

PROGRAMME

STE2021

2ND INTERNATIONAL CONFERENCE

ON SCIENCE AND TECHNOLOGY EDUCATION

7-8 October 2021
FEUP, Porto - Portugal



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TOPICS OF INTEREST

- . science and technology epistemologies
- . science and technology learning mechanisms
- . science and technology learning systems
- . science and technology diversity and inclusiveness
- . science and technology assessment

PROGRAMME OF STE2021

Author underlined → presenting author

Thursday 7 October 2021	
9:00	STE2021 Opening (Room B032)
Session 1 – Epistemologies (Chair: LFM da Silva and A Coelho)	
Room B032	
9:20	Engineering learning: experiences and challenges (STE21_57) <u>AT Marques</u> (University of Porto, Portugal)
9:40	Design thinking and self-directed learning in pre-service science and technology teachers (STE21_24) <u>S Avsec</u> (University of Ljubljana, Slovenia), V Ferik Savec
10:00	Evolution of STEM teachers' pedagogical content knowledge through socioscientific issues (STE21_40) Z Minken, <u>AZ Macalalag Jr</u> (Arcadia University, Pennsylvania, USA),
10:20	The epistemology of the skill (STE21_49) <u>ET Kallio</u> (Naval Academy, Finland)
10:40-11:00 COFFEE BREAK (Room under the Auditorium)	
Session 2 – Learning mechanisms I (Chair: A Vassilopoulos and R Beygi)	
Room B032	
11:00	How to create a successful laboratory class for a course in vibration (STE21_47) <u>RD Adams</u> (University of Bristol, UK)
11:20	Virtual platform to support teaching and understanding of materials science and engineering (STE21_14) <u>F Castro Sousa</u> (INEGI, Portugal), CSP Borges, TP Duarte, RJC Carbas, LFM da Silva
11:40	The importance of laboratorial classes dedicated to advanced joining processes in undergraduate engineering education (STE21_43) <u>RJC Carbas</u> (INEGI, Portugal), EAS Marques, LFM da Silva
12:00	JointDesigner, a tool for learning and doing (STE21_33) <u>EAS Marques</u> (INEGI, Portugal), RJC Carbas, LFM da Silva
12:20	ROB-E – Swarm robotics for education in circular economy (STE21_9) <u>M Schranz</u> (Lakeside Labs, Austria), P Amann, R Egger, S Schifrer
12:40	Enabling grounded action by drawing on learning analytics: A case study (STE21_11) <u>V Gynnild</u> (Norwegian University of Science and Technology, Norway)
13:00-14:00 LUNCH BREAK (Room under the Auditorium)	
Session 3 – Learning mechanisms II (Chair: RD Adams and GJ Dolecek)	
Room B032	
14:00	An AR self guiding mold assembly system based on deep learning pattern recognition for engineering training (STE21_44) <u>XD Pan</u> (Harbin Institute of Technology, China), H Huo, J Lv, P Li, B Peng, C Lei, J Gu
14:20	MATLAB educational tool for teaching Rayleigh random variable (STE21_19) <u>GJ Dolecek</u> (National Institute INAOE, Mexico)
14:40	Study and research paths to improve internet inquiry-based learning: Study case of an ICT course in engineering (STE21_20) <u>A Moreno</u> (Escola Universitària Salesiana de Sarrià, Spain), E Bartolomé
15:00	Study and Research Path (SRP) for learning chemistry in engineering: Analysis of the quality of tap water (STE21_21) <u>MA Amer</u> (Escola Universitària Salesiana de Sarrià, Spain), C Luque-Corredera, E Bartolomé
15:20	Gamification of open inquiry-based learning of blockchain technologies (STE21_28) <u>D Culha</u> (ASELSAN, Turkey)
15:40	Experiential in class discovery to nourish the use of cognitive strategies for constructivist learning in engineering (STE21_60) <u>LE Bernold</u> (Technical University Federico Santa María, Chile), PP Trigo, A Pacheco

16:00-16:20	COFFEE BREAK (Room under the Auditorium)	
	Session 4 – Learning mechanisms III (Chair: AJ Najafabadi and AZ Sampaio)	
	Room B032	
16:20	“Integrating Environmental Restoration with Computer Science in New York Harbor with New York City Public Schools” Billion Oyster Project Curriculum and Community Enterprise for Restoration Science (BOP-CCERS) STEM +C Phase III (STE21_6) <u>LB Birney</u> (Pace University New York City, USA)	
16:40	Teaching ceramic materials in mechanical engineering: A project based learning experience (STE21_34) <u>J Lino Alves</u> (University of Porto, Portugal), TP Duarte	
17:00	Enhancing active learning in remote collaboration: an experience in teaching nanotechnology and functional materials for design (STE21_42) <u>A Marinelli</u> (Politecnico di Milano, Italy), F Papile, L Sossini, B Del Curto	
17:20	From classroom to market: How hands-on teaching experience increases the entrepreneurship (STE21_51) R van Wassenhove, <u>AP Vassilopoulos</u> (Ecole Polytechnique Fédérale de Lausanne, Switzerland)	
17:40	A gamified mobile application for Introductory Programming courses (STE21_48) A Ferreira, <u>A Coelho</u> (University of Porto, Portugal)	
18:00	Maintenance of buildings supported on Building Information Model methodology and programming with Dynamo programming (STE21_52) I Domingos, <u>AZ Sampaio</u> (University of Lisbon, Portugal), AM Gomes	
19:00	Poster session and RECEPTION	
	Learning mechanisms	
Poster 1	The application of Monte-Carlo simulation towards a better understanding of Bayes’ theorem in engineering Education (STE21_7)	R Assis, <u>PC Marques</u> (Universidade Lusófona, Portugal), R Vidal
Poster 2	Integrated physics learning using an interdisciplinary inquiry learning space (STE21_25)	JR Nogueira, <u>PC Marques</u> (Lusófona University, Portugal), C Guerra
Poster 3	The evaluation of augmented reality applications in European primary schools (STE21_27)	<u>J Tiede</u> (University of Würzburg, Germany), S Grafe, E Mangina
Poster 4	Learning object metadata and discoverability of STEM educational resources (STE21_64)	E Mangina, <u>G Psyrra</u> (University College Dublin, Ireland)
Poster 5	How to teach the concepts of “Information Retrieval” using shell commands (STE21_65)	<u>A Schmidt</u> (University of Applied Sciences, Karlsruhe, Germany)
	Diversity and inclusiveness	
Poster 6	Selecting the future: On the motivations of young students to choose mechanical engineering at FEUP (STE21_32)	<u>TP Duarte</u> (University of Porto, Portugal), AM Lopes, LFM da Silva, H Lopes
Poster 7	The BioS4You European project: an innovative way to effectively engage Z-generation students in STEM disciplines (STE21_56)	<u>D Persano Adorno</u> (University of Palermo, Italy), N Pizzolato
Poster 8	Psychological well-being of Iranian immigrants in Portugal enrolled in educational system (STE21_13)	AJ Najafabadi, S Borhanizad, <u>A Akhavan-Safar</u> (INEGI, Portugal), AQ Barbosa, LFM da Silva
	Assessment	
Poster 9	Self-assessed IQ and beliefs on intelligence to predict academic achievement in university students (STE21_46)	AJ Najafabadi, <u>R Beygi</u> (INEGI, Portugal), H Imani, AM Lopes, LFM da Silva

Friday 8 October 2021

Session 5 – Learning systems (Chair: X Pan and D Persano Adorno)

Room B032

9:00	The design and experience of an advanced course on i4.0 technologies for high-level decision-makers and managers (STE21_17) <u>A Azevedo</u> (INESC TEC, Portugal), AP Guedes	
9:20	Educational requirements for the aviation and automotive engineering (STE21_18) <u>M Huhtala</u> (University of Turku, Finland)	
9:40	Teaching adhesive bonding in mechanical engineering courses (STE21_15) <u>AQ Barbosa</u> (INEGI, Portugal), EAS Marques, LFM da Silva	

10:00	Innovative development of student skills in raw materials engineering programmes (STE21_39) <u>JA Ramírez Masferrer</u> (Technical University of Madrid, Spain), J Herrera Herbert, P Kindelan Echevarria
10:20	Relationship between teacher-student relationship, motivation, interest, and achievement in science: A multilevel mediation model (STE21_41) <u>C Wang</u> (University of Macau, China), T Cui, Y Xie
10:40-11:00	COFFEE BREAK (Room under the Auditorium) Session 6 – Diversity and inclusiveness I (Chair: C Wang and AM Ferreira) Room B032
11:00	Women in mechanical engineering: A case study of the Faculty of Engineering of the University of Porto in the last 20 years (STE21_30) <u>CSP Borges</u> (INEGI, Portugal), AQ Barbosa, TP Duarte, HS Lopes, AJ Najafabadi, LFM da Silva
11:20	Teacher grade students attitudes towards STE activities (STE21_8) <u>A Lasa</u> (Public University of Navarre, Spain), H Iribas, O Belletich, MR Wilhelmi
11:40	Interest and motivation of secondary-school students in STEM subjects (STE21_10) <u>PA González-Atutxa</u> (Mondragon University, Spain), N Lopez-Salas, N Elortegi, I Garcia, U Carmona, H Iribas
12:00	Study of the performance of first year Master's Students in Civil Engineering (STE21_63) <u>IM Ribeiro</u> , F Campos de Sousa, <u>N Ramos</u> (University of Porto, Portugal)
12:20	The missing piece to a memorable university path – The mechanical engineering students branch contribution (STE21_58) <u>S Paraty</u> (University of Porto, Portugal), G Xavier, R Teixeira, MB Lima
12:40	Students' experiences of learning Sciences during the Covid-19 pandemic and their suggestions for the next day: A Greek university department case study (STE21_37) <u>I Rizos</u> , <u>N Gkrekas</u> (University of Thessaly, Greece)
13:00-14:00	LUNCH BREAK (Room under the Auditorium) Session 7 – Diversity and inclusiveness II (Chair: AM Lopes and T Tajmel) Room B032
14:00	A profile of textbook authors in upper-level undergraduate Physics at Brazilian universities (STE21_23) <u>M Mendes</u> (McGill University, Canada), T Tajmel
14:20	Othering and social power relations in Canadian and Brazilian science textbooks (STE21_26) <u>T Zanon</u> (Concordia University Montreal, Canada), T Tajmel
14:40	Students' awareness, perceived ability, value, and commitment to science and mathematics: A perspective from high school students in Brazil (STE21_29) <u>A Leonidas de Oliveira</u> , <u>A Macalalag Jr</u> (Arcadia University, Pennsylvania, USA), MC Toledo, M Santos, Z Minken, C Varma
15:00	Open discovery of mechanical engineering labs for active learning (STE21_55) <u>D Persano Adorno</u> (University of Palermo, Italy), F Scardulla, L D'Acquisto, N Pizzolato
15:20	Supporting social justice in science education: Ensuring equal access to quality standards-aligned education through a networked improvement community (STE21_35) <u>FP Nelson</u> (California State University, USA), G Kerstiens, M Sinapuelas, C Lardy
15:40	Pedagogical insights emerging from Egyptian STEM teacher education professional development: An international collaborative self study (STE21_36) <u>FP Nelson</u> , K Dean, A Macalalag, <u>E Walter</u> (California State University, USA), R DiDio
16:00-16:20	COFFEE BREAK (Room under the Auditorium) Session 8 – Diversity and inclusiveness III / Assessment (Chair: EAS Marques and A Azevedo) Room B032
16:20	Closing the gap: A Department of Defense (DoD) conference on re-entry for women veterans into cybersecurity careers (STE21_53) <u>R Heller</u> , <u>C Toregas</u> (George Washington University, Washington DC, USA)
16:40	Supporting students' science content knowledge through project-based inquiry (PBI) global within a rural/urban school context in the United States (STE21_61) <u>HA Spires</u> (North Carolina State University, USA), E Krupa, M Himes
17:00	The motivation of international mobility of Iranian students in Portugal: Challenges and limitations in academia (STE21_12) <u>A Akhavan-Safar</u> (INEGI, Portugal), AJ Najafabadi, S Borhanizad, AQ Barbosa, LFM da Silva
17:20	Assessing the research and teaching performance of the mechanical engineering teaching staff at FEUP (STE21_31) <u>AM Lopes</u> (University of Porto, Portugal), LFM da Silva
17:40	Learning style and beliefs on intelligence as predictors of university students' academic performance (STE21_45) <u>AJ Najafabadi</u> , H Imani, <u>R Beygi</u> (INEGI, Portugal), AM Lopes, LFM da Silva
20:00	STE 2021 BANQUET (Restaurant Dona Maria – The Lodge Hotel)