## CONTENTS

### INVITED SPEAKERS

**Keynote Speakers**

- **When the Sharing Economy, IT and Education Collide**  
  *Glenn Wintrich*

- **How to Teach Humans (with Machines)**  
  *Rob Koper*

- **Digital Technology and Higher Education - Delivering Benefits for Student Education**  
  *Neil Morris*

- **Open Education Practices as Answer to New Demands of Training in Entrepreneurship Competences**  
  *Edmundo Tovar*

### INFORMATION TECHNOLOGIES SUPPORTING LEARNING

**Full Papers**

- **A Method for Identifying and Formalizing the Underlying Instructional Design Language of Existing LMSs**  
  *Nour El Mawas, Lahcen Oubahssi and Pierre Laforcade*

- **Combining Agents and Ontologies for Building an Intelligent Tutoring System**  
  *Stamatis Panagiotis, Ioannis Panagiotopoulos, Christos Goumopoulos and Achilles Kameas*

- **Recognition of Reading Activities with Read Aloud Voice on Japanese Text Presentation System**  
  *Kyota Aoki*

- **Automatic Text Difficulty Classifier - Assisting the Selection Of Adequate Reading Materials For European Portuguese Teaching**  
  *Pedro Curto, Nuno Mamede and Jorge Baptista*

- **A Cognitive Framework for On-line Music Education - Students' Performance in On-line Listening Activities in a Blended Post-secondary Music Course**  
  *Patricia Boechler, Mary Ingraham, Luis Fernando Marin, Erik deJong and Brenda Dalen*

- **ASHYI-EDU: Applying Dynamic Adaptive Planning in a Virtual Learning Environment**  
  *Jaime Pavlich-Mariscal, Yolima Uribe, Luisa Fernanda Barrera León, Nadia Alejandro Mejía-Molina, Angela Carrillo-Ramos, Alexandra Pomares Quimbaya, Monica Brijaldo, Martha Sabogal, Rosa Maria Vicari and Hervé Martin*

- **Turning Recurrent Uses of E-learning Tools into Reusable Pedagogical Activities - A Meta-modeling Approach Applied to a Moodle Case-study**  
  *Esteban Loiseau, Pierre Laforcade and Nour El Mawas*

- **Automatic Generation of English Vocabulary Tests**  
  *Yuni Susanti, Ryu Iida and Takenobu Tokunaga*

- **Personalisation of MOOCs - The State of the Art**  
  *Ayse Saliha Sunar, Nor Aniza Abdullah, Su White and Hugh C. Davis*
Towards Enhanced Presentation-based Teaching of Programming - An Interactive Source Code Visualisation Approach

Reinout Roels, Paul Meștereagă and Beat Signer

A Model for Customized In-class Learning Scenarios - An Approach to Enhance Audience Response Systems with Customized Logic and Interactivity

Daniel Schön, Melanie Klinger, Stephan Kopf and Wolfgang Effelsberg

Studying Relations Between E-learning Resources to Improve the Quality of Searching and Recommendation

Nguyen Ngoc Chan, Azim Roussanaly and Anne Boyer

Educational Games for Early Childhood - Using Tabletop Surface Computers for Teaching the Arabic Alphabet

Pantelis M. Papadopoulos, Zeinab Ibrahim and Andreas Karatsolis

The Impact of Ranking Information on Students' Behavior and Performance in Peer Review Settings

Pantelis M. Papadopoulos, Thomas D. Lagkas and Stavros N. Demetriadis

Distance Learning Courses Reviewed - What Can We See?

Gianna Oliveira Bogossian Roque, Gilda Helena Bernardino de Campos and Camila Sousa Santos

Stability and Sensitivity of Learning Analytics based Prediction Models

Dirk Tempelaar, Bart Rienties and Bas Giesbers

SHORT PAPERS

Analysing Features of Lecture Slides and past Exam Paper Materials - Towards Automatic Associating E-materials for Self-revision

Petch Sajjacholapunt and Mike Joy

Reward-based Intermittent Reinforcement in Gamification for E-learning

Sheng Luo, Haojin Yang and Christoph Meinel

Ready, Set, Jump - An Interactive eBook Designed to Awaken the Aspirations of Primary School Students

Uwe Terton and Ruth Greenaway

Some Tools for Aiding Teaching the Basics of Digital Electronics and Signal Processing

Suvi Karhu, Jarmo T. Alander and Otto Nurmi

A Hybrid Content-learning Management System for Education and Access to Intangible Cultural Heritage

A. Glushkova, E. Katsouli, G. Kourvoulis, A. Manitsaris and C. Volioti

Prospects for the Development of E-learning Technologies

Artem Feshchenko, Galina Mozhæva, Ivan Kulikov and Nadezhda Zilberman

Usability in mLearning

Ajinkya Atalatti, Elicia Lanham and Jo Coldwell-Neilson

T-MASTER - A Tool for Assessing Students' Reading Abilities

Erik Kanebrant, Katarina Heimann Mühlenbock, Sofie Johansson Kokkinakis, Arne Jönsson, Caroline Liberg, Åsa af Geijerstam, Jenny Wiksten Folkeryd and Johan Falkenjack
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duck Testing Enhancements for Automated Validation of Student Programmes - How to Automatically Test the Quality of Implementation of Students' Programmes</td>
<td>228</td>
</tr>
<tr>
<td>Pavel Herout and Premysl Brada</td>
<td></td>
</tr>
<tr>
<td>CORF®: Collective Educational Research Facility - Design of a Platform Supporting Educational Research as an Integral Joint Effort of Researchers and Teaching Professionals</td>
<td>235</td>
</tr>
<tr>
<td>Ruurd Taconis</td>
<td></td>
</tr>
<tr>
<td>PACIE Methodology Applied in Virtual Learning Environments to Support Learner Academic Performance</td>
<td>246</td>
</tr>
<tr>
<td>Yésenia Cevallos-Villacrés, Mirna Meza-Herrera, Lorena Paulina Molina-Valdiviezo, Gabriela Torres-Flores and Guillermo Machado Sotomayor</td>
<td></td>
</tr>
<tr>
<td>The Role of Educational Technology in Third Space Practicum</td>
<td>253</td>
</tr>
<tr>
<td>Kathy Jordan and Jennifer Elsdon-Clifton</td>
<td></td>
</tr>
<tr>
<td>Designing a Virtual Laboratory for a Relational Database MOOC</td>
<td>260</td>
</tr>
<tr>
<td>Olivier Berger, J. Paul Gibson, Claire Lecocq and Christian Bac</td>
<td></td>
</tr>
<tr>
<td>InterLect - Lecture Content Interface</td>
<td>269</td>
</tr>
<tr>
<td>Robin Nicolay, Bastian Schwennigcke, Jonas Vetterick, Wolfgang Sucharowski and Clemens H. Cap</td>
<td></td>
</tr>
<tr>
<td>Plug and Play with a QoV Model - A Research Based Learning Approach</td>
<td>277</td>
</tr>
<tr>
<td>Carlos Vivas-López, Diana Hernández Alcantara, Juan Carlos Tudón Martínez and Ruben Morales-Menendez</td>
<td></td>
</tr>
<tr>
<td>Conceptualize the Domain Knowledge Space in the Light of Cognitive Skills</td>
<td>285</td>
</tr>
<tr>
<td>Fatema Nafa and Javed Khan</td>
<td></td>
</tr>
<tr>
<td>A Framework to Personalise Open Learning Environments by Adapting to Learning Styles</td>
<td>296</td>
</tr>
<tr>
<td>Iheba Fasihuddin, Geoff Skinner and Rukshan Athauda</td>
<td></td>
</tr>
<tr>
<td>Towards Adapting Salach for e-Learning Provider</td>
<td>306</td>
</tr>
<tr>
<td>Jyoti Chauhan, Khulan Batbayar, Richa Sharma, Deepika Sharma, Divya Popli, Naveen Kumar and Anita Goel</td>
<td></td>
</tr>
<tr>
<td>Teaching with Dynamic Documents - Web Applications and Local Resources</td>
<td>315</td>
</tr>
<tr>
<td>Jerzy Karczmarczuk</td>
<td></td>
</tr>
<tr>
<td>The Efficacy of Clickers in Second Language Classroom - Promoting Interaction in Korean as a Foreign Language</td>
<td>323</td>
</tr>
<tr>
<td>Ryoo Hye Jin Agnes</td>
<td></td>
</tr>
<tr>
<td>A Mobile Web Game Approach for Improving Dysgraphia</td>
<td>328</td>
</tr>
<tr>
<td>Daniela Giordano and Francesco Maiorana</td>
<td></td>
</tr>
<tr>
<td>A Video Competition to Promote Informal Engagement with Pedagogical Topics in a School Community</td>
<td>334</td>
</tr>
<tr>
<td>José Alberto Lencastre, Clara Coutinho, Sara Cruz, Celestino Magalhães, João Casal, Rui José, Gill Clough and Anne Adams</td>
<td></td>
</tr>
<tr>
<td>Introducing iPads into Senior Secondary School Teaching - Teachers' Use of iPads as Tools in Teaching</td>
<td>341</td>
</tr>
<tr>
<td>Jani Kontkanen, Teemu Valtonen and Pertti Väisänen</td>
<td></td>
</tr>
<tr>
<td>Design Principles for Collaboration Platforms for Open Education</td>
<td>349</td>
</tr>
<tr>
<td>Safa'a Abularrour, Henri Pirkkalainen, Jan Pawlowski, Markus Bick, Migle Baguanskyte, Anna Frankenberg, Raimund Hudak, Constantinos Makropoulos, Dimitra Pappa, Vassilis Pitsillis, Anne-Christin Tamnhauser, Elena Trepule, Aristedes Vidalis and Airina Volungeviciene</td>
<td></td>
</tr>
</tbody>
</table>
### An Educational Talking Toy based on an Enhanced Chatbot

*Eberhard Groetsch, Alfredo Pina, Roman Balandin, Andre Barthel and Maximilian Hegwein*

Page 360

### A Model Driven Approach for Design Flexible e-Assessment

*Fahima Hajjej, Yousra Bendaly Hlaoui and Leila Jemni Ben Ayed*

Page 364

### A Scalable Intelligent Tutoring System Framework for Computer Science Education

*Nick Green, Omar AlZoubi, Mehrdad Alizadeh, Barbara Di Eugenio, Davide Fossati and Rachel Harsley*

Page 372

### Online Courses of Portuguese as a Second Language - Closing the Gap with Blended Learning in Mainstream Education

*Carla Barros Lourenço and Ana Sousa Martins*

Page 380

### ICT Skill Needs of Nigerian Secondary School Leavers Towards Sustainable Economy and Peaceful Co-existence

*Nnenna EkperekA Ibezim*

Page 386

### Web-based Virtual Labs - A Cosmos - Evidence - Ideas as a Design Framework Leading to Good Practice

*Anastasios Molohidis, Ioannis Lefkos, Athanasios Taramopoulos, Euripides Hatzikraniotis and Dimitrios Psillos*

Page 393

### Problem of Trust in e-Learning Environment

*Vladislav Petrov, Natalia Miloslavskaya, Victor GorbatoV and Anatoliy Durakovskiy*

Page 399

### Online Courses of Portuguese as a Second Language - Closing the Gap with Blended Learning in Mainstream Education

*Carla Barros Lourenço and Ana Sousa Martins*

Page 380

### ICT Skill Needs of Nigerian Secondary School Leavers Towards Sustainable Economy and Peaceful Co-existence

*Nnenna EkperekA Ibezim*

Page 386

### AFINA-te - A Healthy Lifestyle Information Website, Online Food Diary and Exercise Log Directly Towards Children

*Nuno Guimaraes, Vera Ferro-Lebres and José Ribeiro*

Page 405

### Student Focused Dashboards - An Analysis of Current Student Dashboards and What Students Really Want

*Gabriel Reimers and Anna Neovesky*

Page 411

### Gesture Recognition Technologies for Gestural Know-how Management - Preservation and Transmission of Expert Gestures in Wheel Throwing Pottery

*Alina Glushkova and Sotiris Manitsaris*

Page 418

### Collaborative and Individual Learning - Mixing the Two

*Richard AIterman and Kendall Harsch*

Page 424

### Web-based Virtual Labs - A Cosmos - Evidence - Ideas as a Design Framework Leading to Good Practice

*Anastasios Molohidis, Ioannis Lefkos, Athanasios Taramopoulos, Euripides Hatzikraniotis and Dimitrios Psillos*

Page 430

### Computational Neuroscience - Challenges and Implications for Brazilian Education

*Raimundo José Macário Costa, Luis Alfredo Vidal de Carvalho, Emilio Sánchez Miguel, Renata Mousinho, Renato Cerquea, Lizete Pontes Macário Costa, Jorge Zavaleta, Laci Mary Barbosa Manhães and Sérgio Manuel Serra da Cruz*

Page 436

### Design Thinking and ICT to Create Sustainable Development Actions - Design Thinking, ICT and Sustainable Development

*Diane Pruneau and Joanne Langis*

Page 442

### Classroom Technology Transformation using the 4 T's Framework - International Partnerships between K-12 Teachers and University

*Alexandra Kanellis, Holly Atkins and Candace Roberts*

Page 447

### Human Agency and Learning - A Computer-based Exploration of Sustainable Water Management

*David MacLeMan*

Page 452