PROGRAMME

STE2021

2ND INTERNATIONAL CONFERENCE ON SCIENCE AND TECHNOLOGY EDUCATION

7-8 October 2021
FEUP, Porto - Portugal

fe.up.pt/ste2021

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

U.PORTO
FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

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)** AT Marques (University of Porto, Portugal)
9:40	Design thinking and self-directed learning in pre-service science and technology teachers **(STE21_24)** S Avsec (University of Ljubljana, Slovenia), V Ferk Savec
10:00	Evolution of STEM teachers' pedagogical content knowledge through socioscientific issues **(STE21_40)** Z Minken, AZ Macalalag Jr (Arcadia University, Pennsylvania, USA),
10:20	The epistemology of the skill **(STE21_49)** ET Kallio (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)** RD Adams (University of Bristol, UK)
11:20	Virtual platform to support teaching and understanding of materials science and engineering **(STE21_14)** F Castro Sousa (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)** RJC Carbas (INEGI, Portugal), EAS Marques, LFM da Silva
12:00	JointDesigner, a tool for learning and doing **(STE21_33)** EAS Marques (INEGI, Portugal), RJC Carbas, LFM da Silva
12:20	ROB-E – Swarm robotics for education in circular economy **(STE21_9)** M Schranz (Lakeside Labs, Austria), P Amann, R Egger, S Schifrer
12:40	Enabling grounded action by drawing on learning analytics: A case study **(STE21_11)** V Gynnild (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	Assembly guidance system for mold parts based on deep learning **(STE21_44)** XD Pan (Harbin Institute of Technology, China), ZS Wang, LJ Liang, JF Lv, B Peng, H Huo, QH Han
14:20	MATLAB educational tool for teaching Rayleigh random variable **(STE21_19)** GJ Dolecek (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)** A Moreno (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)** MA Amer (Escola Universitària Salesiana de Sarrià, Spain), C Luque-Corredera, E Bartolomé
15:20	Gamification of open inquiry-based learning of blockchain technologies **(STE21_28)** D Çulha (ASELSAN, Turkey)
15:40	Experiential in class discovery to nourish the use of cognitive strategies for constructivist learning in engineering **(STE21_60)** LE Bernold (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)** LB Birney (Pace University New York City, USA)
16:40	Teaching ceramic materials in mechanical engineering: A project based learning experience **(STE21_34)** J Lino Alves (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)** A Marinelli (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, AP Vassilopoulos (Ecole Polytechnique Fédérale de Lausanne, Switzerland)
17:40	A gamified mobile application for Introductory Programming courses **(STE21_48)** A Ferreira, A Coelho (University of Porto, Portugal)
18:00	Maintenance of buildings supported on Building Information Model methodology and programing with Dynamo programing **(STE21_52)** I Domingos, AZ Sampaio (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, PC Marques (Universidade Lusófona, Portugal), R Vidal
Poster 2	Integrated physics learning using an interdisciplinary inquiry learning space **(STE21_25)**	JR Nogueira, PC Marques (Lusófona University, Portugal), C Guerra
Poster 3	The evaluation of augmented reality applications in European primary schools **(STE21_27)**	J Tiede (University of Würzburg, Germany), S Grafe, E Mangina
Poster 4	Learning object metadata and discoverability of STEM educational resources **(STE21_64)**	E Mangina, G Psyrra (University College Dublin, Ireland)
Poster 5	How to teach the concepts of "Information Retrieval" using shell commands **(STE21_65)**	A Schmidt (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)**	TP Duarte (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)**	D Persano Adorno (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, A Akhavan-Safar (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, R Beygi (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)** A Azevedo (INESC TEC, Portugal), AP Guedes
9:20	Educational requirements for the aviation and automotive engineering **(STE21_18)** M Huhtala (University of Turku, Finland)
9:40	Teaching adhesive bonding in mechanical engineering courses **(STE21_15)** AQ Barbosa (INEGI, Portugal), EAS Marques, LFM da Silva

10:00	Innovative development of student skills in raw materials engineering programmes **(STE21_39)** JA Ramírez Masferrer (Technical University of Madrid, Spain), J Herrera Herbert, P Kindelan Echevarría
10:20	Relationship between teacher-student relationship, motivation, interest, and achievement in science: A multilevel mediation model **(STE21_41)** C Wang (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)** CSP Borges (INEGI, Portugal), AQ Barbosa, TP Duarte, HS Lopes, AJ Najafabadi, LFM da Silva
11:20	Teacher grade students attitudes towards STE activities **(STE21_8)** A Lasa (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)** PA González-Atutxa (Mondragon University, Spain), N Lopez-Salas, N Elortegi, I Garcia, U Carmona, H Iribas
12:00	The motivation of international mobility of Iranian students in Portugal: Challenges and limitations in academia **(STE21_12)** A Akhavan-Safar (INEGI, Portugal), AJ Najafabadi, S Borhanizad, AQ Barbosa, LFM da Silva
12:20	The missing piece to a memorable university path – The mechanical engineering students branch contribution **(STE21_58)** S Paraty (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)** I Rizos, N Gkrekas (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)** M Mendes (McGill University, Canada), T Tajmel
14:20	Othering and social power relations in Canadian and Brazilian science textbooks **(STE21_26)** T Zanon (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)** A Leonidas de Oliveira, A Macalalag Jr (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)** D Persano Adorno (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)** FP Nelson (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)** FP Nelson, K Dean, A Macalalog, E Walter (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)** R Heller (George Washington University, Washington DC, USA), C Toregas
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)** HA Spires (North Carolina State University, USA), E Krupa, M Himes
17:00	Study of the performance of first year Master's Students in Civil Engineering **(STE21_63)** IM Ribeiro, FCampos de Sousa, N Ramos (University of Porto, Portugal)
17:20	Assessing the research and teaching performance of the mechanical engineering teaching staff at FEUP **(STE21_31)** AM Lopes (University of Porto, Portugal), LFM da Silva
17:40	Learning style and beliefs on intelligence as predictors of university students' academic performance **(STE21_45)** AJ Najafabadi, H Imani, R Beygi (INEGI, Portugal), AM Lopes, LFM da Silva
20:00	**STE 2021 BANQUET (Porto caves)**