



**10TH INTERNATIONAL CONFERENCE OF  
EDUCATION,  
RESEARCH AND  
INNOVATION**

# **CONFERENCE PROCEEDINGS**

**SEVILLE (SPAIN)  
16-18 NOVEMBER 2017**



**10TH INTERNATIONAL CONFERENCE OF  
EDUCATION,  
RESEARCH AND  
INNOVATION**

# **CONFERENCE PROCEEDINGS**

**SEVILLE (SPAIN)  
16-18 NOVEMBER 2017**

**Published by**  
IATED Academy  
iated.org

**ICERI2017 Proceedings**  
10th International Conference of Education, Research and Innovation  
November 16th-18th, 2017 — Seville, Spain

**Edited by**  
L. Gómez Chova, A. López Martínez, I. Candel Torres  
IATED Academy

**ISBN: 978-84-697-6957-7**  
**ISSN: 2340-1095**  
**Depósito Legal: V- 2851-2017**

Book cover designed by  
J.L. Bernat

All rights reserved. Copyright © 2017, IATED

The papers published in these proceedings reflect the views only of the authors. The publisher cannot be held responsible for the validity or use of the information therein contained.

## ICERI2017 COMMITTEE AND ADVISORY BOARD

Aaron Doering	UNITED STATES	Jose Luis Bernat	SPAIN
Agustín López	SPAIN	Kaye Price	AUSTRALIA
Alexander Sobolev	RUSSIAN FEDERATION	Liliana Milevicich	ARGENTINA
Ali Merç	TURKEY	Lorena López	SPAIN
Amir Dirin	FINLAND	Louis Babineau	CANADA
Amparo Girós	SPAIN	Luis Gómez Chova	SPAIN
Ana Tomás	SPAIN	M <sup>a</sup> Jesús Suesta	SPAIN
Angela Piu	ITALY	Margus Pedaste	ESTONIA
Anne Omori	NIGERIA	Maria Porcel	SPAIN
Antonio García	SPAIN	Martin Gellerstedt	SWEDEN
Balamuralithara Balakrishnan	MALAYSIA	Melania Tera	ROMANIA
Belmiro Gil Cabrito	PORTUGAL	Michelle Ellwood	UNITED KINGDOM
Bernard Etlicher	FRANCE	Minna Maunula	FINLAND
Boris Alexander Becker	GERMANY	Mira Alameddine	LEBANON
Bryan Eldridge	UNITED STATES	Nadja Soldatic	SERBIA
Carol Ing	CANADA	Naseer Ahmed	UNITED ARAB EMIRATES
Chelo González	SPAIN	Nigel Atkinson	UNITED KINGDOM
Christos Rodosthenous	CYPRUS	Norma Barrachina	SPAIN
Cristina Lozano	SPAIN	Nuraihan Mat Daud	MALAYSIA
Dana Kubickova	CZECH REPUBLIC	Olga Teruel	SPAIN
David Bolton	UNITED STATES	Pablo Opazo	CHILE
David Martí	SPAIN	Pamela Parker	UNITED KINGDOM
David Scaradozzi	ITALY	Paulus Insap Santosa	INDONESIA
Deborah Azaryad Shechter	ISRAEL	Pavel Brebera	CZECH REPUBLIC
Eladio Duque	SPAIN	Peter Haber	AUSTRIA
Emmi Pakkala	UGANDA	Pierre Mora	FRANCE
Fumito Yoshikawa	JAPAN	Rachel Welton	UNITED KINGDOM
Giles Pepler	UNITED KINGDOM	Rebecca Ferriday	UNITED KINGDOM
Harvey Oueijan	LEBANON	Rebekka Eckhaus	JAPAN
Hen Friman	ISRAEL	Sergio Pérez	SPAIN
Ignacio Ballester	SPAIN	Sharon Judge	UNITED STATES
Ignacio Candel	SPAIN	Svetlana Bekareva	RUSSIAN FEDERATION
Ioana Carmen Paraschiv	ROMANIA	Vanja Bevanda	CROATIA
Ira Raveh	ISRAEL	Victor Fester	NEW ZEALAND
Iván Martínez	SPAIN	Wendy Gorton	UNITED STATES
Jana Mazancova	CZECH REPUBLIC	William Heintz	UNITED ARAB EMIRATES
Janis Prince	UNITED STATES	William Muirhead	CANADA
Javier Domenech	SPAIN	Willy Castro Guzman	DENMARK
Javier Martí	SPAIN	Xavier Lefranc	FRANCE
Jean-Paul Becar	FRANCE	Xing Liu	CANADA
Joanna Lees	FRANCE	Yoshihiro Okada	JAPAN
Jose F. Cabeza	SPAIN	Zuzana Palkova	SLOVAKIA

## CONFERENCE SESSIONS

### ORAL SESSIONS, 16th November 2017

Design Thinking & Creativity Teaching  
International Collaboration in Higher Education  
eAssessment  
Accreditation and Quality in Education  
21st Century Skills  
Professional Development of Teachers (1)  
Experiences and Trends in Health Sciences Education (1)  
New Technologies in Foreign Language Learning

Flipped Learning  
Study Abroad Experiences & Exchange Programmes  
e-Portfolios and Assessment Tools  
Quality in Higher Education  
Learning Management Systems  
School Placement & Practicum Experiences in Teacher Education  
Soft Skills Development & Experiential Learning  
Experiences and Trends in Health Sciences Education (2)  
Flipped and Blended Learning in Foreign Languages

e-Learning and Blended Learning Experiences  
Early Childhood Experiences and Trends  
Evaluation and Assessment (1)  
University-Industry Collaboration  
Technology in Teaching and Learning (2)  
New Challenges for the Higher Education Area  
Internship Programs and Experiences  
Research and Innovation in Companies  
New Experiences in Language Learning

Technology in Teaching and Learning (1)  
Experiences in Primary and Secondary Education (1)  
e-Content Management and Development  
Research and Education Management  
Digital Skills in Higher Education  
New Experiences in Curriculum Design  
Employability Issues and Challenges (1)  
New Trends and Experiences in Business Education  
Organizational and Financial Issues in Higher Education

### POSTER SESSIONS, 16th November 2017

Emerging Technologies in Teaching and Learning  
Innovations and Experiences in Education

**ORAL SESSIONS, 17th November 2017**

Web 2.0 and Social Networking  
Soft Skills in Higher Education  
Pedagogical and Collaborative Methods  
Public vs. Private Schools  
Digital Literacy  
Professional Development of Teachers (2)  
Maths Teaching and Learning (1)  
Experiences in Architecture Education  
Special Education Experiences (1)

MOOCs: Massive Open Online Courses  
Employability Issues and Challenges (2)  
Collaborative and Project Based Learning Experiences  
Educational Management and Leadership (1)  
Student Support in Education  
Professional Development of Teachers (3)  
Maths Teaching and Learning (2)  
Problem and Project Based Learning  
Special Education Experiences (2)

Open Educational Resources  
Entrepreneurship Education  
Informal Learning Experiences  
Ethical Issues in Education  
Evaluation and Assessment (2)  
ICT Skills and Competencies among Teachers  
Experiences in Primary and Secondary Education (2)  
Coding & Programming Experiences  
Special Education Professionals Development

Virtual Reality & Simulation Labs  
Service Learning & Community Engagement  
New Pedagogies and Experiences in Higher Education  
Adult Education  
Gamification  
Pre-service and In-service Teacher Experiences (1)  
STEM in Primary and Secondary Education  
Pedagogical Innovations in Language Learning: EFL & ESP  
Inclusive Learning (1)

Learning Apps for Smartphones and Tablets  
Gender Issues in Education  
Tutoring & Mentoring  
Educational Management and Leadership (2)  
Games for Learning  
Pre-service and In-service Teacher Experiences (2)  
STEM in Higher Education  
Pedagogical Methods and Innovations  
Inclusive Learning (2)

**POSTER SESSIONS, 17th November 2017**

Global Issues in Education and Research

Education Practice, Trends and Issues

**VIRTUAL SESSIONS**

Academic Research Projects  
Accreditation and Quality in Education  
Adult education  
Advanced classroom applications and technologies  
Assessment of student learning  
Barriers to Learning  
Blended Learning and Flipped Classroom  
Collaborative and Problem-based Learning  
Cultural Diversity and Inclusive Learning  
Curriculum Design  
E-content Management and Development  
e-learning experiences  
e-Tutoring and e-Mentoring  
Education practice trends and issues  
Education, Research and Globalization  
Educational/Serious Games and Software  
Emerging Technologies in Education  
Employability issues and trends  
Experiences in Post-graduate education  
Experiences in Primary and Secondary education  
Experiences in Undergraduate education  
Game-based learning and Gamification  
Global Issues in Education and Research  
ICT Skills  
In-service training and Professional development of teachers  
International Projects  
Language Learning Innovations  
Learning and Teaching Innovations  
Learning Management Systems (LMS)  
Learning space design: Next generation classroom  
Life-long learning  
Links between Education and Research  
m-Learning: mobile applications and technologies  
Massive Open Online Courses (MOOC)  
New Challenges for the Higher Education Area  
Online/Virtual Laboratories  
Pedagogical Methods and Innovations  
Pre-service teacher experiences  
Research on Technology in Education  
Special education  
STEM Education Experiences  
Student Support in Education  
Teacher Training. ICT skills and training  
Technology in Teaching and Learning  
University-Industry Cooperation  
Virtual and Augmented Reality  
Virtual Learning Environments (VLE)  
Vocational training  
Web 2.0 and Social Networking  
Women and minorities in science and technology

## ABOUT ICERI2017 Proceedings

### HTML Interface: Navigating with the Web browser

This USB Flash drive includes all presented papers at ICERI2017 conference. It has been formatted similarly to the conference Web site in order to keep a familiar environment and to provide access to the papers through your default Web browser (open the file named "ICERI2017\_Proceedings.html").

An Author Index, a Session Index, and the Technical Program are included in HTML format to aid you in finding conference papers. Using these HTML files as a starting point, you can access other useful information related to the conference.

The links in the Session List jump to the corresponding location in the Technical Program. The links in the Technical Program and the Author Index open the selected paper in a new window. These links are located on the titles of the papers and the Technical Program or Author Index window remains open.

### Full Text Search: Searching ICERI2017 index file of cataloged PDFs

If you have Adobe Acrobat Reader version 6 or later ([www.adobe.com](http://www.adobe.com)), you can perform a full-text search for terms found in ICERI2017 proceedings papers.

*Important:* To search the PDF index, you must open Acrobat as a stand-alone application, not within your web browser, i.e. you should open directly the file "ICERI2017\_FrontMatter.pdf" with your Adobe Acrobat or Acrobat Reader application.

This PDF file is attached to an Adobe PDF index that allows text search in all PDF papers by using the Acrobat search tool (not the same as the find tool). The full-text index is an alphabetized list of all the words used in the collection of conference papers. Searching an index is much faster than searching all the text in the documents.

*To search the ICERI2017 Proceedings index:*

1. Open the Search PDF pane through the menu "Edit > Advanced Search" or click in the PDF bookmark titled "SEARCH PAPERS CONTENT".
2. The "ICERI2017\_index.pdx" should be the currently selected index in the Search window (if the index is not listed, click Add, locate the index file .pdx, and then click Open).
3. Type the search text, click Search button, and then proceed with your query.

*For Acrobat 9 and later:*

1. In the "Edit" menu, choose "Search". You may receive a message from Acrobat asking if it is safe to load the Catalog Index. Click "Load".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.

*For Acrobat 8:*

1. Open the Search window, type the words you want to find, and then click Use Advanced Search Options (near the bottom of the window).
2. For Look In, choose Select Index.
3. In the Index Selection dialog box, select an index, if the one you want to search is available, or click Add and then locate and select the index to be searched, and click Open. Repeat as needed until all the indexes you want to search are selected.
4. Click OK to close the Index Selection dialog box, and then choose Currently Selected Indexes on the Look In pop-up menu.
5. Proceed with your search as usual, selecting other options you want to apply, and click Search.

*For Acrobat 7 and earlier:*

1. In the "Edit" menu, choose "Full Text Search".
2. A new window will appear with search options. Enter your search terms and proceed with your search as usual.