

INTED **2024**

18th International
Technology, Education and
Development Conference

4-6 March 2024
Valencia (Spain)

CONFERENCE PROCEEDINGS



Sharing the Passion for Learning

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Sharing the Passion for Learning

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Preface

The INTED2024 Conference Proceedings contain the papers presented at the 18th International Conference of Technology, Education and Development, held in Valencia, Spain, from the 4th to the 6th of March 2024. INTED takes place annually and its aim is to bring together academics and researchers to continue the exchange of innovative ideas and research. Participants from over 78 countries joined INTED2024 to learn about the changing world of education and learning technologies.

INTED's focus is on Education and Educational research. Since many international education experts attended the conference, participants were able to network and collaborate with other delegates from around the world, participating in thematic sessions, networking activities, workshops and interactive sessions. The keynote speeches are available at IATED Talks: iated.org/talks.

The INTED2024 Proceedings, exclusively in English, are included in the IATED Digital Library: library.iated.org. The INTED2024 International Program Committee was composed of lecturers and researchers from multiple countries. A blind peer review process was followed to guarantee the quality of the final publication, in which the following points were evaluated: information content, relevance to the educational field, general structure, clarity of contents, originality, and relation to the conference topics and disciplines.

IATED endeavors to publish original and high-quality research papers. Following the expected ethical standards, all authors that published their papers in the INTED2024 Proceedings signed the IATED copyright transfer form. More information about the publication ethics of IATED is available at iated.org/publication_ethics.

We wish to extend our most sincere thanks to all who contributed to the INTED2024 Proceedings. Thanks for your dedication and for sharing your passion for learning.

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INTED2024 Keynote Speakers

Mike Sharples – The Open University (UK)



Keynote speech:

Social Generative AI: A Future for International Education

Development of Generative Artificial Intelligence is following the same path as the World Wide Web: research, breakthrough, integration into workplace tools, development of apps. For the Web, the next major development was social media and services. I suggest we will soon see the emergence of “Social Generative AI” – AI systems interacting with humans and with other AI tools in complex social networks. Social Generative AI will have profound implications. In education it will offer new roles for AI as a conversational partner and collaborator; it will break down language barriers and connect people across cultures. However, Social Generative AI may also erode trust in information and create networks of interacting machines beyond human control. In my talk, I will propose we develop social AI for education that is not only effective and ethical but also caring and founded on good pedagogy. The result could be a future for international education that merges human empathy and experience with social artificial intelligence.

Biography:

Mike Sharples is Emeritus Professor of Educational Technology at The Open University, UK. He gained a PhD from the Department of Artificial Intelligence, University of Edinburgh on Cognition, Computers and Creative Writing. His expertise involves human-centred design and evaluation of new technologies and environments for learning. He provides consultancy for institutions worldwide including UNESCO, UNICEF, universities and companies. As Academic Lead for FutureLearn.com he led pedagogy-informed design of the open learning platform. He is an Associate Editor of the International Journal of Artificial Intelligence in Education. He is author of over 300 published papers in the areas of educational technology, learning sciences, science education, human-centred design of personal technologies, artificial intelligence and cognitive science. His recent books are *Practical Pedagogy: 40 New Ways to Teach and Learn* and *Story Machines: How Computers Have Become Creative Writers*, both published by Routledge, and *An Introduction to Narrative Generators*, published by Oxford University Press.

Sarah Newman – Harvard University (USA)**Keynote speech:*****Facing this Moment Critically & Creatively: AI Pitfalls & Opportunities for Educators***

Many educators are intimidated and overwhelmed by the rapid availability and uptake of AI tools like ChatGPT. How do these tools change the value of skills we've held dear to learning — and expression — such as writing? How do they exacerbate inequities between learners? What do they mean for the role of educators? And what can, and should, we do right now?

New technologies have always changed how we learn, and how we teach. As an educator and AI researcher who leads the AI Pedagogy Project, I will offer recommendations (and some warnings) about how to best face this moment. We need to be both critical and creative. We need to separate AI hype from reality. As overwhelming as it feels, the introduction of these AI technologies offers a chance to revisit and revise what hasn't been working in education, while protecting what is most important. Centered on the value of interdisciplinarity, informed by technology ethics, and leveraging the opportunity that this indeed is, this talk will offer pitfalls to avoid, and concrete recommendations that educators can apply immediately.

Biography:

Sarah Newman is Director of Art & Education at metaLAB at Harvard University, a project of the Berkman Klein Center for Internet & Society. Her work explores the social, ethical, and pedagogical dimensions of artificial intelligence and other emerging technologies through research, art, and teaching. Newman leads the AI Pedagogy Project, a resource to provide educators materials for responsible engagement with AI technologies. Newman's research focuses on data transparency. She co-founded and serves as Research Lead of the Data Nutrition Project, which aims to mitigate bias in data-driven systems through tools and educational practices. Newman holds a BA in Philosophy from Washington University in St. Louis and an MFA in Imaging Arts from the Rochester Institute of Technology. She is also an installation artist who has exhibited work in New York, Miami, Berlin, London, and Rome, and has attended artist residencies in Germany, Italy, and Sweden. Previous honors include: AI Grant, Harvard Assembly Fellow, Harvard Berkman Klein Fellow, a Rockefeller AI Resident, Artist-in-Residence at Northeastern School of Law, and a grantee of the Notre Dame Tech Ethics Lab, a grantee of the National Endowment of the Arts, and winner of the 2022 Ars Electronica Award for Digital Humanity.

Conference Tracks & Sessions

The INTED2024 conference program is available online at <https://iated.org/inted2024>

ORAL SESSIONS MONDAY

Fostering Critical Thinking
 Virtual Reality
 Learning Analytics & Data Science Experiences
 Post-Pandemic Scenarios in Education
 Exchange & Mobility Programmes
 Barriers to Learning & Inclusive Practices
 Science Popularization and STEM Education
 English as a Medium of Instruction
 Challenge and Problem-Based Learning
 Augmented Reality
 Digital Assessment
 From COVID to Construction: Creating a Sense of Belonging
 Intercultural and Multicultural Education
 Inclusive Education Teacher Training
 Learning Factories & Remote Laboratories
 AI and Chatbots in Language Learning
 Game-Based Learning
 Extended Reality
 Feedback and Assessment
 Technology Enhanced Learning
 Employability Trends and Challenges
 Equality, Diversity and Inclusion
 Teaching STEM
 English for Special Purposes
 Active Learning Experiences
 e-Learning Experiences
 Assessment in the Era of Generative AI
 21st Century Skills
 Tales from the trenches of Entrepreneurship Education and Innovation in HEIs
 Special Education
 Computer Science and Cybersecurity Education
 Online and Technology-Enhanced Language Learning

POSTER SESSIONS MONDAY

Emerging Technologies in Education
 Pedagogical Innovations in Education

ORAL SESSIONS TUESDAY

Making Learning Accessible to Diverse Students
 Students' and Teachers' Perceptions of AI
 Virtual Learning Environments
 Digital and AI Skills for Educators
 Workplace & Lifelong Learning 1
 Curriculum Design Experiences
 Mathematics in Higher Education
 English as a Foreign Language
 Service Learning & Community Engagement
 Generative AI in Education
 Mentoring & Tutoring

Pre-service Teachers' Experiences
 Workplace & Lifelong Learning 2
 Quality in Education
 Promoting STEM Careers
 Student Wellbeing
 Pedagogical Innovations
 Generative AI Chatbots
 MOOCs & Open Educational Resources
 Professional Development of Teachers
 Entrepreneurship Education
 Educational Management and Digitization
 Science Outreach and Communication
 Student Safety and Protection
 Collaborative & Team-Based Learning
 Research on Generative AI in Education
 Blended and Hybrid Learning
 ICT Skills among Teachers
 University-Industry Cooperation
 Leadership in Education
 STEM in Schools
 Health Sciences Education
 Student Engagement
 Application of AI in Education
 Mobile Learning
 Unlocking the Potential: Quality and Growth in Initial Teacher Education
 Education for Sustainability
 Institutional Cooperation in Education
 Architecture & Civil Engineering Education
 Transnational Medical Education: AIWMU Joint Medical Education Program

POSTER SESSIONS TUESDAY

Educational Trends and Experiences
 Challenges in Education and Research

VIRTUAL SESSIONS

DIGITAL & DISTANCE LEARNING

MOOCs & Open Educational Resources
 Blended & Mobile Learning
 LMS & VLEs
 e-Learning Experiences
 Distance Education in COVID-19 Times

DIGITAL TRANSFORMATION OF EDUCATION

Data Science & AI in Education
 Learning Analytics & Educational Data Mining
 Digital Transformation
 21st Century Skills

INNOVATIVE EDUCATIONAL TECHNOLOGIES

Virtual & Augmented Reality
 Social Media in Education
 Videos for Learning
 Technology Enhanced Learning

TEACHER TRAINING & ED. MANAGEMENT

ICT & Digital Skills
 Teacher Training and Support
 Professional Development of Teachers
 Educational Management

ACTIVE & STUDENT-CENTERED LEARNING

Gamification & Game-based Learning
Flipped Learning
Problem & Project-Based Learning
Pedagogical Innovations
Active & Experiential Learning
Cooperative & Team-Based Learning

ASSESSMENT, MENTORING & STUDENT SUPPORT

Assessment & Evaluation
Mentoring & Tutoring
Student Support & Motivation
Student Wellbeing
Developing Soft and Transversal Skills

EDUCATIONAL STAGES & LIFE-LONG LEARNING

From Pre-school to Secondary Education
Vocational Training
Transition to the Job Market
Developing Entrepreneurship in Education
Life-Long & Workplace Learning

QUALITY & IMPACT OF EDUCATION

Quality in Education
Learning Space Design
Service Learning & Community Engagement
Social Impact of Education

INCLUSION & MULTICULTURALITY

Inclusive Education
Diversity Issues
Special Educational Needs
Multicultural Education

LANGUAGE LEARNING AND TEACHING

Foreign Languages
New Technologies in Language Learning
Intercultural & Sociocultural Competences

DISCIPLINE-ORIENTED SESSIONS

Architecture & Interior Design
Health Sciences Education
Sustainable Development Goals in Education
Business & Tourism Education

STEM EDUCATION

Mathematics & Statistics
Engineering Education
Computer Science Education
STEM Experiences