## Advances in Web-Based Learning ICWL 2012

Citation for published version (APA):

Popescu, E., Li, Q., Klamma, R., Leung, H., & Specht, M. (2013). Advances in Web-Based Learning ICWL 2012.

Document status and date: Published: 31/01/2013

#### **Document Version:**

Peer reviewed version

#### **Document license:** CC BY-NC-SA

#### Please check the document version of this publication:

• A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.

• The final author version and the galley proof are versions of the publication after peer review.

• The final published version features the final layout of the paper including the volume, issue and page numbers.

#### Link to publication

#### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

• Users may download and print one copy of any publication from the public portal for the purpose of private study or research.

- You may not further distribute the material or use it for any profit-making activity or commercial gain
  You may freely distribute the URL identifying the publication in the public portal.

If the publication is distributed under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license above, please follow below link for the End User Agreement:

#### https://www.ou.nl/taverne-agreement

#### Take down policy

If you believe that this document breaches copyright please contact us at:

#### pure-support@ou.nl

providing details and we will investigate your claim.

Downloaded from https://research.ou.nl/ on date: 29 Nov. 2023



## Lecture Notes in Computer Science

Commenced Publication in 1973 Founding and Former Series Editors: Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

#### Editorial Board

David Hutchison Lancaster University, UK Takeo Kanade Carnegie Mellon University, Pittsburgh, PA, USA Josef Kittler University of Surrey, Guildford, UK Jon M. Kleinberg Cornell University, Ithaca, NY, USA Alfred Kobsa University of California, Irvine, CA, USA Friedemann Mattern ETH Zurich. Switzerland John C. Mitchell Stanford University, CA, USA Moni Naor Weizmann Institute of Science, Rehovot, Israel Oscar Nierstrasz University of Bern, Switzerland C. Pandu Rangan Indian Institute of Technology, Madras, India Bernhard Steffen TU Dortmund University, Germany Madhu Sudan Microsoft Research, Cambridge, MA, USA Demetri Terzopoulos University of California, Los Angeles, CA, USA Doug Tygar University of California, Berkeley, CA, USA Gerhard Weikum Max Planck Institute for Informatics, Saarbruecken, Germany Elvira Popescu Qing Li Ralf Klamma Howard Leung Marcus Specht (Eds.)

# Advances in Web-Based Learning – ICWL 2012

11th International Conference Sinaia, Romania, September 2-4, 2012 Proceedings



Volume Editors

Elvira Popescu University of Craiova, Romania E-mail: popescu\_elvira@software.ucv.ro

Qing Li City University of Hong Kong, China E-mail: itqli@cityu.edu.hk

Ralf Klamma RWTH Aachen University, Germany E-mail: klamma@dbis.rwth-aachen.de

Howard Leung City University of Hong Kong, China E-mail: howard@cityu.edu.hk

Marcus Specht Open Universiteit, Heerlen, The Netherlands E-mail: marcus.specht@ou.nl

ISSN 0302-9743 e-ISSN 1611-3349 ISBN 978-3-642-33641-6 e-ISBN 978-3-642-33642-3 DOI 10.1007/978-3-642-33642-3 Springer Heidelberg Dordrecht London New York

Library of Congress Control Number: 2012947343

CR Subject Classification (1998): H.4, H.3, I.2.6, H.5, K.3, D.2, I.2, J.1

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

The use of general descriptive names, registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

<sup>©</sup> Springer-Verlag Berlin Heidelberg 2012

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

### Preface

ICWL is an annual international conference on Web-based learning, which started in Hong Kong in 2002. Since then, it has been held in Australia (2003), China (2004), Hong Kong (2005), Malaysia (2006), UK (2007), China (2008), Germany (2009), China (2010), and Hong Kong (2011). ICWL 2012, the 11th conference in the series, was organized by the University of Craiova, Romania, and was held in the Sinaia mountain resort.

The location chosen for this year was at high altitude, true to the spirit of a high-level conference. Sinaia, also known as the "Carpathian Pearl", is situated in breathtaking mountain scenery, on the Prahova Valley. Blending astonishing natural beauty with picturesque architecture, Sinaia is a formal royal residence, home of the Peles Castle; this is one of the most well-preserved royal palaces in Europe, which served as the summer residence of the first king of Romania, Carol I.

In this rich cultural atmosphere, the conference provided a discussion forum and social networking opportunity for academic researchers, developers, educationalists, and practitioners alike. Latest findings were presented in the areas of: computer-supported collaborative learning; personal learning environments; Web 2.0 and social learning environments; personalized and adaptive learning; game-based learning; deployment, organization, and management of learning objects; semantic Web and ontologies for e-learning; intelligent learner modeling and learning analytics; design, modeling, and implementation of e-learning platforms and tools.

This year we received 105 submissions from 33 countries; while the majority of authors came from Europe, all other continents were represented, resulting in a remarkable international diversity. After a rigorous double-blind review process (in which each paper was reviewed by at least three members of the Program Committee), 28 papers were selected as full papers, yielding an acceptance rate of 26.6%. In addition, 10 more papers were selected as short papers. Moreover, three workshops were held in conjunction with ICWL 2012. The conference also featured two distinguished keynote presentations as well as a panel.

We would like to thank the entire Organizing Committee for their efforts and time spent to ensure the success of the conference. Last but not least, we would like to thank all the authors of the submitted papers, whether accepted or not, for their contribution to maintaining a high-quality conference. We count on your continual support for playing a significant role in the Web-based learning community in the future.

September 2012

Elvira Popescu Qing Li Ralf Klamma Howard Leung Marcus Specht

## Organization

#### **Organizing Committee**

#### **Conference Co-chairs**

Elvira Popescu	University of Craiova, Romania
Qing Li	City University of Hong Kong, Hong Kong,
	China

#### **Program Committee Co-chairs**

Ralf Klamma	RWTH Aachen University, Germany
Marcus Specht	Open University of the Netherlands,
	The Netherlands
Howard Leung	City University of Hong Kong, Hong Kong,
-	China

#### Workshop Co-chairs

Dickson Chiu	Dickson Computer Systems, Hong Kong, China
Demetrios Sampson	University of Piraeus & CERTH, Greece
Costin Badica	University of Craiova, Romania

#### Panel Co-chairs

Yiwei Cao	RWTH Aachen University, Germany
Stefan Trausan-Matu	Polytechnic University of Bucharest, Romania

#### Local Organization Committee Co-chairs

Eugen Bobasu	University of Craiova, Romania
Marius Brezovan	University of Craiova, Romania

#### **Publicity Co-chairs**

Frederick Li	University of Durham, UK
Sabine Graf	Athabasca University, Canada
Philippos Pouyioutas	University of Nicosia, Cyprus

#### Steering Committee Representatives

Rynson Lau	City University of Hong Kong, Hong Kong,
	China
Timothy Shih	National Central University, Taiwan, ROC

#### **Registration Chair**

#### International Program Committee

Marie-Helene Abel Maria Bielikova

Liz Burd Dumitru Dan Burdescu Yiwei Cao Vladimir Ioan Cretu Valentin Cristea Pieter De Vries

Carlos Delgado Kloos Stavros Demetriadis Michael Derntl Giuliana Dettori

Darina Dicheva Erik Duval Sandy El Helou Baltasar Fernandez-Manjon Adina Magda Florea Dragan Gasevic Denis Gillet Carlo Giovannella Sabine Graf Christian Guetl Eelco Herder Pedro Isaias

Malinka Ivanova Mirjana Ivanovic Jelena Jovanovic Vana Kamtsiou Ioannis Kazanidis

Tomaz Klobucar Piet Kommers Rob Koper

Milos Kravcik Barbara Kump Lam For Kwok

University of Technology of Compiegne, France Slovak University of Technology in Bratislava, Slovakia University of Durham, UK University of Craiova, Romania **RWTH** Aachen University, Germany Polytechnic University of Timisoara, Romania Polytechnic University of Bucharest, Romania Delft University of Technology, The Netherlands Carlos III University of Madrid, Spain Aristotle University of Thessaloniki, Greece **RWTH** Aachen University, Germany Institute for Educational Technology (ITD-CNR), Italy Winston-Salem State University, USA Katholieke Universiteit Leuven, Belgium EPFL, Switzerland Universidad Complutense de Madrid, Spain Polytechnic University of Bucharest, Romania Athabasca University, Canada EPFL, Switzerland University of Rome Tor Vergata, Italy Athabasca University, Canada Technical University of Graz, Austria L3S Research Center in Hannover, Germany Universidade Aberta (Portuguese Open University), Portugal TU Sofia, Bulgaria University of Novi Sad, Serbia University of Belgrade, Serbia Brunel University, UK Technological Educational Institute of Kavala, Greece Institut Josef-Stefan, Slovenia University of Twente, The Netherlands Open University of the Netherlands, The Netherlands **RWTH** Aachen University, Germany Graz University of Technology, Austria City University of Hong Kong, Hong Kong, China

Mart Laanpere Jean-Marc Labat Effie Lai-Chong Law

Frederick Li Wei Liu Jacques Lonchamp Stephan Lukosch

Xiangfeng Luo Katherine Maillet Ivana Marenzi Alke Martens

Harald Mayer Pablo Moreno-Ger Xavier Ochoa

Toshio Okamoto Alexandros Paramythis Stefan Gheorghe Pentiuc Philippos Pouyioutas Francesca Pozzi

Neil Rubens

Ruimin Shen Marc Spaniol

Natalia Stash

Karen Stepanyan Nicolae Tapus Marco Temperini Stefan Trausan-Matu Lorna Uden Carsten Ullrich Radu Vasiu Julita Vassileva Carlos Vaz de Carvalho Katrien Verbert Lucian Nicolae Vintan Riina Vuorikari Jianxin Wang Tallinn University, Estonia Université Pierre et Marie Curie, France University of Leicester, UK & ETH Zurich, Switzerland University of Durham, UK Shanghai University, China LORIA - Equipe ECOO, France Delft University of Technology. The Netherlands Shanghai University, China Télécom SudParis, France L3S Research Center in Hannover, Germany PH Schwäbisch Gmünd University of Education, Germany Joanneum Research, Austria Universidad Complutense de Madrid, Spain Escuela Superior Politécnica del Litoral, Ecuador University of Electro-Communications, Japan Johannes Kepler University Linz, Austria Stefan cel Mare University of Suceava, Romania University of Nicosia, Cyprus Institute for Educational Technology (ITD-CNR), Italy University of Electro-Communications, Tokyo, Japan Shanghai Jiaotong University, China Max Planck Institute for Computer Science, Germany Eindhoven University of Technology, The Netherlands University of Warwick, UK Polytechnic University of Bucharest, Romania Sapienza University of Rome, Italy Polytechnic University of Bucharest, Romania Staffordshire University, UK Shanghai Jiaotong University, China Polytechnic University of Timisoara, Romania University of Saskatchewan, Canada Instituto Politécnico do Porto, Portugal Katholieke Universiteit Leuven, Belgium Lucian Blaga University of Sibiu, Romania European Schoolnet, Belgium Central South University, China

Fridolin Wild	The Open University, UK
Martin Wolpers	Fraunhofer FIT, Germany
Zheng Xu	Shanghai University, China
Qinghua Zheng	Xi'an Jiaotong University, China

#### Additional Reviewers

Monique Baron Tingwen Chang Moushir El-Bishouty Anna Hannemann Marco Kalz

Michal Kompan

Derick Leony David Maroto Petru Nicolaescu Zinayida Petrushyna Dominik Renzel Giang Binh Tran University Pierre et Marie Curie, France
Athabasca University, Canada
Athabasca University, Canada
RWTH Aachen University, Germany
Open University of the Netherlands, The Netherlands
Slovak University of Technology in Bratislava, Slovakia
Carlos III University of Madrid, Spain
Carlos III University of Madrid, Spain
RWTH Aachen University, Germany
RWTH Aachen University, Germany
RWTH Aachen University, Germany
RWTH Aachen University, Germany
L3S Research Center in Hannover, Germany

## Table of Contents

#### Computer Supported Collaborative Learning, Web 2.0 and Social Learning Environments

An Approach to Exploit Social Bookmarking to Improve Formal Language Learning	1
Giuliana Dettori and Simone Torsani	-
Perceived Support in E-Collaborative Learning: An Exploratory Study Which Make Use of Synchronous and Asynchronous Online-Teaching	11
Approaches Stefanie Andrea Hillen and Tero Päivärinta	11
How to Get Around with Wikis in Teaching Zuzana Kubincová and Martin Homola	21
Wiki – A Useful Tool to Fight Classroom Cheating? Zoran Putnik, Mirjana Ivanović, Zoran Budimac, and Ladislav Samuelis	31
Project-Based Learning with eMUSE: An Experience Report Elvira Popescu	41
Annotation Tool for Enhancing E-Learning Courses Bernardo Pereira Nunes, Ricardo Kawase, Stefan Dietze, Gilda Helena Bernardino de Campos, and Wolfgang Nejdl	51
Teaching Culture as Social Constructivism (Short Paper) Cat Kutay, Deirdre Howard-Wagner, Lynette Riley, and Janet Mooney	61
Personal Learning Environments	

From LMS to PLE: A Step Forward through OpenSocial Apps	
in Moodle	69
Evgeny Bogdanov, Carsten Ullrich, Erik Isaksson,	
Matthias Palmer, and Denis Gillet	
A Mashup Recommender for Creating Personal Learning	
Environments	79
Alexander Nussbaumer, Marcel Berthold, Daniel Dahrendorf,	
Hans-Christian Schmitz, Milos Kravcik, and Dietrich Albert	

A Federated Recommender System for Online Learning Environments	89
Lei Zhou, Sandy El Helou, Laurent Moccozet, Laurent Opprecht, Omar Benkacem, Christophe Salzmann, and Denis Gillet	
Trust and Security Issues in Cloud-Based Learning and Management Birgy Lorenz, Kätlin Kalde, and Kaido Kikkas	99
Learning Objects' Management and Ontologies	
Slicepedia: Towards Long Tail Resource Production through Open Corpus Reuse	109
Learning Path Construction Based on Association Link Network Fan Yang, Frederick W.B. Li, and Rynson W.H. Lau	120
Discovering Hierarchical Relationships in Educational Content Marián Šimko and Mária Bieliková	132
An Evaluation Methodology for C-FOAM Applied to Web-Based Learning	142
Modeling the Knowledge Domain of the Java Programming Language as an Ontology (Short Paper)	152

## Game-Based Learning

Towards Universal Game Development in Education: Automatic and	
Semiautomatic Methodologies	160
Javier Torrente, Ángel del Blanco, Ángel Serrano-Laguna,	
José Ángel Vallejo-Pinto, Pablo Moreno-Ger, and	
Baltasar Fernández-Manjón	
Towards Social Learning Games Élise Lavoué	170
Computer Games and English Language Learning Sabina-Nadina Cehan and Dana-Anca Cehan	180

#### Personalized and Adaptive Learning

AMASE: A Framework for Composing Adaptive and Personalised Learning Activities on the Web Athanasios Staikopoulos, Ian O'Keeffe, Rachael Rafter, Eddie Walsh, Bilal Yousuf, Owen Conlan, and Vincent Wade	190
Learning Activity Sharing and Individualized Recommendation Based on Dynamical Correlation Discovery (Short Paper) Xiaokang Zhou, Jian Chen, Qun Jin, and Timothy K. Shih	200
Designer - Supporting Teachers Experience in Learning Management Systems (Short Paper) Silvia Baldiris, Sabine Graf, Jorge Hernandez, Ramon Fabregat, and Nestor Duque	207
Broadening the Use of E-Learning Standards for Adaptive Learning (Short Paper) Anna Mavroudi and Thanasis Hadzilacos	215
RECALL – Location Based Services for Excluded Communities (Short Paper) <i>Camelia Popescu, David Brown, and Nick Shopland</i>	222
Feedback, Assessment and Learning Analytics	
BlueFix: Using Crowd-Sourced Feedback to Support Programming Students in Error Diagnosis and Repair Christopher Watson, Frederick W.B. Li, and Jamie L. Godwin	228
Dealing with Open-Answer Questions in a Peer-Assessment Environment Andrea Sterbini and Marco Temperini	240
Slide Test Maker: An Educational Software Tool for Test Composition	249
Learning Analytics for Learning Blogospheres Manh Cuong Pham, Michael Derntl, Yiwei Cao, and Ralf Klamma	258
Towards an Integrated Approach for Evaluating Textual Complexity for Learning Purposes	268
How about Using the PCA to Analyze Changes in Learning Styles? (Short Paper)	279

Federico Scaccia and Carlo Giovannella

## Design, Model and Implementation of E-Learning Platforms and Tools

An Automated Analysis and Indexing Framework for Lecture Video Portal	285
Towards a Design Theory for Educational On-line Information Security Laboratories Sarfraz Iqbal and Tero Päivärinta	295
Pedagogy-Driven Design of Digital Learning Ecosystems: The Case Study of Dippler Mart Laanpere, Kai Pata, Peeter Normak, and Hans Põldoja	307
The Use of Expert Systems in Building the Quality Model of a Web-Based Learning Platform Traian-Lucian Militaru, George Suciu, and Gyorgy Todoran	318
A Prototypical Implementation of the Intelligent Integrated Computer-Assisted Language Learning (iiCALL) Environment (Short Paper)	328

#### Pedagogical Issues, Practice and Experience Sharing

E-Learning - The Bologna Process, the European Credit Transfer System (ECTS), Learning Outcomes and ReProTool Philippos Pouyioutas, Harald Gjermundrod, and Ioanna Dionysiou	334
The Implementation of the E-Learning Systems in Higher Education – Sharing the Work Experience from Petroleum-Gas University of Ploieşti (Short Paper) <i>Gabriela Moise, Mihaela Suditu, and Loredana Netedu</i>	343
<ul><li>Enhancing Online Class Student Engagement through Discussion:</li><li>A Case Study on Modern Educational Technology (Short Paper)</li><li>Fengfang Shu, Chengling Zhao, and Liyong Wan</li></ul>	349
Author Index	355