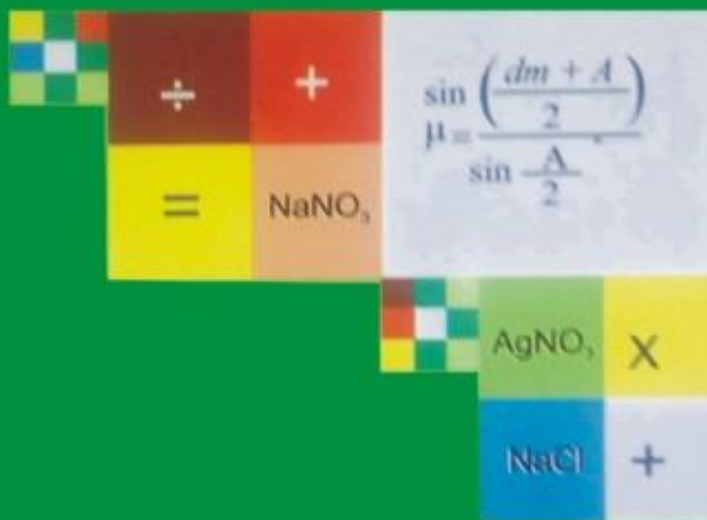


AFRICAN JOURNAL OF SCIENCE TECHNOLOGY AND MATHEMATICS EDUCATION (AJSTME)



Volume 11, Issue 3 - August, 2025. ISSN: 2251-0141 (Print)

ISSN: 2971-6233 (Online)



**JOURNAL OF THE DEPARTMENT OF SCIENCE EDUCATION
UNIVERSITY OF NIGERIA, NSUKKA**

OUR WEBSITE: <https://www.ajstme.com.ng>

**AFRICAN JOURNAL OF SCIENCE, TECHNOLOGY AND
MATHEMATICS EDUCATION (AJSTME)**

Volume 11, Issue 3 - August, 2025

ISSN: 2251-0141 (Print)

ISSN: 2971-6233 (Online)

Published by the
Department of Science Education
University of Nigeria, Nsukka

The Editorial Board

Editor-in-Chief

Prof. L. N. Nworgu

Department of Science Education,
University of Nigeria, Nsukka

E-mail: loretta.nworgu@unn.edu.ng

Editor

Dr Christian Sunday Ugwuanyi

Department of Science Education,
University of Nigeria, Nsukka

E-mail: christian.ugwuanyi@unn.edu.ng

Associate Editors

- Dr. J. J. Agah, Department of Science Education, University of Nigeria, Nsukka
- Dr. B. C. E. Oguguo, Department of Science Education, University of Nigeria, Nsukka
- Dr. C. C. Ugwuanyi, Department of Science Education, University of Nigeria, Nsukka
- Dr. E. I. Orji, Department of Science Education, University of Nigeria, Nsukka
- Dr. F. E. Ikeh, Department of Science Education, University of Nigeria, Nsukka

Consulting Editors

- Prof. B. G. Nworgu, Department of Science Education, University of Nigeria, Nsukka
- Prof. U. M. Nzewi, Department of Science Education, University of Nigeria, Nsukka
- Prof. D. N. Ezeh, Department of Science Education, University of Nigeria, Nsukka
- Prof. Nkadi Onyegegbu, Department of Science Education, University of Nigeria, Nsukka
- Prof. Chinwe Rose Nwagbo, Department of Science Education, University of Nigeria, Nsukka
- Prof. S. Mari, Department of Science Education, Ahmadu Bello University, Zaria
- Prof. A. M. Olagunju, Institute of Education, University of Ibadan
- Prof. Z.C. Njoku, Department of Science Education, University of Nigeria, Nsukka
- Prof. C. E. Ochonogor, Department of Science Education, Cape Peninsula University of Technology, Mowbray Campus, Cape Town, South Africa
- Prof. G. O. M. Onwu, University of Pretoria, South Africa
- Prof. J. C. Adigwe, Department of Science Education, University of Nigeria, Nsukka
- Prof. F.O. Ezeudu, Department of Science Education, University of Nigeria, Nsukka

Editorial Assistants

- Dr. Cliff Ikenna Okebanama, Department of Science Education, University of Nigeria, Nsukka
- Dr. Geoffrey Ukala, Department of Science Education, University of Nigeria, Nsukka

Editorial

African Journal of Science, Technology and Mathematics Education (AJSME) is an official publication (now online) of the Department of Science Education, University of Nigeria, Nsukka. AJSTME is a peer reviewed publication aimed at advancing knowledge and professionalism in research in education. As a scholarly journal, it focuses in innovation in knowledge of Science, Technology and Mathematics (STM), Curriculum, Evaluation, Policy and Pedagogy.

The Editor-in-chief of this journal is sincerely thankful to the editorial team and to all those who contributed in one way or the other in making AJSTME what it is today and especially to our numerous subscribers.



In This Issue

- ❖ Assessing Manipulative use in Enhancing Learners with Visual Impairments' Understanding of Mathematics in Inclusive Basic Schools in Ghana - **Augustina Adu¹, Jones Apawu², William Obeng-Denteh³, Justice Enu⁴**.1-8
- ❖ Comparative Effect of Flipped Classroom and Project-based Instructional Strategies on Senior Secondary School Students' Attitude and Engagement in Drawing Biological Diagrams - **Odionye, Nonye & Onu William**.....9-15
- ❖ Effects of Play-Learn-Act-Now Game and Concept Mapping Instructional Strategies on Students' Achievement in Basic Science Climate Change Concepts - ¹**Tine Agernor**, ²**Emmanuel Eriba Otor** and ³**Michael Vershima Atovigba**.....16-24
- ❖ Effect of Geogebra and Geometrical Set on Mathematics Students' Academic Interest in Owerri Education Zone - **Akobundu, Chinonyerem Amarachi, Ugwu, A.N & Eluwa, I.O**.....25-32
- ❖ Evaluation of the Implementation of Senior Secondary English Language Curriculum Course Contents - **Nwachukwu, Clara Chinenye**.....33-40
- ❖ Effect of Peer Tutoring Instructional Strategy on Students' Achievement and Self-Esteem in Genetics in Plateau North, Nigeria - **Rifkatu Dung Datiri¹, Samuel Hwere Tsok² and Niri M. Choji²**.....41-47
- ❖ Effects of Target Task and Learning Activity Package Approaches on Secondary School Chemistry Students' Academic Achievement in the Mole Concept in Ohafia Educational Zone of Abia State-**Nkemakolam Joy Kelechi & Gloria N. Eze**.48-58
- ❖ Effectiveness of Blended Learning Teaching Method on Chemistry Students Academic Achievement in Akwa Ibom North East Senatorial District - **Nsikak, Patrick Okono & Gloria N. Eze**.....59-66
- ❖ Perception and Attitude of Undergraduate Biology Education Students Towards the Integration of Artificial Intelligence Tool in Teaching and Learning of Biology - **Abamuche, Joy Amuche & Odionye, Nonye**.....67-73
- ❖ AI-Powered Science Education: A Critical Examination of Bias and Equity - **Bernardine Ngozi Nweze & Ifeanyi Joshua Nwarie**.....74-78
- ❖ Application of Artificial Intelligence Tools in Chemistry Education: Opportunities, Challenges and Possible Solutions - **Chukwunwogor, Eunice O., Dave-Ugwu, Priscillia O* & Onah, Anthonia Ebere**.....79-84

- ❖ Social Studies Teachers' Teaching Ethics for Effective Instructional Deliveries in Upper Basic Education Schools - **Onyeanusi, Obiageli Calista**.....85-96
- ❖ Efficacy of AI and Human Proctors in Ensuring Academic Integrity in 2025 JAMB Examination - **¹Udemba, Esther Chinenye & ²Bruno D. Zumbo**.....97-103
- ❖ AI-Driven Assessment and Feedback Systems in Chemistry Education: Enhancing Students' Learning Outcomes - **¹Sa'adu Ibrahim, ²Bukar Alhaji Umate ³Aminu Tanimu, & ⁴Jacob Bernard Kazachiang**.....104-110
- ❖ Effectiveness of Artificial Intelligence Facilities as a Panacea for Promoting Quality Education in Saint Augustine University of Tanzania in Mwanza Region - **Amos Paschael Binamungu, Emmanuel Daniel Slaa, Herieli Lema Sifueli & Sophia Gunje Nduungile**.....111-119
- ❖ In-Service Training Needs of Science Teachers in Using Digital Technology in Teaching Students - **¹Maria Tsakeni, ¹Stephen Chinedu Nwafor and ²Florence Obiageli Ezeudu**.....120-127
- ❖ Assessment of Public Postgraduate Students' Applications of AI in Research and Assessment - **Felicia Chinyere Ugwu**.....128-137
- ❖ Perceptions of Teachers and Students on the Usefulness of Artificial Intelligence in Science, Technology, Engineering and Mathematics Instruction in University of Nigeria - **¹Innocent O. Odo, ¹Godwin C. Ugwuoke, ²Onesimus B. Shiaki, ¹Chiamaka H. Nebeolisa, ¹Euphemia Chinenye Eze & ¹Gift Chinenye Onwuamaeze**.....138-151
- ❖ Students' Interest as a Predictor of Senior Secondary School Students' Academic Achievement in Radioactivity in Obollo-Afor Education Zone, Enugu State - **Eke, Judith Nkemdili, C. U. Ene & Okere, Ikechukwu Justice³**.....152-159
- ❖ Brain Dominance: A Panacea for Engineering Creativity Among Biology Students - **Anukaenyi, Anastesia Chisom & Ibenegbu, Queendaline Obiajulu**....160-166
- ❖ Effect of Concept Mapping Strategy on the Academic Achievement and Attitude of Upper Basic School Students in Geometry in Kwande Local Government Area, Benue State, Nigeria-**Iyekekpolor Solomon A. O.¹ and Abur Cletus Terhemba**.167-173
- ❖ Think-Pair-Share as a Tool for Promoting Metacognitive Awareness in Organic Chemistry Education - **Umahaba, Ramatu Ematum & Jonathan Salihu Mari**.....174-179
- ❖ Aquatic Weed Densification: A Systematic Abridged Review - **Tariebi Karikarisei**.....180-186

- ❖ Strategies for Promoting Quality of Secondary School Resources towards Sustainable Development Goal 4 in Nigeria - **Andor, Ebezim A. *, Eze, Kenneth O. & Abuato, Margaret I.**.....187-194
- ❖ Effects of Two Constructivist-Based Instructional Approaches on Senior Secondary School Students' Interest in English Language Narrative Essay Writing: Implications for Curriculum Studies - **Nwaneri, Ifeoma Goodluck & Eze, Kenneth Oma**.....195-202
- ❖ Effects of Think-Pair Share Teaching Strategy on Secondary School Students' Achievement and Retention in Biology in Abia State - **Uwazie, Ngozi C. & M. C. Ndirika**.....203-215
- ❖ Effect of Visual Models on Students' Achievement in Mammalian Skeleton Among Secondary School Students in Delta State - **Rita Akpobome OGUOKO & Josiah Oghenetega ORIOGWHO**.....216-221
- ❖ Awareness and Utilization of Internet-Based Tools for Data Collection among Early Career Researchers in Public Universities in Cross River State, Nigeria - **Moses Eteng Obla¹, Mbapinen Priscilla Ndur² & Clement Odaji Obi³**.....222-229
- ❖ Effect of Artificial Intelligence on Economics Students' Learning Outcomes in Public Secondary Schools in Ikwo Local Government Area, Ebonyi State - **Ijeoma Awa Kalu¹ & Kelechi Chinemerem Mezieobi²**.....230-237
- ❖ Nominal Scales in Quantum Computing and Educational Assessment: A Comparative Review of Classification Systems and Standardization Challenges - **Christian Ngozi, Odo Emmanuel Sunday & Adeyemi Olabanji Ayodeji**.....238-243
- ❖ Cognitive Load and Classroom Participation as Determinants of Students' Academic Achievement in Secondary School Mathematics in Lokja Education Zone, Kogi State - **Guma, Ngozika Nwamaka¹, C. C. Ugwuanyi¹ & Agbo Chinenyenwa Mable²**.....244-251
- ❖ Production of Locally Made Meter Bridge and Students' Achievement in Physics in Mkpat Enin, Akwa Ibom State, Nigeria - **Harrison, Victor Ekerete, Utibe, Uduak James & Atabang, A. Atim**.....252-260
- ❖ Language: A way to Effective Communication for The Inclusive Learning, Through Curriculum Development - **Osuigwe Damian Chukwuebuka**.....261-264
- ❖ Evaluation of the Implementation of the English Studies Curriculum at the Upper Basic II Education Level in Abia State - **Olaseni, Sabina Nnenna & U.A. Igwe**.....265-272

- ❖ Motivation and self-control; the key players in enhancing academic achievement in Economics in Orlu Education Zone one Imo State Nigeria - **Okere, Ikechukwu Justice¹, Ugwuanyi, Christian Sunday², Ezeokoye, Chidiebube Precious³**.....273-280
- ❖ Perceived Need of Computer-Based Testing (CBT) as a Correlate of Effective School Administration in Alvan Ikoku Federal University of Education, Owerri - **¹Ekwurru Rose Kalu, ²Jombo-Umeh, N. O, ³Oguguo, Basil C. E, ⁴Anyiam, Lasbrey I.**.....281-286
- ❖ Brain Dominance as a Tool For Fostering Positive Attitude Towards Learning of Biology: Implication for Integrating AI in the Classroom - **Anukaenyi, Anastesia Chisom¹, Ibenegbu, Queendaline Obiajulu¹, Enemuo Chinwe Juliana², Blessing Ifeoma Okafor³ & Muojekwu Helen Onyinye⁴**.....287-293
- ❖ Knowledge of Benefits and Challenges of AI-Based Assessment Tools in Assessing Students' Affective Domain in Mathematics Education Among Mathematics Teachers - **Chinweike Jane Ndubumma, Ugwuanyi Chika Charity & Udegbumam Gloria Ginikanwa**.....294-308
- ❖ Enhancing Mathematical Computational Skills of Primary School Pupils in Selected Public Schools in Uyo Using Touchmath Multisensory Program - **Philip Olaoluwa Olota¹ & Osita Victor Ossai²**.....309-318
- ❖ Harnessing Artificial Intelligence for Enhancing Entrepreneurship and Creativity in STEM Education - **Elaochi Isaac¹, Isah Ilemona¹, Peter Akoh Emmanuel² & Ameh Jonah Godwin³**.....319-327
- ❖ Exploring the Relationship Between Academic Interest and Performance of Undergraduate Students in Basic Science - **Obodo Abigail Chikaodinaka**....328-332
- ❖ Effect of Project-Based Instructional Method on Students' Academic Motivation in Narrative Essay Writing in Calabar Education Zone, Cross River State, Nigeria - **Nwachukwu, Clara Chinenye**.....333-338
- ❖ Effectiveness of Think-Pair-Share strategies and Peer-Tutoring in improving students' Self-Efficacy and Science Process Skills in Biology - **Akinbayo Temitope Oluwafemi¹, Oladipupo Popoola Oluwasegun¹, Owolade Adeyinka Olayemi² & Ariyo Oyeniye Sunday³**.....339-351
- ❖ Effect of Ausubel's Advance Organisers on Senior Secondary School Students' Self-Efficacy in Algebra - **Gladys Mathew EZUMEZUH & Kzaik Benjamin DANLAMI**.....352-361
- ❖ Roles and Challenges of Artificial Intelligence Integration in Science Education Instruction - **Ayogu, Esther Onyemaechi ¹, Ogwu, Angela Ifenyinwa²**.362-369

- ❖ Efficacy of Two Computer-Based Multimedia Lesson Delivery Approaches On Secondary School Students' Achievement in Biology in Federal Capital Territory, Abuja - **Blessing, Okechukwu** ¹, ***Obiageli Loretta Aniaku**² & **Audu, UmoruDanjuma**...370-376
- ❖ Bridging the ICT Skills Gap: Assessing Job Readiness of Office Technology Graduates in the Contemporary Workforce - **Okoli C. Ese-Osa, Patrick K. Bauti, Safiyanu S. Auwal and Ramalan Usman Baba**.....377-381
- ❖ Integration of Artificial Intelligence in Pedagogy of Science Education: Perceptions of Mathematics and Biology Educators in Nigerian Universities - **Eunice Nwakaego Onah**¹, **Veronica Chinonyelum Ude**² & **Mary-Rose Chibundo Enema**³.382-388
- ❖ Integrating Sustainable Development Studies into Secondary School Curriculum in Calabar Education Zone - ¹**Etuki Eboroty E.,** ²**Okpin, fidelis Oko,** ³**Okuaghare, Joyce Isaac,** ⁴**Nwachukwu Ifeoma Grace,** ⁵**Otu Kennedy Sunday,** ⁶**James, Ofonnbuk Okokon & A. C. Omoogun**389-396
- ❖ Correlation of Classroom Characteristics, Parental Socio-Economic Background and Students Mathematics Achievement in Abia State - **Nna Izuchukwu & A. O. Ovute**.....397-402
- ❖ Farmers' Gender and Their Awareness of Green Marketing in Calabar Education Zone of Cross River State, Nigeria - ¹**Egbonyi, Etuki Eorty,** ²**Tangban, Ann Nanghata,** ³**Bassey, Victoria Princess,** ⁴**Ekeng-Ita, Edemanwan Ekeng,** ⁵**Erasmus Tiku Akwo,** ⁶**Egunu, Sunday A. &** ⁷**A. C. Omoogun**.....403-409
- ❖ Teachers' Perceptions of Artificial Intelligence Integration for Supporting Pupils with ADHD in STEM Education: A Study of Primary Schools in Enugu State, Nigeria - **Osita Victor Ossai**.....410-420
- ❖ Influence of Mobile Learning Approach on Students' Attitude Towards Mathematics in Secondary Schools in Owerri Municipal Council of Imo State - ¹**Nwoke, Bright Ihechukwu Ph.D,** ²**Unamba, Eugene C. Ph.D,** ³**Onyegbuchulem Chialuka Ph.D &** ⁴**Ajuzie, Ndubisi E. Ph.D,**421-427