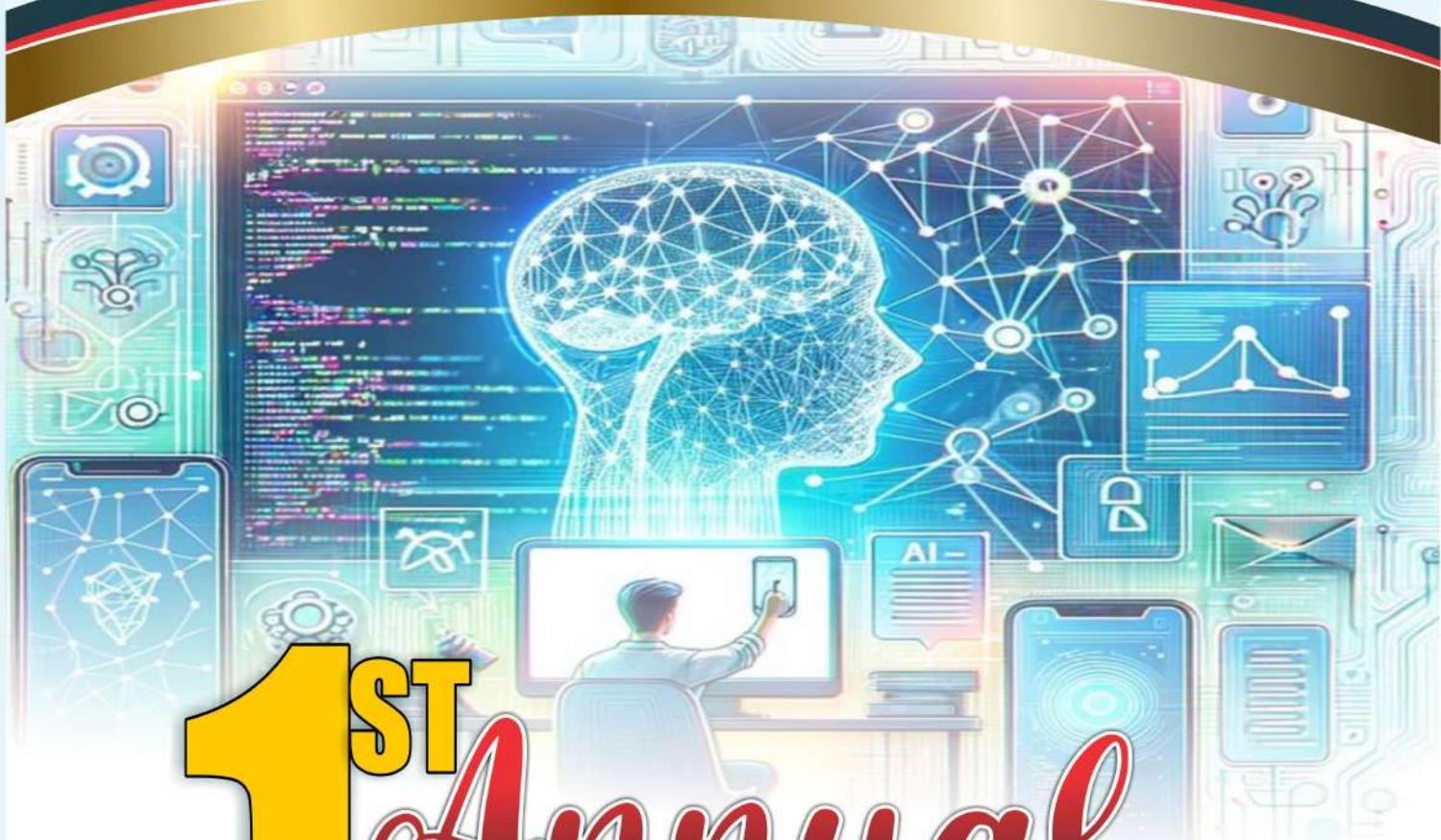




ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA)

<https://jisepublications.org>

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



1ST
Annual
CONFERENCE
PROCEEDINGS 2025

Editor
Prof. Josephine N. Okoli

ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA)

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

1ST ANNUAL CONFERENCE PROCEEDINGS, 2025

10- 12th July, 2025

Editor

Prof. Josephine, N. Okoli

Printed in Nigeria by:



Love Isaac Consultancy Services
No 1 Etolue Street, Ifite Awka, Anambra State, Nigeria
+234-803-549-6787, +234-803-757-7391

© ASSOCIATION OF SCIENCE EDUCATORS ANAMBRA (ASEA). All rights reserved

Published in June, 2025

ISBN: 978-978-695-937-5

TABLE OF CONTENT

Members of Conference Planning Committee	v
Local Organizing Committee (LOC)	v
Programme of Events	v
Meritorious Awardee of Dr. Samuel Alfayo Boh	vi
Foreword	viii
Preface	ix
Presidential Address	x
Keynote Presentation	1
Lead Paper Presentation	11
Paper 1	26
Digital Literacy Competence as a Predictor of Secondary School Students' Achievement in 21st Century Mathematics Classroom	
<i>Emekastandhope I, Dr. Njoku, Celestine</i>	
Paper 2	35
Effectiveness of Digital Literacy Skills in Personalized Learning of Preservice Mathematics Teachers: Implications for Achievement	
<i>Dr. Ogoke, Chinemeze James, Dr. Otumegwu Tina Uchenna, Achugamunu, Pius C, Uguru Ndubuisi Okon</i>	
Paper 3	44
Staff Level of Awareness on the use of Google Scholar as Learning Resource in Colleges of Education	
<i>Dr. Johnbosco O.C. Okekeokosisi, Kate C. Okoh</i>	
Paper 4	50
Utilizing Digital Literacy Tools as Panacea to Effective Teaching and Learning in Secondary Schools in Orumba South Local Goverment Area	
<i>Anaekwe Grace. U, Okoye Nestor E.</i>	
Paper 5	57
Physical and Health Education and Digital Literacy in The 21st Century	
<i>Ahueansebhor Emmanuel, Ayito, Victor Effiom, Urom, Rademene Emmanuel</i>	
Paper 6	67
Exploring the Virtual Learning Environment in the Teaching and Learning of Biology for Enhanced Students' Outcome.	
<i>Dr. Blessing Ifeoma Okafor, Chukwuma C. Ekechukwu</i>	
Paper 7	75
Assessing the Effectiveness of Online Platforms in Education for Teaching and Learning for Sustainable National Development	
<i>Doris N. Akhator, Inaya Adesuwa</i>	
Paper 8	84
Effects of Science Video Instructional Strategy On Students' Academic Achievement in Chemistry Among Secondary Schools in Yenagoa Metropolis, Bayelsa State	
<i>Dr. Moses John Billy</i>	
Paper 9	95
Internet of Things Enabled Smart Environmental Monitoring System Based on the Espressif System 32 Microcontroller	
<i>Udeze Jireh Chukwuma</i>	
Paper 10	107
Digital Literacy and Teachers' Effective Teaching of Mathematics	

in Public Secondary Schools in Oron Local Government Area of Akwa Ibom State, Nigeria	
<i>Dr. Ekpenyong Effiong Ibok, Dr. Raymond Ogbebe Ogar, Nene Amos Williams</i>	
Paper 11	117
Digital Literacy and Utilization of Educational Technologies among Basic Science Teachers in Anambra State: Implications for Effective Science Teaching	
<i>Prof. Okoli Josephine Nwanneka, Christian-Ike, Nwanneka Oluchukwu</i>	
Paper 12	127
Assessment of Digital Literacy of Computer Teachers in the Utilization of Computer Aided Instruction in Teaching Data Processing in Anambra Schools	
<i>Ibe Perpetual Nwakaego, Engr. Ololo Emmanuel Chimezie, Dr. Eze Irene Febechi, Mokwe Nkiru Celine</i>	
Paper 13	136
Contemporary Economic Realities and the Sustainability of Academic Programmes in Secondary Schools in Okpe Local Government Area, Delta State	
<i>Dr. Perekeme Peresuode, Okoye Grace Nwakaego, Onyeka Patience</i>	
Paper 14	145
Digital Assessment of School Climate and Its Predictive Influence on Chemistry Achievement among Secondary School Students in Imo State	
<i>Akanazu, Grace O., Dr. Akanazu, Eze C.</i>	
Paper 15	154
Effects of Google Classroom on Students' Achievement in National Business Certificate (NBC) Year 11 Accounting Students of State Technical Colleges	
<i>Chika M. Okonkwo</i>	
Paper 16	165
Physical and Health Education and Digital Literacy in The 21st Century	
<i>Dr. Ofordum, Maryann Chigozie, Obijekwu, Olivia Ogechukwu</i>	
Paper 17	168
Collaboration Between Science and Physical and Health Educators in Promoting Digital Health Literacy	
<i>Omeje Chigozie Sabina, Ogbonna Marachi Samuel</i>	
Paper 18	177
The Use of Video Analysis in Sports in The 21st Century: Advantages and Disadvantages	
<i>Dr. Theresa Nkiru Uzor, Dr. Anthonia Chinyere Uwa</i>	
Paper 19	185
The Influence of Digital Literacy on Students' Scientific Inquiry Skills: Educators' Perspectives in Orumba South Local Government Area, Anambra State	
<i>Okoli Nneka Chigozie, Nwankwo Glory Ure, Agbasi Obioma Lucy</i>	
Paper 20	195
The Impact of Pictures and Videos as Digital Tools in Teaching Physics in the Nigerian Education System	
<i>Atuluku Grace Ikoojo, Okpaneje Onyinye Theresa</i>	
Paper 21	200
Empowering Chemistry Educators with Digital Literacy for 21st Century Classrooms	
<i>Akubue Prince Chidi, Ezeabasili Peter Ikechukwu, Onukwube Sunday Ikechukwu</i>	

MEMBERS OF CONFERENCE PLANNING COMMITTEE

Dr. Moses, John Billy (Chairman)

Science Education Department
Faculty of Education, Niger Delta University
Wilberforce Island, Bayelsa State.

Ahueansebhor Emmanuel

Human kinetics and Sports Science Department
Faculty of Science Education,
University of Calabar,
Calabar - Nigeria.

Akanazu, Eze C.

Department of Chemistry
Alvan Ikoku Federal University of Education, Owerri,
Imo State, Nigeria

Dr. Ofordum Maryann C.

Physical and Health Education Department
Federal College of Education (Tech) Umunze,
Anambra State, Nigeria

Ass. Prof. Esther B. Enaregha (Sec.)

Isaac Jasper Boro College of Education Sagbama
Bayelsa State, Nigeria

Dr. Njoku Celestine

Department of Mathematics and Computer
Science Education, University of Calabar Cross
River
State, Nigeria

LOCAL ORGANIZING COMMITTEE

Mrs. Amaka Grace (Chairman)

Physical and Health Education Department
Federal College of Education (Tech) Umunze,
Anambra State, Nigeria

Ogbonna Marachi Samuel (Sec.)

Physical and Health Education Department
Federal College of Education (Tech) Umunze,
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
manaekwe@noun.edu.ng
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. JOHN BOSCO O.C. OKEKEOKOSI, 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 Igwebuike 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. Ikoku

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 Igwebuik 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 4

UTILIZING DIGITAL LITERACY TOOLS AS PANACEA TO EFFECTIVE TEACHING AND LEARNING IN SECONDARY SCHOOLS IN ORUMBA SOUTH LOCAL GOVERNMENT AREA

¹Anaekwe Grace .U, ²Okoye Nestor E.

¹ amakagracegorri@gmail.com

^{1, 2} Department of Physical and Health Education,

^{1, 2} Federal College f Education (Technical), Umunze, Anambra State, Nigeria

Abstract.

The study discussed the use of digital literacy tools as panacea to effective Teaching and learning in Secondary schools in Orumba South. Two research questions were formulated for the study. They population for the study consisted 5210 from the fourteen Government Secondary schools. Simple random sampling was used to select ten students from each School making it 140 respondents. They instrument used for data collection was a 15 items questionnaire validated by two experts. The questionnaires were distributed by the researcher with the aid of research assistance to ensure 100 percent return rate . Mean were used for data analysis. The results indicated that students spent most of their times on Social media apps, Smartphones, zoom, WhatsApp and other such medias. They were inattentive to classroom lessons, quiz, test and assignment. Recommendations were made that digital tools be used in given assignment, test and other class activities which students can do at the comfort of their home or when ever they get in contact with their smartphones.

Keywords: Digital literacy, Teaching and learning.

Introduction

Teaching involves transmission of knowledge, skills, behaviors and other such attributes from the trainer to the trainee. (teacher-students) It is an on-going activity which guides and influences learners to learn. According to Obi (2016), teachers adopt various strategies to disseminate knowledge and at the same time help learners to change their behaviors. Teacher instructs, guides, and contributes to learners development. Nyatuka (2020) asserted that teachers helps and facilitates others to learn.

Learning denotes the ability to change to new ideas as a result of knowledge acquired. Learning is relatively permanent change in the learners behaviours as a result of education, study and experiences (Obi, 2016) . Learning is said to have taken place when students are able to demonstrate independently in a given knowledge, interest, value, skill or attitude he was unable to demonstrate before a learning situation (Afrianmogbon& Nnokocha2011). They also high lightened that learning has the potential to permeate and enhance all aspects of a person's life from narrow scope of acquiring knowledge and skills to a broader view points of learning to be a person in the society and through every aspects of social life including leisure, wealth creation, health, family, Work place and political life. Teaching and learning have been posed with challenges in the 21st century. The conventional methods of teaching which involves but not limited to face – to – face teaching came into abrupt following the emergence of covid-19. The methods involves teacher and students being physically present for teaching and learning to take place. With the advent of covid -19 , all spheres of life were affected adversely . Covid -19 pandemic led to closure

of face- to face activities of schools in over 109 countries(Esomonu,2022). Also, (Nlebem,2020, TESH,2020) stressed that the unexpected school closure caused significantly interruptions in the Nigerian Schooling structure ;which includes learning methods and access to school related services. Students were in their homes for over three months. As UNESCO (2022)asserted, the closure of schools affected 3,400 primary and secondary students across Nigeria. Although in Nigeria, both Federal , State , and private sectors implemented various learning interventions using technological platforms , internet –based tools and traditional mediato mitigate the impact of the closure of schools . Also appropriate stakeholders adapted quickly and developed solution to minimize the potential learning resulting from pandemic such as remote teaching and learning, printed packets or on-line learning through variety of formats and platforms for overall well-being of the students. These have in no small means exposed both the teacher and students to methods of learning aside face-to-face activities . According to Adesina (2024), Social media has emerged as a powerful tools in a world that is digitally connected, touching every aspects of life . The advent of technology and network, the internet and mobility has brought about a fundamental shift on how people generate and disseminate information. The way people learn now changes from physical to virtual learning . There were changes in how people study , work, and express their faith (Ebosele,2024). There was a shift from physical gathering to virtual meeting . Young people now spent most of their time on internet . According to Adesina (2024) ,the amount of time spent on internet is alarming , smartphones are becoming a core component of young peoples daily life activities . The introduction of social interactions platform such as ,you tube, tiktok, snapchat, instagram , face book and others had successfully captured the hearts of many young people to technology . Certainly , students falls under the umbrella of the youths whose hearts had being captured with the social media apps . Ebosele(2024) asserted that the medias if properly utilized , can be of great service to mankind. Digital media are the variety of technologies that facilitates the sharing of ideas and information among the users. These platforms creates avenues for teaching and learning aside physical activities (face-to-face). Platforms like zoom and other Webiner Apps created opportunities for learning, communication and interactions .Meetings were held via zoom , goggle , meet or webinar. If these activities can be well managed using the digital tools, teaching and learning can equally follow suits. Lessons, assignments, quiz can be perfectly handled on- line. By so doing, whatsapp and facebook can be used more effectively to create chatroom for students notes and topics . Group calls on whatsapp cost no extra penny and can be used in for lesson. Twitters can be used to send assignments. The whole universe were affected by the medial tools which made dissemination of information and generating new ideas easy. As Umeh (2024) asserted that the new media tools such as internet ,smartphone and others are being used as vehicles for expressing social communications among other means , concerted efforts should be put in place to get best out of the media. It is pertinent to note that students instead of using the platforms for learning useful things moved into indecent whatsap, facebook, chats and other conversations out of inquisitiveness like Pornographic channel. According to Nwafor (2021), youths /students engage in watching Pornographic films, sex-tapes or visit porn cities, production and consumption of drugs in any of its forms , makes those who engage in it more likely to commit sexual offenses. It leads to child abuse , rape, violence against women among others. The role of a teacher is to impact knowledge on the students , the new techniques need to be utilize in teaching and learning. Since students now focused on the media, their direction could now be forwarded in utilizing the tools in learning in this 21st century education hence the topic, Digital literacy : A

Panacea for teaching and learning in the 21st century education among government secondary schools in Orumba South Local Government Area.

21st Century system of education involves using new techniques in teaching and learning . It is transversals and places emphasis on broader access education, changes in curriculum , use of tools and technologies , rethinking how teachers teach , how they are selected , trained and assessed how children learn Opara (2018) . Hence the 21st century education includes holistic curriculum designed to instill values and character on students , Students performance and quality education demand teachers to utilize the new methods , collaborative work in teaching the students . However , students spent most time on digital tools , teaching and learning should now be shifted utilizing the tools.

Literacy means ones ability to access information using printed or other materials . According to Ngwu in Onwuadi (2015) the best equipment a human being need is the power of literacy . UNESCO (2020b)in Onwuadi (2015) defined literacy as the ability to identify , understand , interpret, create, communicate and compute using printed and written materials associated with varying contexts . Also Obi (2016)inOnwuadi (2015)highlighted that literacy involves not only decoding the word rather decoding the world . Teaching and learning through digital literacy in the 21st century have been believed to enhance students performance since the invention of technology have become the order of the day.

Digital literacy involves utilization of digital technologies in teaching and learning. It is the ability to find, evaluate and communicate information using digital technology and media platform. It is the ability to navigate various digital platform and understand ,assess and communicate through digital means. For effective utilization of these ,students the future of tomorrow need to be thought with these tools. Digital literacy tools comprises of tablets, laptops , computer, smart phone, goggle among others .The use of digital literacy tool enhances educators and students communication skills, critical thinking skills, practical skills and especially creativity Levy as cited in Joseph & Khan (2020). Moreover, Joseph & Khan (2020)asserted that digital tools aids teachers in organizing , planning, motivating, teaching,, guiding ,encouraging and initiating the students to be engaged during teaching and learning process .

Hence, students are no more interested in conventional methods of teaching(face-to-face), always on the social media , efforts should be made to ulilize the tools in teaching and learning therefore, the reason for the topic: Digital tools a panacea for teaching and learning in the 21st century education among Government secondary schools in Orumba South.

Statement of the Problem

Teaching and learning among secondary schools students in Orumba south have been faced with a lot of challenges. These have been compounded following the advent of covid-19 pandemic which brought problem to teaching and learning leading to closure and abrupt stoppage in school activities. The problem have widen the world knowledge to other means and methods of teaching and learning aside face-to-face activities. A lot of innovations which includes but not limited to technologies assume central stage in the 21st century educations . This technologies involves new media tools which enhanced teaching and learning as Umeh&Agwoko (2024)stated that the new media tools such as internet, smart phones among other are being used as vehicles for expressing social communication. Students spent most of their time on social media. Instead of engaging

themselves in useful information , they moved into indecent whatsapp, face book, chats and conversations which causes a lot of damage to them. In line with these, Adesina (2024) stated that the amount of time spent on internet is alarming , smart phones are becoming a core component of young people's daily life activities . For effective utilization and beneficial effects of the digital tools, digital literacy should be considered utmost in teaching and learning . The conventional methods of teaching and learning does not interest and draws students attention thereby making their performance to be poor . Since they are always in social media, class work, assignment, quiz and other such school activities should now be given through the digital means to enhance performance. The quest to fill this gap in education calls for the topic: Digital literacy a panacea for teaching and learning in the 21st century education among government secondary schools in Orumba south Local Government Area.

Purpose of the Study

Specifically, this study sought to determine the extent of agreement or otherwise as to;

1. extent teachers utilize digital tools in teaching and learning in Government secondary schools to enhance performance.
2. extent digital literacy tools makes teaching and learning interesting.

Research Questions

The following research questions guided the study;

1. How do teachers utilize digital tools in teaching and learning in Government secondary schools in Orumbasouth.
2. To what extent do teachers use the digital literacy tools to enhanced teaching and learning in Government secondary schools in Orumba south.

Methodology

Descriptive survey research design was used for the study .Nworgu (2016) defined descriptive survey as a systematic and comprehensive collection of information about the opinions, attitudes, feelings, beliefs and behavior of people . This method was adopted because the research is set to get the opinions of the respondents items on utilizing digital literacy tools to enhance students performance in the 21st century education among Government secondary schools in Orumba south L.G.A. The population of the study comprises 14 government secondary schools with the population of five thousand, two hundred and ten students (5210) source (field survey). Simple random sampling was used to select ten (10) students from each of the 14 schools given a sample size of 140 students. Instrument for data collection was Questionnaire on digital literacy a panacea for teaching and learning in the 21st century education among Government secondary schools in Orumba south .The instrument comprises of 15 items generated from an extensive review of information from students . The instrument was validated by two education experts in University. To ensure the validity of the instrument , it was constructed based on research questions and a copy was given to each validators . The researchers with the help of two research assistant administered and retrieved the instrument from the respondents . Four point rating scale consisting of Strongly agree=4points, Agree=3points, Disagree=2points, Strongly disagree=1points was used . Any item with a mean value of 2.50 and above was regarded as agree and any item with mean value below 2.50 was regarded as disagree. The reliability of the instrument was determine using Cronbarch Alpha which yielded a coefficient of 0.82 showing that the instrument was reliable for the data collection.

Results

Results of the study was presented in line with the research questions

Research Question 1. How do teachers utilize technological tools in teaching and learning in Government secondary schools?

Table 1: Mean rating on teachers' utilization of technological tools in teaching and learning in Government secondary schools in Orumba South.

SN	ITEMS	SA	A	D	SD	N	\bar{X}	REMARK
1	Teachers uses technological tools while teaching in class	50	60	10	20	140	3.00	Agree
2	I enjoy teachers teaching with laptops	60	40	20	20	140	3.00	Agree
3	I like on-line teaching (zoom)	60	40	10	30	140	2.93	Agree
4	I am interested in video chat teaching	50	60	15	25	140	2.89	Agree
5	I enjoy searching information on -line	50	60	10	20	140	3.07	Agree
6	I do not like doing quiz on-line	50	40	30	20	140	2.8	Agree
7	I enjoy doing assignment on-line	60	50	10	20	140	3.07	Agree
8	I prefer face to face teaching	10	20	60	40	140	1.93	Disagree
Grand mean								2.84

From the Table1 items 1,2,3,4,5,6&7 with the mean score of 3.00,3.00,2.93,2.89,3.07,2.8&3.07 respectively were accepted while items 8 with mean score of 1.93 was rejected . This implied that most students prefer technological tools in teaching which included but not limited to using of laptops, on-line (zoom),video chat , goggles, on-linequizand other such technological tools. The disagree to utilization of face -to- face teaching. This is in-line with Ebosele (2024) who stated the way people learn now changes from physical to virtual learning. There were changes in how people study, work and express their faith, and that the way people learn now changes from physical to virtual learning . This therefore , supported the view that digital literacy is a panacea for teaching and learning in the 21st century education among government secondary school in Orumba South LGA.

Research Question Two. To what extent have the digital literacy tools enhanced teaching and learning in Government secondary schools in Orumba South

S/N	items	SA	A	D	SD	N	\bar{X}	Remarks
9	Teaching with laptops make for easy understanding than chalkboard	60	50	10	20	140	3.07	Agree
10	On- line teaching is more interesting to classroom lessons.	50	50	15	25	140	2.89	Agree
11	Goggles provides for more detailed information for learning	60	40	20	20	140	3.00	Agree
12	Assignment are made easy doing -on-line	50	50	20	20	140	2.93	Agree
13	I prefer on- line teaching to face - to - face teaching	60	50	20	10	140	3.14	Agree
14	Teaching using chalkboard is boring	50	60	10	20	140	3.00	Agree
15	I prefer reading with my phone to copying notes	60	60	10	10	140	3.21	Agree
Grand mean								3.03

Table 2 expresses that all the items were agreed upon hence the mean scores are above cut -of points. This indicated that students agreed that teaching using digital tools draws their attention and enhance their performances. The implication implied that students were in constant use of their laptops, Smartphone, goggles and other such medium in their daily activities. This is in line with Umeh&Agwoko (2024) who asserted that the new media tools such as internet, social media, smart

phones are being used as vehicles for expressing social communication, and students spent their time in social media.

Discussion

From the results, it could be concluded that the conventional methods of teaching which involves physical activities (face-to-face) no longer draws students attention in teaching and learning. They were always in social media. The no longer have interest in copying teachers notes, class quiz and assignment. This is in line with Adesina (2024) who stressed that smart phones are becoming a core component of young people's daily life activities. Students were busy chatting with their smart phone, browsing and watching indecent whatsapp video, chatting and watching phonographic which proved non relevant to their studies and their health. Poor attitudes to lesson attendance, copying note, writing quiz and assignment led to students poor performance . The results revealed that since students were in constant contact with there digital tools like smart phones, goggle, zoom app and other such tools, these could now be used in teaching and learning at the comfort of their homes rather than face-to-face with their teacher. This enhance students performance.

Conclusion.

The study investigated on the digital literacy a panacea to teaching and learning in the 21st century education among government secondary schools in Orumba south LGA, Anambra state .21st century education have been faced with a lot of challenges. Truancy, constant chatting, browsing, and other internet apps have drawn attention of students making them inattentive during classroom lessons. The worst been that the time meant for studies were spent chatting and browsing on indecent whatsapp and chatting on phonographic. All thing being equal, teaching and learning through Digital tools should be utilize in teaching and learning to draw students attention into useful things. This could be achieved by giving quiz, assignment and other class work on-line. Since students were no longer interested in conventional teaching methods (face-to-face), The researchers dim it fit that digital tools be utilize in teaching and learning Since physical activities of teaching and learning makes learning boring and since students are in constant contact with their phones, they should be made to study with them rather than engaging in indecent apps.

Recommendations

Based on the findings, the following recommendation were made;

1. Teachers should update their knowledge towards utilizing digital literacy tools to enrich teaching and learning in secondary schools.
2. Teachers should be sponsored to conferences to keep them abreast of digital literacy tools for teaching to motivate students learning.
3. Students should be given assignments and class exercises using digital tools.
4. Government should provide requisite digital infrastructure to schools to enhance on-line learning.

References

Adesina, F.O.(2024) Forward : National catechetical week booklet. Information communication technology at the service of catechesis . Towards an effective evangelization in Nigeria.

Afianmuogbon, B.E &Nnokocha, I.K.(2011) Supervision knowledge and learning management in Nigeria Schools :Symbiotic relationship in the journal of knowledge and learning management.

Ebosele , A.(2024) Presentation, National catechetical week booklet . information communication technology at the service of catechesis. Towards effective evangelization in Nigeria.

Esomonu, N.P.M (2022) Covid -19 and emerging issues in STEM education. STEM Anambra state . vol 3(2)

Nlebem, A. (2020) F.G orders closure of schools in Nigeria as coronavirus spreads . business day <http://business day .ngcoronavirus> article FG-order-closure-of-all-schools in -nigeria -aas coronavirus spreadsNugroho O.F

Nwafor, E.O.(2024) The effect of porn .maranatha, 2nd ed.

Nyatuka, B.O(2020) Family-community-higher educational partnership . Acritical pillar in realiing social justice www.isiglobal.com.whatis a teacher iciglobal.

Obi,,C.N.(2016). Instructional supervision:SINE QUANON for improving teaching & learning in Nigeria . *Journal of technical education and research development* vol(5)1

Onwuadi,C C(2015) Training adult literacy instructors in development and effective use of instructional materials for quality assurance in adult literacy programme in Anambra State . *International Journal of educational research*, 14(3).

Opara, M.F.(2018) The 21st century teacher : key driver of sustainable development in Africa perspective on science and technology education in Nigeria Njoku, Z.C, Nzewi,U.M&Nnaka, C. V.

TEP-SENG(2020) Learning in pandemic Nigeria response to teaching and learning during the covid – 19 pandemic . <http://education.gov.ng> wp-content uploads202008learning –in- a pandemic –report TEP-SENG 2020.pdk.

United nations educational, scientific and cultural organization (UNESCO) (2020). National education response to COVID -19 .summary report of UNESCO on- line survey. Paris , UNESCO section on education policy in the division of policies and lifelong learning systems <http://unesco.org.ark-48223pf0000373322>.

Umeh, E.E &Agwoko, D (2024) National catechetical week booklet. information, communication technology at the service of catechesis. Towards an effective evangelization in Nigeria .

Victian, J&Najmonnisa, K (2020); Digital literacy tools into enhance English reading and writing skills. A detailed literature review www.research gate .net