

Editorial

Dear Readers,

It is with great pleasure that we present the March 2025 issue of *Science Education International*. This issue features a diverse collection of 11 research articles that contribute to the ongoing discourse in science education. The studies included in this edition reflect a broad spectrum of perspectives, methodologies, and educational contexts, highlighting the global nature of research in this field.

The authors of these articles represent a wide array of countries, each bringing unique insights into science education. Contributions come from researchers in Estonia, Finland, Israel, Ethiopia, South Africa, the Philippines, India, Spain, Nigeria, Taiwan, and Turkey. This geographical diversity underscores the journal's commitment to fostering an international dialog that advances science education worldwide.

The articles featured in this issue explore various critical aspects of science education, including innovative teaching methodologies, the role of technology in science learning, curriculum development, and strategies to enhance student engagement and scientific literacy. Through empirical research, theoretical discussions, and practical applications, these studies offer valuable implications for educators, policymakers, and researchers alike.

The first article, "Promoting Young Science Education Researchers through a Series of International Seminars," authored by Regina Soobard and Miia Rannikmäe from Estonia, Jari Lavonen from Finland, and Rachel Mamlok-Naaman from Israel, explores the impact of a series of 3-day international seminars on PhD students' professional development. These seminars, conducted in both in-person and hybrid formats, provided a platform for networking, academic writing, reviewing, and discussion. Feedback from participants highlighted the significance of non-formal activities in fostering academic collaboration and enhancing research skills. The findings emphasize the importance of long-term motivation and structured support systems for PhD students in science education.

The second article, "Prospective Teachers' Perceptions of Using Information and Communication Technologies in Biology Education: Insights from Some Colleges of Teacher Education in Ethiopia," by Adane Sifer Besir, Getachew Sime Feyissa, Mulugeta Yayeh Worku, and Girma Tilahun Yimer from Ethiopia, examines prospective teachers' attitudes toward integrating ICT in biology education. Using a mixed-method approach with surveys and interviews, the study found that while most participants held positive views of ICT, gender and experience significantly influenced perceptions. The findings highlight the necessity of targeted training programs to bridge gaps in ICT competence among future educators.

The third article, "An Assessment of Teacher Professional Development Interventions for the Integration of Indigenous Knowledge in Science," authored by Nishaal Bhaw, Josef de Beer, and Jeanne Kriek from South Africa, evaluates a professional development intervention aimed at integrating indigenous knowledge into science education. The study, using teacher interviews and portfolio analyses, underscores the value of practical training sessions in enhancing teachers' pedagogical content knowledge and facilitating the meaningful incorporation of indigenous knowledge into curricula. The research suggests that sustained professional learning opportunities are crucial for fostering culturally responsive science teaching.

The fourth article, "Assessing Senior High School Students' Awareness of Sustainable Development Goals (SDGs) in a Philippine STEM School," by Jericho E. Padilla, Jerile Mae E. Casimiro, and Carlo V. Amigable from the Philippines, investigates the awareness and integration of SDGs among STEM high school students. The study, based on survey responses, reveals that formal education plays a crucial role in SDG awareness, but knowledge gaps persist in subjects like Mathematics. The findings advocate for cross-disciplinary approaches and enhanced career guidance programs to better align sustainability education with national priorities.

The fifth article, "Mediating Role of Mathematics and Science Engagement in the Relationship between Attitude toward STEM Education and Subjective Well-being of Adolescents," by R. N. Kavitha and Jacqueline Kareem from India, explores the interplay between students' attitudes toward STEM education and their subjective well-being. The study, involving 363 students, finds that engagement in mathematics and science mediates this relationship, suggesting that fostering interactive and hands-on STEM learning experiences can enhance student well-being and academic achievement.

The sixth article, "Science and Plant Interest in Outdoor Learning: Evaluating Prospective Teachers' Experiences with a Botanical Inquiry Trail," authored by I. Corbacho-Cuello, M. A. Hernández-Barco, and A. Muñoz-Losa from Spain, examines how prospective primary teachers' interest in science and plants influences their learning experiences during a botanical inquiry trail. Findings suggest that higher interest correlates with increased knowledge acquisition and positive emotional engagement. The study emphasizes the importance of outdoor learning and experiential approaches in teacher training.

The seventh article, "Adolescents' Sources of Sexuality Education and their Sexual Beliefs and Practices: Rethinking the Analog and Digital Sources," by Atomatofa Rachel,

Sekegor Crescentia Ojenikoh, and Emefe Oghenevwairhe from Nigeria, analyzes how adolescents acquire sexuality education and how it influences their beliefs and practices. The study finds that digital sources, particularly the internet, play a dominant role in shaping sexual awareness. The research advocates for comprehensive sexuality education that integrates both traditional and digital learning resources.

The eighth article, “Beyond the Classroom: What do Teachers Know about Teaching Physical Science in the Science Center?” by Lungile Philisiwe Gumede and Patricia Photo from South Africa, investigates science teachers’ knowledge and perceptions regarding teaching in science centers. Findings reveal a preference for hands-on learning but also highlight gaps in understanding how to integrate science center experiences into formal curricula. The study calls for professional development programs to enhance teachers’ competencies in utilizing science centers effectively.

The ninth article, “Strengthening Student Collaboration and Decision-making Skills through Integrated STEM Education: A Research and Development Study,” authored by Bevo Wahono, Astrino Purmanna, Rizki Ramadhani, and Marison Sudioanto Manalu from Taiwan, explores the role of integrated STEM education in enhancing students’ collaborative and decision-making skills. Using a structured instructional unit, the study finds significant improvements in these skills, reinforcing the importance of incorporating STEM methodologies into science education.

The tenth article, “College Students’ Knowledge, Attitudes, and Practices Regarding Reproductive Health: Implications to Science Education Curriculum,” by Vinna Mae F. Alegado, Amy Phil F. Domingo, Danilo V. Rogayan Jr., and Jasmine R. Albeza from the Philippines, examines the reproductive health

knowledge, attitudes, and practices of teacher education students. The study finds moderate knowledge levels, positive attitudes, and varied practices, highlighting the need for enhanced science curricula to better address reproductive health education in higher education institutions.

The eleventh article, “Examining the Levels of Science Teachers’ Use of Self-Regulation Strategies in their Lessons: The Example of Turkey’s Southeastern Anatolia Region,” by Selahattin Gönen and Serkan Noyan from Turkey, investigates how science teachers employ self-regulation strategies in problem-solving. The study, based on a survey of 800 teachers, finds that multiple self-regulation strategies are frequently used, with no significant differences based on gender, education level, or experience. The research suggests that further studies incorporating qualitative methods could provide deeper insights into teachers’ self-regulation practices.

We extend our gratitude to the authors for their rigorous research and dedication to the field. We also appreciate the invaluable efforts of our peer reviewers, whose expertise and constructive feedback ensure the high quality of publications in *Science Education International*. Finally, we thank our readers for their continued interest and engagement with the journal.

We hope that this issue provides meaningful insights and sparks further discussions that contribute to the advancement of science education on a global scale.

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