EDULEARN 23

15TH INTERNATIONAL CONFERENCE ON EDUCATION AND NEW LEARNING TECHNOLOGIES

PALMA (SPAIN)
3RD-5TH OF JULY, 2023

CONFERENCE PROCEEDINGS

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CONFERENCE PROCEEDINGS

EDULEARN23 Proceedings
15th International Conference on Education and New Learning Technologies
July 3rd-5th, 2023
Palma, Spain

Edited by
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Book cover designed by J.L. Bernat

Bibliographic Information

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Preface

Welcome to the conference proceedings of EDULEARN23. This compilation of papers and research findings were written by a diverse array of education experts and scholars who participated in the 15th EDULEARN conference, held in Palma, Spain from the 3rd to the 5th of July 2023. The conference brought together academics and researchers from the field of education to exchange knowledge, inspire new ideas and share their insights.

The theme of EDULEARN23 covers the fields of education and educational research. EDULEARN23 provided different keynote speeches, parallel thematic sessions, networking activities, workshops, and interactive sessions. The extensive number of international experts who attended the conference allowed attendees to network and share innovative ideas, promoting cross-country collaboration. The keynote speeches are available at IATED Talks (iated.org/talks/).

The EDULEARN23 Proceedings, which are exclusively in English, include the accepted contributions presented at the EDULEARN Conference, which will be included in the IATED Digital Library (library.iated.org). They represent the collective efforts of the authors to advance knowledge in their field. The EDULEARN23 International Program Committee is composed of lecturers and researchers from many different countries. A blind peer review process was followed in order to guarantee the quality and relevance of the final publication. During this process, 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.

EDULEARN endeavours to meet the expected ethical standards when publishing conference proceedings that contain high-quality original research articles. All authors that published their papers in the EDULEARN23 Proceedings signed the IATED copyright transfer form. IATED guarantees the high technical and professional quality of the publications, and that good practice and ethical standards are maintained. More information about IATED publication ethics is available at: https://iated.org/publication_ethics.

We extend our sincere gratitude to all the authors who submitted their valuable work to these EDULEARN23 Proceedings. We also wish to express our gratitude to all participants and attendees for their engagement, dedication, and passion for education.

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EDULEARN23 Keynote Speakers

Keynote Speakers
Ashok K. Goel – *Georgia Institute of Technology, United States*
Donald Clark – *Wildfire, United Kingdom*

Ashok K. Goel – Georgia Institute of Technology (USA)

Keynote speech:
Teaching and Learning in the Age of AI

Millions of adults of various ages need reskilling and upskilling in our technological society. These millions of adult learners offer a new, large, and diverse challenge to education. Given that many adult learners cannot leave their jobs or families, online education offers a medium for reaching them where they live and work. Online education also provides access to unprecedented amount of data on learners and learning. Our vision at the National AI Institute for Adult Learning and Online Education (AI-ALOE) is to develop novel AI cognitive assistants that work with this data to enhance the quality of adult online learning through personalization of learning. Successful realization of this vision requires progress on understanding the motivations, needs, and capacities of adult learners, participatory design of AI cognitive assistants, human-AI collaboration, large-scale learning analytics, and an infrastructure for deploying the AI cognitive assistants, collecting and analyzing the data on learning, and feeding the results to the cognitive assistants, teachers, and learners alike. I will describe the research program at AI-ALOE in some detail.

Biography:
Ashok K. Goel is a Professor of Computer Science and Human-Centered Computing in the School of Interactive Computing at Georgia Institute of Technology, and the Chief Scientist with Georgia Tech's Center for 21st Century Universities. For more than thirty-five years, he has conducted research into cognitive systems at the intersection of artificial intelligence and cognitive science with a focus on computational design and creativity. For the last decade or so, much of his research has focused on AI in education and education in AI. He is a Fellow of AAAI and the Cognitive Science Society, an editor emeritus of AAAI's AI Magazine, and a recipient of AAAI's Outstanding AI Educator Award. Ashok is the Executive Director of the recently established National AI Institute for Adult Learning and Online Education.

Donald Clark – Wildfire (UK)

Keynote speech:
AI changes everything!

Generative AI will change the way we work, therefore what, why and how we learn. Its profound impact on both work and learning will be presented showing that the consequences are both profound and unexpected. The role of the teacher and upskilling will also be explored.

Biography:
Donald Clark is a Learning Tech Entrepreneur, CEO, Researcher, Blogger and Speaker. He was CEO and one of the original founders of Epic Group plc, which established itself as the leading company in the UK online learning market, floated on the Stock Market in 1996 and sold in 2005. He has been involved at all levels of investment – angel, VC, growth, PE and IPO. As well as being the CEO of Wildfire an AI learning company, he also invests in, and advises, EdTech companies.

An investor and board member of learning companies Cogbooks (sold in 2021 to Cambridge University) and Learning Pool (sold 2021 for $200 million), he was also on the Boards of City & Guilds, Learn Direct, University for Industry and the Brighton Dome and Festival. Wildfire delivers AI products and consultancy. He has published 3 books, the first on AI, second on Design for technology and the third, published next month on Learning Technology. His fourth book on Learning in the Metaverse has just been commissioned.

Donald has over 37 years' experience in online learning, video, games, simulations, adaptive, chatbot, social media, mobile learning, virtual reality and AI projects. He has designed, delivered and advised on online learning for many global, public and private organisations. An evangelist for the use of technology in learning, he has won many awards, including the first 'Outstanding Achievement in E-learning Award' and 'Best AIM Stock Market Company', 'Most Innovative Online Product', 'Best Online Learning Project and 'JISC EdTech Award'.

An award winning speaker at national and international conferences, he has delivered keynotes in the UK, Europe, US, Africa, Australia, Middle and Far East.

…… also a regular blogger (15 years+) on learning technology.

Conference Tracks & Sessions

The EDULEARN23 conference program is available online at https://iated.org/edulearn23

ORAL SESSIONS MONDAY

Technology-enhanced Learning
Computational Thinking Skills for the Digital Age
Soft Skills & Socio-Emotional Learning
Adapting Education in the Post-Pandemic Era
Programming and Computer Science Education
Experiences in Primary & Secondary Education
Experiences in Tourism Education
Technology-Enhanced Mathematics Education
Virtual Reality in Education
Creativity & Critical Thinking
Assessment and Evaluation Strategies (1)
Impact of COVID-19 on Education
Integrating Robotics and Programming in Educational Settings
STEM Education in Schools (1)
Technology-enhanced Language Learning
Teaching STEM Subjects
Generative AI for Innovative Teaching and Learning
Game-Based Learning
e-Assessment
Innovative Tools for Learning
Experiences in Engineering Education
Inclusive Education
Language Teaching and Learning
Experiences and Innovations in Mathematics Education (1)
AI in Education
Project and Problem Based Learning
Assessment and Evaluation Strategies (2)
Videos for Learning
Digital and Media Literacy
Supporting Special Education
English for Special Purposes & English as a Medium of Instruction
Experiences and Innovations in Mathematics Education (2)

POSTER SESSIONS MONDAY

Pedagogical Innovations and Trends in Education
Emerging Technologies in Education

ORAL SESSIONS TUESDAY

Social Media & Digital Skills
Plagiarism and Academic Dishonesty
e-Portfolios & Reflective Assessment
Experiences in Higher and Further Education
Professional Development of Teachers (1)
Student and Teacher Wellbeing
Experiences in Business Education
Service Learning & Community Engagement
Integrating Virtual Reality in Education
Learning Analytics (1)

International Projects & Mobility Experiences
Workplace & Lifelong Learning
Professional Development of Teachers (2)
Student Support
Experiences in Health Sciences Education
Education for Sustainability (2)
Virtual & Augmented Reality
Learning Analytics (2)
Active and Experiential Learning
Internships and Work-integrated Learning
ICT Skills among Teachers
Educational Management (1)
New Technologies in Health Sciences Education
STEM Education in Schools (2)
m-Learning
e-Learning Experiences
Gamification and Game-Inspired Learning
Personalized and Self-Regulated Learning
Teacher Training
Educational Management (2)
English as a Foreign Language
Innovations in STEM Education
Chatbots & AI in Education
From Face-to-Face to Remote Learning
Blended & Hybrid Learning
Entrepreneurship Education
Pedagogical Innovations
University-Industry Cooperation
Education for Sustainability (1)
Professional Development of STEM Teachers

POSTER SESSIONS TUESDAY

Experiences in Education
New Challenges in Education and Research

VIRTUAL SESSIONS

DIGITAL TRANSFORMATION OF EDUCATION
Data Science & AI in Education
Learning Analytics & Educational Data Mining
Digital Transformation
Digital and Media Literacy
Educational Programming & Robotics
Computer Games and Educational Software

INNOVATIVE EDUCATIONAL TECHNOLOGIES
AI, Chatbots & Robots
Virtual & Augmented Reality
Social Media in Education
Technology Enhanced Learning
Videos for Learning
Simulation & 3D Technologies

DIGITAL & DISTANCE LEARNING
Distance Education in COVID-19 Times
Challenges and Practices during the Pandemic and Beyond
Blended & Mobile Learning
Open Educational Resources
Learning Management Systems & Virtual Learning Environments

ACTIVE & STUDENT-CENTERED LEARNING
Gamification & Game-based Learning
Experiential & Cooperative Learning
Problem & Project-Based Learning
Flipped & Hybrid Learning
Pedagogical Innovations
Creativity & Critical Thinking

ASSESSMENT, MENTORING & STUDENT SUPPORT
Assessment & Evaluation
Mentoring & Tutoring
Student Support & Motivation
Developing Soft and Transversal Skills

TEACHER TRAINING & ED. MANAGEMENT
ICT & Digital Skills
Professional Development of Teachers
Educational Management

QUALITY & IMPACT OF EDUCATION
Quality in Education
Experiences and Challenges in Curriculum Design
Sustainability & Social Impact of Education
Links between Education and Research
University-Industry Collaboration
Mobility & International Projects

EDUCATIONAL STAGES & LIFE-LONG LEARNING
Early Childhood & Primary Education
Vocational Education
Transition to the Job Market & Entrepreneurship
Life-Long & Workplace Learning

MULTICULTURALITY & INCLUSION
Multicultural Education
Diversity Issues
Special Educational Needs
Inclusive Education

DISCIPLINE-ORIENTED SESSIONS
Architecture & Interior Design Education
Health Sciences Education
Computer Science Education
Business & Tourism Education

LANGUAGE LEARNING AND TEACHING
Foreign Languages
Language Learning & Translation Studies
New Technologies in Language Learning

STEM EDUCATION
Mathematics & Statistics
Engineering Education
STEM Experiences