Dr. Nelly Adjoa Sakyi-Hagan

Department of Integrated Science Education
University of Education, Winneba

ORCID 0000-0002-9416-7893 · Homepage uew.edu.gh/dise/staff/nasakyihagan · Google Scholar scholar.google.com/citations?user=zaNVzkoAAAAJ&hl=en · Profile uew.peerford.com/staff/4d047d2d-345d-4584-bf40-cfbc51088263

PROFILE

Dr. Nelly Adjoa Sakyi-Hagan is a dynamic force in science education, gender advocacy and community development. Currently lecturing at the University of Education, Winneba (UEW), Ghana, she has over two decades of teaching experience, helping shape the educational landscape in Ghana and beyond. Her research interests are in STEM Education, especially Physics and Gender Issues. Her career, marked by academic excellence and an unwavering commitment to empowering young girls, particularly in STEM, attests to her dedication and leadership in academia.

She is a PhD fellow of the prestigious University of Jyvaskyla, Finland where her expertise in science education deepened, and also broadened her global perspective on teaching and learning. Nelly has consistently advocated for innovative instructional approaches that engage students, and her numerous peer-reviewed journal articles and conference presentations reflect her contributions to the global conversation on education. In addition to her teaching and research, Nelly has been a passionate advocate for girls and women in STEM, and this is reflected in various outreach programmes which have directly impacted the lives of hundreds of students in Ghana. She won the 2023 global contest on social innovation by the GaragErasmus Foundation of the European Union, and carried out the Empowering Girls in Menstrual Hygiene Project for over 350 girls in the Effutu Municipality of Ghana. She co-founded the Women Advancing STEM in Ghana Network (WASGN).

Dr. Sakyi-Hagan serves as a role model, academic counsellor a patron of the Association of Integrated Science Education Students (AISES). She is a recipient of several grants from reputable bodies such as the Carnegie Scholarship for Female Graduate Students, the Women Working group in Physics of the International Union of Pure and Applied Physics (IUPAP), the American Chemical Society and the European Union. She is a Board Member (2021-2023 and 2024-2026) and Chair of the Awards and Fund Development Committees of the International Network of Women in Engineering and Science (INWES), a global Network which advocates for the active participation of women and girls in STEM (www.inwes.org). She served the Co-Speaker of the Internal Affairs Task Force of the African Students and Alumni Forum (ASAF) and an Africademics Scholarship Ambassador.

Nelly is the Conference Chair for the African Conference of Women Engineers and Scientists (ACWES), 2024 https://aims.ac.rw/2024/09/11/rawise-organises-the-african-conference-of-women-engineers-and-scientists-2024-acwes-2024-in-partnership-with-inwes-and-aims-in-rwanda/

Nelly is the President of the ASAF Board (2024-2026) https://www.asaf.africa/about/board-2024-2026.

RESEARCH

Interests	integrated science education · physics education · teacher education · STEM · Gender
Areas	Education · Developmental and Educational Psychology · Experimental and Cognitive Psychology · Computer Vision and Pattern Recognition · Gender Studies · Human-Computer Interaction

RESEARCH SUMMARY

16	60	5	3	1.75	22%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 16 publications listed below, 2012–2026. Field-weighted impact is the mean over the 9 works scored for it; 1.00 is the world average for works of the same field, type and year. 2 of the 9 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Senior Lecturer/Head of Department 2025–present
Integrated Science Education, University of Education, Winneba, Winneba, Ghana

LECTURER 2018–present
INTEGRATED SCIENCE, University of Education Winneba Faculty of Science Education, Winneba, Ghana

TEACHER 2000–2018
SECONDARY EDUCATION DIVISION, Ghana Education Service, Accra, Ghana

EDUCATION AND QUALIFICATIONS

MASTERS 2011–2013
SCIENCE, University of Education Winneba, Winneba, Ghana

DISTINCTIONS, MEMBERSHIPS AND SERVICE

individual member 2019–present
INWES, Ontario, Ghana

OWSD AFRICA 2019–present
Trieste, Italy

PUBLICATIONS

Journal articles 14

1. **Nelly Adjoa Sakyi-Hagan** (2026). Conceptual Understanding and Perceptions of Pre-Service Science Teachers in the Predict–Observe–Explain (POE) Model: Evidence from a Mixed-Methods Study. *Integrated Science Education Journal*.
2. Daniel Morrison, Charity Esenam Anor, Godfred Safo-Adu, **Nelly Adjoa Sakyi-Hagan** (2026). Effect of Augmented Reality-Enhanced Hands-on Chemistry Activities (AREHCA) on students' academic performance in hybridisation and molecular shape. *Aquademia*. https://doi.org/10.29333/aquademia/19283
3. **Nelly Sakyi-Hagan** (2025). Challenges and Innovative Strategies in Integrated Science Teaching: Experiences of Teachers in Rural Basic Schools in a District in Ghana. *Journal of STEM Education Innovations and Research*. https://doi.org/10.63504/jstem.v26i4.2763
4. **Nelly Adjoa Sakyi-Hagan** (2024). Exploring the nature of scientific explanations: An interactive predict-observe-explain model-based intervention for pre-service science teachers. *Aquademia*. https://doi.org/10.29333/aquademia/14992
5. **Nelly Sakyi–Hagan**, Ruby Hanson (2022). Gender differences in Performance in Integrated Science among Pre-Service Science Teachers: A Case of a University in Ghana. *EAST AFRICAN JOURNAL OF EDUCATION AND SOCIAL SCIENCES*. https://doi.org/10.46606/eajess2022v03i06.0231
6. Victor Antwi, **Nelly Adjoa Sakyi-Hagan**, Fortune Addo-Wuver, Bismark Asare (2021). Effect of Practical Work on Physics Learning Effectiveness: A Case of a Senior High School in Ghana. *EAST AFRICAN JOURNAL OF EDUCATION AND SOCIAL SCIENCES*. https://doi.org/10.46606/eajess2021v02i03.0102
7. Eric Appiah-Twumasi, Victor Antwi, Ishmael Kwesi Anderson, **Nelly Sakyi-Hagan** (2020). Comparative Effect of Cooperative Learning on Students' Performance in Mechanics Concepts: A Case of Two Secondary Schools in Berekum Municipality, Ghana. *EAST AFRICAN JOURNAL OF EDUCATION AND SOCIAL SCIENCES*. https://doi.org/10.46606/eajess2020v01i01.0015
8. Victor Antwi, Fortune Addo-Wuver, **Nelly Adjoa Sakyi-Hagan** (2020). How Do Our Students Understand Newton's Third Law of Motion? A Study in a Ghanaian University Context. *Science education international*.
9. **N Sakyi - Hagan**, R Hanson (2020). Interactive instructional approaches to teaching Integrated Science

and their effect on students' performance: A study in a Ghanaian University Context. *African Perspectives of Research in Teaching and Learning*. https://search.proquest.com/openview/43b6859fbfafdd5fe56b103b3570e5cc/1?pq-origsite=gscholar&cbl=5126680

10. Rebecca Esi Quansah, **Nelly Adjoa Sakyi-Hagan**, Charles Essiam (2019). Challenges Affecting the Teaching and Learning of Integrated Science in Rural Junior High Schools in Ghana. *Science education international*. https://doi.org/10.33828/sei.v30.i4.10
11. Ruby Hanson, **Nelly Sakyi-Hagan** (2019). Understanding Teacher Trainees' Reasoning Patterns about the Formation and Description of Chemical Compounds. *Science education international*. https://doi.org/10.33828/sei.v30.i2.4
12. **N Sakyi-Hagan** (2015). Effect of computer assisted instruction on students' interests and attitudes in learning electricity and magnetism in a Ghanaian senior high school. *International Journal of Innovative Research and Development*. https://scholar.google.com/scholar?cluster=7273283338270829590&hl=en&oi=scholarr
13. **Nelly Sakyi-Hagan** (2014). Effect of Computer Assisted Instruction on Students' Performance in some selected concepts in Electricity and Magnetism: A Study at Winneba Senior High School in Ghana. *Advances in Scientific and Technological Research (ASTR)*. https://scholar.google.com/scholar?cluster=10558551202189420143&hl=en&oi=scholarr
14. **Nelly Sakyi–Hagan** (2012). Elementary School Science Teachers' Understanding of The Concept of the Earth's Rotation. *Canadian Journal of Scientific Research*. https://www.researchgate.net/profile/Shobana-Nelasco/publication/356128292_African_Association_for_Teaching_and_Learning_African_Society_for_the_Scientific_Research_Journal_of_Educational_and_Social_Research/links/618cc893d7d1af224bd52381/African-Association-for-Teaching-and-Learning-African-Society-for-the-Scientific-Research-Journal-of-Educational-and-Social-Research.pdf#page=91

Book chapters 1

1. **N. Sakyi-Hagan** (2019). The Microscale Science Equipment as a Conceptual and Attitudinal Changing Tool towards Sustainable Development. *Outlook on Human Capacity Building and Development: A Handbook of Research in Honour of Professor Ibrahim Njodi*.

Reports 1

1. **NELLY ADJOA Sakyi-Hagan** (2023). Effects of predict-observe-explain model-based interactive teaching on the nature and quality of scientific explanations by pre-service teachers. *University of Education*. https://ir.uew.edu.gh/handle/123456789/3812