

INTERNATIONAL CONFERENCE
14TH EDITION



New Perspectives in Science Education

CONFERENCE PROGRAMME

Online Event | 19 March 2025
in Florence (Italy) | 20-21 March 2025

Organized by



Pixel
INTERNATIONAL CONFERENCES

ONLINE EVENT

Wednesday 19 March 2025

9:00 - 9:10

Welcome and Practicalities

09:10 - 11:15

Online Session | Room A

Teaching Science
to Young Learners

11:15 - 12:55

Online Session | Room A

STEAM
Education

Online Session | Room B

Language for Science and
Specialized Learning Contexts

14:00 - 16:05

Online Session | Room A

AI in
Science Education

16:05 - 18:10

Online Session | Room A

Science Education
Strategies

ONSITE EVENT

Thursday 20 March 2025

09:00 - 9:30

ROOM B

Welcome and Practicalities & Opening Speech

09:40 - 10:30

ROOM A

STEAM
Education

ROOM B

Science
Education Strategies

COFFEE BREAK | 10:30 - 11:00
POSTER SESSION & SPEED NETWORKING

11:00 - 12:40

ROOM A

STEAM
Education

ROOM B

Science
Teaching Models

LUNCH
13:00 - 14:30

14:30 - 16:10

ROOM A

Chemistry
Education

ROOM B

Science Teacher
Professional Development

POSTER SESSION & COFFEE BREAK
16:10 - 16:40

16:40 - 17:55

ROOM A

Chemistry
Education

ROOM B

Enhancing Science
Student Engagement

Friday 21 March 2025

09:00 - 10:40

ROOM A

AI in
Science Education

COFFEE BREAK | 10:40 - 11:10
POSTER SESSION & SPEED NETWORKING

11:10 - 12:50

ROOM A

Science
and Society

LUNCH
13:00 - 14:30

14:30 - 16:10

ROOM A

Enhancing Science
Student Engagement

POSTER SESSION & COFFEE BREAK
16:10 - 16:40

16:40 - 17:30

ROOM A

Science Education
Strategies

17:35 - 17:50

ROOM A

Closing Speech

ONLINE PROGRAMME

Wednesday 19 March 2025

Online session 9:00 - 9:10

Welcome and Practicalities

Online session | Room A Teaching Science to Young Learners

Moderators



Marie Walsh
Technological University of the Shannon, Ireland



Siobhán O' Sullivan
Khalifa University, United Arab Emirates

9:10 - 9:35

A Study among Bulgarian Teachers on the Use of the Therapeutic Possibilities of Reading When Working with Preschool Children
Teodora Genova, *University of Library Studies and Information Technologies, Bulgaria*

9:35 - 10:00

A Quantitative Research on the Relationship between Digital Intelligence and Self-esteem at Romanian Primary School Students
Ştefana Opria, *“Alexandru Ioan Cuza” University of Iaşi, Romania*

10:00 - 10:25

Using Nudging to Incentivize Vegetable and Legume Consumption in Children Diet: a Case Study to promote Healthier Eating Habits
Alberto Zanelli, *Institution for the Organic Synthesis and Photoreactivity, Italian Research Council, Italy*

10:25 - 10:50

Generation Z and Programming Education: Bridging the Gap with Innovative Tech-Driven Learning Approaches
Sherif Abdelhamid, *Virginia Military Institute, United States*

10:50 - 11:15

Astro-Tamagotchi, Light Up a Virtual Star
Laura Leonardi, *INAF Osservatorio Astronomico di Palermo, Italy*

Online session | Room A STEAM Education

Moderators



Dionysios Koulougliotis
Ionian University, Greece



Michail Kalogiannakis
University of Thessaly, Greece

11:15 - 11:40

Teachers Empowering Teachers: Transforming Science Education Through Peer-Led Training
Stefanie Schlunk, *Science on Stage Europe, Germany*

11:40 - 12:05

To Study the Impact of a STEM OER Course on Enhancing Teachers' STEM Knowledge and Skill Competencies
Kavita Sanghvi, *SVKM's CNM School, India*

12:05 - 12:30

What Math Are You Teaching? ISAT: A Tool for Individual and Organizational Analysis of Math Activities
Yossi Elran, *Davidson Institute of Science Education, Israel*

12:30 - 12:55

Extra Curricular Activities in TELEKI Gymnasium
Beata Jarosievitz, *Budapest XIV. Kerületi Teleki Blanka Gimnázium, Hungary*

Online session | Room B

Language for Science and Specialized Learning Contexts



Tatiana Sidorenko
Tomsk Polytechnic University,
Russian Federation



Roya Khoii
Islamic Azad University,
Islamic Republic of Iran

'STEMifying' an EMI Chemistry Classroom with Language Support through CLIL Pedagogies
Michael Kai-yip TSANG, *The University of Sheffield, United Kingdom*

Complex Concepts in Simple Language: A Linguistic Perspective on Why Romanian Secondary School Science Textbooks Struggle to Promote Effective Learning
Madalina Chitez, *West University of Timisoara, Romania*

AI-Driven Approaches to Teaching Business German for Specific Purposes
Katrin Herget, *Universidade de Aveiro / CLLC, Portugal*

Advisely: AI-Powered Academic Advising Using Large Language Models (LLMs)
Sherif Abdelhamid, *Virginia Military Institute, United States*

END OF ONLINE MORNING SESSION

ONLINE PROGRAMME

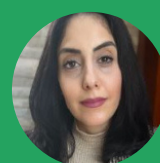
Wednesday 19 March 2025

Online session | Room A AI in Science Education

Moderators



Nasser Mansour
Exeter University, United Kingdom



Marina Constantinou Epifaniou
University of Cyprus, Cyprus

14:00 - 14:25

Integrating AI and Experiential Learning into a Graduate Research Methods Course in Biosciences
Siobhán O'Sullivan, Khalifa University, Abu Dhabi, United Arab Emirates

14:25 - 14:50

Using GenAI Tools to Enhance Teaching and Learning in Science
Dimitrios Sotiropoulos, Michail Kalogiannakis
University of Thessaly, Department of Special Education, Volos, Greece

14:50 - 15:15

New Approaches to Tax Education: Incorporating ChatGPT for Advanced Learning
Ana Arromba Dinis, Polytechnic University of Cávado and Ave, Portugal

15:15 - 15:40

Integrating Cybersecurity, AI, and IoT in STEM Curricula: A Framework for Future-Ready Education
Olakunle Ajala, Indiana Wesleyan University, United States

15:40 - 16:05

Hybrid Intelligence - The Next Stage in the Education Technology
Samuil Gorelik, Niiapa (Israel); ITMO University (Russian Federation)

Online session | Room A Science Education Strategies

Moderators



Diane Boothe
Boise State University, United States



Melissa Caspary
Georgia Gwinnett College, United States

16:05 - 16:30

Integrating Green Tax Education: Multidisciplinary Training for Lecturers to Improve Teaching Practices in Higher Education
Sílvia Coutinho Santos, Sustainable Development Research Institute (SDRI), Technological University of the Shannon: Midlands Midwest & Research Centre on Accounting and Taxation (CICF), Polytechnic University of Cávado and Ave, Portugal

16:30 - 16:55

Constructing a Conceptual Profile Zone: The Example of Chemical Analysis as Everyday Practices
Maria Mavridi, Ionian University, Greece

16:55 - 17:20

The Role of Storytelling, Digital Re-Enactment, and Memory in Arts Education
Frederico Dinis, Research Institute in Design, Media and Culture (ID+) Polytechnic University of Cávado and Ave, Portugal

17:20 - 17:45

Balancing Science Education Toward Engaged Citizenship: AI Ethics and Humanities
Chiaki Sekiguchi Bems, Riga Business School / Riga Technical University, Latvia

17:45 - 18:10

Origin of the Universe and Universal Sciences (OUUS)
Eisha Sandamali Yaman Sapuge, Diyasen University, Sri Lanka

END OF ONLINE EVENT

ONSITE PROGRAMME

Thursday 20 March 2025

First Morning Session

Room B | 9:00 - 9:15

Welcome and Practicalities

Room B | Opening Speech 9:15 - 9:30



A Vision for Science Education

Michael Taber, Colorado College, United States

ROOM A

STEAM Education

ROOM B

Science Education Strategies

Moderator



Nikolaos Fotou

University of Lincoln, United Kingdom



Mark Enfield

Elon University, United States

9:40 - 10:05

Empowering Physical Sciences Teachers to Introduce a STEAM Approach: A Path to Active Teaching and Critical Learning

Neal T Petersen

Research Unit for Self-directed Learning, North-West University, Potchefstroom, South Africa

Assessing Nature of Science in the Early Study Program "Juniorstudium" of the University of Rostock

Seep Jan-Arne

University of Rostock, Germany

10:05 - 10:30

Designing Future-focused Education for Emerging STEM Related Issues: Developing Resilient Learners for Social-ecological Resilience

Barry Colbert

Lazaridis School of Business, Wilfrid Laurier University, Canada

Evaluating Strategies to Increase Students' Accountability in Entrepreneurship Education

Péter Tasi

Aston University, United Kingdom

COFFEE BREAK | 10:30 - 11:00
POSTER SESSION & SPEED NETWORKING

ONSITE PROGRAMME

Thursday 20 March 2025

Second Morning Session

ROOM A STEAM Education

ROOM B Science Teaching Models

Moderators



Elsa Mentz

Research Unit Self-Directed Learning, North-West University, South Africa



Josef de Beer

Research Unit Self-Directed Learning, North-West University, South Africa

11:00 - 11:25

Increasing Student Identity with STEM...Culturally Relevant Pedagogy in the STEM Classroom through Historical Perspectives

Martha M. Day

Western Kentucky University, United States

Exploring the Link Between Modeling-Based Teaching and the Nature of Science

Yefrin Ariza

Pontificia Universidad Católica de Chile, Chile

11:25 - 11:50

Social Learning Networks for System Transformation: Local STEM Experiments to Build Global Competencies

Elizabeth Kurucz

Gordon S. Lang School of Business, University of Guelph, Canada

Revisiting Analogical Reasoning in the Science Teaching: From the Reception to the Production Paradigm

Nikolaos Fotou

University of Lincoln, United Kingdom

11:50 - 12:15

STEMifying Science: Exploring the Challenges & Opportunities

Anne O' Dwyer

Mary Immaculate College, Ireland

Algorithms in Education: Underlying Mindsets

Edwin Koster

Vrije Universiteit Amsterdam, The Netherlands

12:15 - 12:40

Science Slices: Building Community Around STEM Enrichment

Mark Enfield

Elon University, United States

Innovative Higher Education - Opportunities for Applying a Hybrid Curriculum in an Academic Course of Study

Vasilka Kocheva

Sofia University "Saint Kliment Ohridski", Bulgaria

LUNCH
13:00 - 14:30

ONSITE PROGRAMME

Thursday 20 March 2025

First Afternoon Session

ROOM A Chemistry Education

ROOM B Science Teacher Professional Development

Moderators



Timm Wilke

Carl von Ossietzky Universität Oldenburg, Germany



Barry Colbert

*Lazaridis School of Business, Wilfrid Laurier University
Canada*

14:30 - 14:55

Approaching Fluorescence Sensors in Chemistry Education: Detection of Iron(III)-Ions Applying Carbon Quantum Dots

Edwin Bogdan, Thomas Waitz

Georg-August-Universität Göttingen, Germany

Applying the 'Models Of' versus 'Models For' Heuristic to Support Teachers' Learning of Modelling Practices used in Molecular Biology Research

Amber Cesare

Kathleen Hill

The Pennsylvania State University, United States

14:55 - 15:20

Design of a Science Camp on Sustainable Electrochemistry

Vivian Keune

Georg-August-Universität Göttingen, Germany

The Affordances of Change Laboratories in Science Teacher Professional Development

Elsa Mentz, Josef de Beer

Research Unit Self-Directed Learning, North-West University, South Africa

15:20 - 15:45

Macrocycles in the Classroom - Making Biochemical Processes Understandable with the Help of Crown Ethers

Philipp Meyer

University of Potsdam, Germany

A Proposed Framework on Simulation-embedded Scaffolding of Problem-based Learning for Science Teachers

Judicial Sebatana

Research Unit Self-Directed Learning, North-West University, South Africa

15:45 - 16:10

Theory-based Design Criteria for the Creation of Animations for Chemistry Lessons

Constantin Egerer

University of Potsdam, Germany

Experiential Process Model for Enhancing Classroom Management Skills in Teacher Training through Microteaching

Dai Sakuma

Institute of Science Tokyo, Japan

POSTER SESSION & COFFEE BREAK

16:10 - 16:40

ONSITE PROGRAMME

Thursday 20 March 2025

Second Afternoon Session

ROOM A Chemistry Education

ROOM B Enhancing Science Student Engagement

Moderators



Thomas Waitz

Georg-August-University Göttingen, Germany



Michael Taber

Colorado College, United States

16:40 - 17:05

Elucidating Students' Interest in Chemistry in Authentic, Context-Structured Learning Environments with Medical Topics

Elisabeth Dietel

Carl von Ossietzky University Oldenburg, Germany

Developing a Multilingual Vocabulary Toolbox for Future Technology Teachers

Adri Du Toit

Research Unit for Self-directed Learning Faculty of Education North-West University, South Africa

17:05 - 17:30

The Potential of Organic Nanomaterials for Photocatalytic Dye Degradation and Hydrogen Production in Schools

Malte Petersen

Carl von Ossietzky University Oldenburg, Germany

Embedding Authenticity in Assessments for Engineering Education

Parakram Pyakurel

New Model Institute for Technology & Engineering, United Kingdom

17:30 - 17:55

Getting to know Science from Scientists

Lena Halbrügge

University of Potsdam, Germany

Elucidating the Inspirational Factors in School-Based FabLab Activities and the Development of Independence

Mao Saito

Shumei University, Japan

END OF CONFERENCE DAY ONE

ONSITE PROGRAMME

Friday 21 March 2025

First Morning Session

ROOM A

AI in Science Education

Moderator



Verónica Vasconcelos

Polytechnic University of Coimbra, Portugal

9:00 - 9:25

Chemistry.AI - Artificial Intelligence for Chemistry Education

Timm Wilke

Carl von Ossietzky Universität Oldenburg, Germany

9:25 - 9:50

Teaching Chemistry with AI: Insights into the Potential and Limits of ChatGPT in Lesson Planning

Michele Brott

University of Potsdam, Germany

9:50 - 10:15

Artificial Intelligence Literacy: Human and Intelligent Machine Alliance - Learners' Insights

Alina Iorga Pisica

Bucharest University of Economic Studies, Romania

10:15 - 10:40

Practise Teaching in Virtual Reality (VR) – Reflected Action with Teach-R, the Interactive Virtual Laboratory Classroom

Christina Hildebrandt

University of Potsdam, Germany

COFFEE BREAK | 10:40 - 11:10
POSTER SESSION & SPEED NETWORKING

ONSITE PROGRAMME

Friday 21 March 2025

Second Morning Session

ROOM A

Science and Society

Moderator



Péter Tasi

Aston University, United Kingdom

11:10 - 11:35

Exploring Discrepancies in Expected and Perceived Acquisition of Competences for Sustainable Development in Higher Education

Åsa Devine, Michaela Sandell

Linnaeus University, Sweden

11:35 - 12:00

Indigenous Knowledge in the Science Classroom: Opportunities and Obstacles

Josef de Beer

Research Unit Self-Directed Learning, North-West University, South Africa

12:00 - 12:25

Science Education in Universities – Practical Impacts

Martina Arabadzhieva, Albena Vutsova

Sofia University “St. Kl. Ohridski”, Bulgaria

12:25 - 12:50

Future Perspectives in European Cooperation for the Promotion of Science Education

Elisabetta Delle Donne

Pixel, Italy

LUNCH

13:00 - 14:30

ONSITE PROGRAMME

Friday 21 March 2025

First Afternoon Session

ROOM A

Enhancing Science Student Engagement

Moderator



Isabel Rubner

University of Education Weingarten, Germany

14:30 - 14:55

The Timeless Chamber: A Virtual Reality Escape Room Enhancing Educational Experiences

Daniele Zolezzi

University of Genoa - DIBRIS, Italy

14:55 - 15:20

A Card Game Revealing the Secrets of the Stars

Daniela Paoletti

INAF OAS Bologna, Italy

15:20 - 15:45

Telegram Bots in Science Education: Applications in the Context of Astrophysics

Maura Sandri

INAF OAS Bologna, Italy

15:45 - 16:10

Bridging Cultures: the Office of Astronomy for Education Italy Initiatives for Student-centered Education in the Mediterranean

Alessandra Zanazzi

INAF (National Institute for Astrophysics) & I-OAE (Italy-Office of Astronomy for Education), Italy

POSTER SESSION & COFFEE BREAK

16:10 - 16:40

ONSITE PROGRAMME

Friday 21 March 2025

Second Afternoon Session

ROOM A

Science Education Strategies

Moderator



Martin Musumeci

University of Malta, Malta

16:40 - 17:05

A Comparative Analysis of Teachers' Feedback Methods and Classroom Practices in the Czech Republic and Slovak Republic Lower Secondary School Systems

Onyedika Emmanuel Okpala

Charles University, Prague, Czech Republic

17:05 - 17:30

Developing a Reflection Support System in Idea Organization Workshops

Mikihiko Mori

Hosei University, Japan

Room A | Closing Speech 17:35 - 17:50



Martin Musumeci, *University of Malta, Malta*

COCKTAIL

ONSITE POSTER PRESENTATIONS

20 -21 March 2025

Analysis of Motivational Factors in the Choice of Engineering Degrees: Evidence from a Teaching Erasmus Experience

Verónica Vasconcelos

Polytechnic University of Coimbra; INESC TEC, Portugal

Developing Scientific Skills in Students

Ivan Zunac

Elementary School Petrijevci, Croatia

Evaluation of Students' and Parents' Views and Attitudes towards Recycling

Gratiela Dana Boca

Technical University Cluj Napoca, Romania

Exploring the Electro-Fenton Reaction in Chemistry Class

Philipp Lanfermann

Georg-August-Universität Göttingen, Germany

From Text to Insight: Leveraging Free-Text Responses to Inform University Educational Improvements

Mio Tsubakimoto

Tokyo Metropolitan University, Japan

Sachio Hirokawa

Advanced Institute of Industrial Technology; MONOLITHIC DESIGN Co., Ltd., Japan

Tetsuya Oishi

Kyushu Institute of Technology, Japan

How to Predict a Chemical Reaction – Pourbaix Diagrams as a Tool to Visualize pH-dependent Redox Reactions

Christoph Weidmann

Georg-August-University Göttingen, Germany

Improvement of Advisory System Using LLM for Run-Time Errors in C Programming Learning

Akiyoshi Wakatani

Konan University, Japan

Innovative Teaching with Actionbound: Digital Pathways in Chemistry Education. A Practical Example from ComeNet Chemistry in the ComeMINT Project

Isabel Rubner

University of Education Weingarten, Germany

Interaction Boxes Promoting Scientific Interest in Non-Formal Learning Environments

Stefanie Waitz

Georg-August-Universität Göttingen, Germany

MakEUs - Making Teachers EU Sustainably Competent

Viviana Probst

University of Education Weingarten, Germany

On the Advantages and Disadvantages of Using a Flipped Classroom Learning Model for Teaching Higher Mathematics at Technical Universities

Ilona Dzenite, Sarmite Cernajeva

Riga Technical University, Latvia

ONSITE POSTER PRESENTATIONS 20 -21 March 2025

Photocatalytic Synthesis of Benzaldehydes in Schools

Jonathan Bauschulte

Carl von Ossietzky University Oldenburg, Germany

Smooth Transition from Academia to a Career in Agrobiotechnology

Monica Dragomirescu

University of Life Sciences "King Mihail" from Timisoara, Romania

Stories of Food, Walking Groups and Health: Narrative Approach as a Treatment Strategy in People Suffering from Chronic Renal Failure. Training Experience in ASLTO3 (IT)

Sabrina Grigolo

ASLTO3, Italy

Transfer and Outreach of Light-driven Reactions at Nanoscale Metals (CRC 1636)

Tobias Eckardt

University of Potsdam, Germany

Understanding Innovation Cycles in Science Class: Solar Cells as an Example for Technological Development

Edwin Bogdan, Thomas Waitz

Georg-August-University Göttingen, Germany

Unlocking Student Insights into Insect Identification and External Anatomy through Artificial Intelligence

Petra Bumberová

Charles University, Czech Republic

ONLINE POSTER PRESENTATIONS available on the Conference website

Systems Biology in STEM Open Education for Teacher Training

Marina Minoli

*Royal Society of Biology, United Kingdom
Biologists Order Federation, STEM DidalInnovaLab, Italy*

From Classroom to Business Ideas: Fostering Eco-innovation through Engineering Entrepreneurship Education

Catalina Rus Casas

University of Jaén, Spain

Interdisciplinary Educational Platform for Supporting Urban Biodiversity

Monica Marian

Technical University of Cluj-Napoca, North University Center in Baia Mare, Romania

The Impact of Lee Strategy on the Achievement of Secondary School Students in Biology and the Development of their Cognitive Representation

Amnah Saad Alraddadi

University of Limerick, Ireland

The Perceptions of Learning Disabilities Teachers Towards the Use of Assistive Technology in Saudi Arabia

Badriah Alotaiby

AlQassim University, Saudi Arabia

VIRTUAL PRESENTATIONS

available on the Conference website

[Accessibility Evaluation of the Websites of the Regional Libraries in Bulgaria](#)

Tania Todorova

State University of Library Studies and Information Technologies (SULSIT), Bulgaria

[An Anxiety Study on Mathematics in High School Students in Puglia \(Italy\)](#)

Sergio Maielli

Educational Institution - University of Murcia, Spain

[An Innovative Teaching Approach for the Unit “Acids-Bases-Salts”](#)

Anna A. Thysiadou

Democritus University of Thrace, Kavala, Greece

[Assessment of the Transfer of Inductive Reasoning Skills in the Context of Science Teaching](#)

Patricia Morales Bueno

Pontificia Universidad Católica del Perú PUCP, Perú

[Bridging the Gap: Using School Campuses for Scientific Exploration and Language Acquisition](#)

Melissa Caspary

Georgia Gwinnett College, United States

Diane Boothe

Boise State University, United States

[Changes in Critical Thinking through Philosophical Strategies in Quantum Physics Education](#)

Jesus Diego Tuero-Odonnell Zulaica

Universidad Pontificia Bolivariana, Colombia

[Design of a Direct Observation Protocol in the Secondary School Classroom](#)

Antonio Ruano-Cano

University of Almería, Spain

[Empowering Middle School Students: A Call to Prioritize Real Science Learning](#)

Sameer Ahmad

Independent Teacher, Oakland, California, United States

[Evaluation of the Socio-Affective Competence with Unplugged Activities to Develop Computational Thinking in Mathematics Education](#)

Gregorio Arjona-Aranda

University of Málaga, Spain

[Formulation, Resolution and Revision of Mathematical Problems in Cooperation in a 3rd grade classroom](#)

Luís Mestre

Higher School of Education in Lisbon, Portugal

VIRTUAL PRESENTATIONS

available on the Conference website

High School Students' Views of Nature of Science: The Case of Chemistry among Greek Students

Charoula Labrianaki
Ionian University, Greece

Interdisciplinarity in a Camping Project, in a 4th Grade Class

Luís Mestre
Higher School of Education in Lisbon, Portugal

Science Teachers' Views on Limiting Mathematical Relations for Some Subjects in Science Courses

Murat Demirbas
Kirikkale University, Turkey

Scientific Inquiry: Five Essential Features in Bahraini Primary School Textbooks and Workbooks

Funda Örnek
Bahrain Teachers College, University of Bahrain, Bahrain

Text Mining and Visual Analysis in the Context of Informatics Textbooks

Guglielmo Abbruzzese
Tor Vergata University, Italy

The Application of the Inclusive Education's Legal Guidelines within the Teaching-learning-assessment of Mathematics: A Case Study

Ricardo Vicente
Institute of Education, Lusófona University, Portugal

The EDUMAT+ Project: Teaching with Infographics

Stefan Colibaba
Al. I. Cuza University, Romania

Unpacking Climate Agency in Science Education: A Cross-disciplinary Approach

Giulia Tasquier
University of Bologna, Italy

Using Spectroscopy to Understand Quantum Mechanics in Upper Secondary School: a Historical and Experimental Approach

Teresa Celestino
AFIS, Roma Tre University, Rome, Italy
I.I.S. Guglielmo Marconi, Latina, Italy

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