

9th European Conference on Games Based Learning (ECGBL 2015)

Steinkjer, Norway
8 – 9 October 2015

Editors:

**Robin Munkvold
Line Kolas**

ISBN: 978-1-5108-1430-1

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© The Authors, (2015). All Rights Reserved.

No reproduction, copy or transmission may be made without written permission from the individual authors.

Papers have been double-blind peer reviewed before final submission to the conference. Initially, paper abstracts were read and selected by the conference panel for submission as possible papers for the conference.

Many thanks to the reviewers who helped ensure the quality of the full papers.

Printed by Curran Associates, Inc. (2015)

Published by Academic Conferences and Publishing International Ltd.
33 Wood Lane
Sonning Common RG4 9SJ UK

Phone: 441 189 724 148

Fax: 441 189 724 691

info@academic-conferences.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
Web: www.proceedings.com

Contents

Paper Title	Author(s)	Paper no
Preface		vi
Committee		vii
Biographies		x
Research papers		
Serious Game Framework Focusing on Industrial Training: Application to the Steel Industry	Hamza Abed, Philippe Pernelle, Thibault Carron, Chokri Benamar, Marwene Kechiche and Patrick Baert	1
Technology Integration in Multiplayer Game Design	Monjurul Alom, Nafisa Awwal and Claire Scoular	10
A model Driven Architecture MDA Approach to Facilitate Serious Game Integration in an e-Learning Environment	Nada Aouadi, Philippe Pernelle, Jean-Charles Marty and Thibault Carron	15
Game Design for Learning to Solve Problems in a Collaborative Environment	Nafisa Awwal, Monjurul Alom and Esther Care	25
Relationship Between Game Categories and Skills Development: Contributions for Serious Game Design	Ricardo Baptista, António Coelho and Carlos Vaz de Carvalho	34
Conflict Resolution of Game-Based Learning: When Teacher-Centered Approaches Need to Supersede	Bob Barrett	43
Designing Location-Based Gaming Applications With Teenagers to Address Early School Leaving	Matthew Bates, Maria Saridak, Eleni Kolovou, Costas Mourlas, David Brown, Andrew Burton, Steven Battersby, Shirley Parsonage and Terry Yarnall	50
Non-Invasive Assessment of Motivation in a Digital Educational Game	Michael Bedek, Paul Seitlinger, Simone Kopeinik and Dietrich Albert	58
Learning AI Techniques Through Bot Programming for a Turn-Based Strategy Game	Alexey Bezgodov, Andrey Karsakov, Ksenia Mukhina, Dmitry Egorov and Artem Zakharchuk	66
Students as Digital Games' Evaluators: Enhancing Media Literacy and Learning Through Game Playing and Evaluation Methods	Vassilis Bokolas, Nikolaos Amanatidis and George Koutromanos	75
The Ludic and Narrative Components in Game Based Learning: A Classroom Training Experience	Brunella Botte, Alfredo Imbellone, Giada Marinensi and Carlo Maria Medaglia	82
Mathematical Self-Efficacy as a Determinant of Successful Learning of Mental Models From Computerized Materials	Cyril Brom and Filip Děchtěrenko	89
Digital Support of Role-Play and Simulation Games in Classroom Settings	Carsten Busch, Sabine Claßnitz, Alexander Kramer and Martin Steinicke	98
An Empirical Evaluation of a Serious Simulation Game Architecture for Automatic Adaptation	Sophie Callies, Nicolas Sola, Eric Beaudry and Josianne Basque	107
Gamifying Activities in a Higher Education Course	André Campos, Edwyn Batista, Alberto Signoretti, Renato Gardiman and Charles Madeira	117
A Training Framework for the Creation of Location-Based Experiences Using a Game Authoring Environment	Samantha Clarke, Petros Lameris, Ian Dunwell, Olivier Balet, Thibaut Prados and Elena Avantangelou	125

Paper Title	Author(s)	Paper no
The Great and the Green: Sustainable Development in Serious Games	Darragh Coakley and Roisin Garvey	135
Failure's Paradoxical Relation to Success: What Games can Teach us That the Academy Misses	Larry Crockett	144
The JamToday Network: Towards Applied Games for Learning Environments	David Crombie, Viktor Wijnen, Willem-Jan Renger and Pierre Mersch	152
Beyond Power Systems Analysis: Game-Based Learning as an Instructional Alternative	Ronald Dyer	161
Creativity and Playfulness: Producing Games as a Pedagogical Strategy	Stine Ejsing-Duun and Helle Skovbjerg Karoff	171
Enhancement and Assessment of Engineering Soft Skills in a Game-Based Learning Environment	Csilla Fejes, Lorenzo Ros-McDonnell and Péter Bajor	178
From Hiscore to High Marks: Empirical Study of Teaching Programming Through Gamification	Panagiotis Fotaris, Theodoros Mastoras, Richard Leinfellner and Yasmine Rosunally	186
Immersive vs Desktop Virtual Reality in Game Based Learning	Laura Freina and Andrea Canessa	195
Game-Based Learning for Youth Career Education With the Card Game 'JobStar'	Toru Fujimoto, Yuki Fukuyama and Tomoko Azami	203
On the Development of Constructivist Educational Computer Card Games: The CLASS-Platform	Anthi Gousiou and Maria Kordaki	210
Zombie Division: A Methodological Case Study for the Evaluation of Game-Based Learning	Jacob Habgood	219
The School at Play: Repositioning Students Through the Educational use of Digital Games and Game Dynamics	Thorkild Hanghøj	227
Amplifying Applied Game Development and Uptake	Paul Hollins, Wim Westera and Borja Manero Iglesias	234
Playing Facilitators: Care and Tough Love in Games Based Learning Contexts	Ellen Houmøller and Emanuela Marchetti	242
The Application of a Content Independent Game Framework in Higher Education	Janine Jäger, Safak Korkut, Darjan Hil and Rolf Dornberger	250
Making Games With Game Maker: A Computational Thinking Curriculum Case Study	Jennifer Jenson and Milena Droumeva	260
Computerized Simulations of the Israeli-Palestinian Conflict, Knowledge Acquisition and Attitude Change	Ronit Kampf	269
Towards an Efficient Mobile Learning Games Design Model	Aous Karoui, Iza Marfisi-Schottman and Sébastien George	276
Seriously, Electricity is no Game: Play Safe	Aphrodite Ktena, Enea Mele, Eugenia Tsalkitzi, Christos Manasis, Charalambos Elias, Elias Constantos, Yannis Koutsoubis Christos Tatsiopoulos and Anna Tatsiopolou	286
April 9th 1940, the Nazis are Coming: A Correlational Study of History Game's Mixed Effects on Knowledge, Attitudes and Thinking Skills	Andreas Lieberoth	294
Haunted: Intercultural Communication Training via Information Gaps in a Cooperative Virtual Reality	Gerrit Lochmann, Liesa Reitz, Jochen Hunz, Aline Sohny and Guido Schmidt	303
Enhancing Situational Awareness in Integrated Planning Tasks Using a Microgaming Approach	Heide Lukosch, Daan Groen, Shalini Kurapati, Roland Klemke and Alexander Verbraeck	313

Paper Title	Author(s)	Paper no
Integration of Game Based Learning Into a TEL Platform: Application to MOOCs	Wiem Maalejl, Philippe Pernelle, Jean-Charles Marty and Thibault Carron	321
Cities at Play: Children’s Redesign of Deprived Neighbourhoods in Minecraft	Rikke Magnussen, and Anna Lindenhoff Elming	331
How to Build an Ineffective Serious Game: Worst Practices in Serious Game Design	Christos Malliarakis, Florica Tomos, Olga Shabalina, Peter Mozelius and Oana Cristina Balan	338
A Tangible Digital Installation in the Classroom: Role Play and Autistic Children	Emanuela Marchetti and Andrea Valente	346
Manuskills: A DGBL Toolkit to Raise Young People’s Awareness About Manufacturing	Maria Margoudi and Dimitris Kiritsis	354
Teachers’ Many Roles in Game-Based Learning Projects	Björn Berg Marklund and Anna-Sofia Alkind Taylor	359
Assessing an Authoring Tool for Meta-Design of Serious Games	Bertrand Marne	368
What is a Game for Geometry Teaching ? Creative, Embodied and Im-mersive Aspects	Morten Misfeldt and Lisa Gjedde	378
Implicit and Explicit Information Mediation in a Virtual Reality Museum Installation and its Effects on Retention and Learning Outcomes	Tomas Moesgaard, Mass Witt, Jonathan Fiss, Cecilie Warming, Jonathan Klubien and Henrik Schoenau-Fog	387
The Predator Game: A web Based Resource and a Digital Board Game for Lower Grade School, Focusing on the Four Biggest Predators in Norway.	Robin Munkvold, Greg Curda and Helga Sigurdardottir	395
Non-Digital Game-Based Learning in Higher Education: A Teacher’s Perspective	Nitin Naik	402
How can Teachers Develop Pervasive Games for Learning?	Hugo Nordseth and Anders Nordby	408
Teachers’ Experiences Using KODU as a Teaching Tool	Ståle Nygård, Line Kolås and Helga Sigurdardottir	416
Using Game Elements to Make Studying More Engaging	Daire O Broin, Neil Peirce, Tracey Cassells and Ken Power	423
Using Gamification to Motivate Smoking Cessation	Trygve Pløhn and Trond Aalberg	431
Teaching Business Intelligence With a Business Simulation Game	Waranya Poonnawat, Peter Lehmann and Thomas Connolly	439
Approximating Balance in Collaborative Multiplayer Games	Christian Reuter, Stefan Göbel and Ralf Steinmetz	449
Serious Games Design as Collaborative Learning Activity in Teacher Education	Jože Rugelj	456
Games for Exciting and Effective Learning	Galina Saganenko, Elena Stepanova and Anna Voronkova	461
Gamifying the Museum: Teaching for Games Based ‘Informal’ Learning	Eric Sanchez and Palmyre Pierroux	471
Fabrication of Games and Learning: A Purposive Game Production	Henrik Schoenau-Fog, Lars Reng and Lise Busk Kofoed	480
Gender Differences in Perceiving Digital Game-Based Learning: Back to Square one?	Helga Sigurdardottir, Trond Olav Skevik, Knut Ekker and Beata Johanna Godejord	489
E-Learning Sudan, Formal Learning for Out-of-School Children	Hester Stubbé, Aiman Badri, Rebecca Telford and Anja van der Hulst	497

Paper Title	Author(s)	Paper no
Building an Emotional IPA Through Empirical Design With High-School Students	Annalisa Terracina and Massimo Mecella	506
Developing an Epistemic Game: A Preliminary Examination of the Muscle Mania© Mobile Game	Anisa Vahed and Shalini Singh	516
Analysing the Enjoyment of a Serious Game for Programming Learning With two Unrelated Higher Education Audiences	Adilson Vahldick, António José Mendes and Maria José Marcelino	523
Using Games to Raise Awareness. How to Co-Design Serious Mini-Games?	Klara Van Geit, Verolien Cauberghe, Liselot Hudders and Marijke De Veirman	532
Wait and see? Studying the Teacher's Role During In-Class Educational Gaming	Ellen Vanderhoven, Bart Willems, Stephanie Van Hove, Anissa All and Tammy Schellens	540
How to Evaluate Educational Games: Lessons Learned From the Evaluation Study of Master F.I.N.D.	Ellen Vanderhoven, Bart Willems, Stephanie Van Hove, Anissa All and Tammy Schellens	548
Concealing Education Into Games	Nikolas Vidakis, Efthymios Syntychakis, Konstantinos Kalafatis , Petros Varhalamas and Georgios Triantafyllidis	554
Exploring Group Cohesion in Massively Multiplayer Online Games	Iro Voulgari and Vasilis Komis	564
Multi-Devices Territoriality to Manage Collaborative Activities in a Learning Game	David Wayntal, Audrey Serna, Philippe Pernelle and Jean-Charles Marty	570
Learning and Motivational Processes When Students Design Curriculum-Based Digital Learning Games	Charlotte Lærke Weitze	579
Traces: A Pervasive app for Changing Behavioural Patterns	Thomas Wernbacher, Alexander Pfeiffer, Mario Platzer, Martin Berger, Daniela Krautsack	589
System Design Requirements for Formal Education Based on COTS Entertainment Computer Games	Thomas Westin, Göran Lange, Mats Wiklund, Lena Norberg and Peter Mozelius	598
Evaluating Educational Games Using Facial Expression Recognition Software: Measurement of Gaming Emotion	Mats Wiklund, William Rudenmalm, Lena Norberg, Thomas Westin and Peter Mozelius	605
The Role of Surprising Events in a Math-Game on Proportional Reasoning	Pieter Wouters, Herre van Oostendorp, Judith ter Vrugte, Ton de Jong, Sylke vanderCruyssen and Jan Elen	613
PHD Research Papers		621
Pre-Test Session Impact on the Effectiveness Assessment of a Fire Safety Game	Anissa All, Barbara Plovie, Elena Patricia Nuñez Castellar and Jan Van Looy	623
Learning Between Rules and Narrative: Player's Meaning Negotiations Analyzed, Designed and Assessed	Sanna-Mari Äyrämö	631
Word Towers: Assessing Domain Knowledge With Non-Traditional Genres	Tyler Baron and Ashish Amresh	638
Designing a Serious Game to Enhance Orthographic Projection Learning in Higher Education	Ming-Hung Chu, Tay-Sheng Jeng, and Chien-Hsu Chen	646
Game Design for Transforming and Assessing Undergraduates' Understanding of Molecular Emergence (Pilot)	Andrea Gauthier and Jodie Jenkinson	656
Novices Vs. Experts; Game-Based Learning and the Heterogeneous Classroom Audience	Björn Berg Marklund	664
Gamification for Data Gathering in Emergency Response Exercises	Kenny Meesters, Aaron Ruhe and Marvin Soetanto	672

Paper Title	Author(s)	Paper no
BrainPlay: Serious Game, Serious Learning?	Gillian Morrison	680
Training Emotionally Intelligent Leaders: The Case of Massively Multiplayer Online Games	Sofia Mysirlaki and Fotini Paraskeva	687
An Investigation of Digital Games Features That Appeal to Young Females and Males	Joseph Osunde, Gill Windall, Liz Bacon and Lachlan Mackinnon	694
Computer Games for Promoting Global Awareness: Methods and Modes	Kristine Oygardslia	703
From Strategy (Play) to Knowledge (Learning): A Case Study	Taima Pérez	711
Towards Social Network Support for an Applied Gaming Ecosystem	Munir Salman, Dominic Heutelbeck and Matthias Hemmje	721
Learning Object-Oriented Programming With Computer Games: A Game-Based Learning Approach	Yoke Seng Wong, Maizatul Hayati binti Mohammad Yatim and Wee Hoe Tan	729
Non Academic Papers		739
Gamification in Higher Education: How we Changed Roles	Natasha Boskic and, Sharon Hu	741
Learning From Mistakes: A Quiz to Drill Climate Experts	Benedict O'Donnell and Pierre Jou	749
'Are Game Mechanics Mappable to Learning Taxonomies?'	Andy Sandham	753
Gamification and Lifestyle Technologies for Personal Health Management	David Wortley	762
Work In Progress Papers		765
Towards in Situ Measurement of Affective Variables During Playing Educational LARPs: A Pilot Study	Cyril Brom, Viktor Dobrovolný and Edita Bromová	767
Increasing Student Engagement With Gamification	Tracey Cassells, Daire O Broin and Ken Power	770
Board Games to Learn Complex Scientific Concepts and the "Photonics Games" Competition	Fabio Chiarello	774
Film Education for Primary-School Pupils: Gamification and Interactive Storytelling as an Educational Approach to Raise Awareness of Design Structures in Feature Films	Regina Friess, Anke Blessing, Johannes Winter and Meike Zöckler	780
A Teacher Survey to Identify Solutions That Facilitate GBL Design for Engagement	Azita Iliya Abdul Jabbar and Patrick Felicia	785
Applying Memory Theory in Game Design (Case Study)	Trude Løvskar, Jon Hoem and Jordi Linares-Pellicer	788
MMORPGs in the Educational Process: Using a CSCL Script to Assess Learning	Anthony Melissourgos, Fotini Paraskeva and Sofia Mysirlaki	793
Edmodo as a Gamification Platform: Review and Plans	Peter Murar	800