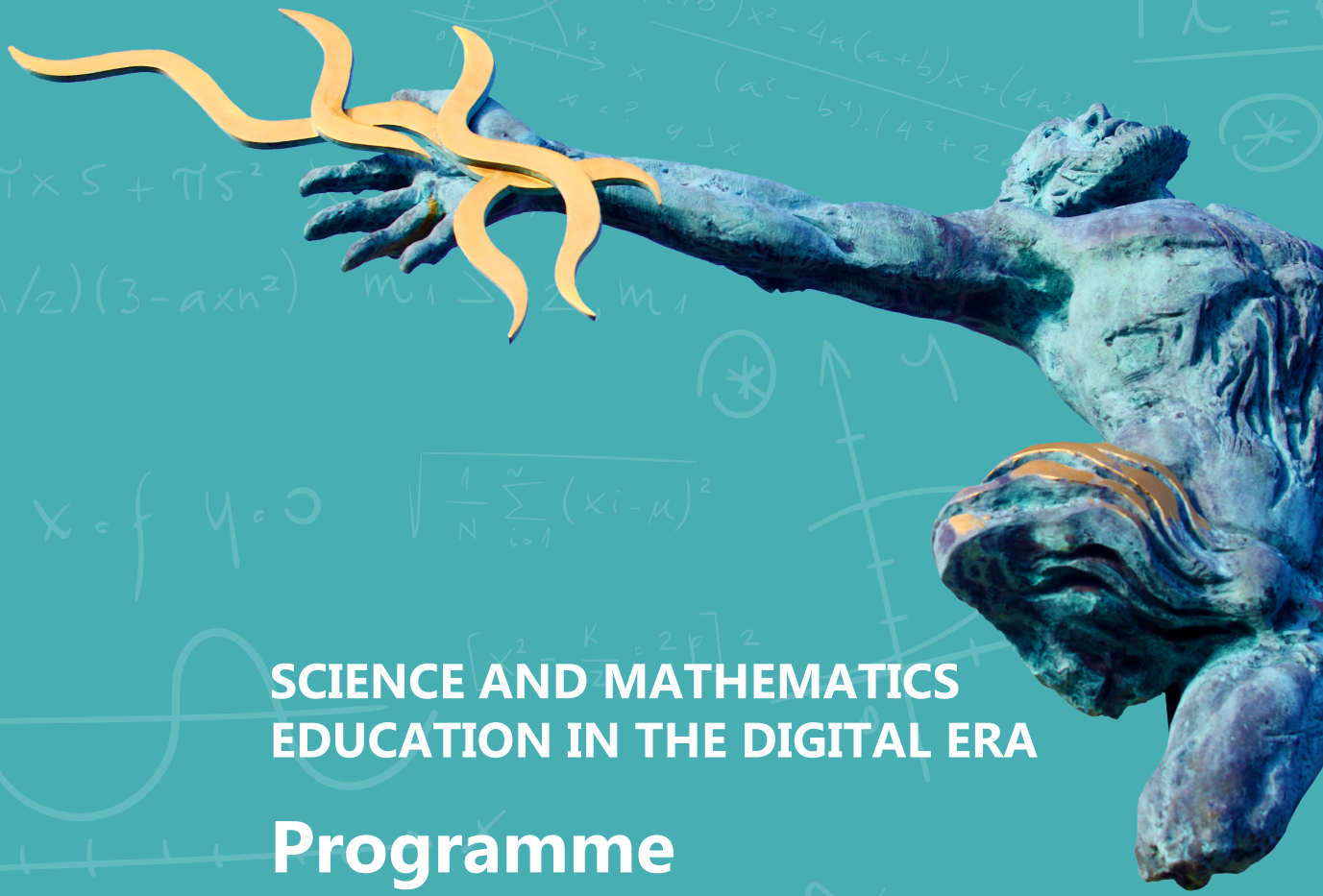
ATEE

Association for Teacher Education in Europe

WINTER CONFERENCE 2026



SCIENCE AND MATHEMATICS EDUCATION IN THE DIGITAL ERA

Programme

March 30th to April 1st
University of Minho, Braga, Portugal

ATEE WINTER CONFERENCE 2026

SCIENCE AND MATHEMATICS EDUCATION IN THE DIGITAL ERA

PROGRAMME

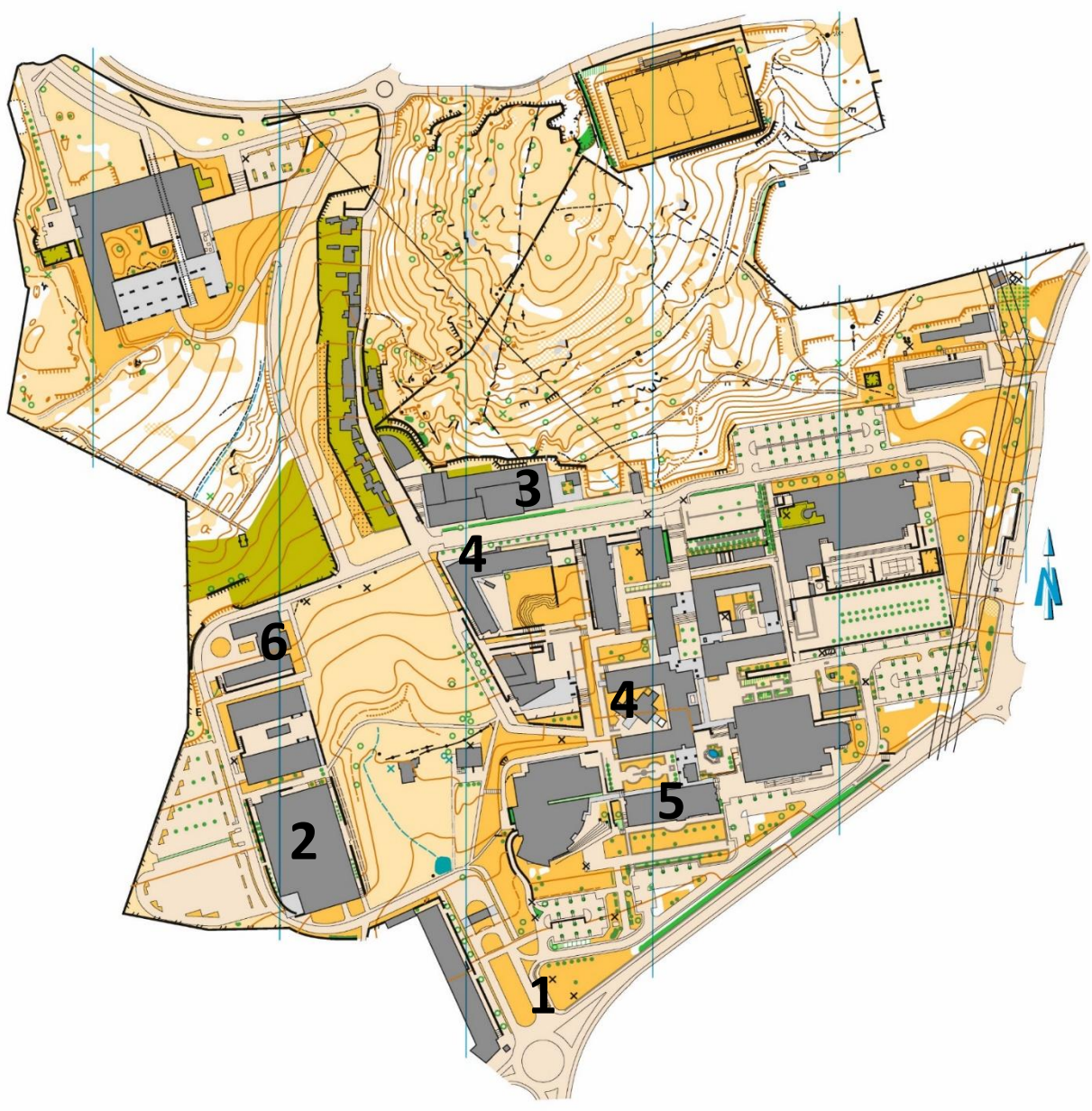
University of Minho

Braga – Portugal

March 30th to April 1st

University of Minho

Campus de Gualtar – Braga



1 – Entrance to campus

2 – Institute of Education

3 – Canteen

4 – ATM

5 – Library

6 – Bookshop

Conference Overall Programme

Monday, March 30th (Pre-Conference)

14:30-15:00	Departure to visits
15:30-17:30	Visit to Secondary School Carlos Amarante or INL-Iberian Nanotechnology Laboratory
18:00-20:00	Welcome Reception

Tuesday, March 31st

08:30-9:30	Participants' registration
9:30-10:30	Opening ceremony
10:30-11:30	Keynote 1: Teachers as change agents: From technology consumption to creative production in education, Margarida Romero, Université Côte d'Azur, France
11:30-12:00	Coffee break
12:00-13:00	Parallel sessions
13:00-14:30	Lunch
14:30-16:00	Parallel sessions
16:00-16:30	Coffee break
16:30-18:00	Parallel sessions
19:30-22:30	Social dinner

Wednesday, April 1st

09:15-10:15	Keynote 2: The impact of robotics on STEM education, Theodosios Sapounidis, Aristotle University of Thessaloniki, Greece
10:15-10:30	ATEE Annual Conference announcement
10:30-11:00	Posters´ session
11:00-11:30	Coffee break
11:30-13:00	Parallel sessions
13:00-14:30	Lunch
14:30-15:30	Parallel sessions
15:30-16:00	Coffee break
16:00-17:30	Panel*: The challenges of science and mathematics education in the digital era
17:30-18:00	Closing ceremony

*Participants:

Paula Korsnakova (International Association for the Evaluation of Educational Achievement, Netherlands)
Lucy Avraamidou (University of Groningen, Netherlands)
Ana Paula Canavarro (University of Évora, Portugal)
Maria Assunção Flores (University of Minho, Portugal)
Lorraine Harbison (Dublin City University, Ireland) - Moderator

Notes: - Secondary School Carlos Amarante or INL - Iberian Nanotechnology Laboratory, Braga
- Plenary sessions: Multimedia Auditorium, Institute of Education, Campus of Gualtar
- Parallel sessions: rooms 1 - 5, ground floor, Institute of Education, Campus of Gualtar
- Coffee break: main hall - Institute of Education, Campus of Gualtar
- Lunch takes: Canteen, Campus of Gualtar
- Welcome Reception: main hall, Institute of Education, Campus of Gualtar
- Social Diner: Hotel Melia, Braga

Parallel Sessions Programme

Tuesday, March 31st

12h00-13h00

Chair: Rosalyn Hyde		**Room 1**
Paper	**Title**	**Author(s)**
O1	Using real-world and research-based SDG data to support student engagement and quantitative understanding in mathematics	Elena Martelli
O20	The use and impact of digital technologies by teachers of mathematics and science in Europe: findings from TALIS (2024)	Rosalyn Hyde & Yin Wang

Chair: Mónica Batista		**Room 2**
Paper	**Title**	**Author(s)**
O45	Exploring pre-service chemistry teachers' difficulties in introductory Arduino-based activities for chemistry laboratory applications	Cidália André, Carla Morais & Gildo Girotto Junior
O49	PCK of pre-service physics teachers when involved in a lesson study	Mónica Baptista, Teresa Conceição & Maria Francisca Macedo

Chair: Raúl López-Vilar		**Room 3**
Paper	**Title**	**Author(s)**
O8	Activity Theory as a lens for exploring and comparing STEAM and Non-STEAM classroom practices	Raúl López-Vilar, Mireia Usart Rodríguez, José Luis Lázaro Cantrabrana, & Tania Molero-Aranda
O29	The role of design thinking in the development of creativity in an I-STEM learning sequence	Ana Rita Alves, Mónica Baptista & Teresa Conceição

Chair: Malgorzata Zytko		**Room 4**
Paper	**Title**	**Author(s)**
O31	Integrating mathematical games into pre-service and in-service elementary school teacher training	Karolina Prus-Wirzbicka & Malgorzata Zytko
O61	From compass to code: the role of hybrid feedback in the development of Computational thinking in a 2nd cycle mathematical task	Vera Escaleira, Lina Fonseca & Maria M. Nascimento

Chair: Eleanor Byrne		**Room 5**
Paper	**Title**	**Author(s)**
O21	Maker education in the Portuguese low secondary school curricula	Laurinda Leite, Luís Valente, António Osório, Luís Dourado, Ana S. Afonso, Cristiana Araújo, Floriano Viseu, Helena Martinho & Pedro Rangel Henriques
O28	Using GenAI to support curriculum reform in mathematics education: a professional development case study	Eleanor Byrne, Aibhín Bray & Brendan Tangney

Tuesday, March 31st

14h30-16h00

Chair: András Bátkai		**Room 1**
Paper	**Title**	**Author(s)**
O16	Prospective teachers' views on mathematics education in primary school in the digital era	Ineta Helmane
O12	AI-powered microlearning to support non-specialized mathematics teachers in upper secondary education	Meritxell Valderrama & Mireia Usart
O37	Homework with sound and image: using student-generated videos in higher mathematics education	András Bátkai & Brigitta Békési

Chair: Bento Cavadas		**Room 2**
Paper	**Title**	**Author(s)**
O5	Interdisciplinary digital learning scenarios: a strategy to enhance science and mathematics teacher education	Bento Cavadas & Neusa Branco
O46	STEM definitions over the digital era	Ana Ferreira, Carla Morais, Luciano Moreira & Raquel Ribeiro
O60	Digital game design in biology teacher education: formative experiences in Brazil and Portugal	Alline Bettin de Oliveira, António Osório & Luís Dourado

Chair: Mairéad Holden		**Room 3**
Paper	**Title**	**Author(s)**
O22	Smart Islands: beyond the bridges	Mairéad Holden, Beverley McCormick, Adrian Boyd & Tríona Nic Fhinn
O54	Integrated STEAM activities in primary teacher education: insights from supervised teaching practice	Marisa Correia & Maria Clara Martins
O56	Lesson study with STEM tasks and the professional development of natural sciences and physics–chemistry teachers	Júlia Prada & Teresa Conceição

Chair: Lorraine Harbison		**Room 4**
Paper	**Title**	**Author(s)**
O24	Hybrid lesson study for supporting teachers' professional judgement about fractions reasoning across the Island of Ireland	Lorraine Harbison, Miriam Ryan, Elizabeth Oldham, Hamsa Venkat, Geraldine Parks, Mairéad Holden, Shauna McGill & Deirdre Ní Chonghaile
O25	Innovation or regression? Platformization and its impacts on inclusion, knowledge, and the teaching profession	Solange Hassan Ahmad Ali Fernandes & Elaine Pavini Cintra
O52	Bridging teacher knowledge frameworks through a global integrative models	Helena Rocha

Tuesday, March 31st

16h30 – 18h00

Chair: Paulína Koršňáková		**Room 1**
Paper	**Title**	**Author(s)**
O17	Educating pupils for environmental sustainability in European Union and Western Balkan: comparative overview based on TIMSS 2023 data	Branislav Ranđelović & Valentina M. Ranđelović
O58	The European sustainability competence framework (GreenComp) in light of TIMSS 2023 data	Paulína Koršňáková, Tahira Ali Qadri & Wangqiong Ye
O59	The role of school organizations in promoting sustainability	Inés García-Bohórquez, Dries Verhelst, Fernando Martínez-Abad & Camilo Ruiz

Chair: Natalia Garcia Domenech		**Room 2**
Paper	**Title**	**Author(s)**
O18	Science through stories: insights from the CAPERS project	Natalia Garcia Domenech & Mairead Holden
O30	Machine learning as a cognitive tool: fostering critical scientific reasoning	Ana Rita Alves, Mónica Baptista & Teresa Conceição
O44	GiroGiraMente: integrating maker education principles for computational thinking development in science education	Nuno Braga, Ileana Souza, Ricardo Silva, Cristiana Araújo & Pedro Rangel Henriques

Chair: Emanuel Santos		**Room 3**
Paper	**Title**	**Author(s)**
O40	Project-based STEM learning in elective high school courses: engineering design, productive failure, and authentic assessment in an international school context	Emanuel Santos
O47	Integrated STEAM activities in primary teacher education: insights from supervised teaching practice	Marisa Correia & Dulce Martins
O50	Contributions of a STEM education professional development program to the PCK of physics and chemistry teachers	Iva Martins & Mónica Baptista

Chair: Nadia S. Kennedy		**Room 4**
Paper	**Title**	**Author(s)**
O4	Reimagining statistics teacher education with flipped learning	Aslıhan Batur Öztürk, Travis Weiland, Anthony Fernandes & Adnan Baki
O6	Supporting preservice mathematics teachers' entry into data science through structured computational modeling with R	Nadia S. Kennedy & Boyan S. Kostadinov
O23	Statistics education and digital work precarization: teaching experiences in technical courses	Lauro Chagas e Sá & Stella Gomes de Souza

Chair: Mujo Mesanovic		**Room 5**
Paper	**Title**	**Author(s)**
O26	Academic integrity, assessment, and student motivation in mathematics education in the age of artificial intelligence	Mujo Mesanovic
O36	Numbers don't lie? The ethics and responsibility of mathematical modeling in the digital era	András Bátkai
O57	Perceptions of teachers in training on the use of artificial intelligence in formulating and solving problems	Iza Helena Travassos, Maria Helena Martinho & José Augusto Pacheco

Wednesday, April 01st

11h30 – 13h00

Chair: Elizabeth Oldham		**Room 1**
Paper	**Title**	**Author(s)**
O41	High-stakes assessment of mathematics in the senior cycle of secondary education: challenges and affordances at a time of curriculum change in Ireland	Elizabeth Oldham
O42	STEAM projects and assessment in initial teacher training: evidence from an umbrella review	Cristina Martins & Patrícia Teixeira
O43	InMath - early results of the trial of accessible and inclusive problem-solving activities for intellectual disabilities	Sara Cecchetti & Fabio Sacchi

Chair: Mariana Cortez		**Room 2**
Paper	**Title**	**Author(s)**
O10	Developing a TPD model for environmental citizenship in science education: bridging critical pedagogy and digital strategies	Larissa Nascimento & Pedro Reis
O15	The missing link in science education: bioethics and geoethics as a double helix of educational tools for science teachers	Marta Paz & Clara Vasconcelos
O27	The importance of a functional teaching laboratory in the training of science teachers in the early years of schooling: scoping review	Mariana Cortez, Marcus Pereira Junior, Patrícia Christine Silva & Ana V. Rodrigues

Chair: Elsa Price		**Room 3**
Paper	**Title**	**Author(s)**
O7	STEAM in mathematics versus mathematics in STEAM: what does useful technology implementation mean?	Brigitta Békési, Eva Ulbrich, Tony Houghton, Jana Trgalova, Zsolt Lavicza
O51	Digital learning environments as a support for addressing mathematics anxiety in STEM education	Roxana-Madalina Cristea & Elsa C. Price
O53	Maths in STEM learning for sustainability	Cristina Ribeiro, Maria Luisa Azevedo & Cristina Mesquita

Chair: Isabel Saúde		**Room 4**
Paper	**Title**	**Author(s)**
O11	PLAYLAB.AI as an AI tutor in pre-service science teacher education	Isabel Saúde, Luciane Penteado Chaquime & José Luís Araújo
O13	Science education for citizenship in basic education: science-technology-society in plate tectonics	Luís Filipe Moreira
O39	Makerspaces in Greek schools: trends, impact and challenges	Christina Volioti, Theodosios Sapounidis, Ioannis Spinos & Genovefa Lachana

Chair: Aparecida de Fátima Silva		**Room 5**
Paper	**Title**	**Author(s)**
O19	Instructional strategies for teaching Chemical Bonding: reflections on the PCK and ICT-TPCK of postgraduate students	Lara Luciano da Silveira, Mónica Baptista & Brenno Oliveira
O32	The formation of an innovative profile of postgraduate students in chemistry for teaching in higher education	Aparecida de Fátima Silva & Salete Linhares Queiroz
O55	From gravity to the Earth's internal structure: how students construct boundary knowledge between physics-chemistry and natural sciences	Teresa Conceição & Júlia Prada

Wednesday, April 01st

14h30 – 15h30

Chair: Brigitta Békési		**Room 1**
Paper	**Title**	**Author(s)**
O3	Modern means of communication for teaching mathematics	Brigitta Békési, Eva Ulbrich, Tony Houghton, Jana Trgalova & Zsolt Lavicza
O48	Science and maths education with digital technologies: What does open access research tell us?	Teresa Margarida Loureiro Cardoso

Chair: Marthese Spiteri		**Room 2**
Paper	**Title**	**Author(s)**
O14	Performing the Anthropocene: non-formal science theatre for promoting youth competencies in global citizenship	Marta Paz & Clara Vasconcelos
O33	Exploring teachers' dispositions to facilitate digital equity in multicultural classrooms	Marthese Spiteri

Chair: Nkosinathi Mpalami		**Room 3**
Paper	**Title**	**Author(s)**
O2	Analysis of probability tasks promoted in a prescribed grade 6 South African textbook in the digital era	Nkosinathi Mpalami
O34	STEAM implementations and connections within the Portuguese high school mathematics curriculum	Sara Gonçalves & Floriano Viseu

Chair: Helena Rocha		**Room 4**
Paper	**Title**	**Author(s)**
O35	Perspectives on the STEAM approach from two teachers of different educational cycles	Patrícia Teixeira, Helena Rocha & Cristina Martins
O62	Empowering support teachers in mathematics: a laboratory-based training model at the University of Florence	Laura Menichetti & Duccio Tognini

Chair: Mireia Usart-Rodríguez		**Room 5**
Paper	**Title**	**Author(s)**
O9	Digital implementation in early childhood education: observations of tablet-based mathematics activities using Innovamat	Erica Pamela Köchig, Beatriz Lores-Gómez & Mireia Usart-Rodríguez
O38	The semiotic potential of robotics for mathematical modelling: towards an analytical framework for mathematics education	Sónia Martins & Maria Andrade

List of Posters

Poster	Title	Author(s)
P1	Integrating digital technologies and research-based approaches in biology teacher education: a TPCK-informed program in a master's degree in biology and geology teaching	Cecília Guerra & Maria João Fonseca
P2	Dialogic and reflective supervision across university and school settings: shaping pre-service biology and geology teachers	Cecília Guerra, Nuno Correia, Alexandra Tabuaço, Ana Sousa, Liliana Passos & André Pereira
P3	Developing smart ECO-iSTEM educational programmes: a conceptual framework and an education module	Bento Cavadas, Neusa Branco, Elena Revyakina, Florian Danhel & Willfried Swoboda
P4	Developing computational thinking with or without technology in 1st cycle mathematics classes through an exploratory teaching model	Catarina Vasconcelos Gonçalves, Rosa Rocha & Pascoal Costa
P5	Mapping STEM teachers' self-perception of their hard, soft, and digital skills and competencies	Cláudia Faria & Bárbara Coelho
P6	Instrument design for the analysis of students' conceptions about agrifood system in digital era	Jorge Pozuelo Muñoz, Esther Cascarosa Salillas, Eva Terrado, Beatriz Carrasquer, Adrián Ponz & Carlos Rodríguez
P7	Analysis of the use of artificial intelligence for educational science assessment in higher education: a systematic review (2020-2024)	Esther Cascarosa Salillas, Jorge Pozuelo Muñoz, Isabel Iranzo Navarro & Lidia Martín Ronco
P8	A didactic proposal for teaching electromagnetism in a STEAM sequence: evidence from a pretest-posttest study	Alberto Cazaña Garcés, Jorge Pozuelo Muñoz & Ana de Echave Sanz
P9	Science-society relationships in science textbooks: approaches and trends in educational research	Jorge Pozuelo Muñoz & Esther Cascarosa Salillas
P10	Algebraic structure and symmetry in quadratic functions	Leonardo Miranda, Hudson Vieira de Sousa & Fabrício Ferreira de Sousa
P11	Prospective mathematics teachers' initial perspectives on the teaching of mathematical modelling with technology	Sílvia Zuzarte, Hélia Jacinto & Hélia Oliveira
P12	Opinions of biology and geology teachers on the formative needs of students in matters related to environmental ethics	Luísa Carvalho & Luís Dourado
P13	Learning and teaching: insights into the use of artificial intelligence	Ana Pereira Antunes, Márcio Filipe, Sandra Mendonça, Karolina Baras & Nuno Fraga
P14	Water literacy in science education: a Portuguese basic education curriculum analysis	Cláudia Sousa
P15	Use of generative AI tools in practical school activities on rock types: A study with pre-service biology and geology teachers	Marcus Pereira Júnior, Betina Lopes & Rute Coimbra
P16	Interest in contextualized science learning: opinions of experts, teachers, and students	Sofia Morgado & Laurinda Leite

Poster	Title	Author(s)
P17	A Maker project in an initial primary teacher education course	Maria Helena Martinho, Ana Sofia Afonso, Beatriz Carvalho, Maria Almeida & Mariana Costa
P18	Olimpíada Matematicando: gamification and digital information and communication technologies in the Brazilian Amazon	Thalia de Nazaré Trindade da Silva & Iza Helena Travassos Ferraz de Araújo
P19	Awareness and action: pre-service teachers' readiness to respond to digital risks in their future professional practice	Magdalena Bartoszewicz-Sieńko, Agnieszka Laskowska & Adam Naruszewicz
P20	Across systems, algorithms, models and possibility: imagination and combinatorial art in the digital age	Valerio Ferrero

Note: Posters should be displayed from Tuesday morning (in the main hall, Institute of Education) to Wednesday afternoon.

University of Minho

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