Proceedings
TEEM’14

Second International Conference on
Technological Ecosystem for Enhancing Multiculturality

Salamanca, Spain
October 1st - 3rd, 2014

Editor:

Francisco José García-Peñalvo
University of Salamanca

TEEM’14 is organized by the Research GRoup in InterAction and eLearning (GRIAL) and Research Institute for Educational Sciences (IUCE) at the University of Salamanca.
Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. To copy otherwise, to republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee.

Designed by:

Felicidad García Sánchez
Research GROup in InterAction and eLearning (GRIAL)

ISBN: 978-1-4503-2896-8
TEEM’14 is organized by the Research GRoup in InterAction and eLearning (GRIAL) and Research Institute for Educational Sciences (IUCE) at the University of Salamanca and is supported by:
Volume Editor

Francisco José García-Peñalvo
Research GRoup in InterAction and eLearning (GRIAL)
Research Institute for Educational Sciences (IUCE)
Department of Computer Science and Automatics
University of Salamanca

Plaza de los Caídos s/n
37008 Salamanca, Spain
(+34) 923 294400 ext. 1302
Email: fgarcia@usal.es
Organization

Research Group in InterAction and eLearning (GRIAL)
Research Institute for Educational Sciences (IUCE)
University of Salamanca (USAL)

Steering Committee
Francisco José García-Peñalvo (University of Salamanca, Spain) – Chair
Ricardo Colomo-Palacios (Østfold University College, Norway)
Ángel Fidalgo Blanco (Technical University of Madrid, Spain)
David Griffiths (University of Bolton, UK)
María José Rodríguez-Conde (University of Salamanca, Spain)
Peter Sloep (OUNL, The Netherlands)
Robert Tennyson (University of Minnesota, USA)

Conference Chair
Francisco José García-Peñalvo (University of Salamanca, Spain)

Organizing Committee
Alicia García Holgado (University of Salamanca, Spain) – Chair
Lucía García Holgado (University of Salamanca, Spain) - Chair
Juan Cruz Benito (University of Salamanca, Spain)
Felicidad García Sánchez (University of Salamanca, Spain)
María José Rodríguez-Conde (University of Salamanca, Spain)
Antonio Miguel Seoane-Pardo (University of Salamanca, Spain)
Valentina Zangrando (University of Salamanca, Spain)
Scientific Committees

General Scientific Committee
Francisco José García-Peñalvo (University of Salamanca, Spain) – Chair
Ricardo Colomo-Palacios (Østfold University College, Norway)
Ángel Fidalgo Blanco (Technical University of Madrid, Spain)
David Griffiths (University of Bolton, UK)
María José Rodríguez-Conde (University of Salamanca, Spain)
Peter Sloep (OUNL, The Netherlands)
Robert Tennyson (University of Minnesota, USA)

Innovation in Health Sciences Education
Juan A. Juanes Méndez (University of Salamanca, Spain) – Chair
Pablo Ruisoto Palomera (University of Salamanca, Spain) – Chair
Miguel Castelo Branco Sousa (Faculdade de Ciencias da Saúde da Universidade da Beira Interior, Portugal – Centro Hospitalar Cova da Beira, Hospital Universitário)
Francisco Pastor Vázquez (University of Valladolid, Spain)
Ferrán Prados Carrasco (Centre for Medical Image Computing. London. UK)
Alberto Prats Galino (University of Barcelona, Spain)
Anna Puigdellívol-Sánchez (University of Barcelona)
Joan San Molina (University of Girona)
Fermin Viejo Tirado (Complutense University of Madrid, Spain)

Educational Innovation
María Luisa Sein-Echaluce (University of Zaragoza, Spain) – Chair
Ángel Fidalgo (Technical University of Madrid, Spain) - Chair
Ana Rosa Abadía (University of Zaragoza, Spain)
Danuse Bauerova (VTC Technical University, Czech Republic)
Sara Bozzini (CINECA – Consorzio Interuniversitario, Milán, Italy)
Dolores Lerís (University of Zaragoza, Spain)
Gianpiero Limongiello (CINECA- Consorzio Interuniversitario, Milan, Italy)
Faraón Llorens (University of Alicante, Spain)
Vicente Martínez (Universitat Jaume I de Castellón, Spain)
Javier Ángel Ramírez (Technical University of Madrid, Spain)
Javier Sánchez Medina (University of Las Palmas de Gran Canaria, Spain)
Maria Ângeles Velamazán (University of Zaragoza, Spain)
Gamification ecosystems
Miloš Milovanović (University of Belgrade, Serbia) – Co-chair
Miroslav Minović (University of Belgrade, Serbia) – Co-chair
Marc Alier (UPC Barcelona, Spain)
Gustavo Alves (School of Engineering, Polytechnic of Porto, Portugal)
Ricardo Colomo-Palacios (Østfold University College, Norway)
Miguel Ángel Conde-González (Universidad de León, Spain)
Dai Griffiths (University of Bolton, UK)
Ángel Hernández-García (Technical University of Madrid, Spain)
Eduardo Herranz (Universidad Carlos III de Madrid, Spain)
Paul Hollins (Director of Cetis and of IEC at the University of Bolton)
Nick Kearney (ANDAMIO Education and Technology, Spain)
Peter van Rosmalen (Open Universiteit Nederland, Netherlands)

Dealing with complexity: Educational data and tools for Learning Analytics
Miguel Ángel Conde-González, Ph.D. (University of León, Spain) – Co-chair.
Ángel Hernández-García, Ph.D. (Technical University of Madrid, Spain) – Co-chair
Ángel F. Agudo-Peregrina, Ph.D. (Technical University of Madrid, Spain)
Javier Alfonso-Cendón, Ph.D. (University of León, Spain)
Aitor Almeida, Ph.D. (University de Deusto, Spain)
Gustavo Ribeiro Alves, Ph.D. (Instituto Superior de Engenharia do Porto, Portugal)
Weiqin Chen, Ph.D. (Universitetet i Bergen, Norway)
Adam Cooper, Ph.D. (University of Bolton, United Kingdom)
Rebecca Ferguson, Ph.D. (Open University, United Kingdom)
Camino Fernández-Llamas, Ph.D. (University of León, Spain)
Baltasar Fernández-Manjón, Ph.D. (Complutense University of Madrid, Spain)
Ángel Fidalgo-Blanco, Ph.D. (Technical University of Madrid, Spain)
Antonio Fumero-Reverón, Ph.D. (Technical University of Madrid, Spain)
Francisco José García-Peñalvo, Ph.D. (University of Salamanca, Spain)
Inés González-González, Ph.D. (Universitat Oberta de Catalunya, Spain)
Wolfgang Greller, Ph.D. (Universität Wien, Austria)
David Griffiths, Ph.D. (University of Bolton, United Kingdom)
Santiago Iglesias-Pradas, Ph.D. (Technical University of Madrid, Spain)
Ana Isabel Jiménez-Zarco, Ph.D. (Universitat Oberta de Catalunya, Spain)
Mark Johnson, Ph.D. (University of Bolton, United Kingdom)
María Arcelina Marques, Ph.D. (Instituto Superior de Engenharia do Porto, Portugal)
Vicente Matellá-Olivera, Ph.D. (University of León, Spain)
Milos Milovanovic, Ph.D. (Univerzitet u Beogradu, Serbia)
Miroslav Minovic, Ph.D. (Univerzitet u Beogradu, Serbia)
Nic Nistor, Ph.D. (Universität der Bundeswehr München and Ludwig Maximilians Universität München, Germany)
Luis Panizo-Alonso (University of León, Spain)
Salvador Ros-Muñoz, Ph.D. (National University of Distance Education, Spain)
Marcus Specht, Ph.D. (Open Universiteit Nederland, Netherlands)
Roberto Therón, Ph.D. (University of Salamanca, Spain)

**Communication, Education and Health Promotion**

Juan José Igartua (University of Salamanca, Spain) – Chair
Jesús Arroyave (Universidad del Norte, Colombia)
Isabel M. Barrios (University of Salamanca, Spain)
Lifen Cheng (University of Salamanca, Spain)
Lázaro Echegaray (Bilbao Chamber of Commerce University College, Spain)
Jordi Farré (University Rovira i Virgil, Spain)
Francis Javier Frutos (University of Salamanca, Spain)
María Luisa Humanes (King Juan Carlos University, Spain)
María Concepción Medrano (University of the Basque Country, Spain)
Manuel Martínez Nicolás (King Juan Carlos University, Spain)
Félix Ortega (University of Salamanca, Spain)
Miguel Vicente Mariño (University of Valladolid, Spain)
Mobile Apps and computational systems as learning tools
Ana Iglesias Rodríguez (University of Salamanca, Spain) – Chair
Blanca García Riaza (University of Salamanca, Spain) – Co-chair
María Elena Bárcena Madera (UNED, Spain)
Julio Barroso Osuna (University of Sevilla, Spain)
Vicente Beltrán Palanqués (Jaume I University, Spain)
Julio Cabero Almenara (University of Sevilla, Spain)
Marcos Cabezas (University of Salamanca, Spain)
Isabel Cantón Mayo (University of León, Spain)
María Cristina Calle Martínez (Complutense University of Madrid, Spain)
Sonia Casillas (University of Salamanca, Spain)
Esther del Moral Pérez (University of Oviedo, Spain)
Eusebio Ferreira da Costa (Escola Superior de Tecnologias de Fafe, Portugal)
David Fonseca Escudero (La Salle University, Spain)
Ana García-Valcárcel (University of Salamanca, Spain)
Nuno Gonçalves Antunes (Escola Superior de Tecnologia do Instituto Politécnico do Cávado e do Ave, Portugal)
Jeff Haywood (University of Edinburgh, United Kingdom)
Azucena Hernández (University of Salamanca, Spain)
Francisco Javier Jiménez Moreno (University of Salamanca, Spain)
Iván Jorrín Abellán (University of Valladolid, Spain)
Antonio Víctor Martín García (University of Salamanca, Spain)
Juan José Mena (University of Salamanca, Spain)
Lady María Meléndez Rodríguez (UNED de Costa Rica, Costa Rica)
Concepción Pedrero Muñoz (University of Salamanca, Spain)
Pilar Rodríguez Arancón (UNED, Spain)
Laurentino Salvador (University of Cantabria, Spain)
María Cruz Sánchez Gómez (University of Salamanca, Spain)
Mª Luisa Sevillano García (UNED, Spain)
Julieta Solórzano Salas (Universidad de Costa Rica, Costa Rica)
María Celeste Sousa Lopes (Escola Superior de Educação de Fafe, Portugal)
Francisco Javier Tejedor (University of Salamanca, Spain)
Belen Urosa Sanz (Pontificia de Comillas, Spain)
Software As A Service (SaaS) in learning processes
Dr. Marc Alier Forment (Barcelona Tech, Spain) – Chair
Dra. María José Casaño Guerrero (Barcelona Tech, Spain) – Chair
Miguel Ángel Conde-González (University of León, Spain)
David Fonseca Escudero (La Salle University, Spain)
Francisco José García Peñalvo (University of Salamanca, Spain)
Eduardo Gómez Sánchez (University of Valladolid, Spain)
Enric Mayol Sarroca (Barcelona Tech, Spain)

Evaluation in Education and Guidance
Susana Olmos Migueláñez (University of Salamanca, Spain) – Chair
María José Rodríguez Conde (University of Salamanca, Spain) – Chair
Francisco M. Aliaga (University of Valencia, Spain)
Guillermo Golzman (Argentine High School, Argentine)
Ignacio González López (University of Córdoba, Spain)
Ana B. González Rogado (University of Salamanca, Spain)
Susana Nieto Isidro (University of Salamanca, Spain) – Chair
Gregorio Rodríguez Gómez (University of Cádiz, Spain)

New publishing and scientific communication ways: Electronic edition, digital educational resources, Open Access Repositories and Open Linked Data
José Antonio Cordón (University of Salamanca, Spain) – Chair
Raquel Gómez Díaz (University of Salamanca, Spain) Co-Chair
Tránsito Ferreras-Fernández (University of Salamanca, Spain)
Araceli García Rodríguez (University of Salamanca, Spain)
Carlos Lopes (Instituto Universitário de Ciências Psicológicas, Portugal)
José Antonio Merlo (University of Salamanca, Spain)
Ana Belén Ríos Hilario (University of Salamanca, Spain)
Transferring knowledge and experiences from informal to formal learning contexts
Dr. David Griffiths (University of Bolton, UK) – Co-chair
Dr. Francisco José García Peñalvo (University of Salamanca, Spain) – Co-chair
Marc Alier (Barcelona Tech, Spain)
Gustavo Alves (Polytechnic of Porto, Portugal)
Ricardo Colomo-Palacios (Østfold University College, Norway)
Miguel Ángel Conde-González (University of León, Spain)
Heli Hillevi Aramo-Immonen (Tampere University of Technology, Finland)
José Janssen (OUNL, The Netherlands)
Mark Johnson (University of Bolton, UK)
Nick Kearney (Andamio Education and Technology, UK)
Maria Arcelina Marques (Polytechnic of Porto, Portugal)
Miroslav Minovic (University of Belgrado, Serbia)
Mª José Rodríguez Conde (University of Salamanca, Spain)
Antonio M. Seoane-Pardo (University of Salamanca, Spain)
Peter Sloep (OUNL, The Netherlands)
Clara Viegas (Polytechnic of Porto, Portugal)

Project presentations
Nick Kearney (ANDAMIO Education and Technology S.L.) – Chair
**Doctoral Consortium**

Francisco José García Peñalvo (University of Salamanca, Spain) – Chair
Gustavo Alves (ISEP, Portugal)
Héctor Barbosa León (Instituto Politécnico de Colima, México)
José Antonio Cordón García (University of Salamanca, Spain)
Belén Curto Diego (University of Salamanca, Spain)
Ana García Valcárcel (University of Salamanca, Spain)
David Griffiths (University of Bolton, UK)
Rocael Hernandez-Rizzardini (Galileo University, Guatemala)
Mª Esperanza Herrera García (University of Salamanca, Spain)
Juan José Igartua (University of Salamanca, Spain)
José Antonio Jerónimo (UNAM, México)
Juan A. Juanes Méndez (University of Salamanca, Spain)
Mark Johnson (University of Bolton, UK)
Miloš Milovanović (University of Belgrade, Serbia)
Miroslav Minović (University of Belgrade, Serbia)
Vidal Moreno Rodilla (University of Salamanca, Spain)
Marcela Isabel Prieto Ferraro (University of Antofagasta, Chile)
Mª José Rodríguez Conde (University of Salamanca, Spain)
Peter Sloep (OUNL, The Netherlands)
Francisco Javier Tejedor (University of Salamanca, Spain)
Robert Tennyson (University of Minnesota, USA)
Lluís Vincent (La Salle Open University, Andorra)
Index

Preface .......................................................................................................................... XXIII

Innovation in Health Sciences Education ........................................................................ 1

Innovation in Health Science Education
Juan Antonio Juanes Méndez; Pablo Ruisoto Palomera .......................................................... 3

Augmented Reality Techniques, Using Mobile Devices, for Learning Human Anatomy
Juan Antonio Juanes Méndez; Daniel Hernández; Pablo Ruisoto Palomera; Elena García; Gabriel Villarrubia; Alberto Prats-Galino ................................................................. 7

Analysis of Certificated Mobile Application for Medical Education Purposes
Laura Briz Ponce; Juan Antonio Juanes Méndez; Francisco José García-Peñalvo .................... 13

Generation of Teaching Material through Interactive Electronic Formats Using iBook Author
Juan Antonio Juanes Méndez; Pablo Ruisoto Palomera; Alberto Prats-Galino ................. 19

An Advanced Visualization System for the Neurofunctional Study of Parkinson’s Disease
Juan Antonio Juanes Méndez; Pablo Ruisoto Palomera; José A. Obeso; Joan San-Molina; Alberto Prats-Galino .. 27

Use of New Technologies in the Acquisition of Clinical Skills in Anesthesiology
Álvaro Sánchez Tabernero; Juan Antonio Juanes Méndez; Felipe Hernández Zaballos; Belén Curto Diego; Vidal Moreno Rodilla; Pablo Alonso Hernández ........................................... 31

DOLPHIN 3D: Technological Environment for Medical Image Processing on Training
Alicia Hernández Salazar; Juan Antonio Juanes Méndez; Francisco Pastor Vázquez .............. 35

Technological Environments for Image Processing in Medical Training Settings
Ana Sánchez Martin; Juan Antonio Juanes Méndez; Andrés Framiñán de Miguel; Patricia Carreño Morán; Paulino García Benedito; Begoña García Castaño .......................................................... 41

Development of Audiovisual Material for Teaching in Medicine
Laura Cardeñosa Tejedor; Juan Antonio Juanes Méndez; Pablo Ruisoto Palomera .................. 47

Possibilities of Application of 3D-PDF Documents to Represent Models and Tridimensional Images in Medicine
Roberto Domingo Tabernero Rico; Juan Antonio Juanes Méndez; Marija Mavar-Haramija; Miguel Ángel Reina Perticone; Alberto Prats-Galino ................................................................. 53

Simulation of Surgical Procedures and Associated Quantification Methods by 3D PDF Documents
Marija Mavar-Haramija; Alberto Prats-Galino; Juan Antonio Juanes Méndez; Anna Puigdelivoll-Sánchez; Matteo de Notaris ................................................................. 57

Educational Innovation ................................................................................................. 63

Educational Innovation
Ángel Fidalgo-Blanco; María Luisa Sein-Echaluce .............................................................. 65

Assessing the Effectiveness of a Technological Model to Improve Written Skills in English in Higher Education
Ana Mª Pinto Llorente; Mª Cruz Sánchez Gómez; Francisco José García-Peñalvo ......................... 69
Comparison of the Use of Personal Learning Environments (PLE) between Students from Chile and Ecuador: An approach
Jorge Joo Nagata; Patricio Ricardo Humanante Ramos; Miguel Ángel Conde González; José Rafael García-Bermejo Giner; Francisco José García-Peñalvo .......................................................... 75

Engineering Students’ Learning Styles in Fluid Mechanics
Filomena Soares; Celina P. Leão; Anabela Guedes; Isabel M. Brás Pereira; Cristina Morais; M. Teresa Sena Esteves .......................................................... 81

Development and Utilization of Video Clips as Didactic Resources for an Experimental Subject
Jorge Carro; Aurora Crego; Jesús Ángel Andrés; Miguel Ángel Sánchez; Javier Iglesias; Alejandro Medina; María Jesús Santos .......................................................... 89

Pedagogical Innovations to Enhance Student Learning in Physics Labs
M.T.F. Caramés; Cristina Prieto; María Jesús Santos .......................................................... 95

A Test Bed for Smart Energy Education in the Field of Computer Engineering
Robert Roppestad; Per-Gunnar Fyhn; Ricardo Colomo-Palacios .......................................................... 101

Students’ Essential Characteristics for Learning English in a Hypermedia Modular Model
Ana Mª Pinto Llorente; Mª Cruz Sánchez Gómez; Francisco José García-Peñalvo .......................................................... 107

Workshops for Learning in Computational Fluid Mechanics
Mª Teresa Parra; J. Rubén Pérez; Francisco Castro .......................................................... 113

The e-portfolio, a Tool for the Assessment of Competence in Subjects Computing Grade
María Dolores Muñoz Vicente; María N. Moreno .......................................................... 119

Improving Students Experimental Competences Using Simultaneous Methods in Class and in Assessments
Clara Viegas; Natércia Lima; Gustavo Alves; Ingvar Gustavsson .......................................................... 125

Using a Scenario-Based Learning with Robots to Increase the Programming Interest
Joana Martinho Costa .......................................................... 133

Applied Educational Innovation MOOC: Learners’ Experience and Valorization of Strengths and Weaknesses
Francisco José Garcia-Peñalvo; Vanesa Fernández Hermo; Ángel Fidalgo-Blanco; María Luisa Sein-Echaluce .......................................................... 139

Social Community in MOOCs: Practical Implications and Outcomes
Margarita Martínez Núñez; Oriol Borràs Gené; Ángel Fidalgo Blanco .......................................................... 147

Development of a MOOC Management System
Antonio Sarasa-Cabezuelo; José-Luis Sierra-Rodríguez .......................................................... 155

Gamification Ecosystems .......................................................... 163

Gamification Ecosystems
Miroslav Minović; Miloš Milovanović .......................................................... 165

Teaching Case: Applying Gamification Techniques and Virtual Reality for Learning Building Engineering 3D Arts
Sergi Villagrassa Falip; David Fonseca; Jaume Durán .......................................................... 171

The “ecoGator” App: Gamification for Enhanced Energy Efficiency in Europe
Melanie Peham; Gert Breitfuss; Rafael Michalczuk .......................................................... 179
Communication, Education and Health Promotion................................................................................................. 307

Communication, Education and Health Promotion
Juan-José Igartua.................................................................................................................................................. 309

Processes and Mechanisms of Narrative Persuasion in Entertainment-Education Interventions through Audiovisual Fiction. The Role of Identification with Characters
Juan-José Igartua; Jair Vega........................................................................................................................................ 311

Health Information and Youth: Challenges in the Internet Age
Jose Mari Pastor González; Carmen Peñafiel Saiz; Idoia Camacho Markina................................................................. 317

The Influence of Media Contents about Health in the Construction of the Discourse about the Body in Young Adults and Teenagers
Lázaro Echegaray; Carmen Peñafiel; Milagros Ronco.................................................................................................... 321

Behavior Change Communication Strategy for Yaws Elimination: A Strategic Approach
Jesús Arroyave.................................................................................................................................................................. 327

Healthcare Information Systems Promotion: From an Improved Management of Telemedicine Processes to Home Healthcare Processes
Latifa Ilahi; Sonia Ayachi Ghannouchi; Ricardo Martinho............................................................................................. 333

Mobile Apps and Computational Systems as Learning Tools.................................................................................... 339

Mobile Apps and Computational Systems as Learning Tools
Ana Iglesias Rodríguez; Blanca García Riaza............................................................................................................... 341

The Effect of a Multimedia Application in the Oxidation-Reduction Reaction Learning Process
María del Mar López Guerrero; Gema López Guerrero................................................................................................ 343

Mobile Phones for Teaching Physics: Using Applications and Sensors
Manuel Á. González; Miguel Á. González-Rebollo; César Llamas; M. Esther Martín; Jesús Vegas; Óscar Martínez; Carmen Hernández; Mar Herguedas.......................................................... 349

Developing a Framework to Evaluate Usability in m-Learning Systems: Mapping Study and Proposal
Christian Xavier Navarro Cota; Ana Isabel Molina Díaz; Miguel Ángel Redondo Duque ................................................ 357

Semantic Reasoning for Enabling Mobility and Context-Awareness: Application to an OSGi Based Intelligent Tutoring System
Maha Khemaja; Taoufik Mastour................................................................................................................................ 365

Designing and eXperiencing Smart Objects based Learning Scenarios: An approach combining IMS LD, XAPI and IoT
Aroua Taamallah; Maha Khemaja.................................................................................................................................. 373

Foreign Language Learning Using a Gamificated APP to Support Peer-Assessment
Manuel Palomo-Duarte; Anke Berns; Juan Manuel Dodero; Alberto Cejas .............................................................. 381

Attitude Towards the Use of Mobile Devices for the Practice of Oral Skills in English
Blanca García Riaza; Ana Iglesias Rodríguez.................................................................................................................. 387
Software As A Service (SAAS) in Learning Processes .......................................................... 393

The Cloud hovering over the virtual campus
Marc Alier Forment; Enric Mayol; María José Cásañ Guerrero.................................................. 395

The Effects of Massiveness on the Participation in Social Technologies: A MOOC in Secondary Education
Daniel Amo Filvà; María José Casañ Guerrero; Marc Alier Forment ................................................ 397

Recommendations for the Design and Deployment of MOOCs: Insights about the MOOC Digital Education of the Future Deployed in MiriadaX
Carlos Alario-Hoyos; Mar Pérez-Sanagustin; Carlos Delgado Kloos; Pedro J. Muñoz-Merino.......................... 403

TSUGI: A Framework for Building PHP-Based Learning Tools
Nikolas Galanis; Marc Alier Forment; María José Casañ Guerrero; Enric Mayol; Charles Severance .......... 409

Atmospheric Physics Group Open Data (GFA Open Data): Meteorological Data and Tools for Learning Analytics
Ángel Manuel Guerrero Higuera; Laura López Campano; Vicente Matellán Olivera; Andrés Merino Suances; José Luis Sánchez Gómez................................................................. 415

Evaluation in education and guidance .................................................................................... 421

Evaluation in Education and Guidance
Maria-José Rodríguez-Conde; Susana Olmos-Miguelánæz; Susana Nieto-Isidro........................................... 423

A Proposal for Skill Evaluation Via Complex Tasks in Virtual Learning Environments
Jaione Cubero Ibáñæz; María Soledad Ibarra Saiz; Gregorio Rodríguez Gómez........................................... 429

A Global Approach to Improve the Mathematical Level of Engineering Students
Susana Nieto-Isidro; Higinio Ramos.......................................................... 435

Mathematics Competences Assessment at Lab sessions of Aerospace Engineering Freshmen
Fernando Minguez; Santiago Moll-Lópeæ; José Antonio Moraño; M. Dolores Roselló; Luis Manuel Sánchez Ruiz........ 441

Educational Qualitative Assessment of Augmented Reality Models and Digital Sketching applied to Urban Planning
Ernest Redondo; Francesc Valls; David Fonseca; Isidro Navarro; Sergi Villagræsa; Adriana Olivares; Alberto Peredo .................................................................................................................. 447

Reducing Student Risks in the Laboratory Protocol Assessment
Ana Belén González Rogado; Ana María Vivar-Quintana; Isabel Revilla-Martín................................. 455

The Socioeconomic Index in the Analysis of Large-Scale Assessments: Case Study in Baja California (Mexico)
Fernando Martínez-Abad; Alicia Alelí Chaparro Caso López; Luis Lizasoain Hernández............................... 461

Digital Competence’s Frameworks in Europe: an Approaching to Spanish and Norwegian Framework
Ana Pérez-Escoda ......................................................................................................................... 469

Selection of Key Standards to Create an Instrument for Information Literacy Assessment in Compulsory Secondary Education
Marcos Bielba Calvo; Fernando Martínez-Abad; Mª Esperanza Herrera García ............................................. 475

Peer Tutoring at School with Migrant Students: Intercultural Mentoring Programme
Paloma No-Gutiérrez; Mª José Rodríguez-Conde; Valentina Zangrando; Antonio M. Seoane-Pardo; Lorenzo Luatti...... 483

XVIII
Online Coaching in Thesis Supervision: A Qualitative Study
Cristina Casado-Lumbreras; Ricardo Colomo-Palacios ........................................................................................................ 489

Formative Assessment in B-Learning: Effectively Monitoring Students Learning
Marina Duarte ........................................................................................................................................................................... 497

What Expectations Does the Education Community Have of School Counselling Departments?
Caroly de León Huertas; Ignacio González López; Francisco José Melara Gutiérrez ........................................................................ 503

Emotional Competences’ Development and Evaluation in the Non-University Teaching Staff in Spain
Patricia Torrijos Fincias; Juan Francisco Martín Izard; Paloma No-Gutiérrez .................................................................................. 507

Assessment of the Social Skills Self-Perceived by Secondary Education Teachers for their Professional Development
Eva María Torrecilla Sánchez; María José Rodríguez Conde; Susana Olmos Migueláñez ................................................................. 513

New Publishing and Scientific Communication Ways ................................................................................................................... 519

New Publishing and Scientific Communication Ways
J. A. Córdón-Garcia; R. Gómez-Díaz ................................................................................................................................................... 521

Subscription Models Like Innovative Digital Reading System
J. A. Córdón-Garcia; R. Gómez-Díaz; J. Alonso-Arévalo; A. García Rodríguez .................................................................................. 523

The Importance of Training for the Promotion and Development of Digital Reading Literacy: the Case of the ‘Territorio Ebook’
Taisa Rodrigues Dantas ....................................................................................................................................................................... 531

Approach to the Evaluation of Electronic Scientific Monographs
Almudena Mangas Vega .................................................................................................................................................................... 537

E-books at the University of Salamanca: Management, Access, Visibility and User Perception
Patricia Lorenzo ......................................................................................................................................................................................... 541

Digital Schola; Music readers as Learning / Teaching Tools
Javier Merchán Sánchez-Jara ................................................................................................................................................................... 547

Agreement Management in Conceptualization of New Terms in Dictionaries: a Semantic Approach
Ramón Álvarez Tapia; Patricia Martín-Rodilla; Miguel Sánchez-Marcos ........................................................................................ 555

The Profitability of Libraries Using Social Media
Nieves González-Fernández-Villavicencio ............................................................................................................................................... 561

Transferring Knowledge and Experiences from Informal to Formal Learning Contexts ........................................................................... 567

Transferring Knowledge and Experiences from Informal to Formal Learning Contexts
Francisco José García-Peñalvo; David Griffiths ................................................................................................................................ 569

Problems and Opportunities in the Use of Technology to Manage Informal Learning
Francisco José García-Peñalvo; David Griffiths; Mark Johnson; Paul Sharples; David Sherlock ................................................................ 573

Formal Competence-based Assessment: On Closing the Gap between Academia and Industry
Mounira Ilahi; Lilia Cheniti-Belcadhi; Rafik Braham ...................................................................................................................... 581
A Social Framework for Supporting, Evaluating and Validating Informal Learning
Nikolas Galanis, Enric Mayol, Marc Alier Forment; Francisco José García-Peñalvo ..............................................589

Mobile Learning Adoption from Informal into Formal: An Extended TAM Model to Measure Mobile Acceptance among Teachers
José Carlos Sánchez Prieto; Susana Olmos Migueláñez; Francisco José García-Peñalvo ..................................................595

Visualizing Informal Learning Behavior from Conference Participants Twitter Data
Heli Aramo-Immonen; Jari Jussila; Jukka Huhtamäki ........................................................................................................603

Improving the MOOC Learning Outcomes throughout Informal Learning Activities
Ángel Fidalgo Blanco; Maria Luisa Sein-Echaluce; Francisco José García-Peñalvo; Javier Esteban Escaño ..........611

Knowledge Management Ecosystem based on Drupal Platform for Promoting the Collaboration between Public Administrations
Alicia García-Holgado; Francisco José García-Peñalvo .......................................................................................................619

Technological Ecosystems for Enhancing Multiculturality Doctoral Consortium ..........................................................625

Technological Ecosystems for Enhancing Multiculturality Doctoral Consortium
Francisco José García-Peñalvo ........................................................................................................................................627

Model of Augmented Reality and Pedestrian Navigation about the Territorial Heritage: Design, implementation and evaluation
Jorge Joo Nagata; José Rafael García-Bermejo Giner ........................................................................................................633

The eXeLearning and GeoGebra integration for teaching geometrics definitions and vectors representations through Learning Objects
Claudia Orozco Rodríguez; Erla M. Morales Morgado; Filomena Gonçalves da Silva Cordeiro Moita ...............639

First Approach of Mobile Applications Study for Medical Education purposes
Laura Briz Ponce; Juan Antonio Juanes Méndez; Francisco José García Peñalvo ..............................................................647

Risks of Interactive Communication. A Digital Literacy Proposal
Isabel Rodríguez de Dios; Juan José Igartua .......................................................................................................................653

A Study of Web Content Analysis on Cultural Heritage
Valeriano Piñeiro-Naval; Lucía A. Sánchez Nuevo; Felipe de Jesús Marañón Lazcano ..................................................659

Information Literacy: A Brief Approach of Education in the Information Society
Héctor Javier García Llorente; María José Rodríguez Conde ..........................................................................................667

Personal Learning Environments (PLE) in The Teaching Ecosystem
Cecilia Aranda Cortínez; Ana García-Valcárcel ....................................................................................................................671

Towards Mobile Personal Learning Environments (MPLE) in Higher Education
Patricio Ricardo Humanante Ramos; Francisco José García Peñalvo; Miguel Ángel Conde González .....................677

ICTs Integration in Education: Mobile Learning and the Technology Acceptance Model (TAM)
José Carlos Sánchez Prieto; Susana Olmos Migueláñez; Francisco José García-Peñalvo ..............................................683

Collaborative Learning Methodologies Mediated by ICT in Secondary Education
Rosalba Acosta Corporan; Azucena Hernández Martín .................................................................................................689
Validation of Informal Learning
Nikolas Galanis, Enric Mayol, Marc Alier Forment; Francisco José García-Peñalvo ................................. 695

Analytics of Information Flows and Decision Making in Heterogeneous Learning Ecosystems
Juan Cruz-Benito; Roberto Therón; Francisco José García-Peñalvo ............................................................... 703

Semiotic and Technological Analysis of Photography: A Visual Literacy Study in the Educative Area
Felicidad García-Sánchez; Roberto Therón; José Gómez Isla ................................................................. 709

Project presentations ........................................................................................................................................... 715

Innovations in European Education
Nick Kearney .................................................................................................................................................. 717

Open Discovery Space: A Socially-Powered and Multilingual Open Learning Infrastructure to Boost the Adoption of eLearning Resources
Sonia Peinado, J. Miguel Mota, Anke Bernsi, Manuel Palomo-Duarte, Juan Manuel Dodero ...................... 721

Mobile Apps Repository for Older People
Miguel Ángel Conde González; Francisco José García-Peñalvo; V. Matellán-Olivera ............................... 725

Developing Win-Win Solutions for Virtual Placements in Informatics: The VALS Case
Francisco José García-Peñalvo; Juan Cruz-Benito; Dai Griffiths; Paul Sharples; Scott Wilson; M. Johnson; George Papadopoulos; Achilleas Achilleos; Marc Alier Forment, Nikolas Galanis; Miguel Ángel Conde González; Elena Pessot; Raymond Elferink; Edwin Veenendaal; Steve Lee .......................................................... 733

From Idea to VLE in a Day: METIS Approach and Tools for Learning Co-design ................................. 739

Authors Index ..................................................................................................................................................... 747
Communication, Education and Health Promotion
Juan-José Igartua
University of Salamanca
Faculty of Social Sciences (Edificio FES)
Observatorio de los Contenidos Audiovisuales
37007 Salamanca (Spain)
+34 923 294 500 (ext. 3111)
jgartua@usal.es

Categories and Subject Descriptors
J.4 [Social and Behavioral Sciences] Psychology
J.3 [Life and Medical Sciences] Health

General Terms
Documentation, Experimentation.

Keywords
Health communication, Health promotion, Communication and Education, Entertainment-education, Narrative persuasion, E-Health.

Health promotion is defined as the process of enabling people to increase control over their health and its determinants, and thereby improve their health (World Health Organization). One of the most used approaches to health promotion is based on education and communication media. Health campaigns and education-entertainment approaches (entertainment advocacy) have been used by scholars in health communication to prevent very different diseases and to improve quality of life. Health communication is a transdisciplinary field whose intended outcomes are increasing audience knowledge and awareness of a health issue, influencing behaviors and attitudes towards a health issue and implementing and evaluating health interventions disseminated using media in very different ways (from advertising and social marketing campaigns to television fiction or videogames) [1;7;13].

Health communication is an interdisciplinary marriage between health and communication research and has its own division in the International Communication Association since the mid-1970s [1]. At present, there are two journals indexed in JCR WoK Communication discipline: Journal of Health Communication: International Perspectives and Health Communication, both edited by Taylor and Francis and both occupying a high position in regards to impact factor. The focus of this discipline is on social and health problems, like smoking, AIDS, unsafe sexual behaviours, substance abuse, heart disease, unhealthy diet and so on. From a theoretical point of view, health communication researchers have paid careful attention to antecedents to health behaviours, so illness prevention and health promotion are two main focus, and theories like social cognitive theory, theory of reasoned action, the transtheoretical model, the extended parallel process model, the health belief model, the ELM and narrative persuasion models are important benchmarks [12]. Designing messages to prevent or promote health and healthy lifestyles is an important approach in health communication interventions. Mass media campaigns try to persuade people or to increase awareness of various health risks and diseases. Health communication practitioners typically borrow standard methodological techniques from social and behavioural sciences. In particular, evaluation research approaches have been used to develop and analyse the health messages on people. Formative and summative evaluation are special cases in this context. Researchers try to collect precampaign background information about the target audience and also try to measure the effectiveness after the campaign implementation. While formative research occurs before campaigns have been designed, summative research is designed to discover the campaign outcomes [1]. In some cases, social marketing is the template that is used to organize a media campaign applying marketing’s “four P’s: product, price, promotion and place” [12]. Another innovative approach to designing and implementing health interventions messages is entertainment-education (EE) [8]: “EE is the process of purposely designing and implementing a media message to both entertain and educate, in order to increase audience members’ knowledge about an educational issue, create favourable attitudes, shift social norms, and change overt behaviour” [9]. In this case, fictional stories are usually created and delivered through classic channels (like TV series, short or feature films) or more interactive media (e.g., videogames) [4-5]. The early main research question being asked by EE researchers was “does it have an effect?”. But, at present, empirical analysis of EE interventions explore why and how EE has its effects on audience individuals. Although the early predominant theory in the past EE projects was Bandura’s social learning theory, more recent theorizing focus on persuasion models [11]. In particular, a few theoretical narrative persuasion models have recently developed by authors as Emily Moyer-Gusé (Entertainment overcoming resistance model [6]), Michael Slater (Extended elaboration likelihood model [10]) and Melanie Green (Transportation-imagery model [2]).

Media have the power of influencing individual health beliefs, attitudes and behaviours. So, analyzing media contents and their impact on people in relation to health is another focus on research in this field. What is the kind of information transmitted by the media? Are media biased when providing health information? How has the information seeking process changed in the Internet era? These are some specific questions that health communication researchers are trying to handle nowadays. The link between media exposure and weight disturbance (both underweight and overweight) is being studying very carefully. It has been demonstrated by meta-analysis the “big picture” of the effects media have on people in this context. For example, effect sizes for body dissatisfaction, thin-ideal...
internalization, and eating behaviours and beliefs about eating ranged from $d = -0.28$ to $-0.39$, which represent moderate effects in the direction of decreased satisfaction with the body and increased eating problems [3].

Another promising approach is e-Health. It is a relatively recent term for healthcare practice supported by electronic/digital processes, including the healthcare practice using the Internet but also health applications and links on mobile phones (m-Health). Compared with traditional mass media, interactive media and the Internet may have several advantages for health communication efforts: improved access to health information (more personalized and tailored), on-demand access to health information, support, and services, enhanced ability to dispense materials widely, just-in-time expert decision support and, in general, greater health information choices for health consumers [12]. There are several challenges in this research area. For example, with web-based interventions, formative research needs to identify whether the requirements of the site match users’ digital literacy (regarding computer use, information searching, understanding health information, ability to contextualize the information and so on). One promising approach is to develop a valid and reliable e-Health literacy scale, based on social cognitive and self-efficacy theories. And another challenge is to decide on and implement appropriate information architecture when designing online campaign components [7].

The track “Communication, Education and Health Promotion” is focused on these topics and its main goal is to discuss around the relationship between health promotion and education from a communication media research point of view. It has been presented papers focusing on this general topic in its different dimensions: narrative persuasion and EE, the searching for health information by young people on the Internet, health, food and body image, formative research and behaviour change communication and telemedicine and e-Health. Finally, five papers were selected after the review process. The aim of the paper entitled “Processes and mechanisms of narrative persuasion in entertainment-education interventions through audiovisual fiction. The role of identification with characters” is to further our knowledge of the explanatory processes of narrative persuasion in the field of health communication, using data obtained in a research study of entertainment-education based on audiovisual fiction. The paper “Health information and youth: challenges in the Internet age” presents the result of a qualitative study based on the in-depth interviews; authors analyse the information on health topics for young people that is available on the Internet. The third paper entitled “The influence of media contents about health in the construction of the discourse about the body in young adults and teenagers” also present a qualitative study whose aims were to explore how young people develop their discourse about the importance of the body’s aesthetic image. From a very different perspective, the study entitled “Behavior Change Communication Strategy for Yaws Elimination: A Strategic Approach” presents a behavior change communication strategic (lead by the World Health Organization to eliminate neglected diseases) and focuses on the findings from the formative research and the subsequent strategy that emerge from the research. Finally, the paper “Healthcare Information Systems Promotion: From an Improved Management of Telemedicine Processes to Home Healthcare Processes” aims at identifying the main challenges behind home healthcare processes; authors rely on the approach of Business Process Management (BPM).

REFERENCES


