# Table of Contents

**Preface** ...........................................................................................................................................................................xxi

**Chairs and Program Committee Members** ....................................................................................................................xxii

**Additional Reviewers** ........................................................................................................................................................xxix

---

## Invited Papers

- National Policy on Technology Supported Education in Greece ..............................................................................................................1  
  **Sokratis K. Katsikas**

- Educational Videogame Design ..........................................................................................................................................................2  
  **Miguel Nussbaum and Vagner de Sousa Beserra**

- Promoting the Effective Use of ICT for Enhancing Education in the Arab World .................................................................4  
  **Mohamed Jemni**

- Large Scale School-Based Technology Supported Education Innovation ..........................................................................................5  
  **Sofoklis A. Sotiriou**

- Embodied Cognition and Gesture-Based Learning: ICALT2014: Closing Ceremony Invited Speech ........................................................................6  
  **Nian-Shing Chen and Wei-Chieh Fang**

## Track 1. Digital Systems for Open Access to Education and Learning

- A Method for Developing Mobile Virtual Laboratories .........................................................................................................................8  
  **Panagiotis Zervas, Ioannis Kalimeris, and Demetrios G. Sampson**

- A Responsive Design Approach for Supporting Mobile Access to Virtual and Remote Laboratories ...........................................................................11  
  **Panagiotis Zervas, Alexandros Trichos, Demetrios G. Sampson, and Na Li**

- Applying Lessons Learnt from Massively Multiplayer Online Games (MMOGs) to Massive Open Online Courses (MOOCs) .......................................................................................................................14  
  **Iro Voulgari and Demetrios G. Sampson**

- Creating Educational Resources at Scale ...............................................................................................................................................16  
  **Piotr Mitros and Felix Sun**
Evaluating E-learning Platforms for Schools: Use and Usability, User Acceptance, and Impact on Learning
Lampros Stergioulas, Munir Abassi, Georgios Xydopoulos, Masoud Fakhimi, Ruxandra Margineanu, Luis Anido Rifón, and Manuel J. Fernández Iglesias

Finding Open Educational Resources in Computing
Darina Dicheva and Christo Dichev

mSchool: A Learner and Community Centered Open Knowledge Discovery and Management System
I-Han Hsiao, Manav Malhotra, Ching-Fu Lan, Hui Soo Chae, and Gary Natriello

Open Service for Video Learning Analytics
Konstantinos Chorianopoulos, Michail N. Giannakos, Nikos Chrisochoides, and Scott Reed

OpenSocial Application Builder and Customizer for School Teachers
Luis Rodriguez-Gil, Miguel Latorre, Pablo Orduña, Antonio Robles-Gómez, Elio Sancristobal, Sten Govaerts, Denis Gillet, Irene Lequerica, Agustín C. Caminero, Roberto Hernandez, Salvador Ros, Manuel Castro, Diego López-de-Ipiña, and Javier Garcia-Zubia

Learning Object Recommendations Based on Quality and Item Response Theory
Silvia Baldiris, Ramón Fabregat, Sabine Graf, Valentina Tabares, Nestor Duque, and Cecilia Avila

Teachers’ Perception on the Use of ODS Portal to Support Advanced Technologies in Order to Provide Open Access to Learning
Sonia Valladares Rodriguez, Antonia Blanco Pesquera, Montse Vázquez Gestal, Roberto Rodriguez Pérez, Manuel J. Fernández Iglesias, and Luis Anido Rifón

Tsaap-Notes—An Open Micro-blogging Tool for Collaborative Notetaking during Face-to-Face Lectures
Franck Silvestre, Philippe Vidal, and Julien Broisin

What Drives a Successful MOOC? An Empirical Examination of Criteria to Assure Design Quality of MOOCs
Ahmed Mohamed Fahmy Yousef, Mohamed Amine Chatti, Ulrik Schroeder, and Marold Wosnitza


A Discrete Particle Swarm Optimization Approach to Compose Heterogeneous Learning Groups
Zhilin Zheng and Niels Pinkwart

A Lean Constraint-Based System to Support Intelligent Tutoring
Claus Zinn

A Patterns-Based Approach for Modeling Instructional Design and TEL Systems
Sridhar Chimalakonda and Kesav V. Nori

Adaptive Recommendations to Students Based on Working Memory Capacity
Ting-Wen Chang, Jeffrey Kurcz, Moushir M. El-Bishouty, Sabine Graf, and Kinshuk

Combining Self-Regulation and Competence-Based Guidance to Personalise the Learning Experience in Moodle
Simone Kopeinik, Alexander Nussbaumer, Lisa-Christina Winter, Dietrich Albert, Aurora Dimache, and Thomas Roche
Comparing LMS and AEHS: Challenges for Improvement with Exploitation of Data Mining .................................................................65
  Ioannis Karagiannis and Maya Satratzemi

Comparison of Adaptive E-learning Mobile and Web-Based Software Applications Effectiveness .....................................................................................................................................................................................67
  Muhammad Adnan and Hamid Mukhtar

Conversational Agent to Promote Students’ Productive Talk: The Effect of Solicited vs. Unsolicited Agent Intervention .................................................................72
  Stergios Tegos, Stavros N. Demetriadis, and Anastasios Karakostas

Design and Case Study of WoBaLearn—a Work-Based Learning System .................................................................................................77
  Chuantao Yin, Bingxue Zhang, Bertrand David, Nathalie Noel, René Chalon, and Zhang Xiong

Designing Framing and Reflective Scaffolds to Develop Design Thinking and Transfer of Learning: Theorizing for Pre-school .................................................................80
  Chien-Sing Lee and K. Daniel Wong

Discussion around Individual Open Learner Models: Understanding or Copying? .................................................................................................82
  Mohammad Alotaibi and Susan Bull

Enhanced JavaScript Learning Using Code Quality Tools and a Rule-Based System in the FLIP Exploratory Learning Environment .................................................................................................84
  Sokratis Karkalas and Sergio Gutiérrez-Santos

Enhancing Learner Engagement through Personalized Visual Narratives .................................................................................................89
  Bilal Yousuf and Owen Conlan

How Authoring Content for Personalised Learning May Cultivate Learning Design Skills .................................................................................................94
  Kyparisia Papanikolaou

How Effective are Intelligent Tutoring Systems in Computer Science Education? .................................................................................................99
  John C. Nesbit, Olusola O. Adesope, Qing Liu, and Wenting Ma

Investigating E-book Reading Patterns: A Human Factors Perspective .................................................................................................104
  Jan-Pan Hwang, Kinshuk, and Yueh-Min Huang

Investigating Students’ Interaction Profile in an Online Learning Environment with Clustering .................................................................................................109
  Gökhan Akçapýnar, Arif Altun, and Erdal Cosgun

Investigating the Effectiveness of an Advanced Adaptive Mechanism for Considering Learning Styles in Learning Management Systems .................................................................................................112
  Sabine Graf, Ting-Wen Chang, Anne Kersebaum, Thomas Rath, and Jeffrey Kurcz

Learner Modeling in Academic Networks .................................................................................................................................................................117
  Mohamed Amine Chatti, Darko Dugošija, Hendrik Thiis, and Ulrik Schroeder

Pre-assessment and Learning Recommendation Mechanism for a Multi-agent System .................................................................................................122
  Kennedy Ehimwenma, Martin Beer, and Paul Crowther

Resum’Web: A System for Improving the Summary Writing and the Text Understanding .................................................................................................124
  Sonia Mandin

Using Automatic Detection to Identify Students’ Learning Style in Online Learning Environment—Meta Analysis .................................................................................................126
  Norazlina Ahmad, Zaidatun Tasir, and Nurbiha A. Shukor
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Track 3. Wireless, Mobile, and Ubiquitous Technologies for Learning</strong></td>
<td></td>
</tr>
<tr>
<td>A Unified Communication Platform for Enriching and Enhancing Presentations with Active Learning Components</td>
<td>131</td>
</tr>
<tr>
<td>Reinout Roels, Christophe Vermeylen, and Beat Signer</td>
<td></td>
</tr>
<tr>
<td>A City-Scale Situation-Aware Adaptive Learning System</td>
<td>136</td>
</tr>
<tr>
<td>G. D'Aniello, A. Granito, Giuseppina Rita Mangione, S. Miranda, F. Orciuoli, P. Ritrovato, and P. G. Rossi</td>
<td></td>
</tr>
<tr>
<td>A Community Information System for Ubiquitous Informal Learning Support</td>
<td>138</td>
</tr>
<tr>
<td>Petru Nicolaescu, Dominik Renzel, István Koren, Ralf Klamma, Jukka Purma, and Merja Bauters</td>
<td></td>
</tr>
<tr>
<td>A Comparison of Mobile Learning Attitudes among University Students in Four Nations</td>
<td>141</td>
</tr>
<tr>
<td>Ferial Khaddage and Gerald Knezek</td>
<td></td>
</tr>
<tr>
<td>A Generalized Approach for Context-Aware Adaption in Mobile E-learning Settings</td>
<td>143</td>
</tr>
<tr>
<td>Tobias Moebert, Helena Jank, Raphael Zender, and Ulrike Lucke</td>
<td></td>
</tr>
<tr>
<td>A QR-Based Materials Building System to Support Outdoor Teaching Activities</td>
<td>146</td>
</tr>
<tr>
<td>Kai-Yi Chin, Ko-Fong Lee, and Hsiang-Chin Hsieh</td>
<td></td>
</tr>
<tr>
<td>An Evidence Based Learning and Teaching Strategy for Computer Science Classrooms and Its Extension into a Mobile Classroom Response System</td>
<td>149</td>
</tr>
<tr>
<td>M. Mahtaba Fuad, Dehzani Deb, and James Etim</td>
<td></td>
</tr>
<tr>
<td>An Experiment of a Mobile Competition Game for Investigating Students’ Interests in Learning Local Culture</td>
<td>154</td>
</tr>
<tr>
<td>Shao-Chen Chang, Gwo-Jen Hwang, Chin-Chung Tsai, and Jyh-Chong Liang</td>
<td></td>
</tr>
<tr>
<td>Anonymous Assessment Information System for Higher Education Using Mobile Devices</td>
<td>157</td>
</tr>
<tr>
<td>Sergio Rios-Aguilar, Rubén González-Crespo, and Luis de-la-Fuente-Valentín</td>
<td></td>
</tr>
<tr>
<td>Assembling Computers in the Classroom Guided by Mobilogue</td>
<td>162</td>
</tr>
<tr>
<td>Adam Giemza and H. Ulrich Hoppe</td>
<td></td>
</tr>
<tr>
<td>Boosting the Pedagogical Value of Classroom Clicker Systems via the Provision of Formative Feedback</td>
<td>165</td>
</tr>
<tr>
<td>Thanos Hatziapostolou, Tomor Pupovci, Dimitris Dranidis, Iraklis Paraskakis, and Marina Ntika</td>
<td></td>
</tr>
<tr>
<td>Do Your Students Get It? Quiz It! The Android Classroom Response System</td>
<td>168</td>
</tr>
<tr>
<td>Dimitra Adam, Dimitra Kioutsiouki, Anastasios Karakostas, and Stavros N. Demetriadis</td>
<td></td>
</tr>
<tr>
<td>English Reading E-book System Integrated with Guidance Mechanism</td>
<td>171</td>
</tr>
<tr>
<td>Ting-Ting Wu</td>
<td></td>
</tr>
<tr>
<td>Nico Reski, Susanna Nordmark, and Marcelo Milrad</td>
<td></td>
</tr>
<tr>
<td>Interactive Geometry Goes Mobile with GeoTouch</td>
<td>181</td>
</tr>
<tr>
<td>Learning System Based on Contextual Awareness for Clinical Practice in Nursing Courses</td>
<td>186</td>
</tr>
<tr>
<td>Jorge Gómez Gómez, J.F. Huete, and Velssy Hernandez Riaño</td>
<td></td>
</tr>
</tbody>
</table>
Mobile Widgets to Support Peer Interaction Visualization .................................................................................................................. 191
  Ioannis D. Magnisalis and Stavros N. Demetriadis

Study Using Mobile Digital Storytelling (mDS) .................................................................................................................................................. 194
  Susanna Nordmark and Marcelo Milrad

Smart Ambient: A Pilot Study to Contextualise a Location-Based Mobile Application to Support
Informal Learning from Cultural Heritage Sites ........................................................................................................................................... 199
  Alaa S.A. Alkhafaji, Sanaz Fallahkhair, and Mihaela Cocea

The Use of Khan Academy in Chilean Classrooms: Study of an Intel Funded Pilot Program
in Chile ........................................................................................................................................................................................................... 201
  Daniel Light and Elizabeth Pierson

Towards a Web-Based Framework to Support End-User Programming of Mobile Learning
Activities ............................................................................................................................................................................................................ 204
  Janosch Zbick, Marc Jansen, and Marcelo Milrad

Track 4. Digital Game and Intelligent Toy Enhanced Learning

A Learning Version of Memory Match Game .................................................................................................................................................. 209
  Mohamed Ali Khenissi, Fathi Essalmi, Mohamed Jemni, and Kinshuk

A Serious Game for Medical-Based Cultural Competence Education and Training .......................................................................................... 211
  Mirza Beig, Alex Mayer, Chris Chan, Bill Kapralos, and Adam Dubrowski

A Serious Game for Training Patient-Centered Medical Interviews ........................................................................................................ 213
  Sabrina Ziebarth, Anna Kizina, H. Ulrich Hoppe, and Lorena Dini

Assessing the Role of Conceptual Knowledge in an Anti-phishing Educational Game .................................................................................. 218
  Michael James Scott, Gheorghita Ghinea, and Nalin Asanka Gamagedara Arachchilage

Digital BINGO Game as a Dynamic Assessment in a Reading Instruction for Learning
Indonesian as a Foreign Language: A System Architecture ...................................................................................................................... 219
  Melissa Mustika, Mira Latita Sari, Chi-Te Kao, and Jia-Sheng Heh

Fostering Science Teachers’ Design for Inquiry-Based Learning by Using a Serious Game ........................................................................ 222
  Petros Lameras, Maggi Savin-Baden, Panagiotis Petridis, Ian Dunwell, and Fotis Liarokapis

How to Teach Entrepreneurship Using Serious Games and Web 2.0 ....................................................................................................... 227
  Aristidis Protopsaltis, Sonia Hetzner, Spiros Borotis, Thomas Connolly, and Thomas Hainey

Implications of Learning Analytics for Serious Game Design ....................................................................................................................... 230
  Jannicke Baalsrud Hauge, Riccardo Berta, Giusey Fiucci, Baltasar Fernández Manjón, Carmen Padrón-Nápoles, Wim Westra, and Rob Nadolski

Integrating Learning Analytics in an Educational MMORPG for Computer Programming ........................................................................ 233
  Christos Malliarakis, Maya Satratzemi, and Stelios Xinogalos

Player Motivations in Massively Multiplayer Online Games ....................................................................................................................... 238
  Iro Voulgari, Vassilis Komis, and Demetrios G. Sampson

Simulation-Based Training Improves Catering Apprentices’ Mise-en-Place Knowledge
and Procedure Skills ................................................................................................................................................................................. 240
  Yu Ren Yen
Toward the Adaptive and Context-Aware Serious Game Design .................................................................242
   D. Leclet-Groux and G. Caron

Using Resource of Classroom and Content of Textbook to Build Immersive Interactive Learning Playground .................................................................244
   Tai-Yin Lin, Chin-Feng Chen, De-Yuan Huang, Chi-Wen Huang, and Gwo-Dong Chen

Virtual Agent Constructionism: Experiences from Health Professions Students Creating Virtual Conversational Agent Representations of Patients .................................................................249
   Shivashankar Halan, Benjamin Lok, Isaac Sia, and Michael Crary

Track 5. Computer Supported Collaborative Learning

A Flexible Framework for the Authoring of Reusable and Portable Learning Analytics Gadgets .................................................................254
   Sven Manske, Tobias Hecking, Lars Bollen, Tilman Göhnert, Alfredo Ramos, and H. Ulrich Hoppe

A Web-Based Authoring Tool for Scripting Distributed Pair Programming .................................................................259
   Despina Tsompanoudi and Maya Satratzemi

An Analytic Frame and Multi-method Approach to Measure Teamwork Competency .................................................................264
   Elizabeth Koh, Helen Hong, and Jimmy Seah

An Ontology-Based Architecture for the Management and Interoperability of Patterns in Collaborative Learning Design Tools .................................................................267
   Jonathan Chacón-Pérez, Davinia Hernández-Leo, Valérie Emin, and Eloy Villasclaras

Are Students Reliable Peer-Reviewers? .................................................................270
   Veronika Bejdová, Zuzana Kubincová, and Martin Homola

Building and Analyzing a Corpus of Contextualized Traces Collected during a Technology Enhanced Teaching Module .................................................................273
   Hajer Chebil, Christophe Courtin, and Jean-Jacques Girardot

Collaborative Learning through TaaS: A Mobile System for Courses over the Cloud .................................................................278
   Geng Sun and Jun Shen

Gamification for Internet Based Learning in Health Professions Education .................................................................281
   David Rojas, Bill Kapralos, and Adam Dubrowski

It’s All about Time: Towards the Real-Time Evaluation of Collaborative Activities .................................................................283
   Irene-Angelica Chounta and Nikolaos Avouris

MeET US—An Eyetracking Study to Evaluate Awareness Functionality in the CSCL System Metafora .................................................................286
   Andreas Harrer, Andrea Kienle, and Andreas Lingnau

Supporting Students by Using Interaction Analysis Tools in Educational Group Blogging: A Case Study of the GIANT Tool .................................................................291
   Nikos Michailidis and Thrasyvoulos Tsiatsos

The Impact of Different Roles on Motivation, Group Cohesion, and Learning Performance in Computer-Supported Collaborative Learning (CSCL) .................................................................294
   Lanqin Zheng, Ronghui Huang, and Junhui Yu
Usage Data and Group Rankings in Peer Review Settings: A Case Study on Students’ Behavior and Performance ..........................................................297

Pantelis M. Papadopoulos and Thomas D. Lagkas

Using Objective Metrics to Measure the Effort Overload in CSCL Design Processes That Support Artifact Flow .................................................................300

Osmel Bordiés and Yannis Dimitriadis

Using Wikis to Support Project-Based Learning: A Case Study .................................................................305

Elvira Popescu

Track 6. Technology-Enhanced Assessment in Formal and Informal Education

A Tool for Assessing Collaborative Learning—At School and Online ..........................................................310

Luigi Romano

Algorithmic Thinking Learning Support System with eAssessment Function ..........................................................315

Mizue Kayama, Makoto Satoh, Hisayoshi Kunimune, Masaaki Niimura, Hasami Hashimoto, and Makoto Otani

Automated Tutoring System: Mobile Collaborative Experiential Learning (MCEL) ..........................................................318

Insu Song and Abhishek Singh Bhati

Basing Learner Modelling on an Ontology of Knowledge and Skills .....................................................................321

Sonia Mandin and Nathalie Guin

Experimental Evaluation of Open Answer, a Bayesian Framework Modeling Peer Assessment ..........................................................324

Maria De Marsico, Andrea Sterbini, and Marco Temperini

Formative Assessment and Meaningful Learning Analytics .................................................................................327

Susan Bull, Matthew D. Johnson, Carrie Demmans Epp, Drew Masci, Mohammad Alotaibi, and Sylvie Girard

Individual Differences and Joyful Assessment-Based Learning .................................................................................330

Chen-Wei Hsieh, Sin-Ni Jhan, and Sherry Y. Chen

Towards Semantically Enriched E-learning Assessment: Ontology-Based Description of Learning Objects .................................................................................336

Lucila Romero, Milagros Gutiérrez, and Laura Caliusco

Project NEO: Assessing and Changing Preservice Teacher Science Knowledge with a Video Game .................................................................................339

Richard Van Eck, Mark Guy, Timothy Young, Austin Winger, and Scott Brewster

Scenario Model for Competence-Based Assessment ..........................................................................................344

Mounira Ilahi, Lilia Cheniti-Belcadhi, and Rafik Braham

Technology-Enhanced “Trusted” Participatory Grading .........................................................................................347

Carlo Giovannella and Federico Scaccia

TEDQuiz: Automatic Quiz Generation for TED Talks Video Clips to Assess Listening Comprehension .................................................................................350

Yi-Ting Huang, Ya-Min Tseng, Yeali S. Sun, and Meng Chang Chen

Using Pathfinder Network as a Measure of Lexical Structure of Bilingual Learners ..........................................................355

Kyung Kim, Roy B. Clariana, and Yelim Mun
Track 7. Big Data in Education and Learning Analytics

A4Learning—A Case Study to Improve the User Performance: Alumni Alike Activity Analytics to Self-Assess Personal Progress .................................................................360

_Luis de-la-Fuente-Valentín, Daniel Burgos, and Rubén González Crespo_

Data Depository: Business & Learning Analytics for Educational Web Applications .................................................................363

_Manav Malhotra, I-Han Hsiao, Hui Soo Chae, and Gary Natriello_

Defining Generic Data Collectors for Learning Analytics: Facing Up the Heterogeneous Data from Heterogeneous Environments ..................................................................................365

_Juan Cruz-Benito, Francisco J. García-Peñaño, and Roberto Therón_

Exploring Student Viewing Behaviors in Online Educational Videos ..................................................................................367

_Alexandros Kleftodimos and Georgios Evangelidis_

Observation Strategy: Specification and User Processes ........................................................................................................370

_Mohand Akli Ouali, Sébastien Iksal, and Pierre Laforcade_

SoftLearn: A Process Mining Platform for the Discovery of Learning Paths ..................................................................................373

_Borja Vázquez Barreiros, Manuel Lama, Manuel Mucientes, and Juan C. Vidal_

Studying Research Collaboration via Co-authorship Analysis in the Field of TeL: The Case of Educational Technology & Society Journal ..................................................................................376

_Panagiotis Zervas, Asimenia Tsitmidelli, Demetrios G. Sampson, Nian-Shing Chen, and Kinshuk_

The Effect of Personality Traits on Students’ Performance during Computer-Based Testing: A Study of the Big Five Inventory with Temporal Learning Analytics .................................................................378

_Zacharoula Papamitsiou and Anastasios A. Economides_

Using High Level Activities Net for Learning Analytics of Instructional Design ..................................................................................383

_Isabel Dillmann Nunes and Ulrich Schiel_

Using Stratified Attribute Tracking (SAT) Diagrams for Learning Analytics ..................................................................................386

_Rwitajit Majumdar and Sridhar Iyer_

Track 8. Technology-Enhanced Science, Technology, Engineering, and Math Education

Artifact Analysis around Video Creation in Collaborative STEM Learning Scenarios ..................................................................................388

_Melanie Erkens, Oliver Daems, and H. Ulrich Hoptpe_

Blends, Patterns, Und Flips—A Method-Based Approach ........................................................................................................393

_Alke Martens and Lutz Hellmig_

Computational Thinking, Code Complexity, and Prior Experience in a Videogame-Building Assignment .................................................................................................396

_Patricia Boechler, Corbett Atyem, Erik Dejong, Mike Carbonaro, and Eleni Stroulia_

Customized Selection and Integration of Visualization (CVIS) Tool for Instructors ..................................................................................399

_Gargi Banerjee, Anura Kenkre, Madhuri Mavinkurve, and Sahana Murthy_

Improvement of Problem Solving Skills in Engineering Drawing Using Blender Based Mental Rotation Training .................................................................................................401

_Kapil Kadam and Sridhar Iyer_

xii
Incorporating Digital Badges and Ontology into Project-Based Learning ..................................................403
  Jian Liao, Simon Hooper, and Minhong Wang

When Routines Strike Back: Developing ICT Supported Mathematics Instructional Practices .................................................406
  Miguel Perez

**Track 9. Technology-Enhanced Language Learning**

An Intelligent Mobile Application to Facilitate the Exploratory and Personalized Learning of Chinese on Smartphones .................................................................................................................................411
  Vincent Tam and Nan Luo

Current Trends in CSCL Orchestration—New Perspectives for Improving CSCL Orchestration in a Language Learning Environment .................................................................................................................................413
  Eirini Dellatola and Thanasis Daradoumis

Differentiating Digitally to Investigate Young EFL Learners’ Metacognitive Reading Strategies .................................................................416
  Chia-Hui Cindy Shen

Introducing New Digital Challenges for Reading Comprehension: A Case Study with Dedicated E-Readers .................................................................................................................................421
  Apostolos Nikolakopoulos and Fotini Paraskeva

Investigating Visual Attention of Students with Different Learning Ability on Texts Generated by Speech-to-Text Recognition .................................................................................................................................423
  Rustam Shadiev, Yueh-Min Huang, W-Yiuin Hwang, and Narzikul Shadiev

Learning Design for Online Language Learning: A Systems Design Framework .................................................................................................................................426
  Yuping Wang

Mobile-Based AR Application Helps to Promote EFL Children’s Vocabulary Study .................................................................................................................................431
  Junjie He, Jiali Ren, Gaoxia Zhu, Su Cai, and Guang Chen

Multidimensional Discussions on an Interactive Mobile Platform for Language Education—A Case at the University of Hong Kong .................................................................................................................................434

Real-Time Interactive Visualization Aiding Pronunciation of English as a Second Language .................................................................................................................................436
  Dorina Dibra, Nuno Otero, and Oskar Pettersson

Student Model for an Intelligent Language Tutoring System .................................................................................................................................441
  Patil Deepti Reddy and M. Sasikumar

The Development and Design of a English Blockade-Running Competition Incorporating Game-Based Learning into Handheld Devices .................................................................................................................................444
  I-Fan Liu, Chun-Wang Wei, and Shelley Shwu-Ching Young

Theoretical Framework of Schematic Interactions Visualization in ESL Reading Teaching .................................................................................................................................446
  Zhang Xiang

A Portal Support to Cognitive Apprenticeship ................................................................. 449
Yacine Atif, Eiman Abu Khousa, Sujith Samuel Mathew, Kalthoom Al Awar, and Nujood Al Sayari

Acceptance of Mobile-Based Assessment from the Perspective of Self-Determination Theory
of Motivation .................................................................................................................. 454
Stavros A. Nikou and Anastasios A. Economides

Assessing Student Perception of Extreme Apprenticeship for Operating Systems .................................. 459
Vincenzo Del Fatto, Gabriella Dodero, and Rosella Gennari

Persuasive Teachable Agent with Goal Net ........................................................................ 461
Su Fang Lim, Ailiya, Chunyan Miao, and Zhiqi Shen

Goal-Based Messages Recommendation Utilizing Latent Dirichlet Allocation ............................ 464
Sébastien Louvigné, Yoshihiro Kato, Neil Rubens, and Maomi Ueno

How Learners’ Engagement in a Self-Regulated Learning Program Affected Their Listening
Development Differently ........................................................................................................ 469
Christine Goh and Yajun Zeng

Implementing a Self-Regulated Oriented ePortfolio: The Design of an Affective Goal-Setting
Plugin .................................................................................................................................. 474
Aikaterini Alexiou and Fotini Paraskeva

Online Lecture Videos in Higher Education: Acceptance and Motivation Effects on Students’
System Use ......................................................................................................................... 477
Maxime Pedrotti and Nicolae Nistor

Social Media for Academics: Motivation Killer or Booster? ..................................................... 480
Ilknur Celik, Goknur Kaplan Akilli, and Tayfun Can Onuk

Teacher Development and Emotions: An ICT-Based Collaborative Approach ............................ 483
Evangelia Karagianni and Sophia Papaeifhymiou-Lytra

Using Learning Portfolio Platform to Enhance Altruistic Behaviors ........................................... 488
Wang-Han Li, Shin-Yi Huang, Chuan-Ling Lien, De-Yuan Huang, Chi-Wen Huang,
Su-Hang Yang, and Gwo-Dong Chen

Track 11. Methods and Tools for Fostering Creativity in Learning Processes

A Framework for Supporting Creative Thinking in Concept Mapping ....................................... 493
Giouvanakis Thanasis, Evangelos Kehris, Haido Samara, and Stergios Mpakavos

A Module-Based Learning Analytics System for Facebook Supported Collaborative Creativity
Learning ................................................................................................................................. 495
Shu-Ming Wang

Automated Indicators to Assess the Creativity of Solutions to Programming Exercises .................. 497
Sven Manske and H. Ulrich Hoppe

Digital Comics Use to Develop Thinking Dispositions in Early Childhood Education ......................... 502
Kyriaki Melliou, Anna Moutafidou, and Tharrenos Bratidis
Exploring Learners’ Cognitive Processing Behavioral Patterns of a Collaborative Creativity Project Using Facebook to Support the Online Discussion

Shu-Ming Wang and Huei-Tse Hou

Towards Machines for Measuring Creativity: The Use of Computational Tools in Storytelling Activities

Pythagoras Karampiperis, Antonis Koukourikos, and Evangelia Koliopoulou

**Track 12. Recommender Systems for Learning**

Evaluating Recommender Algorithms for Learning Using Crowdsourcing

Mojisola Erdt and Christoph Rensing

Layered Evaluation for Data Discovery and Recommendation Systems: An Initial Set of Principles

Nikos Manouselis, Charalampos Karagiannidis, and Demetrios G. Sampson

Learners’ Working Memory Capacity Modeling Based on Fuzzy Logic

Mohamed Ali Khenissi, Fathi Essalmi, Mohamed Jemni, and Kinshuk

Mentor: A Hybrid Recommender System in Order to Support Teachers in Learning Design

Authoring Process

Soultana Karga and Maya Satratzemi

SOLE-R: A Semantic and Linguistic Approach for Book Recommendations

Angel L. Garrido, Maria Soledad Pera, and Sergio Ilarri

A Methodological Approach to Eliciting Affective Educational Recommendations

Olga C. Santos, Mar Saneiro, Sergio Salmeron-Majadas, and Jesus G. Boticario

Towards Learning Object Recommendations Based on Teachers’ ICT Competence Profiles

Stylianos Sergis, Panagiotis Zervas, and Demetrios G. Sampson

**Track 13. Applications of Semantic Web Technologies for E-learning**

A Fuzzy Knowledge Representation Model for Student Performance Assessment

Farshad Badie, Tommaso Soru, and Jens Lehmann

A Topic Extraction Process for Online Forums

Bernardo Pereira Nunes, Alexander Mera, Ricardo Kawase, Besnik Fetahu, Marco A. Casanova, and Gilda Helena B. de Campos

Extracting Domain Ontologies from Reference Books

Simon Carolan, Francisco Chinesta, Christine Evain, Morgan Magnin, and Guillaume Moreau

LOOCs—Linked Open Online Courses: A Vision

Kai Michael Höver and Max Mühlhäuser

Semantic Gap Detection in Metadata of Adaptive Learning Environments

Sergey Sosnovsky and Isaac Alpízar Chacón

Towards an OWL 2 Profile for Defining Learning Ontologies

Sudath R. Heiyanthuduwage, Rolf Schwitter, and Mehmet A. Orgun
Track 14. Technology-Supported Education for People with Disabilities

A Method to Evaluate Accessibility in E-learning Education Systems ................................................................. 556

Concha Batanero, Markku Karhu, Jaana Holvikivi, Salvador Otón, and Hector R. Amado-Salvaterra

Adaptive Training of Children with Attention Deficit Hyperactivity Disorder
through Multi-touch Surfaces ................................................................................................................................. 561

Lucía Gómez and Rosa M. Carro

An Online Educational Portal for Supporting Open Access to Teaching and Learning of People
with Disabilities ........................................................................................................................................................................... 564

Panagiotis Zervas, Vasilis Kardaras, and Demetrios G. Sampson

Benefits of Combining Multitouch Tabletops and Turn-Based Collaborative Learning Activities
for People with Cognitive Disabilities and People with ASD ......................................................................................... 566

David Roldán-Álvarez, Ana Márquez-Fernández, Silvia Rosado-Martín, Estefania Martín,
Pablo A. Haya, and Manuel García-Herranz

Designing and Reflecting on Disability-Aware E-learning Systems: The Case of ONTODAPS ........................................ 571

Julius T. Nganji and Mike Brayshaw

Gremlings in My Mirror: An Inclusive AR-Enriched Videogame for Logical Math Skills
Learning .............................................................................................................................................................................. 576

Hendrys Tobar Muñoz, Silvia Baldiris Navarro, and Ramón Fabregat

Introducing the JLoad: A Java Learning Object to Assist the Deaf ............................................................................ 579

Lidiane C. Silva, Francisco C. de M.B. Oliveira, Aníbal C. de Oliveira, and Adriano T. de Freitas

Learning Assets Innovation—Serving the Inclusion Needs of the Socially, Intellectually,
and Physically Disadvantaged ............................................................................................................................................ 584

Charalampos Karagiannidis, Birgit Decker, Christos Kouroupetroglou, and Adamantios Koumpis

Learning Impacts of Using Data Glove and Stereoscopic Projection with Virtual Environment
for Enhancing the Social Etiquettes in Autistic Spectrum Conditions ............................................................................. 586

Yufang Cheng and Shuo-Xian Hong

Non-visual Usage of Virtual Classrooms: An Analysis Using Screen Reading Software ........................................... 590

Wiebke Köhlmann and Ulrike Lucke

Providing Assistive ICT Learning for People with Disabilities through a Personalised Mobile
Application .............................................................................................................................................................................. 592

S. Papavassiliou, M. Saridaki, C. Mourlas, and K. Van Isacker

Toward Linking Dyslexia Types and Symptons to the Available Assistive Technologies ................................................ 597

Aisha Yaqoub Alsobhi, Nawaz Khan, and Harjinder Rahanu

Transforming LOMPad to Support IMS Access for All v3.0 ...................................................................................... 599

Salvador Otón, Antonio García, Eva García, Roberto Barchino, and Hector R. Amado-Salvaterra

tuniSigner: A Virtual Interpreter to Learn Sign Writing .............................................................................................. 601

Yosra Bouzid and Mohamed Jemni

VLSS—Virtual Learning and Social Stories for Children with Autism ........................................................................... 606

Christina Volioti, Thrasyvoulos Tsiatsos, Sophia Mavropoulou, and Charalampos Karagiannidis
Track 15. Smart Learning Environments

A Domain-Specific Modeling Language Approach to Support Various Forms of Online PBL
Disi Wang, Yongwu Miao, H. Ulrich Hoppe, and Mohammed Samaka

A New Paradigm for Music Education: Creating Active E-books through the IEEE 1599 Standard
Adriano Baratè, Luca Andrea Ludovico, and Giuseppina Rita Mangione

Adopting EagleEye in Outdoor Exploratory Learning from the Teacher Perspective
Morris S.Y. Jong and Eric T.H. Luk

Analyses of Comparative Gaze with Eye-Tracking Technique for Peer-Reviewing Classrooms
Hironori Egi, Shigeto Ozawa, and Yuki Mori

Capturing Learning Activities in Heterogeneous Environments: A Model-Based Approach for Data Marshalling
Wilfrid Utz, Peter Reimann, and Dimitris Karagiannis

Design and Evaluation of a Flipped Course Adopting the Holistic Flipped Classroom Approach
Henry Yung-Lung Chen and Nian-Shing Chen

Developing Digital Literacy Skills through Interactive Images, Multimedia Mashups, and Global Groups
Diana Andone and Mark Frydenberg

Developing Mobile Services to Support Informal Learning through Automatic Content Delivery in Religious Contexts: A Design Research Approach
Ilkka Jormanainen, Sami Pietinen, Markku Tukiainen, Tapani Innanen, and Eveliina Ojala

Development of an Interactive Test System for Students’ Improving Learning Outcomes in a Computer Programming Course
Tzu-Chi Yang, Stephen J.H. Yang, and Gwo-Jen Hwang

Exploring Interaction Possibilities in Educational Games: A Working Proposal
Telmo Zarraonandia, Andrea Bellucci, Ignacio Aedo, and Paloma Díaz

HasTA: Hasta Training Application Learning Theory Based Design of Bharatanatyam Hand Gestures Tutor
Rwitajit Majumdar, Pooja Bhawar, Sameer Sahasrabudhe, and Priya Dinesan

Mobile Inquiry-Based Learning for Sustainability Education in Secondary Schools: Effects on Knowledge and Motivation
Marco Kalz, Olga Firssova, Dirk Börner, Stefaan Ternier, Fleur Prinsen, Ellen Rusman, Hendrik Drachsler, and Marcus Specht

The Creation and Evaluation of Lecture E-books
Kai Michael Höver and Max Mühlhäuser

Using Discussion Forums to Improve Student Retention Rate: Our Experience with Certificate in Information Technology (CIT) Program
Sandhya Kode, Lakshmi Gollapudi, Rakesh Reddy Tammanagari, and Vamsi Pullakavi

Which is the Best for Reading: Paper, Computer, or Tablet Computer?
Wei Cheng, Xiaoxia Zheng, Meishuang Li, and Guang Chen
Track 16. Virtual Worlds in Education and Training

A Platform for Teaching Logic Programming Using Virtual Worlds ................................................................. 657

Spyros Vosinakis, Panayiotis Koutsabasis, and George Anastassakis

A Survey of Frameworks and Game Engines for Serious Game Development ......................................................... 662

Brent Cowan and Bill Kapralos

Adventure-Style Game-Based Learning for a Biology Lab .............................................................................................. 665

Vasilis Zafeiropoulos, Dimitris Kalles, and Argyro Sgourou

Effects of Thinking Style and Problem Difficulty on Students’ Decision-Making Behavior in a Real Time Strategy Game .......................................................................................................................... 668

Don Ming-Hui Wen and Dick Jen-Wei Chang

Improving Collaboration between Students Exploiting a 3D Game ............................................................................ 671

Apostolos Mavridis and Thrasyvoulos Tsiatsos

Learning, Engagement, and Virtual Worlds: Virtual Worlds Pedagogy and Learning Design ............................................ 676

Carlos Sánchez Martin, Yu-Ju Lan, and Tsun-Ju Lin

Primary School Students’ Attitude towards Gesture Based Interaction: A Comparison between Microsoft Kinect and Mouse ......................................................................................................................... 678

Ioannis Vrellis, Athanasios Moutsisoulis, and Tassos A. Mikropoulos

Sticky Notes—A Tool for Supporting Collaborative Activities in a 3D Virtual World ....................................................... 683

Mikhail Morozov, Andrey Smorkalov, and Mikhail Fominykh

The Evaluation of SHU3DED Cyber Campus—A Pilot Study ............................................................................................ 688

Louis Nisiotis, Martin Beer, and Elizabeth Uruchurtu

The Teacher as Designer: Preparations for Teaching in a Second Life Distance Education Course ................................................................. 691

Anders I. Mørch, Melissa D. Hartley, Barbara L. Ludlow, Valentina Caruso, and Ingvill Thomassen

Towards a Reflective Practicum of Embodied Conversational Agent Experiences ........................................................................ 694

Diego Rivera-Gutierrez, Andrea Kleinsmith, Teresa Johnson, Rebecca Lyons, Juan Cendan, and Benjamin Lok

Utilizing a Serious Game via Open Sim Standalone Server and Scratch4OS for Introductory Programming Courses in Secondary Education: Their Effect on Student Engagement ................................................................................. 699

Nikolaos Pellas, Nikolaos Konstantinou, Georgia Georgiou, Christos Malliarakis, and Ioannis Kazanidis

Track 17. Knowledge Management in E-Learning (KMeL@ICALT2014)

A Q&A System Considering Employees’ Willingness to Help Colleagues and to Look for Help in Different Workplace-Related Situations: An Analysis in the Automotive Sector ................................................................................. 701

Christoph Rensing and Irina Diaconita

Grounding Learning Design on Teaching Practice: The LEDITA Learning Design Tool for Italian Language Teachers ................................................................................................................................. 706

Alessandro Arpetti, Maria Cecilia C. Baranauskas, and Tommaso Leo

Is Learning-by-Doing via E-learning Helpful to Gain Generic Process Knowledge? ........................................................................ 711

Michael Leyer, Jürgen Moormann, and Minhong Wang
Ontological Engineering in Education: Tools for Knowledge Transfer and Knowledge Assessment
Elvira Strakhovich

Ontological Modelling for Intelligent E-learning
Nikolitsa Aggelopoulou, Christos Pierrakeas, Alexander Artikis, and Dimitris Kalles

The Learning Object Triangle
Rachid Anane

To the Point: A Shortcut to Essential Learning
Ricardo Kawase, Patrick Siehndel, and Bernardo Pereira Nunes

Track 18. Large Scale Implementation of Technology-Supported Educational Innovations

Building Bridges and Creating Communities with Innovative Technologies
Rosa Doran

Design Principles for the Online Continuous Professional Development of Teachers
Katerina Riviou, Carles Fernandez Barrera, and Muriel Garreta Domingo

Designing an Educational Scenario Using the Principles of Universal Design for Learning
Katerina Riviou and Georgios Kouroupoglou

Diffusion of Inquiry-Based Science Teaching Methods and Practices Across Europe: Experience and Outcomes from the “Pathway”, a Project Supported by the 7th Framework Programme of the European Commission
G. Mavromanolakis, Angelos Lazoudis, and Sofoklis A. Sotiriou

Exploring Open Courses in China: Based on the Surveys of Sharing of National High-Quality Courses
Juan Wang, Yonghe Wu, Liang Kong, and Xiaoling Ma

Flipping and Flexing in Science: The Flipped Classroom and the i2Flex Model
Labrini Rontogiannis

i2Flex: Integrating a Large-Scale Technology Supported Educational Innovation in a K-12 International School Setting
Maria D. Avgerinou and Stefanos Gialamas

Measuring Student Motivation during “The Hour of Code™” Activities
Stavros A. Nikou and Anastasios A. Economides

Minimal Invasive Integration of Learning Analytics Services in Intelligent Tutoring Systems
Carlotta Schatten, Martin Wistuba, Lars Schmidt-Thieme, and Sergio Gutiérrez-Santos

Strategies for Supporting European Schools to Evolve into Open and Committed Learning Communities: Initial Suggestions from the Open Discovery Space Project Large-Scale Implementation
Eleni-Maria Chelioti

The GEOTHNK Platform: Connecting Spatial Thinking to Secondary Education
Marinos Kavouras, Margarita Kokla, Eleni Tomai, Nancy Darra, Akyoni Baglatzi, Sofoklis A. Sotiriou, and Angelos Lazoudis
Towards a School ICT Competence Profiling Framework .................................................................759

Stylianos Sergis and Demetrios G. Sampson

Track 19. Doctoral Consortium on Advanced Learning Technologies

Data-Driven Blended Problem Based Learning Towards Enhancing Transversal Skills ..................................................762

Maria Zotou and Efthimios Tambouris

Enhance Teaching and Learning of Computer Programming in Exploratory Learning
Environments Using Intelligent Support .................................................................................................765

Sokratis Karkalas and Sergio Gutiérrez-Santos

Instructional Media and Teaching Methods for Engaging Children with Computer Programming ........................................768

Varvara Garneli

Personalizing Learning Analytics to Support Collaborative Learning Design and Community
Building ........................................................................................................................................771

Maria Tzelepi

Smart Ambient: Development of Mobile Location Based System to Support Informal Learning
in the Cultural Heritage Domain ..................................................................................................774

Alaa S.A. Alkhafaji and Sanaz Fallahkhair

Technology-Enhanced Mathematics Education for Creative Engineering Studies ..........................................................777

Evangelia Triantafyllou and Olga Timcenko

The Research on the Measurement of User Experience in Technology Rich Classroom ..................................................780

Yongbin Hu and Ronghuai Huang

Towards Guided Personal Learning Environments: Concept, Theory, and Practice ......................................................782

Zaffar Ahmed Shaikh and Shakeel Ahmed Khoja

Towards Model-Based Virtual Wet Lab Experiments ..................................................................................785

Martina Weicht

Author Index ......................................................................................................................................788