

# **IADIS International Conference on Cognition and Exploratory Learning in Digital Age**

**(CELDA 2010)**

**Timisoara, Romania  
15-17 October 2010**

**Editors:**

**Kinshuk  
J. Michael Spector  
Dirk Ifenthaler**

**Demetrios G. Sampson  
Pedro Isaias  
Radu VasIU**

ISBN: 978-1-62748-335-3

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2010) by the International Association for Development of the Information Society (IADIS)  
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact  
the International Association for Development of the Information Society (IADIS)  
at the address below.

International Association for Development of the Information Society (IADIS)  
Rua Sao Sebastiao Da Pedreira  
No. 100, 30, 1050-209  
Lisbon, Portugal

Phone: 351 21 3151373  
Fax: 351 21 3151244

[secretariat@iadis.org](mailto:secretariat@iadis.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

FOREWORD	xi
PROGRAM COMMITTEE	xiii
KEYNOTE LECTURE	xvii

## FULL PAPERS

INTEGRATING DIGITAL GAMES INTO SCHOOL CURRICULUM: A FIELD EXPERIMENT IN MATH EDUCATION <i>Hercules Panoutsopoulos and Demetrios G. Sampson</i>	3
DESIGNING ONLINE QUIZZES: A WHOLE OF CURRICULUM APPROACH <i>Maree Gosper</i>	11
SQAR: AN ANNOTATION-BASED STUDY PROCESS TO ENHANCE THE LEARNER'S PERSONAL LEARNING <i>Belkacem Mostefai, Faïçal Azouaou and Amar Balla</i>	19
FIRST ON THE LIST: SEO CONTESTS AS AUTHENTIC LEARNING <i>Mark Frydenberg and John S. Miko</i>	27
ABERRANCE DETECTION POWER COMPARISONS FOR A NEW COUPLE OF PERSON-FIT INDICES AND OTHERS <i>Tsai-Wei Huang</i>	35
COLLABORATIVE LEARNING TOOLS IN HIGER EDUCATION AND LIFE-LONG LEARNING <i>Cosmin Porumb, Sanda Porumb, Bogdan Orza and Aurel Vlaicu</i>	46
KEY-ROLES IN VLES: A METRIC BASED ON SOCIAL NETWORK ANALYSIS <i>Maria Assunta Barchiesi, Elisa Battistoni, Paola Pasqualino and Gianluca Murgia</i>	53
A PRELIMINARY STUDY ON STUDENTS' LEARNING EXPERIENCE IN AN INTERNATIONAL ONLINE SYNCHRONOUS RESEARCH SEMINAR <i>Daniel Chia-En Teng, Tommaso Leo, Kinshuk and Nian-Shing Chen</i>	63
ASSESSMENT OF MOTIVATION IN GAMING BASED E-LEARNING <i>Ioana Ghergulescu and Cristina Hava Muntean</i>	71
PRESENCE, PIAGET'S STAGES OF DEVELOPMENT AND MIDDLE SCHOOL CHILDREN PARTICIPATION IN AN IMMERSIVE VIRTUAL GAME ENVIRONMENT <i>Catherine C Schifter, Diane Jass Ketelhut and Brian C. Nelson</i>	79

EPISTEMOLOGICAL BELIEFS AND ILL-DEFINED PROBLEM-SOLVING IN SOLO AND DUO CONTEXTS <i>Charoula Angeli and Nicos Valanides</i>	87
INDIVIDUAL DIFFERENCES IN DIFFERENT LEVEL MENTAL ROTATION TASKS: AN EYE MOVEMENT STUDY <i>Sacide Güzin Mazman and Arif Altun</i>	95
AN ARCHITECTURE FOR DYNAMIC STUDENT MODELLING OF LEARNING STYLES IN LEARNING SYSTEMS AND ITS APPLICATION FOR ADAPTIVITY <i>Sabine Graf, Kinshuk, Qingsheng Zhang, Paul Maguire and Victoria Shtern</i>	103
THE INCREASING NEED OF VALIDATION OF NON-FORMAL AND INFORMAL LEARNING. THE CASE OF THE COMMUNITY OF PRACTICE “WEBM.ORG” <i>Sabrina Leone, Giuliana Guazzaroni, Laura Carletti and Tommaso Leo</i>	111
THE IPTEACES ELEARNING FRAMEWORK - ANALYSIS OF SUCCESS INDICATORS AND THE IMPACT ON STUDENT SOCIAL DEMOGRAPHIC CHARACTERISTICS <i>Nuno Pena and Pedro Isaías</i>	120
REAL WORLD, STUDENT SELECTABLE DATA FOR EDUCATION – LEARNING GRAPH ALGORITHMS <i>Ville Karavirta</i>	129
FUTURE TEACHERS’ REFLECTIONS ON TEACHING TECHNOLOGY: WHAT DID THEY LEARN FROM SERVICE-LEARNING? <i>Junko Yamamoto</i>	137
COLLABORATIVE LANGUAGE LEARNING AS A DEVICE INDEPENDENT APPLICATION <i>Andreas Christ, Markus Feisst and Razia Sultana</i>	145
ALIGNING TECHNOLOGIES AND THE CURRICULUM: A SNAPSHOT OF ACADEMIC PRACTICE <i>Margot McNeill, Maree Gosper and John Hedberg</i>	153
BEYOND PLAYING WITH LEGO BRICKS: MODELING INTERACTION BETWEEN BEHAVIORAL ARTIFACTS <i>Bent Bruun Kristensen, Daniel May and Palle Nowack</i>	161
EMPHASIZED LANDMARKS FOR MENTAL CALIBRATION IN A MOBILE AUGMENTED REALITY APPLICATION <i>Helge Fredheim</i>	169
E-MENTORING IN VOCATIONAL TEACHER EDUCATION <i>David Lord and Nele Coninx</i>	177
THE NEED OF FULL-FEATURED WEB-BASED FORMATIVE ASSESSMENT IN A MEDICAL PBL-CURRICULUM: STUDENTS', LECTURERS' AND THEORY'S VIEW <i>Stefan P. Minder, Felix M. Schmitz and Sissel Guttormsen Schär</i>	184
ASSESSING THE EFFICTIVENESS OF PROMPTS FOR SELF-REGULATED LEARNING <i>Dirk Ifenthaler and Tobias Schmidt</i>	193

AN ANALYSIS OF ANSWER SELECTION PATTERNS FROM MULTIPLE-CHOICE ITEMS	203
<i>Jay C. Powell, James Bernauer and Vishnuteerth Agnihotri</i>	

## SHORT PAPERS

VOCABULARY LEARNING WITH COLORED LEARNING MATERIALS	217
<i>Yuichi Yuzuhara, Yong Xu, Keiichi Kaneko, Masatoshi Ishikawa and Haruko Miyakoda</i>	
VIRTUAL EXPERIMENTATION TOWARDS THE DEVELOPMENT OF EARLY ENVIRONMENTAL RESPONSIBILITY SKILLS	221
<i>Hariklia Tsalapatas, Olivier Heidmann and Marina Mogli</i>	
USING IMMERSIVE VIRTUAL ENVIRONMENTS TO ASSESS SCIENCE CONTENT UNDERSTANDING: THE IMPACT OF CONTEXT	227
<i>Diane Jass Ketelhut, Brian C. Nelson, Catherine C. Schifter and Younsu Kim</i>	
ROBOT TECHNOLOGY AND NUMBERS IN THE CLASSROOM	231
<i>Gunver Majaard, Morten Misfeldt and Jacob Nielsen</i>	
THE SOCIAL SOFTWARE BUILDING BLOCKS	235
<i>Roberto Pereira, Maria Cecilia C. Baranauskas, Meire Cavalcante and Maria Teresa Eglér Mantoan</i>	
A PROPOSAL OF PROGRAM TO ENHANCE DISTANCE SUPPORT ABILITY OF LEARNING SUPPORTER	240
<i>Ryo Takaoka, Masayuki Shimokawa, Shigeki Ahama, Toshiaki Honda and Toshio Okamoto</i>	
E-LEARNING TEACHING AND LEARNING MODEL	245
<i>Bozena Mannova</i>	
DEVELOPMENT AND EVALUATION OF REAL TIME LECTURE SUPPORT SYSTEM USING CELL PHONES	249
<i>Masayuki Shinohara, Hiroshi Shimeno, Shigenori Irooi and Hiroshi Tanaka</i>	
THE EFFECT OF PROJECT BASED WEB 2.0-LEARNING ON STUDENTS' OUTCOMES	253
<i>Bahaaeldin Mohamed and Thomas Koehler</i>	
ONLINE EMPLOYABILITY WORKSHOPS – A PILOT TEST	259
<i>Kathleen Houston</i>	
PROPOSING A FRAMEWORK FOR BLENDED AND FLEXIBLE COURSE DESIGN	263
<i>Timos Almpanis, Susan Patrick, Ruth Mclellan, Christina Dinsmore, Andrea Faustino and Whysnianti Basuki</i>	
SITUATED SIMULATION AS A LEARNING TOOL – EXPERIENCING FORUM IULIUM WITH THE IPHONE	268
<i>Vegard Fleischer Orkelbog</i>	

THE EFFECT OF PRIOR KNOWLEDGE ON LEARNERS' NAVIGATION STRUCTURE <i>Gökhan Akçapınar and Arif Altun</i>	273
EXPLOITING VIRTUAL WORLDS FOR TEACHERS' PROFESSIONAL DEVELOPMENT <i>Kallonis Pavlos and Demetrios G Sampson</i>	277
EFFECTS OF PAPER-STORYBOOKS AND E-STORYBOOKS WITH READING COMPREHENSION STRATEGIES ON FIFTH GRADERS' READING COMPREHENSION ABILITY AND READING MOTIVATION <i>Hsiu-Shuang, Huang, Shang-Liang, Chen, Yea-Mei, Leou, Ho-Chuan, Huang, Ching-Yu Yen, Yun-Yao, Chen and Ya-Ying, Tseng</i>	281
EXPLORING CONCEPT LEARNING IN A WIRELESS SENSOR NETWORKING ENVIRONMENT: A CHINESE LANGUAGE EXAMPLE <i>Hsiu-Ping Yueh, Shihkuan Hsu, Chih-Ting Lin and Yuan-Chen Liu</i>	285
ANALYSIS OF LEARNING CURVES FOR WEIGHTED CONSTRAINT-BASED TUTORING SYSTEMS <i>Nguyen-Thinh Le and Niels Pinkwart</i>	289

## REFLECTION PAPERS

PROMOTING LIFE LONG LEARNING AND DIVERSITY IN THE FURTHER EDUCATION <i>Ileana Hamburg, Timothy Hall and Emma O'Brien</i>	297
THE STRINGPRINTER: FIRST STEPS TOWARD CHILD-FRIENDLY FABRICATION DEVICES <i>Kyle Ludwig, Nwanua Elumeze, and Michael Eisenberg</i>	300
DEVELOPMENT OF INK CHARACTERS DISPLAY SYSTEM AND ASSESSMENT OF HUMAN RECOGNITION OF CHARCTERS WRRITTEN IN THERMOCHROMIC INK <i>Hiroki Yamada, Kunihiro Nishimura and Michitaka Hirose</i>	303
ENJOYING A PUPPET SHOW WITH HEARING-IMPAIRED PEOPLE THROUGH MANGA VISUALIZATION METHOD <i>Miki Namatame, Fusako Kusunoki, Toru Takahashi and Takao Terano</i>	305
MAKING A COMPLEX MANGA CASE FOR LEARNING IN PRACTICE: EMBEDDING AWARENESS, EXPERIENCE AND KNOWLEDGE IN THE DESCRIPTION <i>Akiko Orita, Atsushi Yoshikawa and Takao Terano</i>	307

## **EU PROJECT PAPER**

VIRTUAL COMMUNITIES OF PRACTICE DESIGN IN THE FRAMEWORK  
OF EU PROJECTS: A CASE-STUDY

311

*Laura Carletti and Tommaso Leo*<

AUTHOR INDEX