

International Conference
New Perspectives
in Science
Education
13th Edition



Conference Programme

13 March 2024, online event
14 - 15 March 2024, in Florence



Organized by



Scan the QR CODE to download
the Last Minute Changes



ONLINE EVENT

Wednesday 13 March 2024

09:00 – 09:10
Introductory Speech and Practicalities
09:10 – 10:50
First online session
10:50 – 12:30
Second online session
14:00 – 16:05
Third online session

ONSITE EVENT

Thursday
14 March 2024

Friday
15 March 2024

Room A 9:45 – 11:00	Room B 9:45 – 11:00
STEM Education	Chemistry Education

Posters session & Coffee Break
11:00 – 11:30

Room A 11:30 – 13:10	Room B 11:30 – 13:10
STEM Education	Games and Extra Curricula Activities

Lunch
13:10 – 14:30

Room A 14:30 – 16:10	Room B 14:30 – 16:10
Educational Strategies	Teacher Professional Development

Posters session & Coffee Break
16:10 – 16:40

Room A 16:40 – 17:55
Educational Strategies

Room A 9:00 – 11:05
Educational Strategies

Posters session & Coffee Break
11:05 – 11:35

Room A 11:35 – 12:50
Enhancing Student Engagement

Lunch
13:00 – 14:30

Room A 14:30 – 15:45
Science and Society

Posters session & Coffee Break
15:45 – 16:15

Room A 16:15 – 17:55
Science and Environment



ONLINE EVENT

Wednesday 13 March 2024

Online session 09:00 – 09:10

Introductory Speech and Practicalities

Online session 09:10 – 10:50

Moderators

Marie Walsh, *Technological University of the Shannon, Ireland*

Filomena Barreiro, *Instituto Politécnico de Bragança, Portugal*

9:10 – 9:35

University of Malta Courses with Intermediate/Advanced Chemistry as a Requirement and/or Option: an Analysis of Students' Choices
Edward Thake, *St Theresa College Imrieħel Secondary School and San Ġorg Preca College Ħamrun Secondary School, Malta*

9:35 – 10:00

Activating the Student's Prior Knowledge in the Learning of Third Newton Law Through a P.O.E. ("Predict-Observe-Explain") Strategy
Juan Sabin, *Santiago de Compostela University, Spain*

10:00 – 10:25

Building the Conceptual Profile of Chemical Analysis: The Sociocultural Domain
Maria Mavridi, *Department of Environment - Ionian University, Greece*
Dionysios Koulougliotis, *Department of Environment - Ionian University, Greece*

10:25 – 10:50

Development of Interventions to Promote Academic Performance and Wellness in First Year Medical School, a Case Study from the UAE
Siobhán O' Sullivan, *College of Medicine and Health Sciences, Khalifa University, United Arab Emirates*

Online session 10:50 – 12:30

Moderators

Dionysios Koulougliotis, *Department of Environment - Ionian University, Greece*

Michail Kalogiannakis, *Department of Special Education, University of Thessaly, Greece*

10:50 – 11:15

Popularization Strategies in Public Health Discourse: a Corpus-based Analysis in Portuguese and Chinese
Huanqi Sun, *University of Aveiro, Portugal*

11:15 – 11:40

The Impact of a M.Sc. Programme on the Career Paths of Postgraduate Students
Katerina Paschalidou, *National and Kapodistrian University of Athen, Greece*

11:40 – 12:05

STEAM Education in Early Childhood. Overcoming Challenges and Embracing Opportunities in the Classroom
Foteini Tsereli, *Anatolia College, Greece*

12:05 – 12:30

Smart Building Engineering: Challenges and Opportunities of An Interdisciplinary Course Concept for Engineers in the Field of Technical Building Equipment
Lina Schulze-Buxloh, *FH Aachen University of Applied Sciences, Germany*



ONLINE EVENT

Wednesday 13 March 2024

Online session 14:00 – 16:05

Moderators

Siobhán O' Sullivan, College of Medicine and Health Sciences, Khalifa University, United Arab Emirates
Pier Luigi Gentili, Department of Chemistry, Biology and Biotechnology, Università degli Studi di Perugia, Italy

14:00 – 14:25

Exploring the Digital Landscape of STEAM Learning Discourse: Insights from GPT-4 based Twitter Data Analysis
Sherif Abdelhamid, Virginia Military Institute, United States

14:25 – 14:50

Teacher Professional Development to Support STEM Equity
Janelle Johnson, Metropolitan State University of Denver, United States

14:50 – 15:15

Accessible and Enriched Community-Engaged Learning: A Botanical Virtual Classroom Field Trip
Poh Tan, Simon Fraser University Institute for Environmental Learning, Canada
Zandvliet David, Simon Fraser University Institute for Environmental Learning, Canada

15:15 – 15:40

Addressing Socially-Acute Questions in Science Classrooms in Secondary Cycle 2 in Quebec: a Portrait of Declared Teaching Practices
Penda Diop, Université du Québec à Montréal, Canada

15:40 – 16:05

PBL Application to STEAM Education Incorporating Sustainability and Gender Equality Axes: STEAM-ACTIVE Project Implementation in University and High School
Linda Barelli, University of Perugia (Italy)

End of Online Conference

ONSITE EVENT



Thursday 14 March 2024
Morning Session

Room A: 09:00 – 09:10

Introductory Speech and Practicalities

Room A: Opening Speech 09:10 – 09:45

Assessment - OF, FOR, AS - Learning in Science
Martin Musumeci, University of Malta, Malta

First Morning Session | 9:45 – 11:00

Room A

Room B

STEM Education

Chemistry Education

Moderator: **Martin Musumeci**
University of Malta, Malta

Moderator: **Timm Wilke**
Carl von Ossietzky University Oldenburg, Germany

9:45 – 10:10

The Bioscience Project: Threshold Concepts and Transformation
Carloalberto Petti, South East Technological University, Ireland

Situational Interest in Medical Contexts for Chemistry Education: Construction of a Survey Instrument
Elisabeth Dietel, Carl von Ossietzky Universität Oldenburg, Germany

10:10 – 10:35

Integrating the STEM Approach in In-Service Teacher Education. A Practical Example.
Carmen Julve-Tiestos, University of Zaragoza, Spain

Variation of the Synthesis for Influencing the Optical Properties of Carbon Quantum Dots
Malte Petersen, Carl von Ossietzky Universität Oldenburg, Germany

10:35 – 11:00

The Power of Science Outreach-Conscious Teachers
Veronica McCauley, University of Galway, Ireland

Nanomedicine: a Digital Learning Module for Chemistry Education
Antonia Fruntke, Carl von Ossietzky Universität Oldenburg, Germany

Posters session & Coffee Break
11:00 – 11:30

ONSITE EVENT



Thursday 14 March 2024
Morning Session

Second Morning Session 11:30 – 13:10	
Room A	Room B
STEM Education	Games and Extra Curricula Activities
Moderator: Sarah Haines Towson University, United States	Moderator: Thomas Waitz Georg-August-University Göttingen, Germany
11:30 – 11:55	
Using Folding Back as a Pedagogical Design Tool Under the Lens of the Van Hiele Model With Preservice Teachers Víctor Manero , University of Zaragoza, Spain	Sorting Materials using Programmable Lego® Robot: an Educational Activity to Promote Sustainability among Youngsters Andrea Ienco , Consiglio Nazionale delle Ricerche, Istituto di Chimica dei Composti Organometallici (CNR-ICCOM), Italy
11:55 – 12:20	
Fostering Citizenship: Systematic Refutation of False Information in Social Media by Senior Pre-University Physics Students Using a Pedagogical Tool Süleyman Turşucu , University of Amsterdam, The Netherlands	“Expli’CIT”: A New Serious Game to Strengthen Science-Society Dialogue Making Explicit Research Processes Juliette Anglade , Université de Lorraine, France
12:20 – 12:45	
Conceptions of Inquiry-Based Learning in High School Biology in Japan and China Jiamin He , Toyo University, Japan	Open Source Gamified Remote Labs in Photonics Education Johannes Kretzschmar , Friedrich Schiller University Jena, Germany
12:45 – 13:10	
Exploring Changes in Students’ Understanding the Basic Concepts of Data Analysis in Introductory Laboratory Course “Search for Physics Laws” Oksana Lozovenko , Offenburg University of Applied Sciences, Germany; National University “Zaporizhzhia Polytechnic”, Ukraine	Let's Go Out! Popular Outdoor Education - Limiting Factors Versus Positives Dagmar Vašutová , Palacký University in Olomouc, Czech Republic

Lunch 13:10 – 14:30



ONSITE EVENT

Thursday 14 March 2024
Afternoon Session

First Afternoon Session 14:30 – 16:10	
Room A	Room B
Educational Strategies	Teacher Professional Development
Moderator: Péter Tasi Aston University, United Kingdom	Moderator: Andrea Ienco Consiglio Nazionale delle Ricerche, Istituto di Chimica dei Composti OrganoMetallici (CNR-ICCOM), Italy
14:30 – 14:55	
Effectiveness of Self-Directed Learning in Undergraduate Medical Education: A Systemic Review and Meta-Analysis Prakash V.A.K. Ramdass , St. George's University School of Medicine, Grenada	Integrated STEM Professional Development: Utilizing Best Practices in an Online Format Sarah Haines , Towson University, United States
14:55 – 15:20	
Heritage and Computational Thinking: Intersections for Meaningful Learning in Primary School [ONSITE] Paula Quadros-Flores , School of Education of the Polytechnic Institute of Porto, Portugal [ONLINE] Cristina Maia , School of Education of the Polytechnic Institute of Porto, Portugal	Experiences with the Teacher Training Avatar Program and the Usefulness of the Program as Seen in the Discussion Hijiri Okinaka , Toyo University, Japan
15:20 – 15:45	
Reflecting on School through the Voice of Children Dárida Fernandes , School of Education of the Polytechnic Institute of Porto, Portugal	Comparison of Mathematical Activities with Preservice Teachers: Manipulatives Vs. Paper and Pencil Alberto Arnal-Bailera , University of Zaragoza, Spain
15:45 – 16:10	
	Embracing Multidisciplinarity: Exploring Challenges and Identities of Teachers in the Subject Integrated Sciences Jasper Cirkel , Georg-August-Universität Göttingen, Germany

Posters session & Coffee Break
16:10 – 16:40



ONSITE EVENT

Thursday 14 March 2024
Afternoon Session

Second Afternoon Session | 16:40 – 17:55

Room A

Educational Strategies

*Moderator: Isabel Rubner
University of Education Weingarten, Germany*

16:40 – 17:05

Is There a Place for Regular Mid-Semester Assessments in Higher Education?
Péter Tasi, Aston University, United Kingdom

17:05 – 17:30

Disorders of Verbal Fluency in Individuals with Cognitive Dysfunctions from a Neuropsycholinguistic Perspective
Monika Betyna-Białek, Nicolaus Copernicus University, Poland

17:30 – 17:55

Experiences and Struggles of Female STEM Students: Insights from a Women-Only STEM Program
*Sandra Klatt, Furtwangen University, Germany
Ulrike Busolt, Furtwangen University, Germany*

End of Conference Day One



ONSITE EVENT

Friday 15 March 2024
Morning Session

First Morning Session | 9:00 – 11:05

Room A

Educational Strategies

Moderator: **Sebastian Grobler**

OWL Technical University of Applied Sciences & Arts, Germany

9:00 – 9:25

Novel Approach for Teaching AI in Entry Level Education

Christian Bildhauer-Buggle, *Furtwangen Hochschule University, Germany*

9:25 – 9:50

What Can Educational Case Studies Reveal About How Teachers Implement the Model of Educational Reconstruction in Biology Instruction?

Martin Jáč, *Palacký University Olomouc, Czech Republic*

9:50 – 10:15

Integration of Interdisciplinary and System-Based Assessment Methodologies into Higher Education Programmes at the UAS Technikum Wien

Natalie Taupe, *University of Applied Sciences Technikum Wien, Austria*

10:15 – 10:40

The Effect of Teaching-Learning Approaches on Social Innovation Competencies Development

Adela García-Aracil, *INGENIO (CSIC-UPV), Universitat Politècnica de València, Spain*

10:40 – 11:05

Future Perspectives in European Cooperation for the Promotion of Science Education

Elisabetta Delle Donne, *Pixel, Italy*

Posters session & Coffee Break
11:05 – 11:35



ONSITE EVENT

Friday 15 March 2024
Morning Session

Second Morning Session | 11:35 – 12:50

Room A

Enhancing Student Engagement

Moderator: *Christian Bildhauer-Buggle*
Furtwangen Hochschule University, Germany

11:35 – 12:00

Using Visual Notetaking to Promote Participatory Equity in a Science and Math Methods Course
Michael R. Taber, Colorado College, United States

12:00 – 12:25

Assessment Methods Used in Multilingual High Schools in the Teaching of Biology in the Czech Republic
Onyedika Emmanuel Okpala, Charles University Prague, Czech Republic

12:25 – 12:50

Theoretical Perspectives on Paired Mentoring in Science: Experiences from Involvement in Multiple Interventions
[ONSITE] Nikolaos Fotou, University of Lincoln, United Kingdom
[ONLINE] Rachael Sharpe, University of Lincoln, United Kingdom

Lunch 13:00 – 14:30



ONSITE EVENT

Friday 15 March 2024
Afternoon Session

First Afternoon Session | 14:30 – 15:45

Room A

Science and Society

Moderator: **Thomas Schiepp**
Furtwangen Hochschule Universit, Germany

14:30 – 14:55

The Post-Pandemic Takeaways on STEM Literacy
Nikolaos Fotou, University of Lincoln, United Kingdom
Marina Constantinou, Independent Researcher, United Kingdom

14:55 – 15:20

Integrating Artistic Research into German University of Applied Sciences Curricula: A New Paradigm in Science Education
[ONSITE] Sebastian Grobler, OWL Technical University of Applied Sciences & Arts, Germany
[ONLINE] Tobias Schmohl, OWL Technical University of Applied Sciences & Arts, Germany

15:20 – 15:45

Misconceptions About Current Biotechnology in Society: What to Focus On in School and Lifelong Education?
Michaela Horniaková, Palacký University Olomouc, Czech Republic

Posters session & Coffee Break
15:45 – 16:15



ONSITE EVENT

Friday 15 March 2024
Afternoon Session

Second Afternoon Session | 16:15 – 17:55

Room A

Science and Environment

Moderator: **Michael R. Taber**
Colorado College, United States

16:15 – 16:40

CO2 Monitoring to Enhance Digital and Green Competences in VET
Mariaconcetta Canino, National Research Council CNR, Institute for Microelectronics and Microsystems IMM, Italy

16:40 - 17:05

Situational Interest in Geology Learning: What Learning Strategies Promote Student Interest in Geological Topics?
Jitka Kopecká, Palacký University Olomouc, Czech Republic

17:05 – 17:30

Active Learning for Circular Economy Businesses, Fostering a Sustainable Mindset
Sabrina Fontanella, Sapienza Università di Roma, Italy

17:30 – 17:55

Sustainable and Healthy Nutrition - How Do Young People Eat?
Julia Holzer, Institute for Science Education, University of Bremen, Germany

Room A: Closing Speech 18:00 – 18:15

Breaking Down Walls, Building Minds: Towards a Future of Science Education and Science Education Research through and Interdisciplinary Approach
Nikolaos Fotou, University of Lincoln, United Kingdom

Closing Cocktail



Onsite Poster Presentations

<p>Adapted Primary Literature about CO₂ Reduction Reaction – Chemists’ Research Approach to Protect the Climate Mona Christin Maaß, Georg-August-University Göttingen, Germany</p>	<p>Go Extinct! The Educational Game for Learning about Invertebrates María-del-Mar López-Fernández, University of Málaga, Spain</p>
<p>Bridging the Gap between School and University by a Laboratory Course on Functional Surfaces Philipp Lanfermann, Georg-August-Universität Göttingen, Germany</p>	<p>Problem Solving Processes in Science Education: Integrating the Representational Pluralism Perspective Alexandre Hagan, Université du Québec à Montréal, Canada</p>
<p>Case/Problem-Based Learning in a Flipped Classroom and Under a Learning Contract as Didactic Tools for Collaborative Learning of Metabolic Regulation Miguel Ángel Medina, University of Málaga, Spain</p>	<p>Senac University Center Leveling Program – An Experience that Integrates Knowledge and Creativity Luciana Mara Ribeiro, Senac University Center, Brazil</p>
<p>Chemistry.AI - An AI Based Assistant for Chemistry Education Timm Wilke, Carl von Ossietzky University Oldenburg, Germany</p>	<p>“The Complementary Structure of Deoxyribonucleic Acid” – Adapting the Crick and Watson Paper for Science Education Hilko Aljets, Georg-August-University Göttingen, Germany</p>
<p>Concept of a Public Outreach Project on PCET Reactions Christoph Weidmann, Georg-August-University Göttingen, Germany</p>	<p>The Energy Blackout in Debate. An Activity to Develop Argumentation in Pre-Service Primary Teachers Jose Manuel Hierrezuelo-Osorio, University of Málaga, Spain</p>
<p>Cyclic Voltammetry in Chemistry Classes Vivian Keune, Georg-August-Universität Göttingen, Germany</p>	<p>The Level of Scientific Literacy Among Primary School Pupils: Preliminary Results Petr Kovarik, J. E. Purkyne University, Czech Republic Romana Adamkova, J. E. Purkyne University, Czech Republic Milan Kubiátko, J. E. Purkyne University, Czech Republic</p>
<p>Design of Inquiry-based Laboratory Projects for an Active Learning of (Bio)Chemistry, Focused On Problem Solving in a Professional Setting Ana R. Quesada, University of Malaga, Spain</p>	<p>The Self-Management of Home Therapy: When Creativity and the Art of Doing Become Conditions to Be Amazed Sabrina Grigolo, University of Turin and Patient expert EUPATI - Accademia del Paziente Esperto EUPATI, Italy</p>
<p>Designing the Periodic Table Solitaire Mobile App María José Cano-Iglesias, University of Málaga, Spain Antonio Joaquín Franco Mariscal, University of Málaga, Spain</p>	<p>Transparent Inorganic Metal Oxide Solar Cells in Chemistry Class Edwin Bogdan, Georg-August-University Goettingen, Germany</p>
<p>Experimental Escape Games with Digital Enrichment - An Innovative Format in Science Education Isabel Rubner, University of Education Weingarten, Germany</p>	



Virtual Presentations

(Available on the Conference Website)

A Reflective Perspective on the Initial Training in Science for Primary School Teachers at CRMEFs in Morocco

Fatima Zahra EL OUAHABI, Regional Center for Education and Training Professions Rabat-Sale-Kenitra, Morocco

Students After the Pandemic: What Are the Differences in Their Achievement Motivation and Metacognitive Skills?

Patricia Morales Bueno, Pontificia Universidad Católica del Perú PUCP, Perú

Creating Field Experiences to Promote Scientific Learning

Melissa Caspary, Georgia Gwinnett College, United States

Diane Boothe, Boise State University, United States

The Crystal Lake's Mystery: Interactive Eco-Crime Game for Learning about Environmental Sustainability

Denise Galante, CNR-SCITEC, Institute of Chemical Sciences and Technologies "Giulio Natta", National Research Council, Italy

Educational Tourism in Bulgaria: New Research Project

Sonya Spasova, University of Library Studies and Information Technologies, Bulgaria

The Impact of Online Learning on the Anxiety and Self-Esteem of Students with Dyslexia in Higher Education

Christina Sotiropoulou Drosopoulou, University of Leeds, United Kingdom

Exploring the Development of Inquiry Skills in Secondary School Students via Physics Inquiry-Based Learning Experiments

Vasileios Gkagkas, Aristotle University of Thessaloniki, Greece

The Impact of the Curriculum on the Teaching of Integrated Learning (Inquiry) Time the Effects of Changing Attitudes and Developing 'STEAM Education Skills'

Kenichi Goto, Toyo University, Japan

Laboratory Teaching Proposal on the Characteristics of an RC Circuit

Ninfa Radicella, Liceo Scientifico "Filippo Silvestri", Italy

The Teachers' Action for Health – Teachers' First Aid Intervention in Emergency Cases at School

Stefan Colibaba, Al. I. Cuza University, Romania

Librarians in Bulgaria and the Trends in the Information Environment

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

Vermicomposting: an Idea to Work Science and Mathematics in Primary Education

Ana Cruz, ISEC Lisboa – Instituto Superior de Educação e Ciências, Portugal

Regarding Collaborative Efforts Among Universities, High Schools, and Boards of Education to Develop Scientific Skills

Mika Tsuyukubo, Toyo University, Japan

Virtual Posters

(Available on the Conference Website)

STEM Engaging Teaching and Learning for the Heart in Bioscience Education

Marina Minoli, Royal Society of Biology, United Kingdom; Biologists Order Federation, STEM DidalInnovaBiolab, Italy

How Much Students in Primary School Know About Waste Sorting? (Pilot Research)

Igor Dobrača, Primary school Juraj Dobrila Rovinj, Croatia

International Conference New Perspectives in Science Education



Scan the QR CODE to download
the Last Minute Changes



Pixel
INTERNATIONAL CONFERENCES

Pixel Conference Secretariat

Tel. +39 055 489 700

E-mail: science@pixel-online.net

<https://conference.pixel-online.net/NPSE/index.php>