2021 International Symposium on Computers in Education (SIIE 2021)

Malaga, Spain 23-24 September 2021



IEEE Catalog Number: CFP2186T-POD ISBN: 978-1-6654-4025-7

Copyright © 2021 by the Institute of Electrical and Electronics Engineers, Inc. All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

*** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.

 IEEE Catalog Number:
 CFP2186T-POD

 ISBN (Print-On-Demand):
 978-1-6654-4025-7

 ISBN (Online):
 978-1-6654-4024-0

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) 758-2633

E-mail: curran@proceedings.com Web: www.proceedings.com



Table of contents

Antonio Balderas, António José Mendes, Juan Manuel Dodero. 2021 International Symposium on Computers in Education (SIIE). Preface

Regular contributions

- 1 Luis Castillo, Juan Fernández-Olivares and Francisca Sánchez-Carrascosa. *Discovering the dinosaur*
- José Miguel Ocaña, Elizabeth Morales Urrutia, Diana Perez-Marin and Celeste Pizarro. How to create emotional learning companions to teach programming in Primary Education
- J. Ángel Velázquez-Iturbide. Towards the Design of Notional Machines for Simple Block-Based Languages
- 19 Patricia Cavedini, Silvia Bertagnolli, André Peres, Rubiane Severo Oliva, Ederson Luiz Locatelli and Saulo Vicente Nunes Caetano. Educational Robotics and Physical Education: body and movement in the learning of laterality in Early Childhood Education
- 25 Maria Emília Bigotte de Almeida, Ricardo Almeida, Carolina Rocha and Rui Ferreira. *Impact Evaluation: Scratch in Basic Education*
- Ana Amaral, Beatriz Machado, Filipe Có and Henrique Gil. *Impact of the Expressia Platform on a Child with Autism Spectrum Disorder: Case Study*
- Juanan Pereira. RepoSearch, a centralized search engine for End-of-Degree Projects of the Bachelor's Degree in Computer Engineering
- 41 Nibeth Mena Mamani, Francisco José García-Peñalvo, Miguel Ángel Conde and José Gonçalves. A systematic mapping about simulators and remote laboratories using hardware in the loop and robotic: Developing STEM/STEAM skills in pre-university education
- 47 Raúl Benito-Montoro, Xukai Chen and José-Luis Sierra. *A Tool to Assist the Compiler Construction Instructor in Checking the Equivalence of Specifications Based on Regular Expressions*
- Francisco Jurado. Teacher Assistance with Static Code Analysis in Programming Practicals and Project Assignments
- Carmen Carrión. How effective are online teaching activities? A use case study in Higher Education
- María Goretti Alonso de Castro and Francisco José García-Peñalvo. *Most used ICT methodologies* for student learning in Erasmus+ projects related to eLearning
- 71 Verónica Moreno Oliver, Davinia Hernandez-Leo and Amaia Rogríguez Rementeria. *Comparative* analysis of interaction in online and in-person classes among undergraduate and Master students: Barriers and Facilitators
- 77 Antonio Balderas, Mª Soledad Ibarra-Sáiz and Gregorio Rodríguez-Gómez. CORAMeval: A Software to Evaluate Competencies, Learning Outcomes and Assessment Formats in Higher Education

- Joana Neto, Sílvia Nolan and António Mendes. *The satisfaction assessment of a course on designing and developing distance learning courses*
- 88 Cristina Dreifuss-Serrano and Christopher Schreier-Barreto. *Classroom migrations: the new remote learning environments?*
- José Miguel Mota, Rubén Baena-Pérez, Iván Ruiz-Rube, María Jesús Paredes Duarte, Antonio Ruiz-Castellanos and José María Correro-Barquín. Spatial Augmented Reality System with functions focused on the rehabilitation of Parkinson's patients
- 98 Eyad Hakami and Davinia Hernandez-Leo. *Teachers' views about the impact of Learning Design Community platforms on Well-being*
- Henrique Gil, Daniela Saraiva, Ana Gonçalves and Nataly Lopes. *The EKUI methodology: pilot study on the contribution to the inclusive teaching-learning process*
- Walter Ovidio Sánchez Campos, Alfredo Pina and Gabriel Rubio. *Náhuat Language Kinect Application for Museum*

Doctoral Symposium

- Nazaret Gómez del Río, Carina González-González and Francisco García-Peñalvo. *Promoting healthy lifestyle habits through learning based on active video games*
- 118 Martín Liz-Domínguez. Contributions to Learning Analytics Focused on Assessment and Self-Regulated Learning
- 124 Leonardo Silva. Fostering Programming Students Regulation of Learning Using a Computer-Based Learning Environment
- José Figueiredo and Francisco García-Peñalvo. *Teaching and Learning Tools for Introductory Programming in University Courses*

COVID-related contributions

- Maria Rosário Rodrigues, Ana Luisa Oliveira Pires, Elsa Ferreira, João Torres and Mário Baía.

 Online training of higher education teachers: an experience in times of pandemic
- Pedro Tadeu, Elisabete Brito, Natália Gomes and Carlos Brigas. *Teaching at Distance, a stress enhancing factor in higher education in times of COVID-19*
- 146 Nídia Salomé Morais and Rui Raposo. *Blended-Learning in contexts conditioned by the pandemic:* the perceptions of higher education students
- 152 Martín Llamas-Nistal, Fernando Ariel Mikic-Fonte, Manuel Caeiro-Rodríguez and Martín Liz-Domínguez. *Teaching during the COVID-19 pandemic as an opportunity to change the education of the future*

158 Isabel Pereira, Joana Ferreira, Manuela Francisco, Carina Rodrigues, Cláudio Esperança, Joana Mineiro, Sónia Pedro, Catarina Maximiano and Miguel Almeida. *Teacher training as a starting point to support the initial challenges of emergency remote learning - case study*

Contributions related to European projects

- Carina González-González, Pino Caballero-Gil, Alicia García-Holgado, Francisco García-Peñalvo, Jezabel Molina, José María del Castillo-Olivares, Bernardo Candela San Juan, Sara García Cuesta, Inmaculada Perdomo, Cándido Caballero-Gil, Francisco Luis Gutiérrez Vela, Patricia Paderewski, Verónica Violant-Holz, Rosa Gil Iranzo and Sofía Ramos. *COEDU-IN Project: an inclusive coeducational project for teaching computational thinking and digital skills at early ages*
- 168 Manuel Caeiro Rodríguez, Martin Llamas-Nistal, Fernando A. Mikic Fonte, Manuel J. Fernández-Iglesias, Hariklia Tslapatas, Olivier Heidmann, María A. Lorenzo Rial, Triinu Jesminand Jaanus Terasmaa. A Virtual Environment to Support Digital Education Readiness and Creative Skills
- Andrea Vázquez-Ingelmo, Lucía García-Holgado, Alicia García-Holgado, Francisco José García-Peñalvo, Ömer Yigit, Silja Melch, Pervin Hazar and Nynke de Jager. *Today's Children Tomorrow's Changemakers: educational resources to develop entrepreneurial skills*
- Maria Figueiredo, Cristina Azevedo Gomes, Susana Amante, Helena Gomes, Valter Alves, Rui Pedro Duarte and Belmiro Rego. *Play, Algorithmic Thinking and Early Childhood Education: Challenges in the Portuguese Context*
- Manuel Caeiro Rodríguez, Mario Manso-Vázquez, Martin Llamas-Nistal, Fernando A. Mikic Fonte, Manuel J. Fernández Iglesias, Hariklia Tslapatas, Olivier Heidmann, Carlos Vaz-de-Carvalho, Triinu Jesmin, Jaanus Terasmaa and Lene Tolstrup. A collaborative city-based game to support soft skills development in engineering and economics
- Kalliopi Evangelia Stavroulia, Ignacio Aedo, Paloma Díaz and Andreas Lanitis. Virtual-Reality Based Crisis Management Training for Teachers: An Overview of the VRTEACHER Project
- Francisco José García-Peñalvo, Lucía García-Holgado, Alicia García-Holgado, Valentina Zangrando, Liliana Romaniuc, Maria Kyriakidou, Maria Patsarika, Daina Gudoniene, Katarzyna Rak, Peter Frühmann, Afxentis Afxentiou, Anna Bartoli and Vasia Karkantzou. *Gaming for Social Inclusion and Civic Participation: the INGAME project*