

BRIDGING THE GAP BETWEEN RESEARCH AND PRACTICE:

PATHWAYS IN SCIENCE & TECHNOLOGY EDUCATION

A Festschrift

in honour of

PROFESSOR

JOSEPHINE

NWANNEKA OKOLI

(FSTAN, mnae)

Edited by:

Prof. M.C. Ndirika

Rev. Sr. Dr. M.C. Nwankwo

Dr R.I. Enebechi

Dr C.O. Obialor

I.S. Nwuba

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Professor Josephine Nwanneka Okoli (2026)

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PREFACE

This book, conceived as a festschrift, is an edited collection of original articles by national and international senior scholars who have been affiliated with the ideas and foundational work of Professor Josephine Nwanneka Okoli. The collection aims to account for her shaping influence on the field of science education through scholarly engagement with her ideas. Although a festschrift is defined as a collection of writings published in honor of a scholar, the editors envisioned this as more than just a celebration of Professor Okoli's accomplishments. Rather, we propose this book as an extension and application of her contributions to the field of science education in the spirit of committed scholarly discourse.

The writing of this Festschrift, a book of honour, for Professor Josephine Nwanneka Okoli by her academic mentees, former students, supervisees, academic colleagues and friends, was motivated by an attitude of gratitude which was considered necessary to be expressed through this medium. It is an expression of our great admiration and appreciation to Professor Josephine N. Okoli, for the role she played as an academic giant, indefatigable and an erudite scholar. The collection of articles in this Festschrift represents wide diversity of well researched papers from academia across various states of Nigeria. This Festschrift titled "Bridging the Gap between Research and Practice: Pathways in Science & Technology Education" has Four Sections on relevant and vital topics around the main title.

The sections are variously named according to the issues centrally addressed by the articles. Section 1 is titled *Digital Technologies and Innovation in Bridging Research Practice Gaps*; Section 2, *Pedagogical Practices Teacher Development and Classroom Innovation*; Section 3, *Student Learning, Psychological Factors and Academic Achievement* while Section 4 is *Assessment, Policy, Health and System-Level Issues in Science Education*.

Inside the Festschrift contains articles which reflect the teaching, research and development interests of Professor Okoli as is known by the contributors who attempted to propagate her vision in academics through

teaching and research in Science and Technology education in Nigeria. This festschrift is in recognition of Professor J.N. Okoli's academic feat, giant strides and unequalled efforts expressed in devotion and commitment among which are the great virtues she championed. Her contributions to the science education community can be viewed as not only impactful but also historic.

This festschrift will surely serve as an information resource that will assist students and researchers increase their wealth of knowledge as they read through. It is a unique representation of unique efforts to bridge the gap between research and practice in a way that may not be found in any other book. We strongly recommend it for intellectual activities and leisure readings for all including academia and scholars in all spheres of life due to the diverse nature in the topics discussed.

We, the Editors, appreciate the contributors for accepting to make this festschrift a successful reality in honour of an academic giant, Professor Josephine N. Okoli. We are equally grateful for the opportunity to serve as Editors and appreciate all the members of the festschrift committee for a job well done.

Professor Maryann Chinwe Ndirika (*FSTAN, MSACE*)

March 2026

CITATION/BIOGRAPHY OF PROF. JOSEPHINE NWANNEKA OKOLI

Professor Josephine Nwanneka Okoli was born to the family of the late Okongwu Uchegbu and Louisa Uchegbu of Awka-Etiti, Idemili South Local Government Area, Anambra State. Professor Josephine's educational pedigree started at Our Lady of Apostle Convent School I, Warri, Delta State, in the then Mid-Western Region. She obtained her West African School Certificate in 1971, Teachers' Grade II Certificate in 1973, and a Bachelor's degree in Education from the University of Nigeria, Nsukka, in 1980. Professor Josephine Nwanneka Okoli obtained her Master's degree in Science Education with specialization in Biology from the University of Ibadan, Ibadan, in 1985. As a qualified teacher, Prof. Josephine Nwanneka Okoli taught in various secondary schools and teacher training colleges, such as Queen of the Rosary College Onitsha, St. Charles Teacher Training College, Onitsha, and Nwafor Orizu College of Education, Nsugbe.

Her irresistible passion for teaching drove her to further her education, and she completed her Ph.D. in 1995 from the University of Nigeria, Nsukka. She joined the services of Nnamdi Azikiwe University in 2005 as a Lecturer I in the Faculty of Education, Department of Science Education. She rose through the ranks and was promoted to the rank of Full Professor of Science Education (Biology) on 1st October, 2014. Over the years, she has been teaching Biology both at the undergraduate and postgraduate levels. In many of her publications, she has admirably demonstrated her in-depth mastery of the subject. Professor Josephine Nwanneka Okoli has served either as a member or Chairman of numerous Departmental and Faculty Committees in Nnamdi Azikiwe University, Awka.

As a grounded research scholar, she has served in the capacity of External Examiner for the Integrated Science Department (B.Ed Degree Programme), Federal College of Education (Technical) Umuze, Anambra State, Nigeria, from 2011 to 2014; External Examiner, Department of Science Education, Chukwuemeka Odimegwu Ojukwu University, Uli, Anambra State, Nigeria, 2018–2020 and 2023–2025; External Examiner, Department of Science Education, University of Uyo, Akwa Ibom State, Nigeria, 2020–2022; and External Examiner, Department of Science Education, Ebonyi State University, Abakaliki, Nigeria, 2022 to date, among others. Furthermore, Professor Josephine Nwanneka Okoli is certificated for several structured trainings and has served as a resource person in various capacities.

Professor Josephine is a reputable member of many learned and professional societies, among which include: Fellow, Science Teachers Association of Nigeria (FSTAN); Member, Commonwealth Association of Science, Technology and Mathematics Education (CASTME); Member, Gender and Science and Technology Association (GASAT); Member, Nigeria Academy of Education (NAE); Member, Third World Organization for Women in Science (TWOWS); National Chairman, Biology Panel, Science Teachers Association of Nigeria; and many others.

Professor Josephine Nwanneka Okoli, owing to her scholarly academic engagements, has bagged so many awards. She has received awards such as the Distinguished Excellent Award by the National Association of Awka-Etiti Students, University of Nigeria, Nsukka Chapter, 2007; the Distinguished Noble Service Award with the title “Ada Ejiejemba” by the Awka-Etiti Improvement Union (Women Wing); the Award of Honour by the Association of Science Education Students, Nnamdi Azikiwe University, Awka, 2016; and the Distinguished Service Award from the Department of Science Education, Nnamdi Azikiwe University, Awka.

Professor Josephine is widely published in reputable national and international journals, and she has also attended and facilitated many national and international conferences. Apart from her academic calling, her knighthood obligations even more define her personality and strong beliefs. These rare qualities earned her the respected position of President of Ladies Auxiliary LAUX 363, Knights of St. John International, Awka. She is a devout Christian who unequivocally believes in the sovereignty of our Lord and Saviour Jesus Christ and that she is nothing and can be nothing except in Christ. She holds the view that her vocation as a teacher provides her with fertile and limitless opportunities to evangelize. On that pedestal, she has effectively ministered and prayerfully counselled many of her undergraduate and postgraduate supervisees, assisting them in their various academic, personal, marital, and spiritual issues, with successful and victorious stories to the Lord's glory.

Professor Josephine Nwanneka Okoli was very happily married to Chief Benedict Chikodili Okoli of blessed memory. Their union is blessed with children who are doing exploits here in Nigeria and abroad.

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FOREWORD

I write this foreword in honour of Professor Josephine Nwanneka Okoli, a distinguished scholar whose contributions to science and technology education have had a lasting impact on both academia and practice. I do so with great honour and admiration.

This Festschrift is important and timely, with the theme "Bridging the Gap Between Research and Practice: Pathways in Science and Technology Education." It reflects Professor Okoli's lifelong dedication to making sure that research findings significantly influence teaching, learning, and policy in addition to the changing demands of modern education. Her work has repeatedly shown that the real value of research is found in its applicability, ability to change classrooms, empower students, and tackle real-world issues.

Professor Okoli has made a name for herself over the years with her rigorous scholarship, creative thinking, and unwavering commitment to mentoring the upcoming generation of researchers and educators. Her impact is seen in the numerous scholars she has influenced, the educational reforms she has shaped, and the intellectual communities she has assisted in creating, all of which go beyond books and classrooms.

The chapters in this volume are a testament to her legacy. They explore diverse perspectives and practical approaches aimed at narrowing the divide between theory and practice in science and technology education. Collectively, they echo Professor Okoli's vision of an education system that is dynamic, responsive, and grounded in evidence-based practices.

As readers interact with this Festschrift, they will find a reflection of a life committed to impact, excellence, and service in addition to a wealth of scholarly discourse. As Professor Okoli's work has done over the years, I hope this volume will continue to spur important discussion and action in the field.

On behalf of all contributors and well-wishers, I celebrate Professor Josephine Nwanneka Okoli for her outstanding achievements and enduring contributions. May her legacy continue to guide and inspire future generations.

Dr. Regina Ijeamasi Enebechi (FCAI, FSTAN, MTRCN)
Department of Science Education,
Faculty of Education,
Nnamdi Azikiwe University, Awka
March, 2026

LIST OF CONTRIBUTORS

- 1) **Prof. Maryann Chinwe Ndirika**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 2) **Dr. Regina Ijeamasi Enebechi**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 3) **Izunna Shedrack Nwuba**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 4) **Dr. Chris Okwuchukwu Obialor**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria
- 5) **Prof. Stella Chinyelu Obasi**; Department of Science Education Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus
- 6) **Dr. Obikezie Maxwell Chukwunazo**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 7) **Dr. Abumchukwu Angela Adanna**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 8) **Nwankwo Maryjane Uche**; Department of Science Education, Faculty of Education Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 9) **Eduzor, Victor O.**; Department of Science Education, Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, Anambra State..
- 10) **Nathan, Ndifreke Adolf**; Department of Science Education, Akwa Ibom State University
- 11) **Joy Dianabasi Eduwem**; Department of Psychological Foundations of Education University of Uyo, Akwa Ibom State, Nigeria
- 12) **George, Idara George**; Department of Science Education, Akwa Ibom State University, Nigeria
- 13) **Dr. Juliana Nkiru Nnoli**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 14) **Prof. Jerry Ebere Omenka**; Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 15) **Kingsley T. Onah**; Department of Science Education, Enugu State University of Science and Technology

- 16) **Dr. Omosule, Sunday Olusegun;** Department of Science Education, University of Lagos, Lagos State, Nigeria
- 17) **Dr. Oguejiofor, Chiamaka Nneka;** Department of Science Education, Faculty of Education, University of Lagos, Lagos State, Nigeria
- 18) **Dr. Evelyn Obianuju Egolum;** Department of Science Education, Enugu State University of Science and Technology
- 19) **Ifeoma Blessing Okafor;** School of Science, Federal College of Education (Technical), Umuze, Anambra State, Nigeria.
- 20) **Glory Ure Nwankwo;** School of Science, Federal College of Education (Technical), Umuze, Anambra State, Nigeria.
- 21) **Jude Obinwanne Ezeani;** School of Science, Federal College of Education (Technical), Umuze, Anambra State, Nigeria.
- 22) **Blessing Nonye Emmadirole;** School of Science, Federal College of Education (Technical), Umuze, Anambra State, Nigeria.
- 23) **Maureen Chizoba Nwenyi;** School of Science, Federal College of Education (Technical), Umuze, Anambra State, Nigeria.
- 24) **Dr. Pius, Promise Obinna;** Alvan Ikoku Federal University of Education, Owerri, Imo State
- 25) **Dr. Blessing, Okechukwu;** Department of Science Education, University of Nigeria, Nsukka, Enugu State, Nigeria
- 26) **Dr. Audu, U. D;** Department of Integrated Science, Federal College of Education, Yola, Nigeria
- 27) **Dr. Opeyemi F. Awosika;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 28) **Wale J. Sheba;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 29) **Chiamaka N. Oguejiofor;** Department of Science Education, University of Lagos, Lagos State Nigeria.
- 30) **Uzoamaka C. Okafor-agbala;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 31) **Onyebuchi M. Ndinyelum;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria.
- 32) **Friday P. Usang;** Federal Technical College, Awka, Nigeria
- 33) **Chimeremeze E. Esinulo;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.

- 34) **Nebechianya M. Nwaka;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 35) **Dr. Blessing C. Obi;** Department of Science Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 36) **Isaac-Martin C. Mmodum;** Community Secondary School, Obeledu, Anambra State, Nigeria
- 37) **Nwune, Emmanuel Chibuikwe;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 38) **Ikenwa, Rejoice Kodilichukwuma;** Department of Educational Foundations, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 39) **Sussan O. Egwu;** Science Education Department, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 40) **Dr. Stephen Chinedu Nwafor;** Department of Science Education, Faculty of Education, Nnamdi, Azikiwe University, Awka, Anambra State, Nigeria
- 41) **Amobi Uchenna Vivian;** Science Education Department, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 42) **Sunday Ogbu;** Department of Science Education, Faculty of Education, University of Nigeria, Nsukka
- 43) **Dr. Bianca Uzoamaka Mbonu-Adigwe;** Department of Science Education, University of Nigeria, Nsukka, Enugu State.
- 44) **Adaora Phina Anudu;** Department of Science Education, Alex Ekwueme Federal University, Ndufu-Alike
- 45) **Ezekiel Ikechukwu Ogbu;** Department of Science Education, University of Nigeria, Nsukka, Enugu State
- 46) **Blessing Chinenye Eze;** Department of Science Education, University of Nigeria, Nsukka, Enugu State
- 47) **Dr. Omaka Nwamaka Theresa;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria
- 48) **Umoetuk, Emmanuel Usoudo;** Department of Science Education, Akwa Ibom State University, Nigeria.
- 49) **Eden, Mabel Ini-Ibehe;** Department of Science Education, Akwa Ibom State University, Ikot Akpaden, Mkpato Enin, Nigeria
- 50) **Udoh, Ekaette Effiong;** Department of Curriculum and Teaching, Akwa Ibom State University of Education, Afaha Nsit, Nigeria

- 51) **Udo, Agnes Lambert;** Department of Curriculum and Teaching, Faculty of Education Akwa Ibom State University of Education, Afaha Nsit, Akwa Ibom State Nigeria
- 52) **Ita, Caroline Iserom;** Department of Educational Foundation Studies College of Education, University of Calabar, Calaba, Nigeria
- 53) **Kulo Alice Abonjia;** Department of Educational Foundation Studies College of Education, University of Calabar, Calaba, Nigeria
- 54) **Udeme Ezekiel Tommy;** Department of Educational Psychology Faculty of Educational Foundation Studies, University of Calabar, Calabar, Nigeria.
- 55) **Ifiok Edem Akan;** Department of Educational Foundations, School of Education, Federal College of Education Ibiono Ibom, Akwa Ibom State, Nigeria
- 56) **Idung Etim Idung;** Department of Psychological Foundations of Education, Faculty of Education University of Uyo, Uyo, Nigeria
- 57) **Anazodo Onyinye Stella;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 58) **Chukwuemeka Chisom Vivian;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 59) **Joseph Olaiya Fatoki;** Department of Science and Mathematics Education, Benue State University, Makurdi-Nigeria
- 60) **Tangarha Benjamin Akura;** Department of Science and Mathematics Education, Benue State University, Makurdi-Nigeria
- 61) **Onah Benedict Ojedor;** Department of Science and Mathematics Education, Benue State University, Makurdi-Nigeria
- 62) **Christian-Ike, Nwanneka Oluchukwu;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 63) **Okoye, Paschal Olisaeloka;** Nwafor Orizu College of Education, Nsugbe, Anambra State.
- 64) **Dr. Akachukwu Esther Ebele;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 65) **Dr. Mbaegbu Chioma Stephanie;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria

- 66) **Dr. Uche Ekwutosi Doris;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria
- 67) **Ibeh, Joseph;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria.
- 68) **Gethrude C. Ezenwabuchili;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 69) **Mmaduka, Stella Chioma;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 70) **Dr. Ezeobi Gloria Ogechukwu;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria
- 71) **Dr. Geoffrey Ukala;** Department of Science Education, University of Nigeria, Nsukka
- 72) **Bukar, Alhaji Umate;** Department of Science Education, University of Nigeria, Nsukka
- 73) **Oluwakemi Mogelola Anyanwu;** Department of Educational Management and Business Studies, Federal University Oye-Ekiti
- 74) **Emmanuel Omale;** Department of Science Education, University of Abuja, Abuja, Nigeria
- 75) **Mercy Ochoge;** Department of Science Education, University of Abuja, Abuja, Nigeria
- 76) **Dr. Regina Nwamaka Chukwu;** Department of Educational Management and Policy, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria
- 77) **Uchenna Lucy Oguoma;** Department of Social Science Education, Faculty of Education, Imo State University, Owerri
- 78) **Amadi, Adaobi Ijeoma,** Department of Social Science Education, Faculty of Education, Imo State University, Owerri.
- 79) **Dr. Nnaemezie, Nkiru Onyinyechukwu;** Department of Health Promotion and Public Health Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 80) **Ifediora, Uchenna Loveth;** Department of Health Promotion and Public Health Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria
- 81) **Duaka, Nkechi;** Department of Health Promotion and Public Health Education, Faculty of Education, Nnamdi Azikiwe University, Awka,

Nigeria

- 82) **Mbuk, Williams Ekong;** Department of Science Education, University of Uyo, Akwa Ibom State, Nigeria
- 83) **Effiong, Effiom Etim;** Department of Biology Education, Faculty of Science Education University of Calabar, Calabar
- 84) **Akpan, Comfort Joseph;** Department of Biology Education, Akwa Ibom State University of Education, Afaha Nsit
- 85) **Rev. Sr. Dr. Nwankwo, Madeleine Chinyere;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University, Awka, Nigeria.
- 86) **Nnaemeka Kenechi Oguezie;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria.
- 87) **Rev. Sr. Dr. Ezeanya, Maureen Chinyere;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria.
- 88) **Dr. Odukwe, Ogochukwu Chinelo;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria.
- 89) **Enyi, Nkeiru Catherine;** Division of General Studies and Digital Literacy, Federal University of Allied Health Sciences, Enugu, Nigeria.
- 90) **Ozobu, Ojemba Raymond;** Division of General Studies and Digital Literacy, Federal University of Allied Health Sciences, Enugu, Nigeria.
- 91) **Dr. Egbutu, Rita Ngozi;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Anambra State, Nigeria
- 92) **Dr. Chikendu, Rebecca Ebonam;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria.
- 93) **Dr. Onyeka, Edith Chinyere;** Department of Science Education, Faculty of Education, Nnamdi Azikiwe University Awka, Nigeria

SECTION ONE

**DIGITAL TECHNOLOGIES
AND INNOVATION IN BRIDGING
RESEARCH AND PRACTICE GAPS**