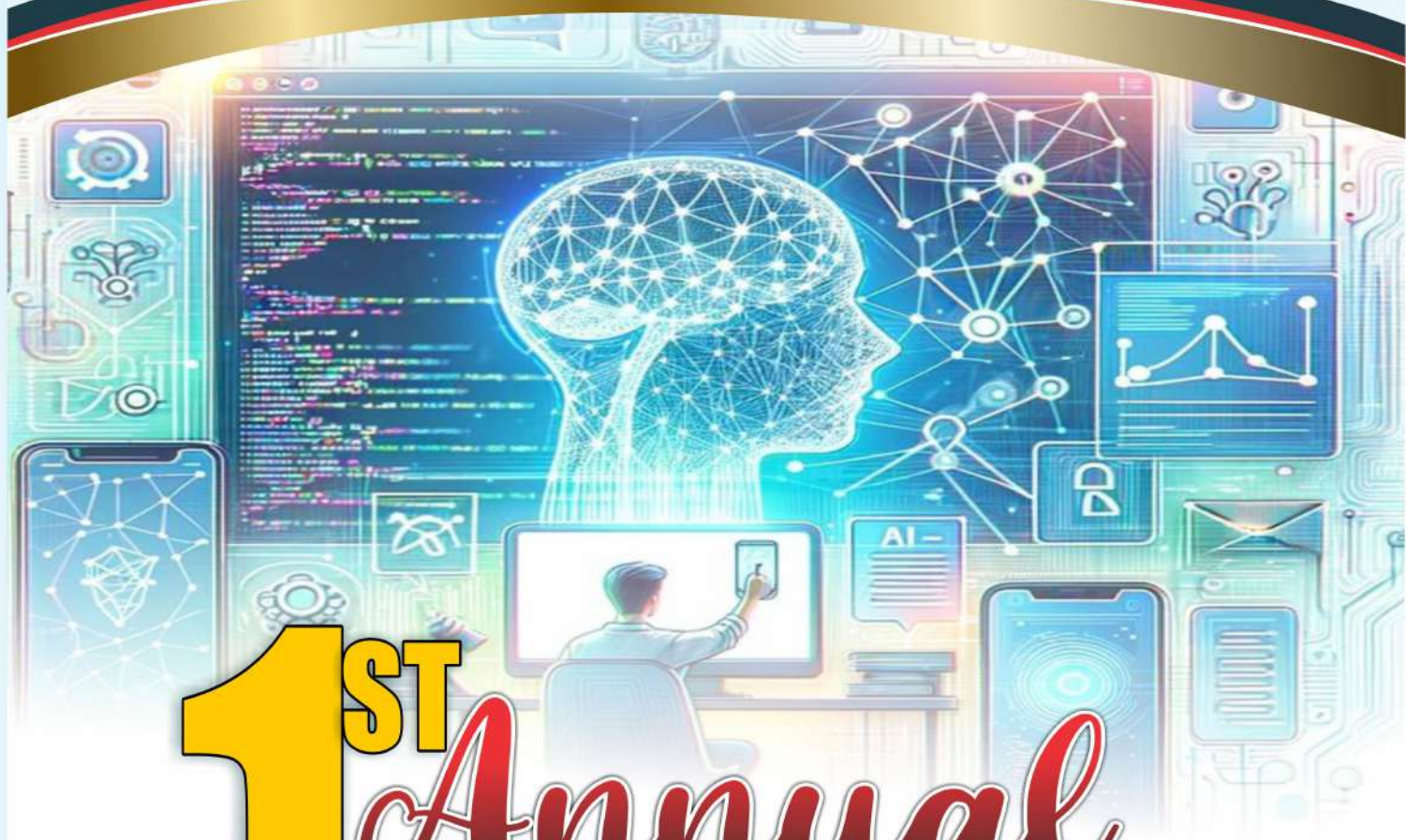


ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA)

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**SCIENCE EDUCATORS AND DIGITAL LITERACY
IN THE 21ST CENTURY**

SCIENCE EDUCATORS AND DIGITAL LITERACY IN THE 21ST CENTURY



1ST Annual CONFERENCE PROCEEDINGS 2025

Editor

Prof. Josephine N. Okoli

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ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA)

**THEME: SCIENCE EDUCATORS AND DIGITAL LITERACY IN THE 21ST
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Editor

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Ogbonna Marachi Samuel (Sec.)	Physical and Health Education Department Federal College of Education (Tech) Umuze, Anambra State, Nigeria
Usan Peter	Chemistry Department Federal Technical College, Awka, Anambra State, Nigeria

PROGRAMME OF EVENTS

- Opening Praying
- Chairman's Opening Remark
- Breaking of Kola nut
- Welcome Address by the acting President of the Association
- Keynote Presentation by Prof. Cecilia O. Ekwueme
- Lead Paper Presentation by Prof. Telima Adolphus
- About the Electronic Book / Unveiling of Book Chapter – E-Book launch
- Item 7
- Meritorious Award
- Paper Presentations

MERITORIOUS AWARD CITATION OF Dr SAMUEL ALFAYO BOH



It is my pleasure and singular honour to be called upon to read a citation on one of the eminent Doctor that the family of Alfayo has ever produced.

People are not chosen for their comfort, they most often to prepare for a life of self sacrifice and even sufferings on behalf of other. And most often their calling is not for privilege but for service. Whichever prism you use in view him, Dr Samuel Alfayo Boh a class teacher of high repute, a man of integrity and fear of God, sacrifices and service for the betterment and advisement of humanity.

May, 18, 1969 marked the beginning of the steadily progressive son of Boh colored mother and the Shongomite father. This account of this childhood and youth in Gombe State shows the prince he had to pay for such a birth. It did not take long before he was revealed as a man of vision and mission as every step he took in both early life and now was clogged with success, and a wide breath of accomplishment.

Dr.Samuel Alfayo Boh spends is early life in Boh with his parent. He attended Boh primary school from 1976 to1984 exposed his qualities as a gifted child enable him to proceed to Government Science Secondary School Kaltungo 1984 to 1987,Teachers College Gombe 1988 to 1990 the exceptional this qualities made way for him to enlist to College of Education Azare 1993 where he bagged National Certificate in Education (NCE) while in Azare, he was elected parliamentary student union 1994 to 1995 session and thereafter in the year 1987, he proceeded to famous University of Maiduguri Borno State and had a Bachelor of Education and passed with flying colours in 2000. Diploma in World Evangelism Mission Training Institute in Borno State in 1999. In 2001, the indefatigable Samuel was drafted in to the National youth service scheme in Tsafe, Zamfara State his service witnessed a continued story of one success after another like the Nehemiah of the Holy Bible. As a man who fully understand what benefits education could bring his way when tapped. Dr Samuel did not hesitate to define where he was headed for in that direction. In 2004, he gain admission to University of Maiduguri, Borno States as an intelligent

student, he graduated in 2008 with Master of Education in Curriculum and Instruction (M.ED). Diploma and Certificate in computer 2009. In the year between 2013 to 2016 he bagged Masters in Guidance and Counseling in Theological Seminary College Kaltungo in Gombe State. Moreover, the influence this celebrated academia exerted on him equipped him to master the techniques of research, the canons of interpretation and reconstruction of academic research, the craft and skills involved and teacher – students relationship in 2010 he proceeded to one of the best University in Nigeria University of Nigeria Nsukka in Enugu State and come out with Doctor of philosophy (Ph.D) in Curriculum and Instruction.

A man with a formidable profile charismatic personality, Dr Samuel is indeed an achieve per excellence he has not only carved a niche for himself, but has also made name and reputation in Nigeria. He has always impacted positively in the lives of everyone he meets. He has also shown high sense of professionalism and dedication to the service of humanity. On several occasion Samuel has interrupted his travels to attend to civilian, accident victims and he has truly saved a lot of lives.

Dr. Samuel Alfayo Boh started his civil service career as a classroom teacher; he had a little starting with the noble teaching profession. In 1996 he took appointment with Boh primary school, Labeke primary school in 1997, Kulishin primary school 1999, Pivotal Teachers Training Programme Lapan in 1999. In 2000 He moved to Government Day Secondary School Boh. In 2000 Tutor Senator T.U. Wada Educational Emancipation Scheme. Presently, lecturer with Federal University Kashere, in the Department of Educational Foundations

Dr. Samuel is a versatile personality of note and a man of many parts. He is fondly referred to as sport, Author and a born teacher of good repute. In his romance with great academics, he has received more than twenty awards, member of many associations, he has presented more than thirty academic papers in both international and national journals, he has published Ninety journals, sixteen book chapters, he has written eight books, presently chairman board of governors Jim Collis Kufai, fellow members of more than seven associations, former permanent commissioner sports commission Gombe State, chairman and secretary of many association, He is happily married to Mrs. Abigail Samuel and blessed with many children.

Having described himself as an enterprising person who has excellence attached to his name, Dr Samuel Alfayo Boh evinces a friendly disposition towards his students. He is a strong advocate of treating students with understanding and affection, Dr. Samuel incontestably mentors, counsels, reprimands, sympathizes and assists his young and old alike. Some of his students describe him as a luminous teacher whose passion for academic scholarship is infectious and whose pedagogical principle skills and friendly disposition are so admirable and endearing that attendance at his lectures is always high and far outstrips most others.

Ladies and gentlemen, Dr. Samuel Alfayo Boh is a small figure on the physical appearance. It is my great honour and privilege to call on this academic repute, erudite, scholar, indefatigable and inspirational mentor, community lover, and motivator ardent love of Shongomite culture and humanist to graciously joint the chairman and other for the formal presentation of this fabulous awards to acknowledge to celebrate his hard word, disciplines, kindness, humanness and commendable role he is playing in the academic careers and character-building

FOREWORD

It is with profound pride and optimism that I write this foreword to the maiden Book of Conference Proceedings of the Association of Science Educators Anambra State a timely and significant academic documentation that captures the robust engagements, research contributions, and transformative ideas presented at the 1st Annual Conference of the Association, scheduled for July 10, 2025, in Awka, Anambra State, Nigeria.

The conference, with the theme “Science Educators and Digital Literacy in the 21st Century,” could not have come at a more opportune moment. In an age where digital transformation is rapidly redefining education, economy, and society, the role of science educators in equipping learners with not only scientific knowledge but also digital competencies has become more critical than ever. The conference offered a strategic platform for scholars, researchers, policy makers, and practitioners to interrogate, share, and shape new pedagogical paradigms that incorporate digital literacy into the fabric of science education.

In his address of welcome, the Acting President of ASEA, Dr. Johnbosco O.C. Okekeokosisi, delivered a compelling call to action. He set the tone by acknowledging the historical importance of the event and the noble mission of ASEA to champion science education across Anambra State and beyond. His words reflected a clear vision of collective progress, innovation, and institutional synergy. Most notably, Dr. Okekeokosisi emphasized that digital literacy in science education is not merely about embracing technological tools but about empowering both educators and learners to critically engage, create, and transform scientific knowledge for societal advancement.

This compilation of conference proceedings is more than a record of presentations—it is a testimony to the enduring commitment of Nigerian science educators to adapt to global educational trends. With insightful keynote and lead paper presentations by eminent scholars such as Prof. Cecilia O. Ekwueme and Prof. Telima Adolphus, participants were exposed to a breadth of ideas, models, and classroom innovations. These contributions are now immortalized in this volume, accessible to researchers, policymakers, and education stakeholders worldwide. The articles by contributors are of quality standard and intimately related to the conference theme.

The proceedings are also a celebration of collective effort. Dr. Okekeokosisi rightly acknowledged the contributions of past leaders of STAN, the Executive Principal of Igwebuike Grammar School, the Local Organizing Committee, and institutional partners who ensured the success of this pioneering event. Their efforts reflect a shared belief in the transformative power of science education when driven by vision, collaboration, and strategic digital integration.

This book also symbolizes the maturity and forward-thinking disposition of ASEA. With its proceedings published online in the Association’s official website (www.jisepublications.org), ASEA is setting a benchmark for academic visibility, accessibility, and global relevance. The initiative aligns perfectly with the conference theme—leveraging digital platforms for knowledge dissemination.

As readers engage with the rich content within this publication, it is my hope that they find not only knowledge but also inspiration to further the cause of digital transformation in science education. May this volume serve as a resource, a reference, and a rallying point for continued innovation, research, and excellence in digital literacy, science teaching and learning.

Prof. Marcellinus C. Anaekwe
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National Open University of Nigeria,
Abuja.

PREFACE

Digital literacy in the 21st century is crucial for science educators to effectively teach and prepare students for a rapidly evolving scientific and technological world. Science educators must embrace digital tools and resources to enhance their teaching methods and foster students' scientific literacy, critical thinking and problem-solving skills. This includes leveraging online platforms, using educational technologies and digital content to create engaging and meaningful learning experiences.

In this conference proceedings efforts has been made towards promoting the use of digital tools in science education.

Prof. Josephine N. Okoli

Science Education Department

Nnamdi Azikiwe University, Awka,

Anambra State, Nigeriascience

ADDRESS OF THE ACTING PRESIDENT OF ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA), DR. JOHNBOSCO O.C. OKEKEOKOSISI, AT THE OPENING CEREMONY OF THE 1ST ANNUAL CONFERENCE HELD IN AWKA, ANAMBRA STATE, NIGERIA ON 10TH JULY, 2025

Theme: “Science Educators and Digital Literacy in the 21st Century”

Distinguished Guests,

Mother of the Day, and Executive Provost of the Federal College of Education (Technical),

Umunze, Prof. Tessy O. Okoli

Past and Immediate Past Chairmen of the Anambra State Chapter of the Science Teachers

Association of Nigeria (STAN), Prof. C.V. Nnaka, Dr. Christiana U. Ezenduka Past

and Immediate Past Secretary of the Anambra State Chapter of the Science Teachers Association

of Nigeria (STAN), Dr. Chinwe B. Njelita, Mr. Kingsley N.C. Ezeokeke

The Executive Principal of Igwebuikwe Grammar School, Awka, Mrs. Amaka Ifebili

Our Esteemed Keynote and Lead Paper Presenters, Profs: Cecilia O. Ekwueme, Telima

Adolphus

Meritorious Awardee, Dr. Samuel Alfayo Boh

Representatives of Educational Institutions, Pharm. Adauzoh C. Joe-Obasi

The Conference Planning Committee

The Local Organizing Committee (LOC),

My Fellow Science Educators,

Ladies and Gentlemen.

It is with deep humility and immense pleasure that I stand before you today as the Acting President of the Association of Science Educators Anambra (ASEA), to welcome you all to this historic gathering — the **1st Annual Conference** of our noble Association, taking place here in the vibrant capital city of Awka, Anambra State.

This moment marks a milestone in the life of our Association and in the educational landscape of our dear state. Today, we have gathered not just to deliberate on academic issues, but to collectively reflect on and shape the role of science educators in a rapidly changing digital world. The presence of each one of you here is a testament to your dedication to the advancement of science education in Nigeria, and in particular, in Anambra State.

Let me begin by extending heartfelt gratitude to our **Mother of the Day**, the erudite and distinguished **Executive Provost of the Federal College of Education (Technical), Umunze**, for honoring our invitation. Your presence is a great source of inspiration, and we are immensely grateful for your unwavering support towards science and technical education in the state. The Host and Board of Directors, Prof. Josephine N. Okoli, Prof. Isaac N. Nwankwo, Prof. M.C. Anaekwe

Chairman of the occasion Ass. Prof. Peter I.I. Ikokwu

To the **Past Chairman and Immediate Past Chairman of Anambra State STAN**, we salute you. You laid the foundation for excellence and integrity in science education upon which ASEA continues to build. We are proud to carry forward the torch of progress you lit. Your legacies continue to motivate and guide our mission as science educators.

We also sincerely appreciate the **Executive Principal of Igwebuike Grammar School, Awka**, for the enormous and selfless support towards the successful hosting of this conference. Your generosity and logistical assistance have played a crucial role in bringing this vision to reality. We are proud to host this conference within your institution, and we thank you for embracing the ASEA family.

Special thanks also go to our **Keynote and Lead Paper Presenters**, whose scholarship and insight will surely enrich our understanding of the conference theme: *“Science Educators and Digital Literacy in the 21st Century.”* You are the thought leaders that will help us navigate this complex but exciting intersection between pedagogy and technology.

Meritorious Awardee, **Dr. Samuel Alfayo Boh**, whose contributions to teaching and learning in tertiary institutions lead to the foundation of our members.

The **representatives of educational institutions**, both public and private, we acknowledge your partnership and presence. Your contributions, ideas, and institutional support are essential in sustaining quality science education. Together, we can foster a generation of scientifically literate citizens equipped for the demands of the 21st century.

Let me also specially recognize the tireless efforts of the **Local Organizing Committee (LOC)**. You have worked round the clock, attending to logistics, communications, hospitality, and a host of behind-the-scenes responsibilities. This conference would not be possible without your selfless commitment. I say, “Well done!”

This conference has its theme **“Science Educators and Digital Literacy in the 21st Century”**. The theme is very apt considering the fact that we are in the digital age. Thus, the committee on conference looked inward to provide this conference theme for science educators to understand, educate, re-educate, write and deliberate on the effective use of digital tools – technologies in our present time for effective instructional delivery. Participants will be taken through hands-on and minds-on activities in various sessions and they will find the conference package very rewarding. I invite you to pay attention during keynote address to be presented by Prof. Cecilia O. Ekwueme, the Dean Faculty of Science Education, University of Calabar, Cross-River State, Nigeria. Your continuous attention is also needed during the lead paper presentation of Prof. Telima Adolphus of Rivers State University, PortHarcourt, Nigeria.

To all **participants** – educators, researchers, students, policy makers – thank you for making out time to be here. Your presence signifies hope for the future of science education. I urge you to make the most of this gathering by networking, exchanging ideas, and exploring new strategies to embed digital literacy in science classrooms and curricula.

As we delve into this conference theme, let us remember that digital literacy is not just about the use of devices or softwares. It is about empowering both teachers and learners to navigate, create, and critically evaluate digital content. It is about transforming science education into an interactive, engaging, and accessible experience that prepares our students for global competitiveness. We must rise to this responsibility with courage, collaboration and innovation.

As we officially declare this conference open, let us do so with a shared sense of purpose and vision. Let us reflect deeply, discuss intelligently and leave this gathering better equipped to build a technologically savvy and scientifically vibrant society.

Ladies and Gentlemen, it may interest us to note that this young growing association has an online Journal, Electronic Book (e-book) and Conference Proceedings. The E-Book and Conference Proceedings were hosted online at the association's website (jisepublications.org) for its visibility. It is obvious that this association has come to stay. To God be the glory.

Once again, I welcome you all to the 1st Annual Conference of the Association of Science Educators Anambra (ASEA). May our deliberations be fruitful, and may the bonds we forge here today grow stronger for the benefit of science education in our state and beyond.

Thank you, and God bless you all.

Dr. Johnbosco O.C. Okekeokosisi

Federal College of Education (Tech) Asaba,
Delta State, Nigeria
Acting President, ASEA
10th July, 2025

PAPER 13

CONTEMPORARY ECONOMIC REALITIES AND THE SUSTAINABILITY OF ACADEMIC PROGRAMMES IN SECONDARY SCHOOLS IN OKPE LOCAL GOVERNMENT AREA, DELTA STATE

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Abstract

The study examined the relationship between the contemporary economic realities and the sustainability of academic programmes in secondary schools in Okpe Local Government Area, Delta State. Five research questions and five hypotheses guided the study. The study adopted a quantitative research design, specifically a correlational design. The total population was 10,000 students, 800 teachers, and 100 school administrators from 25 secondary schools in the LGA. A sample size of 500 students, 100 teachers, and 25 school administrators was deemed sufficient to ensure the reliability and validity of the findings. The research instrument used for data collection was a structured questionnaire. The questionnaire was validated by experts and had a reliability coefficient of 0.80. Data collected were analyzed using Pearson's correlation at 0.05 threshold level. The results revealed a significant relationship between contemporary economic realities (socio-economic status, availability of vocational education, level of infrastructure, involvement of local community and digital literacy) and sustainable academic programmes. Based on the findings, the study highlighted the crucial role of socio-economic status, vocational education, infrastructure, community involvement, and digital literacy in shaping academic outcomes. The study pointed to the need for more investment in educational infrastructure and vocational programmes to improve the sustainability of academic programmes. It was, thus, recommended that government and stakeholders should prioritize improving the infrastructure in secondary schools in Okpe LGA to provide a conducive learning environment, including the provision of teaching materials and the upgrading of school facilities.

Keywords: Economic Realities, Sustainability, Academic Programme

Introduction

The educational landscape in Nigeria, especially in the secondary school sector, has been under significant transformation in recent years. This change is influenced by the increasing challenges associated with the socio-economic realities of the country. Okpe Local Government Area (LGA) in Delta State, a region marked by diverse cultural and economic backgrounds, presents a microcosm of Nigeria's broader challenges in providing quality education amid economic difficulties. The contemporary economic realities facing the area, such as high levels of poverty, unemployment, and underdevelopment, significantly affect the sustainability of academic programmes in secondary schools within the locality.

The socio-economic environment in Okpe LGA reflects the broader challenges faced by many rural and semi-urban areas in Nigeria. These challenges are exacerbated by the country's

dependence on oil, which has caused economic volatility. As global oil prices fluctuate, the local economy becomes increasingly unpredictable, making it difficult for government initiatives to maintain consistent funding for education. The Nigerian education system, particularly at the secondary school level, struggles with issues like inadequate infrastructure, a shortage of qualified teachers, poor funding, and a curriculum that is not always aligned with the needs of a rapidly changing economy (Adewale & Dike, 2018). These systemic issues have contributed to an educational gap, where students in Okpe and similar localities are often ill-prepared for the labor market.

In addition to the economic challenges, Okpe LGA, like many other regions in Nigeria, faces issues with the implementation of government policies aimed at improving education. Despite the introduction of initiatives such as the Universal Basic Education (UBE) programme and the Sustainable Development Goals (SDGs) related to education, there remains a significant gap between policy objectives and actual outcomes at the local level (Oyekan, 2017). The lack of effective policy implementation and monitoring mechanisms has further hindered efforts to improve education in Okpe. These shortcomings are exacerbated by the lack of community involvement in educational planning and decision-making, which means that educational programmes are not always tailored to the specific needs and realities of the community.

Another critical factor affecting the sustainability of academic programmes in Okpe LGA is the challenge of curriculum relevance. The current curriculum in Nigerian secondary schools, though designed to provide a broad-based education, often does not address the specific socio-economic realities that students face in local contexts. The emphasis on traditional academic subjects such as mathematics, sciences, and languages, while important, often neglects the inclusion of subjects related to entrepreneurship, agriculture, and other skills relevant to the local economy. In a region like Okpe, where agriculture plays a central role in the economy, there is a growing call for the integration of agribusiness, agricultural science, and environmental studies into the curriculum to make education more practical and relevant to students' immediate surroundings and future career prospects (Abubakar & Adeyemi, 2021).

The increasing role of technology in education offers new opportunities for students in Okpe LGA, but also presents new challenges. With the widespread adoption of digital tools in education, the potential for online learning and digital literacy has expanded (Akinyemi & Adedeji, 2020). However, the local infrastructure such as unreliable internet access, limited electricity, and a lack of trained educators in digital technologies presents significant barriers. This digital divide has made it difficult for students in Okpe to fully benefit from technological advancements in education, further contributing to the inequality between urban and rural educational experiences. The integration of Information and Communication Technology (ICT) into secondary school education is essential for equipping students with the skills necessary for the 21st-century job market, yet the pace of adoption has been slow in many rural and semi-urban areas like Okpe.

The educational challenges faced by secondary school students in Okpe LGA are emblematic of the broader issues confronting Nigeria's educational system. These challenges are not insurmountable, but they require concerted efforts from government agencies, educational institutions, and local communities to develop sustainable programmes that address the economic realities of the region. By aligning academic curricula with the economic needs of the local population, promoting vocational education, and improving the infrastructure for digital learning,

Okpe LGA can begin to foster an education system that is not only relevant but also sustainable in the long term.

Statement of the Problem

Despite various policy initiatives aimed at improving the quality of education in Nigeria, secondary education in Okpe Local Government Area (LGA), Delta State, faced numerous challenges that hindered the sustainability of academic programmes. These challenges were deeply rooted in the socio-economic realities of the region, including widespread poverty, limited employment opportunities, and inadequate infrastructure. The economic downturn in Nigeria, driven by fluctuations in oil prices and an over-reliance on the oil sector, exacerbated these issues, leading to reduced government funding for education and the underdevelopment of critical educational resources.

This study aimed to examine the impact of contemporary economic realities on the sustainability of academic programmes in secondary schools in Okpe LGA. Specifically, it sought to investigate how economic constraints, curriculum relevance, infrastructure deficiencies, and the lack of mathematics education programmes and vocational training opportunities hindered the ability of schools to provide a comprehensive and sustainable education. Additionally, the study explored the role of local government policies, community involvement, and digital literacy in shaping the future of education in the area.

The findings of this research were intended to inform educational policy and practice, particularly in regions like Okpe LGA, where socio-economic factors played a pivotal role in shaping educational outcomes. By identifying the key barriers to sustainable academic programmes, the study aimed to contribute to the development of targeted strategies that could enhance the quality, relevance, and sustainability of secondary education in Okpe and similar communities in Nigeria.

Objectives

The aim of the study was to investigate the relationship between the contemporary economic realities and the sustainability of academic programmes in secondary schools in Okpe Local Government Area, Delta State. The specific objectives of the study are to:

1. examine the relationship between the socio-economic status of families and the sustainability of academic programmes in secondary schools in Okpe LGA;
2. assess how the availability of vocational education programmes in secondary schools affected the employability of secondary school graduates in Okpe LGA;
3. investigate the correlation between the level of infrastructure in secondary schools and the academic performance of students in Okpe LGA;
4. explore how the involvement of the local community in educational decision-making processes influenced the sustainability of academic programmes in secondary schools in Okpe LGA;
5. evaluate the impact of digital literacy on the academic outcomes of secondary school students in Okpe LGA.

Research Questions

The study was guided by the following research questions;

1. What is the relationship between the socio-economic status of families and the sustainability of academic programmes in secondary schools in Okpe LGA?
2. What is the relationship between the availability of vocational education programmes and employability of secondary school graduates in Okpe LGA?
3. What is the relationship between the level of infrastructure in secondary schools and the academic performance of students in Okpe LGA?
4. What is the relationship between the involvement of the local community in educational decision-making and sustainability of academic programmes in secondary schools in Okpe LGA?
5. What is the relationship between digital literacy and academic performance of secondary school students in Okpe LGA?

Hypotheses

The following hypotheses guided the study;

1. There is no significant relationship between the socio-economic status of families and the sustainability of academic programmes in secondary schools in Okpe LGA.
2. There is no significant relationship between the availability of vocational education programmes and employability of secondary school graduates in Okpe LGA.
3. There is no significant relationship between the level of infrastructure in secondary schools and the academic performance of students in Okpe LGA.
4. There is no significant relationship between the involvement of the local community in educational decision-making and sustainability of academic programmes in secondary schools in Okpe LGA.
5. There is no significant relationship between digital literacy and academic performance of secondary school students in Okpe LGA.

Methodology

The study adopted a quantitative research design, specifically a correlational design, to examine the relationships between various socio-economic, infrastructural, and educational factors and their impact on the sustainability of academic programmes in secondary schools in Okpe Local Government Area (LGA). This design was chosen because it enables the researcher to explore the strength and direction of relationships between variables without manipulating them.

The study area for this research is Okpe Local Government Area (LGA) in Delta State, Nigeria. Okpe LGA is located in the southern part of Delta State, which is known for its rich cultural heritage, diverse ethnic groups, and a predominantly agrarian economy. The region is characterized by a mix of urban and rural communities, with some areas more developed in terms of infrastructure and access to resources, while others face significant socio-economic challenges. Given these circumstances, Okpe LGA presents a unique case for investigating how economic challenges influence secondary education and the extent to which the current academic programmes are able to address the needs of students in the face of these challenges.

The population for the study consisted of all secondary school students, teachers, and school administrators in Okpe LGA. The total population was approximately 10,000 students, 800 teachers, and 100 school administrators from 25 secondary schools in the LGA (Post Primary

Education Board (PPEB), Asaba, 2024). The study focused on these groups because they directly influence and are affected by the academic programmes and educational outcomes in Okpe LGA. A sample size of 500 students, 100 teachers, and 25 school administrator was selected through stratified random sampling technique, which ensured the representation of various subgroups within the population, such as school type (public and private), gender, and grade level.

The research instrument used for data collection was a structured questionnaire. The questionnaire was designed to collect quantitative data on socio-economic status, availability of vocational education programmes, infrastructure quality, community involvement in educational decision-making, and the level of digital literacy among secondary school students. The questionnaire consisted of Likert scale items and closed-ended questions to assess respondents' perceptions of these factors and their impact on academic performance and sustainability. The Likert scale was used to measure attitudes toward vocational education, infrastructure, and community involvement, allowing for numerical data analysis.

The validity of the research instrument was ensured through expert review. Experts in educational research and policy reviewed the questionnaire for content and construct validity, ensuring that the questions accurately measured the constructs under investigation. Revisions were made based on feedback from the experts to improve clarity and ensure that the instrument was suitable for the target population. This process confirmed that the instrument was valid for the study's objectives.

The reliability of the instrument was assessed using Cronbach's alpha coefficient, a widely used measure of internal consistency. The reliability coefficients for the various sections of the questionnaire ranged from 0.75 to 0.85, indicating acceptable reliability for the instrument. According to Tavakol and Dennick (2017), a Cronbach's alpha value above 0.7 is considered reliable, which affirmed the consistency of the instrument in measuring the variables of interest.

The data collected were analyzed quantitatively using the Statistical Package for the Social Sciences (SPSS) version 25. The relationships between the independent variables (socio-economic status, availability of vocational education programmes, infrastructure, community involvement, and digital literacy) and the dependent variable (sustainability of academic programmes), Pearson's correlation coefficient was used. A significance level of 0.05 was applied to determine whether the relationships between the variables were statistically significant. This method allowed the researcher to identify and interpret significant patterns in the data.

Results

Table 1: Correlation of Socio-Economic Status of Families and the Sustainability of Academic Programmes in Secondary Schools in Okpe LGA

Variables	N	r-cal	Sig. (2-tailed)	Decision
SES	625	0.207	0.000	Significant
SAP				

P<0.05

In Table 1 shows that there is a significant relationship between the socio-economic status of families and the sustainability of academic programmes in secondary schools in Okpe LGA, $r = 0.207$, $P(0.000) < 0.05$. Thus, the null hypothesis is rejected. Therefore, there is a significant relationship between the socio-economic status of families and the sustainability of academic programmes in secondary schools in Okpe LGA.

Table 2: Correlation of Availability of Vocational Education Programmes and Employability of Secondary School Graduates in Okpe LGA

Variables	N	r-cal	Sig. (2-tailed)	Decision
Availability of vocational education Employability of Graduates	625	0.271	0.000	Significant

$P < 0.05$

Table 2 shows that there is a significant relationship between the availability of vocational education programmes and employability of secondary school graduates in Okpe LGA, $r = 0.271$, $P(0.000) < 0.05$. Thus, the null hypothesis is rejected. Therefore, there is a significant relationship between the availability of vocational education programmes and employability of secondary school graduates in Okpe LGA.

Table 3: Correlation of Level of Infrastructure in Secondary Schools and the Academic Performance of Students in Okpe LGA

Variables	N	r-cal	Sig. (2-tailed)	Decision
Level of infrastructure Academic performance	625	0.319	0.000	Significant

$P < 0.05$

Data in Table 3 shows that there is a significant relationship between the level of infrastructure in secondary schools and the academic performance of students in Okpe LGA, $r = 0.319$, $P(0.000) < 0.05$. Thus, the null hypothesis is rejected. Therefore, there is a significant relationship between the level of infrastructure in secondary schools and the academic performance of students in Okpe LGA.

Table 4: Correlation of Involvement of the Local Community in Educational Decision-Making and Sustainability of Academic Programmes in Secondary Schools in Okpe LGA

Variables	N	r-cal.	Sig. (2-tailed)	Decision
Community involvement Sustainability of academic programmes	625	0.495	0.000	Significant

$P < 0.05$

Table 4 shows that there is a significant relationship between the involvement of the local community in educational decision-making and sustainability of academic programmes in secondary schools in Okpe LGA, $r = 0.495$, $P(0.000) < 0.05$. Thus, the null hypothesis is rejected. Therefore, there is a significant relationship between the involvement of the local community in educational decision-making and sustainability of academic programmes in secondary schools in Okpe LGA.

Table 5: Correlation of Digital Literacy and Academic Performance of Secondary School Students in Okpe LGA

Variables	N	r-cal	Sig. (2-tailed)	Decision
Digital literacy Academic performance	625	0.683	0.000	Significant

Table 5 shows that there is a significant relationship between digital literacy and academic performance of secondary school students in Okpe LGA, $r = 0.683$, $P(0.000) < 0.05$. Thus, the null hypothesis is rejected. Therefore, there is a significant relationship between digital literacy and academic performance of secondary school students in Okpe LGA.

Discussion

The result of the study revealed that socio-economic status (SES) was a critical factor affecting the sustainability of academic programmes. Families with higher SES were better able to provide their children with access to educational resources such as books, tutoring, and extra-curricular activities, which supported academic success and continuity of education. In contrast, students from lower socio-economic backgrounds faced challenges such as limited access to school materials, lack of financial support for school fees, and poor home learning environments, all of which could undermine the sustainability of academic programmes. Previous studies conducted by Eamon (2019), Peguero (2020) also confirmed that SES had a significant impact on educational outcomes by influencing parental involvement, access to resources, and the overall learning environment. This finding aligned with the broader understanding that socio-economic disparities could limit educational opportunities in underserved areas.

The availability of vocational education programmes was also found to have a direct relationship with the employability of secondary school graduates in Okpe LGA. The study indicated that students who were exposed to vocational education acquired practical skills that were relevant to the job market, improving their chances of securing employment after graduation. Vocational programmes were particularly valuable in areas where access to higher education was limited or where the local economy required skilled labor in sectors such as agriculture, manufacturing, and trade. Similar studies (Groot, Maassen van den Brink & Oosterbeek, 2019; Ogbonnaya, Akpan & Akinfeleye, 2020) demonstrated that vocational education enhanced employability by equipping students with marketable skills. This finding underscored the importance of secondary schools in Okpe LGA incorporating vocational education to better prepare students for the workforce.

The study again found that the level of infrastructure in secondary schools was strongly correlated with students' academic performance. Schools with better infrastructure, including well-equipped classrooms, modern teaching tools, reliable electricity, and functional facilities, contributed to more effective teaching and learning. On the other hand, schools with poor infrastructure faced challenges such as overcrowded classrooms, lack of adequate learning materials, and interruptions in the learning process, all of which negatively impacted academic achievement. Previous research (Akinbode, Adewale & Olayanju, 2019; Chiemeké & Eze, 2020) had similarly shown that school infrastructure played a crucial role in student learning outcomes, with improved facilities leading to better academic performance. This finding highlighted the need for increased investment in school infrastructure to ensure that students in Okpe LGA had access to quality education.

The study also found that the involvement of the local community in educational decision-making positively affected the sustainability of academic programmes. When local communities participated in school governance, policy formulation, and resource mobilization, they contributed to making academic programmes more relevant and sustainable. Communities that were actively engaged in the education system were better able to advocate for better educational policies, mobilize resources, and ensure that the needs of the local students were met. Studies (Becker & Hentschel, 2019; Oladipo, 2020) confirmed that community involvement fostered a sense of ownership and accountability, which was crucial for the long-term success of educational programmes. This finding emphasized the importance of fostering strong partnerships between schools and local communities in Okpe LGA to ensure the sustainability of academic programmes.

The study finally found that digital literacy had a significant impact on the academic performance of secondary school students. In today's digital world, students who were proficient in using

computers and the internet were better equipped to conduct research, complete assignments, and access educational resources online. Digital literacy enabled students to engage more effectively with modern learning environments, which increasingly incorporated e-learning platforms and online educational resources. Research (Munyaka & Chikuse, 2020; Ojo & Adewale, 2021) also highlighted that digital literacy improved academic achievement by fostering critical thinking, problem-solving, and independent learning skills. The study pointed out the growing importance of technology in education, and it called for schools in Okpe LGA to integrate digital literacy into their curricula to enhance student performance and prepare them for the demands of the digital economy.

Conclusion

The study on contemporary economic realities and the sustainability of academic programmes in secondary schools in Okpe LGA shed light on the multifaceted factors influencing education in the region. The findings highlighted the crucial role of socio-economic status, vocational education, infrastructure, community involvement, and digital literacy in shaping academic outcomes. The study pointed to the need for more investment in educational infrastructure and vocational programmes to improve the sustainability of academic programmes. Additionally, it underscored the importance of digital literacy and community engagement in ensuring that students in Okpe LGA receive quality education that prepares them for future opportunities.

Recommendation

The following were recommended based on the findings of the study:

1. Government and stakeholders should prioritize improving the infrastructure in secondary schools in Okpe LGA to provide a conducive learning environment, including the provision of teaching materials and the upgrading of school facilities.
2. Vocational education programmes should be integrated into the curriculum of secondary schools in Okpe LGA to equip students with employable skills that will enhance their job prospects after graduation.
3. Local communities should be actively involved in the decision-making process regarding educational policies and the allocation of resources to ensure that schools are responsive to local needs.
4. Digital literacy programmes should be incorporated into the secondary school curriculum to ensure students are prepared for the demands of the digital economy and can use technology effectively for learning and personal development.

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