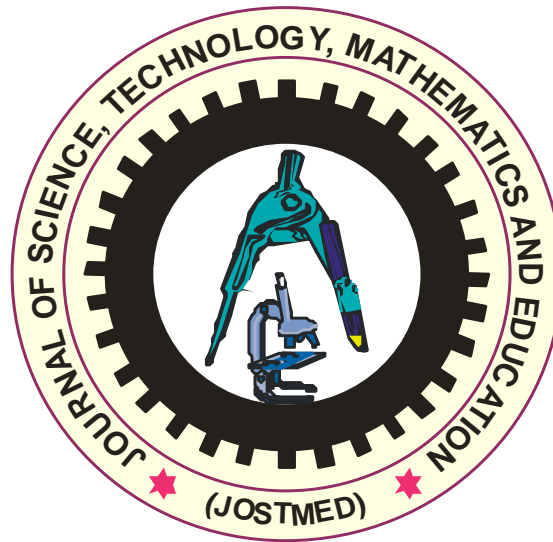


**JOURNAL OF SCIENCE, TECHNOLOGY,
MATHEMATICS AND EDUCATION
(JOSTMED)**



ISSN: 0748 – 4710

VOLUME 16(2), JUNE, 2020

WELCOME TO JOSTMED

Welcome to the Journal of Science, Technology, Mathematics and Education (JOSTMED). The JOSTMED is a scholarly based journal published four times in a year by the Department of Science Education, School of Science and Science Education, Federal University of Technology, Minna, Nigeria, since September 1998. The scope of the Journal includes the research, development, and practice in all areas of Science, Technology, Mathematics and Education.

INSTRUCTIONS TO CONTRIBUTORS

1. General Guidelines

(i) **Types of Manuscripts:** The Editorial Board of the Journal of Science, Technology, Mathematics and Education accepts only scholarly and original articles that meet its aim and scope. Contributions must be original therefore, authors is/are to guarantee that their article is original and not currently being considered for publication elsewhere.

(ii) **Language:** The JOSTMED is published in English Language.

(iii) **Length:** Usually full-length article, survey or report should be between 3,000 - 5,000 words (12 – 15 pages).

(iv) **Abstract and Keywords:** Each article should be summarized in about 150 -200 words, serving as a brief description of the content of the article. In addition, following the abstract, supply 4 - 5 keywords/phrases that characterize the content of the paper and which can be used for indexing purposes.

(v) **Manuscript:** Manuscripts, including the abstract and references, should be typed double-spaced on A4 paper set-up using Times New Roman, 12 font size.

(vi) **Review:** Each submission will be subjected to blind peer-review by at least two experts in the fields of the articles. Before the publication of accepted article, corresponding authors will receive a PDF version of their manuscript for final proofing. It should, however, be emphasized that changes in content (new or additional results, corrected values, changes in article title, etc) are not permitted without the approval of the Managing Editor.

2. Copyright

Only original papers will be accepted and processed. Paper accepted will be subjected to viper anti-plagiarize detector software. In addition, no compensation will be given in respect of published papers. However, authors reserve the right to use their own materials for purely educational and research purposes.

3. Format of Submitted Manuscripts

All manuscripts, written in good English, should be submitted electronically as an e-mail attachment (in Microsoft Word format not scanned copy) to the journal e-mail: jostmed@futminna.edu.ng, jostmedscience@yahoo.com or managing editor's e-mail: gambarii@yahoo.com, gambari@futminna.edu.ng.

When submitting manuscript in a paper version three copies should be submitted in double line spacing with wide margins, and not more than 12 pages with illustrations inserted. Extra page will attract additional amount of N1,000.00/\$7.00 per page. Each article submitted must be accompanied with an assessment fee of three thousand naira (N3,000) only in cash or bank draft in favour of the Managing Editor (JOSTMED). Submission of manuscript is accepted throughout the year.

The beginning of the manuscript must bear the title of the paper and the full names of authors and their affiliations for correspondence (including e-mail and telephone number). Where there are two or more authors include the addresses for correspondence (e-mail and postal addresses) for the contact author.

Once the article is accepted for publication, the final version should be submitted online. Where that is not possible, the manuscript must be provided, accompanied by a Recordable CD of the same version labelled with: author name(s); titles of article and file name. The author must ensure that the final submission is complete, grammatically correct and without spelling or typographical errors. In preparing the disk, please use Microsoft Word. The sum of Fifteen Thousand (N15,000) naira only (£50.00 or \$100 US Dollar) should be paid to journal account. The online version of the published articles are available at www.futminna.edu.ng and can be accessed through the Internet free of charge.

4. Organization

The background and purpose of the manuscript should be given first, followed by details of methods, materials, procedures and equipment used (where applicable). Findings, discussion, conclusions and recommendations should follow in that order. Appendices are not encouraged but may be countenanced if considered necessary for the manuscript content to be understood. Specifically, author is/are advised to consult the current APA Manual for the details they may need.

5. Figures and Tables

Figures, charts and diagrams should be kept to a minimum, they must be numbered consecutively with roman numerals and a brief title. When submitting electronically, figures should be prepared separately, numbered consecutively and submitted in one of JPEG File interchange (jpg), CompuServe GIF (gif), and PC Paintbrush (pcx). Images should not exceed width of 450 pixels.

6. References

The author should ensure that the references given are complete. References to personal letters, papers presented at meetings and other unpublished material may be included. Where such materials may help in the evaluation of the paper, copies should be made available to the Managing - Editor. Papers that are part of a series should include a citation of the previous papers, and explanatory materials may be appended to the manuscript to avoid footnotes. Citation of an author's work in the text should follow the author / date method of citation; the surname of the author (s) and year of publication should appear in text. Generally, the format for citations in the Manuscript for references is that of the latest edition of the American Psychological Association (APA) format. At the end of the article, a reference list in alphabetical order must be given.

7. Disclaimer

The views and styles expressed in the articles in this publication are those of the individual authors and are not necessarily shared by the reviewers, the editors, the editorial consulting board, the Department of Science Education, or the Federal University of Technology, Minna.

Prof. Gambari, A. I.

The Managing Editor, (JOSTMED),

Department of Educational Technology, Federal University of Technology, PMB. 65, Minna, Nigeria

E-mail: gambarii@yahoo.com; gambari@futminna.edu.ng

Website: www.gambariamosaisiaka.com.ng

Mobile Phone: +234-816-680-7534; +234-803-689-7955

EDITORIAL BOARD

Editor-in-Chief	-	Prof. (Mrs.) V. I. Ezenwa
Managing Editor	-	Prof. A. I. Gambari
Assistant Managing Editor	-	Dr. A. A. Yaki
Senior Associate Editor	-	Dr. O. C. Falode
Associate Editor	-	Dr. T. O. Alabi
Account Editor	-	Dr. (Mrs.) R. G. Wodu
Associate Editor	-	Mr. U. S. B. Idris

EDITORIAL ADVISERS

NAME	SPECIALIZATION	ADDRESS
Prof. Afolabi Ayo Samuel	Civil & Chemical Engineering,	University of South Africa
Prof. M. O. Yusuf	Educational Technology	University of Ilorin
Prof. (Mrs.) R. Uyanga	Science Education	University of Uyo
Prof. P. A. O. Okebukola	Biology	L. A. S. U., Lagos
Prof. I. O. Inekwe	Mathematics Education	Michael Opara University of Agriculture, Umudike
Prof. Sanjay Mistra	Computer Cyber Security,	Covenant University, Canaanland, Ota
Prof. C. Ugodulunwa	Test and Measurement	UniJos
Prof. (Mrs.) U.N.V. Agwagah	Science Education	University of Nigeria Nsukka

SUSSCRIPTION RATES

Nigeria Rate (Personal)	₦1,000.00
Rate (Institutions)	₦2,000.00
Other Countries Rate (Personal)	\$25.00 / £15.00
Rate (Institutions)	\$35.00 / £22.00

All Cheques should be made payable to:

The Managing Editor, JOSTMED, Department of Educational Technology,
Federal University of Technology, Minna, Nigeria.

Subscription must be pre-paid and must include 10% handling charges

Contact

Phone No: +234-816-680-7534, +234-803-689-7955, +234-706-707-4366, +234-806-962-6979

E-mail: jostmed@futminna.edu.ng, jostmedscience@yahoo.com

Website: jostmed.futminna.edu.ng

Copyright ©

Journal of Science, Technology, Mathematics and Education

All Rights Reserved

ISSN 0748-4710

CONTRIBUTORS TO THE ISSUE

- 1. ABDULRAHMAN YUSUF**
Department of Computer Science,
Faculty of Science, Yobe State University Damaturu,
Yobe State, Nigeria.
E-mail: audura33@yahoo.com **Phone No:** +234-806-611-3431
- 2. TOR SHIEKUMA FELIX,¹ IDOWU OLATUNJI T.,² & SORETIRE KABIRU ADISA³**
¹Department of Library and Information Science,
Ahmadu Bello University, Zaria, Nigeria.
²Curriculum and Instruction Department,
FCT College of Education, Zuba, Abuja.
³Department of Educational Foundations and Curriculum,
Ahmadu Bello University, Zaria, Nigeria.
Email: talk2felix@gmail.com **Phone No:** +234-703-183-4035
- 3. OMODARA, O. D.¹ PHD & OJO, THOMAS A.²**
¹Curriculum Department, College of Education, Ikere-Ekiti, Ekiti State, Nigeria.
²Library Department, College of Education, Ikere-Ekiti, Ekiti State, Nigeria.
Email: Omodaradennis123@gmail.com, ojothomas16@yahoo.com
Phone No: +234816-169-9347, +234-813-301-5907
- 4. MAUDE, A. MOHAMMED & IJAH, U. J. JOSIAH**
Department of Microbiology, Federal University of Technology, Minna, Nigeria
Email: a.maude@futminna.edu.ng, udemijah@yahoo.com
Phone: +234-803-369-9931, +234-803-589-0201
- 5. AUDU, D. S.**
Department of Science Laboratory Technology,
Federal Polytechnic Nasarawa.
E-mail: dsaudu4@gmail.com **Phone:** +234-906-087-2112
- 6. ADEJUMO, B. A., OBASA, P. A., BUKOYE, A. A., ODIGIE, E., OKAFOR, O., AKPAN, E. I., & AMADU, M. K.**
Department of Agricultural and Bioresources Engineering,
Federal University of Technology, Minna, Niger State, Nigeria.
E-mail: bolanleadejumo@gmail.com **Phone:** +234-806-502-9056
- 7. ALALADE, O. A.¹, IYILADE A. O.⁴, POPOOLA, O. P.², JAMES-OJIBO, I. U.², SEGUN-ALALADE A. F.,³ & ASIYANBI, A. O.⁴**
¹Extension Management Division,
²Rural Infrastructure and Institution Development Division,
⁴Women and Youth Development Division,
Department of Rural Development and Gender Issues, Agricultural and Rural Management Training Institute (ARMTI), Ilorin, Nigeria.
³Department of Sociology, University of Ibadan, Nigeria
E-mail: segunalalade@gmail.com **Phone No:** +234-706-388-0416

- 8. ZUBAIRU, H. A.,¹ MOHAMMED, I. K.,² BABAKANO, F. J.,³ & ETUK, S. O.⁴**
^{1,3,4}Department of Information and Media Technology,
Federal University of Technology, Minna, Nigeria.
²Department of Computer Science,
Federal University of Technology, Minna, Nigeria.
E-mail: abu.zubairu@futminna.edu.ng; idris.kolos@futminna.edu.ng;
faiza.bkano@futminna.edu.ng; abiolastella@futminna.edu.ng
Phone No: +234-803-658-4777
- 9. ADEJUMO, B. A., OBASA, P. A., NWADIBE, F., DELE-ALE, A. O., & OGUNDIRAN, K. O.**
Department of Agricultural and Bioresources Engineering,
Federal University of Technology, Minna, Niger State, Nigeria
E-mail: bolanleadejumo@gmail.com **Phone No:** +234-806-502-9056
- 10. SHEFIU OLUSEGUN GANIYU^{1*}, ISAH OLAWALE MUSTAPHA², SULE AJIBOYE SALAWU,³ & ABDULKAREEM SULAIMAN ALIYU⁴**
^{1,4}Information and Media Technology Department,
School of Information and Communication Technology,
Federal University of Technology Minna, Nigeria.
²Department of Computer Science, Al-Hikmah University, Nigeria
³Department of Computer Science Education,
Aminu Saleh College of Education, Azare, Nigeria.
E-mail: ^{1*}shefiu.ganiyu@futminna.edu.ng, ²salnet2002@gmail.com, ³salawu_sul@yahoo.com,
⁴aliyu.abdulkareem@st.futminna.edu.ng
- 11. OYUBU, J. P., OLAYIWOLA, R. O., YAHAYA, Y. A., & COLE, A. T.**
Department of Mathematics,
Federal University of Technology, Minna, Nigeria.
E-mail: oyubuj@yahoo.com **Phone No:** +234-806-342-2423
- 12. GIMBA, A. S. & OLAYIWALA, R. O.**
Department of Mathematics,
Federal University of Technology, Minna, Nigeria.
E-mail: asgimba000@gmail.com; olayiwola.rasaq@futminna.edu.ng
Phone No: +234-706-323-3364
- 13. AUDU K. J.^{1*}, YAHAYA Y. A.², ADEBOYE K. R.³, ABUBAKAR U.Y.⁴, & NDANUSA, A.⁵**
^{1, 2, 3, 4,5}Department of Mathematics,
Federal University of Technology, Minna, Nigeria.
E-mail: k.james@futminna.edu.ng, yusuphyahaya@futminna.edu.ng,
yedeadeboye@gmail.com, usman.abu@futminna.edu.ng, as.ndanusa@futminna.edu.ng
- 14. OJO, O. J. PhD.¹, GARBA, KHADIJAH. W.,² & AMAO, HABEEB³**
¹Department of Educational Management, University of Ilorin, Ilorin, Kwara State.
²Faculty of Management Sciences, University of Ilorin, Ilorin, Kwara State.
³Department of Computer Science Education, Kwara State College of Education, Ilorin.
E-mail: martins_small79@yahoo.com, garbakw@gmail.com, taofada0507@gmail.com
Phone No: +234-803-390-2686, +234-803-417-3919, +234-703-958-1154

- 15. OYEYEMI AITOKHUEHI PhD.**
Department of Adult Education, Faculty of Education, University of Lagos,
Akoka, Lagos, Nigeria.
Email: oyeyemiaito@gmail.com **Phone No:** +234-802-398-3648
- 16. BALOGUN, ABDULRASAQ OLATUNJI PhD., OKAFOR, IFEOMA PRISCILIA PhD., & JIMOH, MOHAMMED IDRIS PhD.**
Department of Social Sciences Education, Faculty of Education,
University of Ilorin, Ilorin, Nigeria.
E-mail: balogun.ao@unilorin.edu.ng, Okafor.ip@unilorin.edu.ng, Jimoh.mi@unilorin.edu.ng
- 17. YILSHIK, OBED MUSA, EZEKIEL, DAZI PAM & UMAR, SANI ALHAJI**
Department of Science Education, Faculty of Education,
Federal University of Kashere, Gombe State, Nigeria.
E-mail: oyilshik@gmail.com, daziezekiel@gmail.com, Umarsani365@gmail.com
Phone No: +234-803-290-4643, +234-803-766-8529, +234-803-655-6222
- 18. MOHAMMED, RIDWAN ENUWA & IREDJE, NATHALIE**
Department of Science Education, University of Ilorin, Ilorin, Nigeria.
E-mail: ridemedu@gmail.com, mohammed.re@unilorin.edu.ng
Phone No: +234-703-368-0444
- 19. OYEKOLA, AYODELE HEZEKIAH Ph.D**
Centre for Educational Technology,
Federal College of Education (Technical) Akoka, Yaba, Lagos State, Nigeria.
E-mail: ayusoye@yahoo.com
Phone No: +234-806-220-0850
- 20. ¹YUSUF, N. B. Ph.D., ²UMAR, A. G., ³AYODELE, M. O., & ⁴ARINDE, O. O.**
^{1&3}Department of Chemistry Education,
²Department of Mathematics Education,
⁴Department of Biology Education,
Kwara State College of Education (T) Lafiagi, Kwara State, Nigeria.
E: Mail: nusiratyusuf@gmail.com
Phone No: +234-703-802-4381

TABLE OF CONTENTS

1.	The Essentialities of a Trigger: An Integral Part of a Database Security. Abdulrahman Yusuf	1
2.	A Study on the Means of Acquiring ICT Competencies among Academic Staff in Universities in Benue State, Nigeria. Tor Shiekuma Felix, Idowu Olatunji T., & Soretire Kabiru Adisa	15
3.	Availability and Patronage of College of Education Library Information Resources among Academics in Ikere Ekiti, Ekiti State. Omodara, O. D. PhD & Ojo, Thomas A.	27
4.	Physicochemical Quality and Antibiotic Resistance Profile of Bacteria Isolated from Well Water in Two Slums in Minna, Niger State. Maude, A. Mohammed & Ijah, U. J. Josiah	38
5.	Determination of Activity Concentration of Thorium-232 in Tomatoes and Estimation of Annual Effective Dose to the Public in Nasarawa L.G.A of Nasarawa State, Nigeria. Audu, D. S.	52
6.	Design and Fabrication of a Dual Powered Extractor Fume Cupboard. Adejumo, B. A., Obasa, P. A., Bukoye, A. A., Odigie, E., Okafor, O., Akpan, E. I., & Amadu, M. K.	63
7.	Perceived Benefits of Conditional Cash Transfer (CCT) Programme among Rural Households in Kwara State, Nigeria. Alalade, O. A., Iyilade A. O., Popoola, O. P., James-Ojibo, I. U., Segun-Alalade A. F., & Asiyanni, A. O.	75
8.	Digital Wallet: A Revenue Collection System for Low-Income Earners. Zubairu, H. A., Mohammed, I. K., Babakano, F. J., & Etuk, S. O.	84
9.	Development of a Muffle Furnace. Adejumo, B. A., Obasa, P. A., Nwadike, F., Dele-Ale, A. O., & Ogundiran, K. O.	94
10.	Implementation of Secure User-Centred Architecture for Bus Booking System Integrated with Unstructured Supplementary Service Data and Web Platforms. Shefiu Olusegun Ganiyu, Isah Olawale Mustapha, Sule Ajiboye Salawu, & Abdulkareem Sulaiman Aliyu	104
11.	Modeling and Simulation of In-Situ Combustion of Oil Shale as Enhanced Oil Recovery Technique in Porous Media. Oyubu, J. P., Olayiwola, R. O., Yahaya, Y. A., & Cole, A. T.	116
12.	Modeling the Auto Ignition of Combustible Fluid in Insulation Materials Incorporating Partial Pressure of the Vapour and Heat Transfer at the Surface. Gimba, A. S. & Olayiwala, R. O.	129

13. Triple Accelerated Overrelaxation Method for System of Linear Equations. **Audu K. J., Yahaya Y. A., Adeboye K. R., Abubakar U. Y., & Ndanusa, A.**..... 137
14. Perception of Undergraduate Students on Service Delivery in the University of Ilorin, Ilorin, Nigeria. **Ojo, O. J. PhD., Garba, Khadijah. W., & Amao, Habeeb**.....148
15. Perception of Chartered Accountants on the Adequacy of Professional Training for Accounting Ethics Practice **Oyeyemi Aitokhuehi PhD**..... 157
16. Assessment of Corrupt Intention among Secondary School Students in Ilorin South, Kwara State, Nigeria. **Balogun, Abdulrasaq Olatunji PhD., Okafor, Ifeoma Priscilia PhD., & Jimoh, Mohammed Idris PhD**..... 168
17. Relationship between Secondary School Students' Self-Concept and Academic Achievement in Biology in Plateau State Central Senatorial Zone, Nigeria. **Yilshik, Obed Musa, Ezekiel, Dazi Pam & Umar, Sani Alhaji**..... 176
18. Effects of Target Task Model and Experiential Learning Approach on Senior Secondary School Students' Performance in Physics. **Mohammed, Ridwan Enuwa & Iredje, Nathalie**..... 186
19. Effects of Flipped Classroom Instructions and Teaching Self-Efficacy on Pre-Service Teachers' Practice in Microteaching in Lagos State. **Oyekola, Ayodele Hezekiah PhD**..... 198
20. Pre-Service Teachers' Awareness of SDGs and Roles of Science Education in Achieving Sustainable Development in Nigeria. **Yusuf, N. B. PhD., Umar, A. G., Ayodele, M. O., & Arinde, O. O.**..... 210