

# EDULEARN<sup>23</sup>

**15TH INTERNATIONAL CONFERENCE  
ON EDUCATION AND NEW LEARNING  
TECHNOLOGIES**

**PALMA (SPAIN)  
3RD-5TH OF JULY, 2023**



## CONFERENCE PROCEEDINGS



# **EDULEARN<sub>23</sub>**

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**CONFERENCE  
PROCEEDINGS**

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**Edited by**

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## **Preface**

Welcome to the conference proceedings of EDULEARN23. This compilation of papers and research findings were written by a diverse array of education experts and scholars who participated in the 15th EDULEARN conference, held in Palma, Spain from the 3rd to the 5th of July 2023. The conference brought together academics and researchers from the field of education to exchange knowledge, inspire new ideas and share their insights.

The theme of EDULEARN23 covers the fields of education and educational research. EDULEARN23 provided different keynote speeches, parallel thematic sessions, networking activities, workshops, and interactive sessions. The extensive number of international experts who attended the conference allowed attendees to network and share innovative ideas, promoting cross-country collaboration. The keynote speeches are available at IATED Talks ([iated.org/talks/](https://iated.org/talks/)).

The EDULEARN23 Proceedings, which are exclusively in English, include the accepted contributions presented at the EDULEARN Conference, which will be included in the IATED Digital Library ([library.iated.org](https://library.iated.org)). They represent the collective efforts of the authors to advance knowledge in their field. The EDULEARN23 International Program Committee is composed of lecturers and researchers from many different countries. A blind peer review process was followed in order to guarantee the quality and relevance of the final publication. During this process, the following points were evaluated: information content, relevance to the educational field, general structure, clarity of contents, originality, and relation to the conference topics and disciplines.

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We extend our sincere gratitude to all the authors who submitted their valuable work to these EDULEARN23 Proceedings. We also wish to express our gratitude to all participants and attendees for their engagement, dedication, and passion for education.

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## EDULEARN23 Keynote Speakers

### Keynote Speakers

Ashok K. Goel – *Georgia Institute of Technology, United States*

Donald Clark – *Wildfire, United Kingdom*

### Ashok K. Goel – Georgia Institute of Technology (USA)



*Keynote speech:  
Teaching and Learning in the Age of AI*

Millions of adults of various ages need reskilling and upskilling in our technological society. These millions of adult learners offer a new, large, and diverse challenge to education. Given that many adult learners cannot leave their jobs or families, online education offers a medium for reaching them where they live and work. Online education also provides access to unprecedented amount of data on learners and learning. Our vision at the National AI Institute for Adult Learning and Online Education (AI-ALOE) is to develop novel AI cognitive assistants that work with this data to enhance the quality of adult online learning through personalization of learning. Successful realization of this vision requires progress on understanding the motivations, needs, and capacities of adult learners, participatory design of AI cognitive assistants, human-AI collaboration, large-scale learning analytics, and an infrastructure for deploying the AI cognitive assistants, collecting and analyzing the data on learning, and feeding the results to the cognitive assistants, teachers, and learners alike. I will describe the research program at AI-ALOE in some detail.

#### *Biography:*

Ashok K. Goel is a Professor of Computer Science and Human-Centered Computing in the School of Interactive Computing at Georgia Institute of Technology, and the Chief Scientist with Georgia Tech's Center for 21st Century Universities. For more than thirty-five years, he has conducted research into cognitive systems at the intersection of artificial intelligence and cognitive science with a focus on computational design and creativity. For the last decade or so, much of his research has focused on AI in education and education in AI. He is a Fellow of AAAI and the Cognitive Science Society, an editor emeritus of AAAI's AI Magazine, and a recipient of AAAI's Outstanding AI Educator Award. Ashok is the Executive Director of the recently established National AI Institute for Adult Learning and Online Education.

## Donald Clark – Wildfire (UK)



*Keynote speech:  
AI changes everything!*

Generative AI will change the way we work, therefore what, why and how we learn. Its profound impact on both work and learning will be presented showing that the consequences are both profound and unexpected. The role of the teacher and upskilling will also be explored.

### *Biography:*

Donald Clark is a Learning Tech Entrepreneur, CEO, Researcher, Blogger and Speaker. He was CEO and one of the original founders of Epic Group plc, which established itself as the leading company in the UK online learning market, floated on the Stock Market in 1996 and sold in 2005. He has been involved at all levels of investment – angel, VC, growth, PE and IPO. As well as being the CEO of Wildfire an AI learning company, he also invests in, and advises, EdTech companies.

An investor and board member of learning companies Cogbooks (sold in 2021 to Cambridge University) and Learning Pool (sold 2021 for \$200 million), he was also on the Boards of City & Guilds, Learn Direct, University for Industry and the Brighton Dome and Festival. Wildfire delivers AI products and consultancy. He has published 3 books, the first on AI, second on Design for technology and the third, published next month on Learning Technology. His fourth book on Learning in the Metaverse has just been commissioned.

Donald has over 37 years' experience in online learning, video, games, simulations, adaptive, chatbot, social media, mobile learning, virtual reality and AI projects. He has designed, delivered and advised on online learning for many global, public and private organisations. An evangelist for the use of technology in learning, he has won many awards, including the first 'Outstanding Achievement in E-learning Award' and 'Best AIM Stock Market Company', 'Most Innovative Online Product', 'Best Online Learning Project and 'JISC EdTech Award'.

An award winning speaker at national and international conferences, he has delivered keynotes in the UK, Europe, US, Africa, Australia, Middle and Far East.

..... also a regular blogger (15 years+) on learning technology.

## Conference Tracks & Sessions

The EDULEARN23 conference program is available online at <https://iased.org/edulearn23>

### ORAL SESSIONS MONDAY

Technology-enhanced Learning  
Computational Thinking Skills for the Digital Age  
Soft Skills & Socio-Emotional Learning  
Adapting Education in the Post-Pandemic Era  
Programming and Computer Science Education  
Experiences in Primary & Secondary Education  
Experiences in Tourism Education  
Technology-Enhanced Mathematics Education  
Virtual Reality in Education  
Creativity & Critical Thinking  
Assessment and Evaluation Strategies (1)  
Impact of COVID-19 on Education  
Integrating Robotics and Programming in Educational Settings  
STEM Education in Schools (1)  
Technology-enhanced Language Learning  
Teaching STEM Subjects  
Generative AI for Innovative Teaching and Learning  
Game-Based Learning  
e-Assessment  
Innovative Tools for Learning  
Experiences in Engineering Education  
Inclusive Education  
Language Teaching and Learning  
Experiences and Innovations in Mathematics Education (1)  
AI in Education  
Project and Problem Based Learning  
Assessment and Evaluation Strategies (2)  
Videos for Learning  
Digital and Media Literacy  
Supporting Special Education  
English for Special Purposes & English as a Medium of Instruction  
Experiences and Innovations in Mathematics Education (2)

### POSTER SESSIONS MONDAY

Pedagogical Innovations and Trends in Education  
Emerging Technologies in Education

### ORAL SESSIONS TUESDAY

Social Media & Digital Skills  
Plagiarism and Academic Dishonesty  
e-Portfolios & Reflective Assessment  
Experiences in Higher and Further Education  
Professional Development of Teachers (1)  
Student and Teacher Wellbeing  
Experiences in Business Education  
Service Learning & Community Engagement  
Integrating Virtual Reality in Education  
Learning Analytics (1)

International Projects & Mobility Experiences  
Workplace & Lifelong Learning  
Professional Development of Teachers (2)  
Student Support  
Experiences in Health Sciences Education  
Education for Sustainability (2)  
Virtual & Augmented Reality  
Learning Analytics (2)  
Active and Experiential Learning  
Internships and Work-integrated Learning  
ICT Skills among Teachers  
Educational Management (1)  
New Technologies in Health Sciences Education  
STEM Education in Schools (2)  
m-Learning  
e-Learning Experiences  
Gamification and Game-Inspired Learning  
Personalized and Self-Regulated Learning  
Teacher Training  
Educational Management (2)  
English as a Foreign Language  
Innovations in STEM Education  
Chatbots & AI in Education  
From Face-to-Face to Remote Learning  
Blended & Hybrid Learning  
Entrepreneurship Education  
Pedagogical Innovations  
University-Industry Cooperation  
Education for Sustainability (1)  
Professional Development of STEM Teachers

## **POSTER SESSIONS TUESDAY**

Experiences in Education  
New Challenges in Education and Research

## **VIRTUAL SESSIONS**

### **DIGITAL TRANSFORMATION OF EDUCATION**

Data Science & AI in Education  
Learning Analytics & Educational Data Mining  
Digital Transformation  
Digital and Media Literacy  
Educational Programming & Robotics  
Computer Games and Educational Software

### **INNOVATIVE EDUCATIONAL TECHNOLOGIES**

AI, Chatbots & Robots  
Virtual & Augmented Reality  
Social Media in Education  
Technology Enhanced Learning  
Videos for Learning  
Simulation & 3D Technologies

### **DIGITAL & DISTANCE LEARNING**

Distance Education in COVID-19 Times  
Challenges and Practices during the Pandemic and Beyond  
Blended & Mobile Learning  
Open Educational Resources  
Learning Management Systems & Virtual Learning Environments

**ACTIVE & STUDENT-CENTERED LEARNING**

Gamification & Game-based Learning  
Experiential & Cooperative Learning  
Problem & Project-Based Learning  
Flipped & Hybrid Learning  
Pedagogical Innovations  
Creativity & Critical Thinking

**ASSESSMENT, MENTORING & STUDENT SUPPORT**

Assessment & Evaluation  
Mentoring & Tutoring  
Student Support & Motivation  
Developing Soft and Transversal Skills

**TEACHER TRAINING & ED. MANAGEMENT**

ICT & Digital Skills  
Professional Development of Teachers  
Educational Management

**QUALITY & IMPACT OF EDUCATION**

Quality in Education  
Experiences and Challenges in Curriculum Design  
Sustainability & Social Impact of Education  
Links between Education and Research  
University-Industry Collaboration  
Mobility & International Projects

**EDUCATIONAL STAGES & LIFE-LONG LEARNING**

Early Childhood & Primary Education  
Vocational Education  
Transition to the Job Market & Entrepreneurship  
Life-Long & Workplace Learning

**MULTICULTURALITY & INCLUSION**

Multicultural Education  
Diversity Issues  
Special Educational Needs  
Inclusive Education

**DISCIPLINE-ORIENTED SESSIONS**

Architecture & Interior Design Education  
Health Sciences Education  
Computer Science Education  
Business & Tourism Education

**LANGUAGE LEARNING AND TEACHING**

Foreign Languages  
Language Learning & Translation Studies  
New Technologies in Language Learning

**STEM EDUCATION**

Mathematics & Statistics  
Engineering Education  
STEM Experiences

## Table of Contents

<b>ANXIETY DISORDER IN STUDENTS WITH DYSCALCULIA</b> <i>M.I. Garcia-Planas, M.V. García-Camba Vives</i>	1
<b>KEY COMPETENCES OF A SECONDARY VOCATIONAL SCHOOL GRADUATE</b> <i>I. Szókö, B. Pupalá, O. Kováč</i>	7
<b>DIGITAL LITERACY AND ARTIFICIAL INTELLIGENCE – DOES CHAT GPT INTRODUCE THE END OF CRITICAL THINKING IN HIGHER EDUCATION?</b> <i>N. Weimann-Sandig</i>	16
<b>CELEBRATING DIVERSITY AND CREATING COMMUNITY: GRAPHIC DESIGN WEEK</b> <i>L. Frear</i>	22
<b>PERCEIVED DISCRIMINATION IN MIGRANT SCHOOLCHILDREN IN NORTHERN CHILE</b> <i>A. Caqueo-Urizar, J. Flores, M. Irarrázaval, N. Loo, J. Páez, G. Sepúlveda</i>	23
<b>INTEGRATING BLENDED LEARNING IN A LAW CURRICULUM</b> <i>S. Menis</i>	24
<b>EMPOWERING STUDENT INNOVATION FOR CONTINUOUS IMPROVEMENT AT TRANSILVANIA UNIVERSITY OF BRASOV</b> <i>D. Munteanu, A. Nechifor</i>	29
<b>TEACHERS' PERSPECTIVES REGARDING THE UTILIZATION OF MULTIMEDIA DEVICES IN TEACHING AND LEARNING OF ECONOMICS IN NIGERIAN SECONDARY SCHOOLS</b> <i>J. Ejimonye, C. Ugwuanyi</i>	39
<b>EXTENT OF ACCESS TO AND UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY FACILITIES IN TEACHING AND LEARNING OF ECONOMICS IN SECONDARY SCHOOLS IN NIGERIA</b> <i>J. Ejimonye, C. Ugwuanyi</i>	46
<b>THE DIGITAL DIVIDE: TEACHING BEYOND THE SCREEN</b> <i>M. Sanesi</i>	52
<b>ANALYSIS OF PAST AND PRESENT STUDENT'S PERCEPTIONS WHO RECEIVED POSITIVE INTELLIGENCE TRAINING VIA MECH 500 RESEARCH METHOD AND TECHNICAL COMMUNICATION COURSE FROM 2018-2022 AT THE UNIVERSITY OF THE DISTRICT OF COLUMBIA</b> <i>P. Tyagi, O. Wilson</i>	59
<b>HOW HAVING KNOWLEDGE OF POSITIVE INTELLIGENCE CAN HELP STUDENTS REACH THEIR FULL POTENTIAL: A STUDENT - ATHLETE PERSPECTIVE AT THE UNIVERSITY OF THE DISTRICT OF COLUMBIA</b> <i>P. Tyagi, J. Alberti-Medrano</i>	65
<b>VIRTUAL WELLBEING CAFE - INNOVATIVE PRACTICE SUPPORTING STUDENT WELL BEING DURING THE PANDEMIC AND BEYOND</b> <i>A. Khan, R. Gurbutt</i>	66
<b>EXPERIENCE IN TEACHING PHD STUDENTS HOW TO DO RESEARCH</b> <i>F. Milano</i>	71
<b>"THIS WAS AN ADVENTURE!" – DEVELOPING INTERCULTURAL COMPETENCE WITH FOREIGN LANGUAGE LEARNERS AT THE UNIVERSITY THROUGH COLLABORATIVE PROJECT WORK</b> <i>A. Fidalgo das Neves</i>	80
<b>USING AUDIO DIARIES TO REFLECT ON EMERGING SUBJECT KNOWLEDGE</b> <i>P. Atherton</i>	89
<b>EDPUZZLE: ONLINE VIDEO FOR LEARNING - QUESTIONING AND ONLINE ASSESSMENT</b> <i>P. Atherton</i>	90
<b>VARIATION OF STUDENTS' APPROACH TO LEARNING IN TWO DIFFERENT SUBJECTS IN THE SAME YEAR</b> <i>M. Leiva-Brondo, N. Lajara-Camilleri</i>	91
<b>OUTCOMES FROM AN EXPERIENCE OF GAMIFICATION IN HIGHER EDUCATION</b> <i>N. Lajara-Camilleri, M. Leiva-Brondo, E. Meliá-Martí</i>	98
<b>DIAGNOSTIC MODEL FOR EVALUATING KEY COMPETENCIES - A FOCUS ON MATHEMATICS AND MEDICINE WITH AN EMPHASIS ON "SIMILARITIES"</b> <i>G. Nikolova, D. Vankova</i>	103

<b>USING EDUCATIONAL NETWORKS TO PROMOTE INTERNATIONALIZATION EXPERIENCES IN PHYSIOTHERAPY EDUCATION</b>	109
<i>A. Alves Lopes, A. Prado, A. Pereira, C. Leão, E. Martins, F. Valente, F. Mazzoli-Rocha, G. Pacheco, J. Luís Sousa, M. Pedro, S. Gagulic</i>	
<b>AWARDING GAPS AND ASSESSMENT METHODS: AN ANALYSIS OF QUEEN MARY UNIVERSITY OF LONDON</b>	115
<i>O. Popoola, D. Tavasci, L. Ventimiglia</i>	
<b>EDUCATIONAL INNOVATION EXPERIENCE WITH ARCHITECTURE DEGREE STUDENTS, THROUGH A WORK BASED ON PARTICIPATION IN AN INTERNATIONAL CONTEST</b>	124
<i>M.D. Palacios Diaz</i>	
<b>PREDICT: JOBS OF THE FUTURE WITH AI 4 VET INCLUSION</b>	128
<i>M. Potes Barbas, A. Teles Vieira, P. Duarte Branco</i>	
<b>EDUCATIONAL MATRIX FOR ATTAINING PROFESSIONAL AND KEY COMPETENCIES IN THE FIELD OF INTEGRATIVE MEDICINE</b>	134
<i>D. Vankova</i>	
<b>DISTANCE LEARNING: JOB SATISFACTION AND WELL-BEING OF HIGH SCHOOL TEACHERS</b>	141
<i>N. Grigutyte, G.S. Kremensaite</i>	
<b>PRACTITIONERS' PERSPECTIVES ON THE CHALLENGES ENCOUNTERED IN MAINTAINING MOBILE EARLY CHILDHOOD CARE AND EDUCATION CENTRES</b>	142
<i>C. Ugwuanyi, C. Okeke, C. Okeke</i>	
<b>PERSPECTIVES OF EARLY CHILDHOOD EDUCATORS REGARDING PARENTAL INVOLVEMENT IN MOBILE EARLY CHILDHOOD CARE AND EDUCATION ACTIVITIES</b>	147
<i>C. Okeke, C. Okeke, C. Ugwuanyi</i>	
<b>IMPROVING ON DESIGN THINKING TO HELP SOLVE ENVIRONMENTAL PROBLEMS</b>	153
<i>M. Léger, D. Pruneau, A. Khattabi, A. Laroche, V. Freiman, L. Dionne, N. Louis, V. Richard</i>	
<b>THE TRIP AS AN EXTENSION OF THE LEARNING OF ARCHITECTURE</b>	154
<i>M.D. Palacios Diaz</i>	
<b>ENHANCING THE ACCEPTANCE OF TECHNOLOGY INTEGRATION USING INTERACTIVE VIDEOS IN HIGHER EDUCATION</b>	155
<i>J. West, E. Swanepoel</i>	
<b>LEARNING ELECTROSTATIC THROUGH HANDS-ON LABORATORY EXPERIMENTS: CONCEPTUAL CONFLICT APPROACH</b>	156
<i>A. Métioui</i>	
<b>SCIENCE GRADUATE STUDENTS' ATTITUDES ON SCIENCE CONCEPTUAL DEVELOPMENT THROUGH HISTORY</b>	163
<i>A. Métioui</i>	
<b>SURVEYING AND INVESTIGATION OF REMOTE LABORATORY CONCEPTS, TECHNOLOGIES, AND PLATFORMS FOR STEM PROGRAMS</b>	170
<i>F. Yildiz, U. Dakeev, R. Pecen</i>	
<b>INTEGRATING IMMERSIVE TECHNOLOGIES INTO CLINICAL SCIENCES CURRICULUM TO IMPROVE LEARNING AND THERAPEUTIC OUTCOMES</b>	171
<i>R. Kalunga, F. Elshobokshy</i>	
<b>21ST CENTURY SKILLS AND PARENTAL EXPECTATIONS IN LATVIAN PRIMARY SCHOOLS</b>	175
<i>I. Barone</i>	
<b>GENUINE READABILITY LEVEL OF ALLEGED ENGLISH CEFR B2 WRITTEN TEXTS AIMED FOR SECOND LANGUAGE LEARNING</b>	182
<i>S. Rubesova</i>	
<b>DESIGNING A FOREIGN LANGUAGE COURSE IN THE LEARNING MANAGEMENT SYSTEM MOODLE</b>	189
<i>N. Antonenko</i>	
<b>ONLINE TESTS WITH R/EXAMS: A FUNDAMENTAL TOOL FOR STEM (SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS) TEACHERS</b>	196
<i>M.C. Miranda, A. Zeileis</i>	
<b>EDUCATION, LANGUAGE AND INTERNATIONALISATION: AN ONLINE COMMUNITY OF PRACTICE</b>	202
<i>N. Galloway</i>	



<b>“MYTHS AND LEGENDS” ABOUT AUTISM SPECTRUM DISORDER</b>	203
<i>M. de-la-Iglesia, J.S. Olivar</i>	
<b>EASY-TO-LEARN CARD GAME TO TEACH PROCESSES OF ENVIRONMENTAL TECHNOLOGY, INCLUDING SOIL FLUSHING/WASHING, REMOVAL OF PARTICLES, AND SELECTIVE CATALYTIC REDUCTION</b>	209
<i>R.J. Aguado, Q. Tarrés, J.L. Sánchez-Salvador, G.A. Bastida, M. Delgado-Aguilar</i>	
<b>GAMIFICATION IN EDUCATION: THE CASE STUDY OF THE USE OF IDEACHEF AS A LEARNING STRATEGY IN THE HOSPITALITY MASTER'S DEGREE</b>	215
<i>A.E. Sousa, S. Pais, A.S. Viana</i>	
<b>DISRUPTING STEM EDUCATION: THE GAME-CHANGING IMPACT OF CHATGPT AND CHATGPT CODEX</b>	220
<i>K. Quibeldey-Cirkel</i>	
<b>WOMEN WITH AUTISM SPECTRUM DISORDER AND REFERENTIAL COMMUNICATION: A CASE STUDY-BASED APPROACH</b>	229
<i>M. de-la-Iglesia, J.S. Olivar</i>	
<b>DEVELOPING INTERACTIVE LANGUAGE AND GRAMMAR LESSONS USING STREAM, MS FORMS, SWAY AND PODCASTS</b>	236
<i>P. Koayess, J. Althawahrih, M. Massara</i>	
<b>EMPOWERING TEACHERS, STUDENTS AND RURAL SCHOOLS IN LEARNING STEM DISCIPLINES THROUGH THE USE OF REMOTE LABS: THE R3 PROJECT EXPERIENCE</b>	237
<i>U. Hernandez Jayo, J. Garcia Zubia, V. Canivell</i>	
<b>CONSTITUTING COMMUNITY: A HEURISTIC EXAMINATION OF TOOLS AND OPPORTUNITIES FOR DEEPENING CONNECTIVITY AND ENGAGEMENT FOR ASYNCHRONOUS DOCTORAL STUDENTS</b>	245
<i>S. Melideo</i>	
<b>SUPPLEMENTARY VR TOOL FOR STUDENT ENGAGEMENT</b>	246
<i>U. Dakeev, F. Yildiz, R. Pecen</i>	
<b>FAMILY ENVIRONMENTS AND ANDRAGOGICAL STRATEGIES FOR ENHANCING MEANINGFUL LEARNING IN UNIVERSITY STUDENTS</b>	247
<i>T. Paredes, A. Espín, S. Torres, V. Valencia</i>	
<b>ART MUSEUMS DISTANT ACTIVITIES IN THE COVID-19 TIME</b>	253
<i>E. Polyudova</i>	
<b>CHATBOTS ON MS TEAMS: A REVIEW OF THEIR CREATION AND USE IN A TERTIARY EDUCATION SETTING</b>	254
<i>A. Forrester</i>	
<b>ATTITUDES TO TECHNOLOGIES IN HEALTHCARE TRAINING BEFORE AND AFTER THE PANDEMIC AT MEDICAL UNIVERSITY – PLOVDIV, BULGARIA</b>	255
<i>A. Kirkova-Bogdanova, D. Taneva, M. Vakrilova Becheva</i>	
<b>‘GETTING THE BALANCE RIGHT’: RECONCEPTUALISING EFFECTIVE ONLINE WORK-INTEGRATED LEARNING</b>	259
<i>C. Winberg</i>	
<b>TOWARDS A NEW NORMAL: THE EVOLUTION OF AN UNDERGRADUATE ENGINEERING COURSE</b>	266
<i>S. Winberg</i>	
<b>ANALYZING LEARNING EFFECTIVENESS AND SENSE OF FLOW FROM A VIRTUAL EDUCATIONAL ESCAPE ROOM IN BIOMIMICRY</b>	273
<i>V. Yeflach-Wishkerman</i>	
<b>VALUE ADDED? – ANALYSING PRE-SERVICE LANGUAGES TEACHERS’ APPLICATION OF PEDAGOGICAL FRAMEWORKS TO THEIR DESIGNS OF E-RESOURCES FOR LANGUAGES CLASSROOMS</b>	274
<i>L. Morgan</i>	
<b>GAME-BASED PEDAGOGICAL APPROACH TO IMPROVE LEARNING IN MATHEMATICS</b>	279
<i>A. Lertxundi-Artetxe, P. Sarriugarte-Onandia, A. Picallo-Perez</i>	
<b>NEW YORK CITY AND PARIS COLLEGE STUDENTS PARTNER TO SOLVE PROBLEMS OF SUSTAINABILITY COLLABORATIVELY THROUGH A GLOBAL ONLINE LEARNING EXCHANGE PROGRAM</b>	280
<i>M. Dono-Koulouris</i>	
<b>THE PROBLEMS AND EXPECTATIONS OF THE STUDENTS GETTING INFORMAL RELIGIOUS EDUCATION FOR THE HEARING AND VISUALLY IMPAIRED PEOPLE (CASE OF ISTANBUL)</b>	289
<i>B. Gürer, E. Kaya</i>	

<b>SUSTAINABILITY OF INDEPENDENT CAMPUS POLICY IN INDONESIA: IS HIGHER EDUCATION MORE EFFICIENT AND EFFECTIVE?</b>	293
<i>F.V. Arie, A. Nagy</i>	
<b>CREATING A SENSE OF BELONGING THROUGH A COMMUNITY OF PRACTICE</b>	301
<i>L. Ludwig</i>	
<b>DECISION-MAKING PROCESS OF SECONDARY VOCATIONAL SCHOOL GRADUATES WHEN CHOOSING COLLEGE</b>	302
<i>C. Serafin</i>	
<b>THE CHEAT-PROOF CALCULUS TEST</b>	312
<i>L. Ludwig</i>	
<b>THE EFFECT OF SEX ON EMERGENCE OF WRITTEN LANGUAGE IN PRESCHOOL CHILDREN EXPOSED TO TWO LEARNING MODELS</b>	313
<i>K. Marinova, C. Dumais, A. Niyubahwe, R. Nolin</i>	
<b>THE VALUE OF HIGHER EDUCATION PERCEIVED BY EMPLOYERS: LATVIAN SURVEY RESULTS</b>	319
<i>I. Mietule, M. Lescevic, S. Lems, Z. Gusta, V. Melbarde, I. Kotane</i>	
<b>TEACHING ENGLISH BY GAMES FOR INCLUSIVE LEARNERS</b>	325
<i>N. Dvalidze</i>	
<b>THE IMPACT OF GLOBALIZATION ON THE GREEK EDUCATIONAL SYSTEM</b>	331
<i>K. Papaioannou</i>	
<b>THE SPANISH EDUCATIONAL SYSTEM AND THE TEACHING OF HISTORY. THE IMPACT OF HISTORY COURSE ON THE CONFIGURATION OF NATIONAL IDENTITY</b>	336
<i>K. Papaioannou</i>	
<b>LESSON PLANNING BASED ON FINDINGS FROM THE PSYCHOLOGY OF LEARNING</b>	340
<i>B. Greimel-Fuhrmann, R. Fortmüller</i>	
<b>EXPERIENCE SHARING OF USING INQUIRY BASED LEARNING TO TEACH A STATISTICS COURSE TO SENIOR MECHANICAL ENGINEERING STUDENTS</b>	346
<i>A.S. Mohammed</i>	
<b>CONCEPTUALISING THE RELATIONSHIP BETWEEN STUDENT ENGAGEMENT AND MOTIVATION: TEACHER REPORTS FROM THE ORRSEM PROJECT</b>	356
<i>K. Skilling</i>	
<b>NON-TRADITIONAL STUDENTS IN HIGHER EDUCATION. CHALLENGES FOR THE TERTIARY LIFELONG PROGRAMS DURING COVID-19</b>	363
<i>M.E. Samoila</i>	
<b>GAMIFYING THE STUDENT LEARNING PROCESS: ENHANCING COLLABORATIVE EXPERIENCES WITHIN A CONNECTIVIST LEARNING ENVIRONMENT</b>	372
<i>M. Neo, Z. Ismat</i>	
<b>ENHANCING STUDENT LEARNING OUTCOMES THROUGH COMMUNITY-BASED PROBLEM SOLVING AND CRITICAL THINKING GAME-BASED PRACTICES</b>	379
<i>Z. Ismat, M. Neo</i>	
<b>PROJECT-BASED LEARNING WITHIN A TECHNOLOGY-BACKED AUTHENTIC LEARNING ENVIRONMENT: ITS EFFECT ON STUDENT LEARNING EXPERIENCES</b>	386
<i>M. Neo, M.G.R. Pandin, Y.Y. Tan, P.H. Siew, S.N. Kew</i>	
<b>LEVERAGING AUGMENTED REALITY FOR ENHANCED STUDENT ENGAGEMENT &amp; COLLABORATION IN AN EXPERIENTIAL LEARNING CLASSROOM</b>	392
<i>N. Mahendru, M. Neo</i>	
<b>BLENDED LEARNING APPROACHES IN THE 21ST CENTURY CLASSROOMS: ITS IMPACT ON THE STUDENT, TEACHER AND TECHNOLOGY</b>	399
<i>M. Neo, A.R. Adriyanto, A.N. Fadilla, B. Prabawa, W. Swasty</i>	
<b>DESIGNING MICROLEARNING ENVIRONMENTS TO ENHANCE STUDENTS' MOTIVATION AND RETENTION LEVELS IN THE CLASSROOM: MALAYSIAN STUDENTS' PERSPECTIVE</b>	405
<i>M. Neo, N. Ludin</i>	
<b>PRESS START TO BEGIN. BENEFITS AND ISSUES OF GAMIFICATION</b>	412
<i>M. Sanesi</i>	
<b>EFFECT OF COLLABORATIVE LEARNING INSTRUCTIONAL STRATEGY ON SOCIAL SKILL DEVELOPMENT OF PRIMARY SCHOOL PUPILS</b>	419
<i>C. Okeke, T. Akobi</i>	
<b>EFFECT OF EDUTAINMENT VIDEOS ON COGNITIVE AND SOCIAL SKILLS DEVELOPMENT OF PRESCHOOL CHILDREN</b>	426
<i>T. Akobi, C. Okeke</i>	

<b>COMMUNICATION BETWEEN TEACHERS AND PARENTS OF CHILDREN LEARNING IN ELEMENTARY SCHOOL IN A SPECIAL EDUCATION CLASS USING THE WHATSAPP APPLICATION</b>	436
<i>E. Wasserman, T. Asraf</i>	
<b>SCHOOL LEADERS AND PROFESSIONAL DIGITAL COMPETENCE FOR TEACHERS</b>	437
<i>C.E. Tømte</i>	
<b>TEACHING FRENCH LITERATURE ONLINE: CHALLENGES CAUSED BY THE MOVE FROM FACE-TO-FACE TO REMOTE LEARNING</b>	438
<i>L. Lutas</i>	
<b>DEVELOPED LECTURE VIDEOS AND PRACTICES QUESTIONS TO AID TEACHING UNDERGRADUATE PROGRAMING LANGUAGES COURSES ONLINE</b>	446
<i>H. Yu</i>	
<b>IMPROVING MOTIVATION IN STATISTICS THROUGH COMPETITION</b>	450
<i>O. Trull, N. Martínez-Alzamora, F. Sempere-Ferre, J.M. Soler-Torró</i>	
<b>THE DEBATE AS A TOOL FOR LEARNING STATISTICS: APPLICATION TO THE TEACHING OF AEROSPACE ENGINEERING</b>	457
<i>N. Martínez-Alzamora, F. Sempere-Ferre, O. Trull, J.M. Soler-Torró</i>	
<b>SOCIAL WORK EDUCATION, SOCIAL MEDIA AND ONLINE ABUSE: RESPONDING TO SERVICE LEARNERS' NEEDS AND EXPERIENCES</b>	463
<i>F. Ó Súilleabháin, O. Halvey, K. Burns, E. O'Callaghan</i>	
<b>THE EDUCATIONAL STOPLIGHT, AN EDUCATIONAL INTERVENTION PROGRAM FOCUSED ON THE COMMITMENT OF EDUCATIONAL ACTORS</b>	464
<i>L. Sanabria</i>	
<b>LEARNING ANALYTICS AS A TRANSFORMATION TOOL IN HIGHER EDUCATION OF SUB-SAHARAN AFRICA: A LITERATURE ANALYSIS</b>	471
<i>O. Ogundaini, N. Mlitwa</i>	
<b>SCHOOL BELONGING AS A PREDICTOR OF PSYCHOLOGICAL AND ACADEMIC FUNCTIONING OF SECONDARY SCHOOL STUDENTS DURING THE COVID-19 PANDEMIC</b>	479
<i>K. Hlúpíková, J. Uhláriková</i>	
<b>DESIGNING AND IMPLEMENTING A FRAMEWORK TO BUILD EFFECTIVE LEARNING-COMMUNITIES IN DISTANCE LEARNING PROGRAMMES</b>	485
<i>N. Anderson, A. McGowan, D. Cutting, L. Galway, M. Collins</i>	
<b>TOWARD A MATRIX OF COMPETENCES FOR RESPECTFUL COMMUNICATION IN THE UNIVERSITY-CIVIL SOCIETY CONTEXT</b>	486
<i>D. Robescu, S. Reiner, A. Trunk, A. Draghici</i>	
<b>INNOVATIVE PEDAGOGICAL SOLUTIONS FOR ENGINEERING EDUCATION - BEST PRACTICES FOR EDUCATION 4.0</b>	496
<i>D. Robescu, M.E. Boatca, A. Draghici, A. Mazilescu</i>	
<b>INTERDISCIPLINARY LEARNING AND AWARENESSES FOR TEACHING</b>	506
<i>S. Rodney, A. Mamolo, D. Tepylo</i>	
<b>LEADERSHIP IN EDUCATION: THE IMPACT OF LEADERSHIP ON THE SUCCESSFUL IMPLEMENTATION AND SUPPORT OF REMOTE TEACHING, LEARNING AND ASSESSMENT</b>	507
<i>J. Stoltenkamp, P. Dankers</i>	
<b>BECOMING A TEACHER THROUGH A SALARIED EMPLOYMENT-BASED ROUTE</b>	517
<i>T. Wallis</i>	
<b>JOB CONDITIONS AND EXPECTATIONS OF YOUNG GRADUATES IN COVID-19 CONTEXTS</b>	518
<i>L.N. Sousa, M.J. Sousa Pinto dos Santos</i>	
<b>WORK RISKS IN PANDEMIC TIMES</b>	526
<i>L.N. Sousa, T. Paiva</i>	
<b>USE OF NUTRITIONAL EDUCATION TO PROMOTE WELL-BEING FOR ALL PEOPLE OF ALL AGES: "NUTRIEDUCAR@PRENDIENDO" SERVICE-LEARNING PROJECT</b>	536
<i>V. Loria-Kohen, M.C. Lozano-Estevan, L.M. Bermejo, B. López-Plaza, L.G. González-Rodríguez, M.D. Salas-González, A.M. Lorenzo Mora, M. Larrosa, S. Martínez-López, R.M. Ortega Anta, A.M. López-Sobaler, A. Aparicio</i>	
<b>LEARNING ANALYTICS DASHBOARD FOR SELF-REGULATION LEARNING: STUDENTS' PERCEPTIONS OF LEARNING AND SATISFACTION</b>	544
<i>L. Martins, L. Lluch, E. Cano, E. Puertas</i>	

<b>METACOGNITIVE AWARENESS AND SELF-DIRECTED LEARNING SKILLS OF PARTICIPANTS IN ACADEMIC COMPETITIONS: A CASE STUDY WITH ROMANIAN STUDENTS IN COMPUTER SCIENCE</b>	552
<i>S. Susnea, E. Pecheanu, V. Jascanu, A. Cocu, I. Susnea</i>	
<b>CONTENT KNOWLEDGE MASTERY AND GAPS OF TECHNICAL SCIENCES TEACHERS. A CASE OF ONE EDUCATION DISTRICT IN SOUTH AFRICA</b>	558
<i>S. Sibanyoni, M.P. Rankhumise, T.M. Moagi</i>	
<b>"CHECK IT YOURSELF": AN ONLINE CROWDSOURCING-BASED APPLICATION FOR CHECKING NEWS VALIDITY EXPLOITING SOCIAL CHOICE THEORY AND INFOVIS</b>	559
<i>A. Stefanopoulos, E. Papaioannou, N. Karanikolas, G. Moisiadis, C. Kaklamanis</i>	
<b>THE APPLICATION OF TPACK IN THE METHODOLOGY OF THE FLIPPED CLASSROOM AND WITH THE EVALUATION OF THE UTAUT TO MEASURE THE IMPACT OF STEM ACTIVITIES IN IMPROVING THE UNDERSTANDING OF CONCEPTS OF APPLIED SCIENCES</b>	569
<i>A. Plageras, K. Kalovrektis, A. Xenakis, D. Vavougiou</i>	
<b>SELF-ASSESSMENT QUESTIONNAIRES FOR THE SUBJECT BIOLOGY OF THE DEGREE IN BIOCHEMISTRY AND MOLECULAR BIOLOGY ARE A USEFUL TOOL TO ASSIST STUDENTS IN THEIR LEARNING</b>	576
<i>S. I Zandalinas, V. Vives-Peris, R.M. Pérez-Clemente, A. Gómez-Cadenas, M.F. López-Climent</i>	
<b>EMBRACING TECHNOLOGY TO ENHANCE TEACHING AND LEARNING: A LOVE/HATE RELATIONSHIP IN HIGHER EDUCATION INSTITUTIONS</b>	581
<i>L. Zizka, G. Probst</i>	
<b>THE PEDAGOGY OF AN INTRODUCTORY UNIVERSITY-LEVEL MAYA COURSE</b>	589
<i>J. O'Brien</i>	
<b>A PROPOSAL FOR A VIRTUAL REALITY METHOD IN LANGUAGE LEARNING</b>	596
<i>M. Vallarino, G. Vercelli</i>	
<b>AUTOMATING THE ASSESSMENT OF CREATIVITY IN CLASSROOMS</b>	601
<i>D. Cropley</i>	
<b>GENERATIVE AI AND CREATIVITY: HOW CHATGPT CAN ENHANCE STUDENT CREATIVITY</b>	602
<i>D. Cropley</i>	
<b>HOW TO MAKE BIOLOGY FUN WITH VIRTUAL REALITY – CASE STUDY FROM ALIVE PILOT EVALUATION</b>	603
<i>Z. Palkova, P. Palko, E. Berešová, D. Viskupová Srnková</i>	
<b>PEDAGOGY IN DIGITAL AGE AFTER THE COVID-19 PANDEMIC – A CASE STUDY WITH UNDERGRADUATE LIFE SCIENCE STUDENTS</b>	610
<i>S. Pais, S. Bernardino, A. Pires</i>	
<b>WHY DOES THE ROBOT GO TO HIGHSCHOOL? TO LEARN ITS FUTURE SKILLS! – FUTURE SKILLS – THE FUTURE OF HIGHER EDUCATION</b>	611
<i>J. Kleppsch</i>	
<b>NARROWING THE GAP BETWEEN THE CLASSROOM AND THE CAPITAL MARKETS: THE USE OF REAL-LIFE CONTEXT IN A FINANCIAL MATHEMATICS COURSE</b>	616
<i>F. Sánchez Coll, C. Donaldson, J. Villagrana</i>	
<b>IMPLEMENTATION OF A FLIPPED CLASSROOM MODEL IN THE PROBLEM SESSIONS OF THE SUBJECT CROP PROTECTION OF THE DEGREE IN AGRIFOOD AND RURAL ENGINEERING</b>	626
<i>V. Vives-Peris, S.I. Zandalinas, M.F. López-Climent, A. Gómez-Cadenas, R.M. Pérez-Clemente</i>	
<b>FROM THE UNIVERSITY TO THE WORKPLACE – LOVE AT FIRST SIGHT OR DELIBERATE CHOICE?</b>	630
<i>D. Taneva, M. Vladimirova, A. Kirkova-Bogdanova</i>	
<b>MATHEMATICAL JOURNEY ON A DESERT ISLAND OR EXPERIENCING THE MATHEMATICIAN'S CRAFT</b>	634
<i>M. Abrate, F. Ceragioli, L. Damonte, L. Lussardi</i>	
<b>CAN WE QUANTIFY THE AFFORDANCE OF DIGITAL TOOLS? INTRODUCING A NEW METHODOLOGY DESIGNED TO ALIGN PEDAGOGY AND TECHNOLOGY</b>	639
<i>R. Osborne</i>	
<b>HEALTH SECTOR SKILL ALLIANCE FOR CREATING INNOVATIVE AND EFFICIENT VET PROGRAMMES AND IMPROVING THE DIGITAL SKILLS OF MEDICAL PHYSICS AND HEALTH PROFESSIONALS</b>	640
<i>I. Marin, A. Conci, D. Popovici</i>	

<b>MODERN AND FRIENDLY DIGITAL PORTAL FOR TEACHERS, STUDENTS AND PARENTS: “E-PREP” FOR EDUCATION IN THE EUROPEAN UNION</b>	651
<i>I. Marin, M. Fragkaki, D. Popovici, A. Erbil, E. Voyiatzaki</i>	
<b>RELIGIOUS PUBLICATIONS AND YOUTH IN THE CONTEXT OF RELIGIOUS EDUCATION: THE CASE OF HIGH SCHOOL STUDENTS IN İSTANBUL</b>	661
<i>B. Gürer</i>	
<b>STRATEGIC RISK MANAGEMENT IN HIGHER EDUCATION INSTITUTIONS: INTEGRATED RISK ANALYSIS AND THE AHP APPROACH</b>	665
<i>I. Dvorski Lacković, N. Begičević Ređep, D. Miloš Sprčić</i>	
<b>A LEADER'S SELF-EFFICACY THROUGH THE EYES OF THEIR FOLLOWERS</b>	671
<i>L. Paskova</i>	
<b>AN IDEAL LEADER THROUGH THE EYES OF THEIR FOLLOWERS</b>	676
<i>L. Paskova</i>	
<b>A REVIEW OF MULTIDISCIPLINARY COLLABORATION IN AEC EDUCATION</b>	684
<i>N.S. Tadesse, H.B. Cavka</i>	
<b>ETHICS IN COLLABORATIVE EDUCATIONAL ENVIRONMENTS: A REFLECTION PAPER</b>	693
<i>M. Simonette, V. Queiroz, E. Spina</i>	
<b>HOW CAN AI BE USED TO ENHANCE CASE SIMULATIONS?</b>	699
<i>R. Babin</i>	
<b>TEACHER TRAINING ON MOBILE AND GAME-BASED LEARNING: LITERATURE REVIEW AND TRAINING PROGRAM PROPOSAL</b>	707
<i>M. Marques, L. Pombo</i>	
<b>IMMERSIVE READING AS A CONTEMPORARY TECHNIQUE IN LIFELONG LEARNING</b>	716
<i>E. Kudryavtseva, R. Kuzminov, D. Abuzyarova</i>	
<b>THE REALITY OF RESEARCH IN VIRTUAL AND GLOBALIZING WORLDS: DIGITAL GAMES AS A PETRI DISH FOR LEARNING, TECHNOLOGY AND METHODOLOGY</b>	723
<i>P.G. Schrader, M. Carroll</i>	
<b>DEVELOPMENT AND EVALUATION OF THE SCIENTIFIC RESEARCH ACTIVITY OF STUDENTS IN MATHEMATICS IN LATVIA</b>	724
<i>S. Cernajeva, I. Volodko</i>	
<b>A MICROSCOPIC ADVENTURE: UNITY BETWEEN TWO MICROSCOPIC DATA</b>	730
<i>S. Tanabashi</i>	
<b>USE OF ENGLISH LANGUAGE LEVELS TO ENHANCE THE UNDERSTANDING OF CAMBRIDGE CENTRE FOR EVALUATION AND MONITORING (CEM) ASSESSMENT OUTCOMES FOR STUDENTS WHO DO NOT HAVE ENGLISH AS THEIR FIRST LANGUAGE</b>	735
<i>C. Jellis</i>	
<b>COMPARISON OF DISTANCE, HYBRID AND FACE-TO-FACE LEARNING PROCESS USING GITHUB AND GITHUB CLASSROOM</b>	742
<i>M. Turčić, D. Čutić, M. Rudolf, T. Bogović</i>	
<b>BURNOUT SYNDROME IN UNDERGRADUATE STUDENTS AND TEACHING MEDICAL PROFESSIONALS</b>	751
<i>M.P. Rubiano Varela, L. Martinez, S. Perez, C. Agudelo, M. Zuluaga, I. Luna, L. Jaramillo, K. Marisancen</i>	
<b>FINANCIAL EDUCATION USING DECISION SOFTWARE SOLUTION</b>	752
<i>D. Oprea, E. Tundrea</i>	
<b>LET'S TALK MOM: THE USE OF NARRATIVES IN COMMUNICATING NEUROSCIENCE TO LOW-INCOME STATUS PREGNANT MOTHERS</b>	762
<i>A. Negrete, R. Rosenblatt</i>	
<b>AGNOSTIC DATA ACQUISITION AND INTERPRETATION FROM NOVEL CONTEXTS: EDUCATIONAL DATA MINING FOR ONLINE GAMES</b>	769
<i>M. Carroll, P.G. Schrader</i>	
<b>COMMUNITY GENERATED, SOCIALLY VALIDATED HYPOTHESIS TESTING WITH LEARNING ANALYTICS</b>	775
<i>P.G. Schrader, M. Carroll, S.A. Shaw</i>	
<b>THE DISCUSSIÃO PROJECT: DESIGN OF DIGITAL RESOURCES TO ADDRESS CONTROVERSIAL ISSUES</b>	783
<i>A. Almeida, A. Cardoso, J. Souza</i>	

<b>PEER FEEDBACK AND PEER REVIEW IN HIGHER EDUCATION: MIRRORING AND TRANSFORMATIVE PRACTICES IN ACTIVE LEARNING PROCESSES</b>	790
<i>M. Pentucci, C. Laici</i>	
<b>ISSUES OF ORGANIZING COOPERATIVE LEARNING IN HIGHER EDUCATION</b>	800
<i>E. Nazmieva, N. Pershina</i>	
<b>FOREIGN LANGUAGE ACQUISITION OF UNIVERSITY STUDENTS IN THE CONTEXT OF A COOPERATIVE APPROACH TO TEACHING</b>	804
<i>E. Nazmieva, V. Tarasova</i>	
<b>LEARNING OUTSIDE SCHOOL: ACTIVITY PLANNING STRATEGIES AND IMPLEMENTATION</b>	808
<i>I. Tandzegolskiene-Bielaglove, S. Remeikiene</i>	
<b>SEARCHING OF NON-STANDARD SOLUTIONS FOR ESTABLISHMENT OF EDUCATIONAL ENVIRONMENT FAVOURABLE FOR INTERNATIONAL STUDENTS</b>	818
<i>R. Pocevicene</i>	
<b>THE ASSESSMENT PROCESS IN THE DEVELOPMENT OF SKILLS OF RESIDENTS IN MULTIPROFESSIONAL HEALTH RESIDENCE PROGRAMS</b>	825
<i>M.F. Alves, L.P. Figueredo, G.M. Guerra</i>	
<b>LEARNING FROM LINGUISTIC LANDSCAPES - PRACTICAL ENGLISH LANGUAGE LEARNING AND AWARENESS OF TRADITIONAL CULTURE</b>	838
<i>Y. Hiramatsu, M. Morishita</i>	
<b>WORKING TOGETHER TOWARDS LEARNING - AN EXAMPLE OF USING PEER TEACHING IN HIGHER EDUCATION</b>	845
<i>A. Sivonen, K. Heikkinen</i>	
<b>IMPROVED LEARNING OUTCOMES AND STUDENT ENGAGEMENT THROUGH FLIPPED LESSONS</b>	851
<i>K. Heikkinen, A. Sivonen</i>	
<b>TAKING DIFFERENT PLAYER TYPES INTO CONSIDERATION WHILE IMPLEMENTING EDUCATIONAL GAME - EFFECT ON STUDENT EXPERIENCE AND ACADEMIC RESULTS</b>	858
<i>A. Sivonen, K. Heikkinen</i>	
<b>LONGITUDINAL ANALYSIS OF PRODUCTION IN SEEDBED RESEARCH: A CASE STUDY</b>	865
<i>B. Naranjo Sánchez, J. Peñafiel Rosado</i>	
<b>INNOVATIVE TRANSNATIONAL / INTERNATIONAL HIGHER EDUCATION PROGRAMS</b>	874
<i>M. Bernal, A. Apa</i>	
<b>A COLLABORATIVE AND PROBLEM-BASED LEARNING CASE INTO A MECHANICAL ENGINEERING SUBJECT: OPTIMAL DESIGN FROM CHARACTERISTIC CURVES OF INTERNAL COMBUSTION ENGINES</b>	880
<i>F. Cruz-Peragón, A.J. Extremera-Jiménez, A. Palomar-Torres, E. Torres-Jiménez, F.J. Gómez-de la Cruz</i>	
<b>CALCULATION TOOLS FOR FAST ASSESSMENT OF EXPERIMENTS IN SHORT LAB SESSIONS WITH THERMAL MACHINES</b>	888
<i>F. Cruz-Peragón, A. Palomar-Torres, A.J. Extremera-Jiménez, F.J. Gómez-de la Cruz, E. Torres-Jiménez</i>	
<b>"CLASS+CLASSICS" AS THE FIRST INFORMAL EDUCATIONAL PROGRAM IN THEATRES OF ARMENIA</b>	896
<i>M. Mkrtchyan</i>	
<b>PHYSICAL SCIENCE EDUCATORS' TEACHING APPROACHES FOR FACILITATING CONCEPTUAL UNDERSTANDING OF STOICHIOMETRY</b>	902
<i>K. Booi</i>	
<b>EXPLORING INCLUSIVE ASSESSMENT TO EMPOWER LEARNERS WITH DIVERSE INTELLECTUAL NEEDS</b>	906
<i>N.I. Shabalala, K. Booi</i>	
<b>STEM PROBLEM SOLVING USING THE ARONSON'S JIGSAW COOPERATIVE TEACHING APPROACH</b>	911
<i>M. Garmendia, K. Zuza, J. Guisasola, X. Garikano, J. Gutierrez-Berraondo, P. Sarriugarte-Onandia</i>	
<b>INTERDISCIPLINARY WORKSHOPS IN THE EDUCATION OF ARCHITECTS</b>	918
<i>J. Illes, K. Kristianova</i>	
<b>ARCHITECTURAL EDUCATION - EXPERIENCES WITH DESIGN STUDIO ASSIGNMENTS LINKED TO STUDENT COMPETITIONS</b>	922
<i>J. Illes, K. Kristianova</i>	

<b>IMPROVING LEARNING CONTENT AND ENGAGING LEARNERS THROUGH THE REVISED COMMUNITY OF INQUIRY (RCOI) FRAMEWORK: INDONESIAN DESIGN STUDENTS' PERSPECTIVES</b>	927
<i>L. Indriati, M. Neo, H.Y.J. Tan</i>	
<b>FROM THEORY TO PRACTICE: IMPLEMENTING AUTHENTIC LEARNING ACTIVITIES IN AN INDONESIAN DESIGN MANAGEMENT CLASS</b>	934
<i>L. Indriati, M. Neo, H.Y.J. Tan</i>	
<b>THE ACADEMIC PERFORMANCE OF CIVIL ENGINEERING STUDENTS UNDER COVID-19 DISRUPTIONS</b>	938
<i>W. Loo, L. Tuleasca</i>	
<b>MAXIMIZING LEARNING EFFICIENCY WITH CHATGPT: WAYS TO INTEGRATE ARTIFICIAL INTELLIGENCE INTO EDUCATION</b>	946
<i>I. Lera, G. Moyà-Alcover, C. Guerrero, A. Jaume-I-Capó</i>	
<b>ARTIFICIAL INTELLIGENCE AND EDUCATIONAL ASSESSMENT SYSTEM LANDSCAPE, CHALLENGES AND WAYS TO TACKLE AI BASED PLAGIARISM</b>	953
<i>D. Lukac, A. Lazareva</i>	
<b>THE IMPACT OF HIGHER EDUCATION STUDENTS' MEANINGS ON UNIVERSITY QUALITY PERCEPTION IN PORTUGAL</b>	963
<i>M.L. Neves, M. Varela, R. Fragoso</i>	
<b>IMPROVING THE QUALITY AND ATTRACTIVENESS OF UNIVERSITY EDUCATION WITH THE PRACTICAL USE OF THE INTERNET OF THINGS</b>	969
<i>J. Pillár</i>	
<b>PARENTAL ENGAGEMENT IN DISTANCE LEARNING: FORMS OF CAPITAL, PEDAGOGICAL ASPECTS, AND FAMILY CHARACTERISTICS</b>	976
<i>I. Sasson, Y. Grinshtain, N. Okavi</i>	
<b>50% FOR THE FUTURE: ADDRESSING THE UNDERREPRESENTATION OF FEMALE STUDENTS STUDYING MECHANICAL ENGINEERING</b>	977
<i>A. Rees, J. Thompson</i>	
<b>BARRIERS TO IMPLEMENT ADVANCED ANALYTICS IN LATVIA'S EDUCATION INDUSTRY</b>	978
<i>S. Lemsā</i>	
<b>MICROLEARNING FOR GENERATION Z IN THE FOREIGN LANGUAGE CLASSROOM</b>	987
<i>T. Krasnova, A. Kouznetsova, M. Ovsyannikova, A. Loginova</i>	
<b>SCILAB FREE SOFTWARE FOR NUMERICAL COMPUTATION: A WIND ENERGY EDUCATIONAL TOOL</b>	997
<i>J. Ureña Jorquera, I.C. Gil García, A. Molina García</i>	
<b>INTEGRATION OF SUSTAINABLE DEVELOPMENT GOALS IN PROJECT BASED LEARNING THROUGH FLIPPED CLASSROOM</b>	1004
<i>J. Requies, L. Barrio, E. Acha, I. Agirre, N. Viar, I. Gandarias</i>	
<b>DEVELOPING CREATIVE DIGITAL EDUCATION FOR SUSTAINABLE AIR TRANSPORT AND LOGISTICS</b>	1011
<i>T. Patala, A. Ketola</i>	
<b>ALGIARISM: ARTIFICIAL INTELLIGENCE-ASSISTED PLAGIARISM</b>	1018
<i>C. Halupa</i>	
<b>STRUCTURAL-FUNCTIONAL MODEL OF FORMING THE TEACHERS' READINESS TO MANAGE THE DEVELOPMENT OF INTELLECTUALLY GIFTED STUDENTS</b>	1025
<i>G. Ereemeeva, N. Sigacheva, R. Bikbulatov</i>	
<b>INTERDISCIPLINARY INTEGRATION AT THE UNIVERSITY: DEVELOPMENT OF A NEW DISCIPLINE</b>	1033
<i>N. Sigacheva, G. Ereemeeva</i>	
<b>EXPERIENTIAL LEARNING APPLIED TO SOLID URBAN WASTE MANAGEMENT: LEARNING WHILE WALKING AROUND THE CITY</b>	1040
<i>L.M. Ruiz</i>	
<b>DEVELOPMENT OF MEDIA LITERACY IN TEACHING ENGLISH AS A FOREIGN LANGUAGE: AN INTERACTIVE ASPECT</b>	1046
<i>E. Bystray, E. Chelpanova, F. Zakirova, V. Moshkovich, A. Shabalina</i>	
<b>HOW TO MAKE LEARNING A PLEASURE? REFLECTIONS ON EMOTION, COGNITION AND EDUCATIONAL STRATEGIES</b>	1051
<i>E. Palomba</i>	
<b>HOW DOES ART EXPRESS COMMUNICATION?</b>	1060
<i>S. Veinberg</i>	

<b>TELECOLLABORATION SUPPORTED BY THE COMBINATION OF COMPUTER AND MOBILE ASSISTED FOREIGN LANGUAGE TEACHING AND LEARNING FOR SPECIFIC PURPOSES</b> <i>E. Maoropoulou</i>	1065
<b>DIGITAL STORYTELLING IN THE TEACHING AND LEARNING OF FRENCH AS A FOREIGN LANGUAGE: DESIGN AND CREATION OF AN E-BOOK</b> <i>E. Maoropoulou</i>	1073
<b>MATH PATHWAYS EMERGING FROM DESIGN THINKING METHODOLOGY</b> <i>H. Costa, A. Breda, T. Neto</i>	1082
<b>USE OF TECHNOLOGY, AS A TOOL TO IMPROVE ACADEMIC AND SOCIAL FUNCTIONING, AMONG STUDENTS WITH VISUAL IMPAIRMENTS OF ELEMENTARY SCHOOL AGE</b> <i>E. Wasserman, N. Alfasi</i>	1091
<b>PERCEIVING NEEDS FELT BY THE PORTUGUESE COMMUNITY WITH VISION IMPAIRMENT</b> <i>I. Monteiro, A. Breda, R. Duarte</i>	1092
<b>TECHNOLOGY FOR DEVELOPING STUDENTS' CRITICAL THINKING BASED ON WORKING WITH MEDIA TEXT IN ENGLISH</b> <i>E. Chelpanova, E. Bystray, V. Moshkovich, A. Shabalina, F. Zakirova</i>	1100
<b>PYRAMID OF SELF-ACTUALIZATION AS A LIFELONG LEARNING MODEL</b> <i>E. Kudryavtseva, R. Kuzminov, O. Plyaskina</i>	1107
<b>INSTAGRAM IS A RELIABLE LEARNING TOOL FOR INCREASING STUDENTS' COMPETENCIES IN USING APA GUIDELINES</b> <i>S. Collado, R. Rodríguez-Rey, C. Fidalgo, M. Sorrel, M. Sánchez-Izquierdo, E. Santaolalla, H. Garrido-Hernansaiz</i>	1113
<b>THE TEACHING AND RESEARCH LABORATORY - AN OPPORTUNITY FOR INTELLECTUAL AND CREATIVE EXPRESSION IN THE EDUCATIONAL PROCESS</b> <i>R. Lebedova, M. Sapundzhiev</i>	1114
<b>PROFESSIONAL COMPETENCE OF TEACHING FOREIGN LANGUAGES AT UNIVERSITIES IN THE CONTEXT OF DIGITAL EDUCATION (EXAMPLE OF RUSSIAN AND CHINESE UNIVERSITY TEACHERS)</b> <i>R. Meng, A. Boltaeva</i>	1119
<b>THE EFFICIENCY OF INTERACTIVE VIDEOS IN EVOLVING VOCABULARY AND THE SPEAKING SKILLS OF UNIVERSITY STUDENTS WHILE TEACHING ENGLISH AND CHINESE</b> <i>A. Boltaeva, R. Meng</i>	1127
<b>FLIPPED VERSUS TRADITIONAL CLASSROOM AND STUDENT ACHIEVEMENT IN ENGINEERING: THE INFLUENCE OF GENDER</b> <i>Z. Azkorra-Larrinaga, I. Gómez-Arriaran, K. Martín-Escudero, E. Perez-Iribarren, N. Romero-Antón</i>	1135
<b>PERCEPTION AND ATTITUDES TOWARD EMERGING TECHNOLOGY OF BIOMETRICS AMONG CROATIAN STUDENTS</b> <i>A. Papić, D. Szombathelyi</i>	1140
<b>A NEW METHODOLOGY FOR THE LABORATORY SESSIONS IN A SCIENCE DEGREE</b> <i>R. Niclòs, E. Valor, L. Pérez-Planells, V. García-Santos, I. Gómez, V. Estellés, G. Soria, C. Coll</i>	1144
<b>SCHOOL MANAGEMENT AND LEADERSHIP IN UNCERTAIN TIMES: VIEWS FROM THE UAE</b> <i>Z. Hojeij</i>	1150
<b>DESIGNING REGULATION IN ACTION TO MANAGE THE UNFORESEEN IN TEACHING-LEARNING CONTEXTS</b> <i>M. Pentucci, P.G. Rossi, L. Capolla</i>	1151
<b>CAREER FOCUSED CURRICULUM DESIGN IN ENGINEERING</b> <i>C. Geary, P. Kelly, F. Boyle, J. Walsh</i>	1159
<b>EU3DIGITAL - ENSURING THE SUCCESS AND SUSTAINABILITY OF THIRD SECTOR ORGANISATIONS AND SOCIAL ENTERPRISES BY BOOSTING DIGITAL SKILLS AND COMPETENCES USING TRAINING RESOURCES</b> <i>A. Aguiar, A. Soeiro, C. Jacklin-Jarvis, T. Foster</i>	1160
<b>DIGITAL STORYTELLING FOR THE DEVELOPMENT OF 21ST CENTURY SKILLS IN THE SECONDARY EFL CLASSROOM</b> <i>S. Maravelaki</i>	1169
<b>TAKING SCHOOL OUTDOORS: MATHEMATICAL TRAILS AS A TEACHING RESOURCE</b> <i>H. Ambrósio, A. Hall, S. Pais</i>	1184



<b>THE SYNERGY BETWEEN EDUCATION, PRACTICE AND RESEARCH IN SOCIAL WORK</b>	1191
<i>Y. Marti Haidar</i>	
<b>REPRESENTATION OF KNOWLEDGE EXTRACTED FROM THE DIGITAL BOOKLET DATA FOR THE WORK-STUDY PROGRAM</b>	1192
<i>B. Mbaye</i>	
<b>HYBRID TEACHING AND LEARNING: VISION AND REALITY</b>	1197
<i>D. MacKevett, P. Feubli</i>	
<b>DIGITAL NATIVES IN HIGHER EDUCATION: LESSONS LEARNED FROM THE COVID-19 PANDEMIC</b>	1207
<i>M.E. Samoila</i>	
<b>ACADEMIC RESEARCH IN BETWEEN USER NEEDS AND INDUSTRY DEMANDS IN THE CONTEXT OF THE SILVER ECONOMY</b>	1213
<i>S. Palmieri, M. Bisson, A. Ianniello, R. Palomba</i>	
<b>ASSESSING LEARNER PROFILES TO INCREASE LEARNING GAINS IN CONTINUING EDUCATION</b>	1221
<i>L. Paz, B. Dörr, K. Altmeyer, N. Peters, D. Werth</i>	
<b>THE USE OF DIVERSIFIED ACTIVE LEARNING METHODOLOGIES IN MATHEMATICS CLASSES – A CASE STUDY WITH PRE-SERVICE TEACHERS</b>	1229
<i>A. Hall, S. Pais</i>	
<b>ADULT EDUCATION AND DIFFERENT CONCEPTS</b>	1236
<i>D. Krystof</i>	
<b>MANAGEMENT OF SCIENTIFIC INFORMATION, A KEY SUBJECT TO MASTER EVIDENCE-BASED HEALTH CARE IN THE MEDICAL DEGREE</b>	1242
<i>S. Díaz de Castellví</i>	
<b>AREAS OF EVALUATION OF VOCATIONAL HIGH SCHOOL TEACHERS</b>	1247
<i>D. Krystof, P. Adamec</i>	
<b>IMPLEMENTING AN ANDON CORD IN HIGHER EDUCATION</b>	1252
<i>K. Khawaja</i>	
<b>TECHVETLAB: TURNING THE VET CLASSROOM INTO A VIRTUAL DEPARTMENT OF A TECHNOLOGY COMPANY</b>	1257
<i>L. Gómez Estrada, L. Pietra, L. Gómez Estrada, S. Randaccio, C. Zoli, R. Sixto Iglesias, R. Navarro Cerveró, J. Nunes, P. Carrolaggi, P. Karamelas, J. Tormos Capilla, J.L. Gómez Ribelles</i>	
<b>LEARNING HELPING: INCLUSIVE EDUCATION OF ADULTS THROUGH VIRTUAL VOLUNTEERING</b>	1265
<i>R. Sixto Iglesias, P. Carrolaggi, S. Randaccio, L. Pietra, C. Zoli, D. Didane, S. Kolsi, G. Massari, S. Tumino, M. Strimpel, S. Nabi, R. Navarro Cerveró</i>	
<b>ECONOMIC CONSTRAINTS, CAREER ADAPTABILITY AND PERCEPTION OF FUTURE DECENT WORK AMONGST UNDERGRADUATE STUDENTS</b>	1273
<i>L. Faria, C. Gouveia, L. Florêncio</i>	
<b>SEEING THE INVISIBLE: INCLUSIVE DIGITALIZATION OF LOW VISION STUDENTS IN SCHOOL EDUCATION</b>	1283
<i>R. Navarro Cerveró, R. Sixto Iglesias, P. Carrolaggi, S. Randaccio, L. Pietra, C. Zoli, T. Hauge, S. Orstenvik, M. Castelnuovo, B. Poli, C. Teofili, M. Pellegrino, G. Gening, L. Mosquera, O. Simnera, M. Rafecas, M. Puerto</i>	
<b>MERLIN'S PLAYGROUND: STUDENTS' ATTITUDES AND PERCEPTIONS OF SOLVING ELECTROMAGNETISM PROBLEMS IN A VIRTUAL REALITY ENVIRONMENT</b>	1288
<i>T.K. Neo, A. Amphawan, K. Hamidani</i>	
<b>IMPLEMENTATION OF PBL TO ELICIT STUDENT ENGAGEMENT OF UNDERGRADUATE CREATIVE MULTIMEDIA STUDENTS DEVELOPING XR APPLICATIONS</b>	1296
<i>K. Hamidani, T.K. Neo, A. Amphawan, A.I. Susanti, M. Pradana, S. Artadita</i>	
<b>GENDER DIFFERENCES IN TOURISM STUDENTS' PERCEPTIONS OF DECENT WORK</b>	1305
<i>L. Faria, C. Gouveia, L. Florêncio</i>	
<b>CLASSROOM MANAGEMENT IN INCLUSIVE SCHOOLS (INCLASS) – DEVELOPMENT OF AN ASSESSMENT TOOL FOR TEACHER EDUCATION</b>	1313
<i>S. Lutz, M. Gebhardt</i>	
<b>COMPLEX STUDENT PATHWAYS: EXPLORING THE TIME TO DEGREE</b>	1318
<i>V. Miguéis, J.P. Pêgo, A. Soeiro</i>	
<b>EFFECTIVENESS OF THE E-LEARNING EDUCATION BASED ON PJAIT EXPERIENCE</b>	1319
<i>A. Drabik, J.P. Nowacki, L. Banachowski, P. Lenkiewicz</i>	

<b>NEW ONLINE MASTERS DEGREES TO MEET THE NEED FOR CYBER PROFESSIONALS</b>	1324
<i>S. Sarkani, T. Mazzuchi</i>	
<b>PARENTS AND SCHOOL INTERVENTIONS IN PROTECTING CHILDREN AND YOUTH IN ONLINE SPACE: BEST PRACTICES FROM A EUROPEAN PROJECT</b>	1325
<i>M. Tomita, G. Grosseck, R. Ungureanu</i>	
<b>ICT AND SATISFACTION: ANALYSIS OF THE CHARACTERISTICS OF UNIVERSITY STUDENTS</b>	1331
<i>A. Marín García, I. Gil Saura, M.E. Ruiz Molina, R. Gil Saura, M.S. Moise</i>	
<b>HOW TO BOOST STUDENT SATISFACTION THROUGH ICT?: ANALYSIS OF A CASE IN UNIVERSITY CLASSROOMS</b>	1332
<i>A. Marín García, I. Gil Saura, M.E. Ruiz Molina, M.S. Moise, R. Gil Saura</i>	
<b>ACTIVE LEARNING OF GENETICS STUDENTS THROUGH THE STUDY OF PLUMAGE COLORATION IN DUCKS (MULTIPLE ALLELES)</b>	1333
<i>H.V. Bárcenas-Rodríguez, V. Martínez-Toledo, M.A. Carballo-Ontiveros, A.A. Mendoza-Amador, A.N. Castañeda-Sortibrán</i>	
<b>ACADEMIC, SOCIAL AND CULTURAL EXPERIENCES OF STUDENTS IN A UNIVERSITY OUTSIDE THEIR ETHNIC SOCIETIES</b>	1339
<i>A. Kuranchie, I.J. Obeng</i>	
<b>UNIVERSITY OF SOUTH AUSTRALIA STUDENT UNION (USASA) FINANCIAL WELLBEING PROGRAM: EMPOWERING STUDENTS THROUGH FINANCIAL LITERACY</b>	1346
<i>L.F. Gardeazabal Penuela</i>	
<b>FOSTERING INNOVATION IN EDUCATION THROUGH PEDAGOGICAL PRACTICE AND RESEARCH IN THE COMPUTER SCIENCE TEACHING CURRICULUM: A COMPARATIVE ANALYSIS</b>	1352
<i>I.C. Muñoz</i>	
<b>READILY AVAILABLE FREE MOBILE AND TABLET APPLICATIONS TO HELP THE INCLUSION OF BLIND AND VISUALLY IMPAIRED PUPILS IN THE SCIENCE LABORATORIES</b>	1358
<i>A. Herrero, C. Reguera, S. Sanllorente, S. Palmero, M. Ciulea, T. Osorio, J. Muñoz, G. Stojanovic, A. Jakovchevska</i>	
<b>METHODOLOGICAL PROPOSAL FOR THE INCORPORATION OF ICT IN THE MATHEMATICS CURRICULUM IN RURAL CONTEXT</b>	1368
<i>J.C. Giraldo</i>	
<b>THE PARADOXICAL LIFE OF ANDRAGOGUES</b>	1378
<i>R. Zhang, R. de Villiers, J. Scott-Kennel</i>	
<b>THE EFFECT OF ONLINE LEARNING TASK DESIGN ON THE TRAJECTORY OF LEARNER AUTONOMY: A CASE STUDY IN A NEW ZEALAND CONTEXT</b>	1387
<i>Q.M. Zhong</i>	
<b>A NEW INFORMATION TECHNOLOGY EDUCATION METHOD REQUIRING STUDENTS TO ANSWER ICT NATIONAL EXAM QUESTIONS WRITTEN IN A FOREIGN LANGUAGE</b>	1392
<i>Y. Miyamoto</i>	
<b>THE DEVELOPMENT OF ASYNCHRONOUS MICRO-TRAINING VIDEOS PRE AND POST COVID-19</b>	1397
<i>S. Thomas, C. Mathew</i>	
<b>FOSTERING SELF-REGULATED LEARNING IN AN AUTHENTIC DIGITAL LEARNING ENVIRONMENT: AN EXPLORATIVE ANALYSIS</b>	1403
<i>R. Pape</i>	
<b>EXPERIENTIAL LEARNING USING AUGMENTED REALITY IN ENGINEERING EDUCATION</b>	1404
<i>C. Geary, J. Moolman, C. Mbabazi, F. Boyle, J. Walsh</i>	
<b>BLENDED, REMOTE AND HYBRID MODES IN LANGUAGE TEACHING</b>	1413
<i>N. Radić</i>	
<b>ASSESSMENT OF THE INCLUSION OF EVALUATION RUBRICS IN THE PRACTICAL UNITS OF TELEMATICS AND TELECOMMUNICATION ENGINEERING DEGREES SUBJECTS</b>	1414
<i>J.M. Perez-Lorenzo, J.C. Cuevas-Martínez, A.J. Yuste-Delgado, R. Viciano-Abad, P.J. Reche-Lopez, F. Rivas-Peña</i>	
<b>ESCAPE ROOMS AS AN INNOVATIVE LANGUAGE LEARNING TOOL IN HIGHER EDUCATION TOURISM DEGREES</b>	1420
<i>A. Pires, S. Pais, A.E. Sousa</i>	

<b>3DCHEMMOL: WEB-BASED MOLECULAR MODELING INTERFACE SUPPORTING TECHNOLOGY-BASED LEARNING</b>	1426
<i>D. Dolničar, B. Boh Podgornik</i>	
<b>ASSESSMENT IN THE CONTEXT OF COLLABORATIVE LEARNING IN MATHEMATICS</b>	1436
<i>P. Carvalho, L. Descalço, H.F. Gonçalves</i>	
<b>CONFLICTING PERCEPTIONS OF FLIPPING TEACHING BY DENTISTRY STUDENTS</b>	1443
<i>M.P. Álvarez Vázquez, T. Angulo Carrere, E. Lozano Pérez, C. Bravo-Llatas, L. Del Campo Milán</i>	
<b>INTERDISCIPLINARY APPROACHES: EXPLORING THE FUSION OF MATHEMATICS, ART, AND CULTURE IN A PROFESSIONAL DEVELOPMENT COURSE FOR MATHEMATICS TEACHERS</b>	1449
<i>A. Breda, P. Carvalho, A. Hall</i>	
<b>AUTARKYO: INTERACTIVE APP FOR THE PLANNING AND EVALUATION OF ENERGY SELF-SUFFICIENT HOUSES</b>	1458
<i>A.L. Ehrhardt, H.J. Rzepus, C. Griehl, D. Broneske, N. Vorhauer-Huget</i>	
<b>INTERACTIVE RESOURCES TO ENHANCE SELF-LEARNING IN HIGHER EDUCATION</b>	1468
<i>S. Muñoz San Martín, J.L. Imaña Pascual, F. Herrera Fernández, G. Susi, J.C. Jiménez Saéz, P. Palacios Clemente, M. Barragán García</i>	
<b>OPTIMAL VIRTUAL REALITY EXPERIENCE FOR CULTURAL HERITAGE EDUCATION</b>	1473
<i>O. Nakov, O. Harizanova, M. Lazarova, V. Mladenov</i>	
<b>DEVELOPING UNDERGRADUATE STUDENTS' LEARNING TO LEARN ABILITIES THROUGH BLENDED LEARNING: A CASE IN HONG KONG</b>	1482
<i>E.W.K. Yeung, P. Hui, J. Xiao, C.P. Chung</i>	
<b>RELEVANCE OF A MASTER'S PROGRAM IN ADMINISTRATION IN EDUCATIONAL MANAGEMENT</b>	1487
<i>R.A. Gómez Ortiz, V. Cruz Morales</i>	
<b>INTERACTIVE LEARNING ENVIRONMENTS FOR ENHANCING THE ROLE OF HUMAN RESOURCE MANAGEMENT PRACTICES IN IMPROVING ORGANIZATIONAL PERFORMANCE</b>	1495
<i>F. Ceresia</i>	
<b>RECOMMENDER SYSTEMS IN THE LEARNING FIELD: A SYSTEMATIC REVIEW</b>	1501
<i>F. Norouzinia, N.C. Peters, L. Paz, M. Joergens, D. Werth</i>	
<b>COOPERATION OF A TEACHER WITH A TEACHING ASSISTANT</b>	1509
<i>J. Vítová, J. Wolf, M. Maněnová, M. Skutil</i>	
<b>ANALYSIS OF INTERACTION BETWEEN TEACHER AND TEACHING ASSISTANT IN CZECH CLASSROOMS</b>	1516
<i>J. Vítová, J. Wolf, M. Maněnová, M. Skutil, A. Vaněčková, S. Růžičková, A. Jirešová, A. Hejná</i>	
<b>SOCIAL MEDIA AND LEARNING: HAVE THE TENDENCIES CHANGED? EVIDENCE FROM THE UNIVERSITY OF CANTABRIA</b>	1524
<i>M. Obeso, M.C. López-Fernández, M. Pérez-Pérez, G. García-Piqueres</i>	
<b>EXAMINING THE METACOGNITIVE ABILITIES OF FUTURE TEACHERS AT THE FACULTY OF EDUCATION IN BELGRADE - A LONGITUDINAL STUDY</b>	1525
<i>B. Radulović, M. Stojanović, O. Zajkov, R. Gabdrakhmanova, M. Džinović, D. Mandić, I. Nikolić, S. Šehović, F. Prušević Sadović, J. Radojičić</i>	
<b>AN EVALUATION OF REQUIREMENTS FOR A MENTORSHIP FRAMEWORK INCORPORATING FEEDBACK FROM INDUSTRY</b>	1529
<i>I. Morris, K. O'Sullivan, N. Fitzgerald, J. Walsh, E. O'Connell, F. Boyle</i>	
<b>ASSESSMENT THE IMPACT OF RISK FACTORS ON TEACHERS' HEALTH DURING THE PANDEMIC</b>	1534
<i>N. Koshkina, G. Popova</i>	
<b>HOW TO MEASURE THE DIFFUSION COEFFICIENT WITH THE HELP OF LASER?</b>	1542
<i>V. Sebelik</i>	
<b>APPROACHING MUSIC LISTENING IN HIGH SCHOOL: IMPLEMENTATION OF THE COGNITIVE-EMOTIONAL LISTENING TO MUSIC</b>	1548
<i>S. Vidulin</i>	
<b>COMPARATIVE ANALYSIS OF INTERNATIONALIZATION POLICIES OF LEADING OPEN UNIVERSITIES IN EUROPE</b>	1549
<i>S. Celikbas, E. Toprak</i>	
<b>DIGITAL MATHS PREPARATION COURSE IN MASTER CRAFTSMAN TRAINING - A PSEUDONYMOUS MULTIMETHOD EXPERIMENTAL STUDY</b>	1555
<i>D. Zaglmann, M. Haack, J. Mägdefrau</i>	

<b>A CASE STUDY OF LEADING AND SUPPORTING TEACHING TEAMS AT A PROGRAMME MANAGEMENT LEVEL FOR A 600+ STUDENT MSC MANAGEMENT PROGRAMME</b>	1565
<i>S. Buxton, T. Malik</i>	
<b>VIRTUAL REALITY AS A STRATEGY TO REDUCE EXAM ANXIETY - WHAT THE EVIDENCE TELLS US</b>	1570
<i>S. Mulholland, K. Werther, B. Concannon, S. Esmail</i>	
<b>TEACHING LANGUAGES VIA CLIL METHODOLOGY - ONLINE TRAINING OF PRIMARY SCHOOL TEACHERS HOW TO USE IT</b>	1571
<i>D. Hanesová</i>	
<b>SIMPLIFYING THE COURSE EVALUATION PROCESS: THE NET PROMOTER SCORE FOR USE IN ACADEMIA</b>	1578
<i>J. Schoenfeld</i>	
<b>PERCEPTIONS OF MENTORS AMONG MENTEES IN POSTGRADUATE PROGRAMMES FOR INTERNATIONAL STUDENTS</b>	1579
<i>D. Lopez, A. Clear</i>	
<b>THE PEDAGOGICAL ALLIANCE BETWEEN SCHOOL AND FAMILY IN INCLUSIVE PERSPECTIVE</b>	1587
<i>I. Zollo</i>	
<b>A GAMIFICATION STRATEGY FOR THE TEACHING OF TEAM COHESION CONCEPTS IN THE UNDERGRADUATE SPORT PSYCHOLOGY CLASSROOM</b>	1591
<i>M. Mann</i>	
<b>SELF-ASSESSMENT AND THE USE OF DIAGNOSTIC OUTPUT FROM COGNITIVE DIAGNOSIS MODELS TO PROMOTE STUDENT LEARNING</b>	1595
<i>M. Sorrel, P. Nájera, R. Kreichtmann, F. Abad, C. García, A. Martínez-Molina, S. Collado</i>	
<b>MOBILE LEARNING CONTRIBUTIONS TO TEACHING AND LEARNING: THE CASE OF THE UNIVERSITY OF AVEIRO</b>	1596
<i>D. Antunes, J. Batista, D. Simões</i>	
<b>TRAINING SKILLS IN THE USE OF RADIATION IN REAL MEDICAL TREATMENTS FOR HIGHER EDUCATION STUDENTS THROUGH MONTE CARLO SIMULATIONS</b>	1607
<i>S. Oliver, B. Juste, R. Miró, G. Verdú</i>	
<b>TRAINING IN OPERATION AND SAFETY OF NUCLEAR POWER PLANTS THROUGH ACTIVE LEARNING BASED ON IAEA REACTOR SIMULATORS</b>	1613
<i>B. Juste, R. Miró, T. Barrachina, S. Oliver, G. Verdú</i>	
<b>DSEXAMS: MASSIVE AND AUTOMATED GENERATION OF RANDOMIZED MULTIPURPOSE QUESTIONNAIRES</b>	1620
<i>E. López Cano, M. Cuesta, C. Lancho, C. Alfaro, M.J. Algar, A. Alonso-Ayuso, A. Fernández-Isabel, J. Gomez, I. Martin de Diego, J. Moguerza, F. Ortega, A. Udías</i>	
<b>CITYZEN PROJECT: PROMOTING URBAN AGRICULTURE IN SCHOOLS AS A TOOL OF TEACHING INNOVATION</b>	1628
<i>B. Urbano, I. Méndez, I. Areños, J. Díez</i>	
<b>TRAPS IN THE PROFESSIONAL DEVELOPMENT OF GEORGIAN TEACHERS</b>	1634
<i>T. Ivanidze, L. Kaminskienė</i>	
<b>DEVELOPMENT OF AN "AUGMENTED E-RUBRIC" WITH CRITICAL THINKING TO ASSESS COMPETENCES</b>	1639
<i>B. Urbano, D. Carpio, A.M. Bartolomé, F. González-Andrés</i>	
<b>SYSTEMIZATION OF RANGE AND SCALE OF THE APPROACHES TO EDUCATION OF TALENTED AND GIFTED CHILDREN IN THE EU EDUCATION SYSTEM</b>	1644
<i>V. Dombrovskis, N. Titova, M. Veide</i>	
<b>IMPLEMENTATION OF PROJECT BASED LEARNING TO ACHIEVE DEEP LEARNING IN STUDENTS OF THE DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING BETWEEN DIFFERENT SUBJECTS</b>	1654
<i>J. Ivorra-Martinez, V. Moreno, S. Rojas-Lema, D. Garcia-Garcia, L. Quiles-Carrillo</i>	
<b>ARE HIGHER EDUCATION TEACHERS PREPARED FOR A PERSONALIZED LEARNING ENVIRONMENT?</b>	1661
<i>Z. Kubincová, K. Miková</i>	
<b>THE SCHOLARSHIP OF EDUCATIONAL LEADERSHIP: A CASE STUDY OF DEVELOPING LEADERSHIP OF TEACHING, LEARNING AND ASSESSMENT IN A UNIVERSITY CONTEXT</b>	1671
<i>N. Herman, J.P. Bosman</i>	

<b>PROCEDURAL/ROTE LEARNING VS MEANINGFUL LEARNING: WHICH DO FIRST YEAR UNDERGRADUATE STUDENTS PREFER?</b>	1681
<i>M.P. de Sousa Oliveira</i>	
<b>UTILIZATION OF EVIDENCE BASED PRACTICE AMONG PHYSICAL THERAPISTS</b>	1691
<i>S. Elgelid</i>	
<b>GETTING READY FOR THE NEXT PANDEMIC, HOPEFULLY A LONG TIME FROM NOW</b>	1692
<i>S. Elgelid</i>	
<b>USING TECHNOLOGY TO TEACH YOUNG LEARNERS MATH SKILLS</b>	1693
<i>H. Shamir, E. Yoder, D. Pocklington, C. Wang, E. Greene</i>	
<b>CONTRIBUTION OF A UNIVERSITY MENTORING PROJECT TO THE DISSEMINATION OF THE SDGS</b>	1701
<i>A.I. Tarrero, M. Fernando, V.A. La Fuente</i>	
<b>EXPLORATORY DATA VISUALIZATION OF STUDENT INTERACTIONS</b>	1709
<i>I. Ogbuchi, E. Kiely, C. Quigley</i>	
<b>ENHANCING ENGINEERING LEARNING THROUGH THE USE OF AN INTERACTIVE LABORATORY</b>	1716
<i>S. Shotarova, S. Stoyanova-Petrova, S. Lyubomirov</i>	
<b>YOUNG PEOPLE'S REAL-TIME EXPERIENCES OF DIGITAL EDUCATION: "THE SCHOOL IS COMFORTABLE" "YEAH, RIGHT, LIKE GETTING SUFFOCATED IN A MASK ALL DAY IS COMFORTABLE"</b>	1725
<i>A. Nagy, A. Szabó, B. Böcskei, M. Fekete</i>	
<b>DISCOVERY LEARNING IN A LEXICOLOGY COURSE</b>	1726
<i>J. Bérešová</i>	
<b>TRAINING STUDENT TEACHERS TO ALIGN ORAL PERFORMANCES TO REFERENCE LEVELS</b>	1731
<i>J. Bérešová</i>	
<b>REALIZATION OF ADAPTIVE PROGRESS BARS IN MOODLE FOR ATTESTED COMPETENCIES AND QUALIFICATIONS FOR LEARNERS IN HIGHER EDUCATION INSTITUTIONS PSYCHOLOGY COURSES CONSIDERING QUALIFICATIONS-BASED LEARNING</b>	1736
<i>R. Srbecky, S. Colutto, S.A. Wetzel, M. Winterhagen, W. Fraas, J. Dettmers, M. Hemmje</i>	
<b>ACTIVE LEARNING METHODOLOGY APPLICATION IN ENGINEERING</b>	1743
<i>N. Romero-Anton, K. Martín-Escudero, Z. Azkorra-Larrinaga, M. Odriozola Maritorea, I. Gomez-Arriaran, A. Picallo-Perez</i>	
<b>ACCEPTANCE OF THE FLIPPED CLASSROOM BY ECONOMETRICS UNDERGRADUATE ECONOMICS STUDENTS</b>	1749
<i>M. Cladera</i>	
<b>MONITORING AND SUPPORT OF TOURISM PROGRAMMES IN POLYTECHNICS COLLEGES</b>	1754
<i>K. Ngwenya, X. Khalo</i>	
<b>USING AVIATION GAMING SOFTWARE TO ENHANCE ICAO PILOT TESTING</b>	1763
<i>M. Landry, L. Landryova</i>	
<b>THE ELIMINATION OF SCREEN INFERIORITY EFFECT ON SECOND AND THIRD GRADE READERS DURING COVID-19</b>	1772
<i>S. Dotan, T. Katzir</i>	
<b>UNIVERSITY TEACHERS' COMPETENCE IN TEACHING SUBJECT DIDACTICS</b>	1773
<i>T. Krass, K. Uibu, E. Sikkal</i>	
<b>EXPERIENTIAL LEARNING ABOUT SUSTAINABLE DEVELOPMENT IN BUSINESS EDUCATION – COURSE DESIGN, EXPERIENCES, AND TRANSFERABILITY</b>	1778
<i>A. Spörk, A. Martinuzzi, S. Martinuzzi</i>	
<b>TIME LIMITS FOR ONLINE TESTS DURING THE ASSESSMENT OF STUDENTS LEARNING ENGLISH AS A FOREIGN LANGUAGE AT A TECHNICAL UNIVERSITY</b>	1779
<i>N. Antonenko</i>	
<b>QUALITATIVE ANALYSIS OF ESCAPE ROOM-BASED METHODOLOGY IN A MATHEMATICS COURSE</b>	1785
<i>J.S. Jeong, F. Yllana Prieto, A.I. Montero Izquierdo, D. González-Gómez</i>	
<b>UNSOLVED TASKS IN THE BEBRAS CHALLENGE FOR UPPER SECONDARY BLIND PUPILS</b>	1791
<i>M. Čujdíková, L. Jašková</i>	

<b>UNPLUGGED AND MICRO:BIT ACTIVITY IN THE FUTURE CLASSROOM LAB TO EXAMINE PRE-SERVICE TEACHERS' AFFECTIVE DOMAIN IN MATHEMATICS COURSE</b>	1798
<i>J.S. Jeong, A.I. Montero Izquierdo, F. Yllana Prieto, D. González-Gómez</i>	
<b>INTERACTIVE LEARNING IN ENGINEERING EDUCATION BASED ON LMS AND LTI</b>	1803
<i>S. Shotarova, S. Stoyanova-Petrova</i>	
<b>STATISTICAL TECHNIQUES COURSE FOR UNDERGRADUATE PROGRAMS: AN EMERGENCY REMOTE TEACHING APPROACH</b>	1811
<i>A.R. Xambre, H. Avelos</i>	
<b>CHILDREN'S ABILITY TO ORIENT THEMSELVES IN SPACE</b>	1818
<i>A. Sindelarova, S. Pechouckova</i>	
<b>ANALYSIS OF MOTIVATIONAL MEANS, METHODS AND FORMS OF TEACHING READING LITERACY OF PRIMARY SCHOOL PUPILS IN FINLAND</b>	1823
<i>M. Žišková, J. Miková, K. Barancová</i>	
<b>SOCIAL WORK CURRICULAR DESIGN AND THE INTERNATIONAL STANDARDS FOR THE PROFESSION: ALIGNMENT AND MISALIGNMENT IN PORTUGAL</b>	1824
<i>E. Justino, D. Dias</i>	
<b>ACCESSIBILITY STATUS OF E-COMMERCE SITES OF FINNISH UNIVERSITIES OF APPLIED SCIENCES</b>	1828
<i>J. Lahti</i>	
<b>PACKAGING DESIGN AS A CONTAINER OF COMPLEXITY: DEFINITION OF PRACTICAL FRAMEWORK FOR A CO-DESIGN PROCESS</b>	1834
<i>S. Palmieri, M. Bisson, R. Palomba, D. Vitale</i>	
<b>INDUSTRIAL ENGINEERING AND MANAGEMENT: WHAT AND HOW TO TEACH AND LEARN IN AN INTRODUCTORY COURSE</b>	1843
<i>H. Avelos, A.R. Xambre, M.J. Rosa</i>	
<b>HOW PANDEMIC-DRIVEN REMOTE LEARNING HELPED EXPAND STUDENT LEARNING WHEN COURSES SHIFTED FROM IN-PERSON DELIVERY TO VIRTUAL DELIVERY</b>	1849
<i>H. Boersma</i>	
<b>THE IMPORTANT THING IS NOT WINNING BUT TAKING PART: UNDERSTANDING SPECIAL OLYMPICS EXPERIENCES FROM THE ATHLETES' PERSPECTIVE</b>	1850
<i>C. Mihajlovic</i>	
<b>TRAINING AUTHENTIC LEADERSHIP IN UNCERTAIN TIMES AT THE POSTGRADUATE LEVEL</b>	1855
<i>E.O. Cardoso Espinosa, M.J. Blas Rivera, E.D. Nava Meléndez</i>	
<b>AGRIPOLIS: LIVING THE HIGH LIFE</b>	1860
<i>R. Davids</i>	
<b>UNDERSTANDING BUSINESS FACULTY ADOPTION OF TECHNOLOGY, ITS COMPLEXITIES AND NUANCES</b>	1868
<i>M. Conyette</i>	
<b>MENTORING OF UNIVERSITY STUDENTS. CASE OF AN ENTREPRENEUR WHO APPLIES THE HYPERSPECTRAL TECHNIQUE TO FOOD SAFETY</b>	1878
<i>O. Cáceres-Moreno, M.D. La Rubia, C. Rus-Casas</i>	
<b>TRAINING OF SPECIAL EDUCATION TEACHERS: PROBLEMS AND SOLUTIONS IN LATVIA</b>	1885
<i>J. Dzerviniks, M. Rozenfelde</i>	
<b>THE NATIONAL CYBER ETHICS MODULES: AN APPROACH FOR TEACHING CYBER SAFETY TO K12 STUDENTS</b>	1896
<i>M. Ahmad, N. Razali</i>	
<b>PERSPECTIVES OF TURKISH EARLY CHILDHOOD ADMINISTRATORS ABOUT INCLUSION</b>	1901
<i>S. Rakap</i>	
<b>THEORY AND RESEARCH-BASED GUIDELINES FOR DESIGNING AND DEVELOPING EFFECTIVE VIDEO GAMES</b>	1902
<i>R. Ahmazad</i>	
<b>IMPACT OF A TRAINING AND COACHING TO SUPPORT TURKISH MOTHERS' IMPLEMENTATION OF MILIEU TEACHING STRATEGIES</b>	1906
<i>S. Rakap, S. Balikci, E. Gulboy, S. Kalkan</i>	
<b>VISUALIZING AND MODELING ONLINE LEARNING BEHAVIORS BY RETENTIONEERING</b>	1907
<i>K. Li</i>	

<b>TRAINING PROSPECTIVE ELEMENTARY SCHOOLS TEACHERS IN PLANNING, CONDUCTING AND EVALUATING PROBLEM-BASED AND EXPERIENTIAL LESSONS IN INFORMATICS, SCIENCE AND TECHNOLOGY</b>	1917
<i>N. Bauer, M. Haack, D.M. Jozefiak, J. Mägdefrau</i>	
<b>DEVELOPMENT OF STUDENTS' WELL-BEING IN THE CONTEXT OF PHYSICAL ACTIVITIES</b>	1928
<i>J. Dzerviniks, V. Dzervinika, E. Dzervinika</i>	
<b>IS ONLINE LANGUAGE EDUCATION AT A CROSSROADS OR IN DIRE STRAITS?</b>	1936
<i>M. Šikolová, L. Koláčková, M. Veselá</i>	
<b>WARGAMING – BASED LEARNING TO DEVELOP THE COMPETENCIES OF FUTURE MILITARY OFFICERS</b>	1940
<i>G. Dudzevičiūtė</i>	
<b>SOME DIFFICULTIES MET BY STUDENTS IN COMPUTING THE ENTROPY BALANCE IN SOME THERMODYNAMIC PROCESSES</b>	1941
<i>S. Bailleux, A. Anakkur, M.L. Lahlaouti</i>	
<b>VET TEACHERS' PERCEPTIONS OF THEIR PRACTICES BEFORE AND AFTER COVID-19</b>	1951
<i>F. Moreira, D. Oliveira, A. Oliveira</i>	
<b>ENHANCING TOOLS FOR STUDYING ORNAMENTAL PLANTS: VIDEOGAME AND INTERACTIVE MAP</b>	1958
<i>A. Hernando Gallego, M. Gómez García, M. Legrand, J. Velázquez Saornil, C. Iglesias Merchan, L.G. García-Montero</i>	
<b>IMPROVEMENT IN THE AREA OF STATISTICS</b>	1965
<i>C. Chiralt, J. Picazo</i>	
<b>WHAT IS THE BEST EDUCATIONAL METHODOLOGY TO TEACH FIRST AID IN HIGH SCHOOL?</b>	1973
<i>M.T. Pascual-Galiano, L. Vega-Ramírez, M.Á. Níguez-García, A. Vidaci, M.A. Ávalos-Ramos</i>	
<b>A QUALITATIVE INTERVIEW STUDY ON THE DEVELOPMENT OF STUDENTS' SOCIAL-EMOTIONAL SKILLS DURING COVID19</b>	1977
<i>B. Kopp, A. Lueg</i>	
<b>GEOMORPHOLOGY TOPOGRAPHIC INTERPRETATION</b>	1981
<i>C. Carbonell-Carrera</i>	
<b>PROJECT FOR SECONDARY-SCHOOL STUDENTS: ENERGY USED TO OBTAIN WATER</b>	1985
<i>M. Gómez, M.D. Grau, E. Xandri</i>	
<b>TRANSFORMATIVE IMPLICATIONS AND EVIDENCE-BASED PRINCIPLES FOR CREATING CONTENT FOR MATHEMATICS LEARNING IN THE METAVERSE</b>	1994
<i>X. Li</i>	
<b>TOWARDS DIALOGIC LEARNING THROUGH OPEN APPROACHES AND PODCASTING: SOUTH AFRICAN EDUCATORS</b>	2004
<i>N. Agherdien, R. Pillay</i>	
<b>ACADEMIC INTEGRITY: WHOSE WRITING IS IT? CAN WE STOP THE PLAGIARISM PANDEMIC?</b>	2005
<i>H. Hope, J. Lewis</i>	
<b>DIGITAL EDUCATION CONTEXTS AND LEARNING ANALYTICS TO MEASURE THE LEARNING EFFICACY</b>	2006
<i>M.J. Sousa, H. Belchior-Rocha</i>	
<b>TECHNOLOGICAL INTERFACE COMPONENTS THAT SUPPORT ACCELERATED LEARNING IN THE ACQUISITION OF FOREIGN LANGUAGE VOCABULARY</b>	2014
<i>D. Passig, G. Eshel Kedmi, A. Aharoni</i>	
<b>EXAMINATION OF OPINIONS REGARDING RISKY BEHAVIORS IN HIGH SCHOOL STUDENTS</b>	2019
<i>S.S. Aydoğan, S. Seven, M. Erdoğan, N. Altınmakas, F. Nayır</i>	
<b>ARE UNIVERSITY STUDENTS MORE SATISFIED WITH COMMUNICATION AFTER USING A MOBILE APPLICATION?</b>	2020
<i>M. Lara, J. Flores, S. van Der Meer, I. Bezemer</i>	
<b>SURVEY-BASED APPROACH TO PREDICT EARLY DROPOUT IN ENGINEERING DEGREES</b>	2021
<i>J.C. Cuevas-Martínez, P.J. Reche-Lopez, A.J. Yuste-Delgado, R. Viciana-Abad, F. Rivas-Peña, J.M. Perez-Lorenzo</i>	

<b>KNOWLEDGE AND SATISFACTION WITH THE APPLICATION OF SELF-EVALUATION AND CO-EVALUATION IN UNIVERSITY STUDIES</b>	2030
<i>A. Penelas-Leguía, P. Cuesta-Valiño, J.M. López-Sanz, E. Nuñez-Barriopedro, C. Loranca-Valle</i>	
<b>NON-STRESSFUL OBSERVATION: MYTH OR REALITY?</b>	2036
<i>T. Iusupova</i>	
<b>USING COMPUTER ALGEBRA SYSTEMS IN TEACHING AND ASSESSMENT IN CALCULUS</b>	2041
<i>P. Carvalho, L. Descalço, H.F. Gonçalves</i>	
<b>ATTENTION SPAN IN CALCULUS CLASSES AND YOGA BREAKS</b>	2049
<i>P. Carvalho, L. Descalço, H.F. Gonçalves</i>	
<b>ECONOMICS IN PRIMARY SCHOOLS – AN EMPIRICAL EXPERIMENT FROM HUNGARY</b>	2056
<i>J. Nagy</i>	
<b>IS IT POSSIBLE TO MAKE LEARNING ENJOYABLE AND MEANINGFUL FOR UNIVERSITY STUDENTS THROUGH GAMIFICATION?</b>	2057
<i>M.J. López-Serrano, A. Batlles-Delafuente, F.J. Castillo-Díaz, J. Torres-Téllez</i>	
<b>NEW ACTIVE METHODOLOGIES TO IMPROVE ACADEMIC PERFORMANCE IN THE UNIVERSITY CONTEXT: THE WOOLAP EXPERIENCE</b>	2062
<i>A. Carrasco-Hernández, G. Lozano-Reina, M.E. Lucas-Pérez, M.F. Madrid-Garre, G. Sánchez-Marín</i>	
<b>ARE YOU OFF TO A GOOD START? THE “JOURNAL OF THE DAY” EXPERIENCE</b>	2063
<i>P. Morando, M.L. Spreafico, G. Turconi</i>	
<b>STRUCTURED READING COURSE: THE IMPACT OF READINESS ASSURANCE ASSIGNMENTS</b>	2072
<i>G. Oskarsson</i>	
<b>KNOWLEDGE AND TEACHING EXPERIMENTS FOR THE FUTURE CREATED IN THE COVID CRISIS</b>	2073
<i>G. Oskarsson, E. Svansson</i>	
<b>MATH INHABITS THE MUSEUM</b>	2074
<i>P. Morando, M.L. Spreafico</i>	
<b>MID-TERM PSYCHOMETRIC OUTCOMES OF HOP! : A FRENCH REEMPLOYMENT PROGRAM</b>	2082
<i>M.P. Celume, M. Erouart, C. Guignard</i>	
<b>A PAPER CALCULATOR: HOW TO FOLD MULTIPLICATIONS AND THEIR PROPERTIES</b>	2090
<i>M.L. Spreafico</i>	
<b>INTERNAL MARKETING IN INTERNATIONAL AND NATIONAL INTERNSHIPS: COMPARISON OF STUDENTS’ PERSPECTIVES AND EXPECTATIONS</b>	2097
<i>T. Pataco, M. Oliveira</i>	
<b>ADAPTIVE FLIPPED CLASSROOM IMPROVES COMPREHENSION AND ASSOCIATED LEARNING OF A BIOMEDICAL RESEARCH TALK IN CELL BIOLOGY</b>	2105
<i>L. Del Campo Milán, A. García-Culebras, C. Bravo-Llatas, E. Lozano Pérez, T. Angulo Carrere, M.P. Álvarez Vázquez</i>	
<b>EVALUATING LEADERSHIP COMPETENCIES AMONG UNDERGRADUATE MANAGEMENT STUDENTS AT LMSU</b>	2114
<i>A. Mirakyan, S. Shchelokova, I. Suslova</i>	
<b>LECTURERS' AND CLIENTS' EXPERIENCES OF USING LEARNING BY DEVELOPING ACTION MODEL WITH PROJECT-BASED COMPUTING SCIENCE STUDY MODULES IN FINLAND AND THE UK</b>	2121
<i>T. Lintilä</i>	
<b>A SYNTHETIC LITERATURE REVIEW ON ANALYTICS TO SUPPORT CURRICULUM IMPROVEMENT IN HIGHER EDUCATION</b>	2130
<i>X.V. Li, M.B. Rosson, B. Hellar</i>	
<b>INVESTIGATING INTENTIONALITY WHEN LEARNING TO TEACH WITH DATA VISUALIZATIONS</b>	2144
<i>A. Mamolo, S. Rodney, N. Ibeh</i>	
<b>VIRTUAL TOURS USING 360° PHOTOS AND 3D MODELS</b>	2145
<i>C. Carbonell-Carrera, J.L. Saorín</i>	
<b>THE GEOGEBRA BOOK: A TOOL TO ENGAGE STUDENTS</b>	2149
<i>M.P. de Sousa Oliveira, A. Hall, N.R.O. Bastos, D. Seabra, E. Assunção, M.J. Barroso</i>	



<b>FLIPPED CLASSROOM METHODOLOGY AND CASE STUDY LEARNING COMPARED TO INSTRUCTIONAL TEACHING: A STUDENT EXPERIENCE EVALUATION</b>	2158
<i>A. Triantafyllidis, M. Deloglou, K. Leftheriotis, G. Sainis, G. Vranopoulos</i>	
<b>INTEGRAL MEDICINE WITH THE BUENAVENTURA FAMILY</b>	2166
<i>M. Alonso-Chamorro</i>	
<b>STUDENT PERFORMANCE IN MODERN PHYSICS IN AN ACTIVE, PARTIALLY-FLIPPED CLASSROOM</b>	2173
<i>S. Yarbrough, R. Lopez</i>	
<b>INTERACTIVE TOOLS FOR ENGINEERING MATHEMATICS LEARNING</b>	2177
<i>E. Salazar Guerrero, E. Ramos, I. Monsioais, G. Sánchez</i>	
<b>INCLUSIVE EDUCATION OF STUDENTS WITH VISUAL IMPAIRMENT THROUGH UNIVERSAL DESIGN FOR LEARNING: LITERATURE REVIEW</b>	2181
<i>S. Ališauskienė, I. Ungeitytė</i>	
<b>HOLISTIC LEARNER DEVELOPMENT IN ENGINEERING EDUCATION</b>	2190
<i>M. El-Sayed</i>	
<b>MERGING GAMIFICATION ELEMENTS WITH A TOUCHSCREEN-BASED APPLICATION TO SUPPORT CHILDREN'S LEARNING OF THE ARABIC LETTER FORMS</b>	2199
<i>A. Al Hejaili, P. Newbury</i>	
<b>GENDER DIFFERENCES IN THE SELF-PERCEPTION OF ANXIETY IN INITIAL ASSESSMENT OF ACROBATIC SKILLS</b>	2208
<i>M.A. Ávalos-Ramos, A. Vidaci, M.T. Pascual-Galiano, L. Vega-Ramírez</i>	
<b>MODULAR APPROACH TO TEACHING SOME COMPUTER SCIENCE CONCEPTS</b>	2212
<i>S. Ramnath, B. Dathan</i>	
<b>THE ADVENT OF WORK-BASED SKILLS AND DISPOSITIONS AS MICROCREDENTIALS FOR DUAL STUDENTS; A DETAILED LOOK AT THE PRACTICAL PHASE</b>	2220
<i>K. Berkling, J. Schaupp, M. Semmler, S. Birkhold, A. Barth, L. Floruß</i>	
<b>PHD-SUPERVISORS EXPERIENCES DURING THE COVID-19 PANDEMIC – A CASE STUDY</b>	2230
<i>R. Krumsvik, L. Jones</i>	
<b>PROMOTING SOCIAL INCLUSION IN SPORTING CONTEXTS: THE DIFFERENT ABILITIES MOTOR PROGRAM</b>	2241
<i>G. Ferrara, F. La Versa</i>	
<b>COMPETITIONS AS REQUIRED ASSESSMENTS IN CYBER SECURITY EDUCATION</b>	2252
<i>C. Anton</i>	
<b>MOTIVATIONAL FACTORS FOR INCREASING DIGITAL COMPETENCE AND INFORMATION LITERACY OF UNIVERSITY STUDENTS</b>	2253
<i>V. Bolek, A. Romanová</i>	
<b>BREAKING BARRIERS: FOSTERING INCLUSION AND ACCESSIBILITY IN EDUCATION AND TOURISM FOR DISABLED STUDENTS</b>	2262
<i>P. Escudeiro, M. Campos</i>	
<b>IREAD: INTERPRETABLE RECOGNITION AND AUTOMATED DECONSTRUCTION OF SEMANTICS IN WRITTEN ENGLISH</b>	2266
<i>A. Satish, A. Bhamare, D. Hoskote, V. Raj, G. Srinivasa</i>	
<b>THE SELF-EFFICACY OF PRE-SERVICE TEACHERS: LESSONS LEARNED DURING THE COVID-19 PANDEMIC IN THE NORTHWEST OF ENGLAND</b>	2276
<i>R. Tynan, A. Mallaburn</i>	
<b>“LEARNING WITH THE SCHOOL LIBRARY”: THE CASE OF THE WEIWE(R)BE PROGRAMME IN THE DIGITAL AND VIRTUAL SCHOOL ECOSYSTEM</b>	2282
<i>T.M. Loureiro Cardoso, E. Ribeiro Mota, A.C. Cruz, F. Pestana</i>	
<b>COMBINING LEARNING MANAGEMENT SYSTEM AND COURSE MANAGEMENT SYSTEM IN ACCOUNTING COURSES IN ONLINE BACHELOR OF SCIENCE IN ACCOUNTING PROGRAM</b>	2288
<i>C. Fajardo</i>	
<b>ENHANCING SCIENCE LEARNING THROUGH EXPERIMENTAL PRACTICE: A GUIDE FROM ITALIAN TEACHERS</b>	2289
<i>I. De Angelis, C. Meneghini, S. Mobilio, A. Brancaccio, A. Conte, C. Mancinelli, E. Borgi, P. De Paolis</i>	
<b>SCAFFOLDING COMPUTATIONAL THINKING THROUGH PROBLEM-BASED LEARNING AND PROJECT-BASED LEARNING: USING PROBLEM TO POWER LEARNING</b>	2294
<i>S.L. Ong, J. Ling, W.L. Chang</i>	

<b>MUSIC MYSTERY: LEARNING MUSIC THEORY THROUGH ESCAPE ROOM PUZZLES</b> <i>K.Y.T. Lim, K.M. Truong, Y. Wu</i>	2303
<b>UTILISING DEEP LEARNING IN SINGAPORE PRIMARY SCHOOL MATHEMATICAL WORD PROBLEMS</b> <i>J. Zeng, J.D. Tan, K.Y.T. Lim</i>	2314
<b>DEVELOPING AN INDICATOR FOR THE STANDARD OF SELF-INSTRUCTIONAL MATERIALS (SIM) IN OPEN AND DISTANCE LEARNING ENVIRONMENTS: AN EXPLORATORY STUDY ON THE RELATIONSHIP BETWEEN COGNITIVE LOAD TYPES AND TASK SETS</b> <i>Z. Hamidon, M.L. Abdullah, H.K. A/P Dharam Singh</i>	2321
<b>MICROWORLDS AS A FIRST STEP IN TEACHING PROGRAMMING</b> <i>V. Gabalová</i>	2329
<b>ICT IN CHILDREN'S COMPULSORY PRE-SCHOOL EDUCATION</b> <i>V. Gabalová, A. Lengyelová, H.I. Vrtoch Oppenberger, V. Stoffová</i>	2334
<b>THE USE OF ROBOTICS IN PRESCHOOL EDUCATION</b> <i>K. Stefanova, G. Atanasova</i>	2339
<b>MEASURING EFFECTIVENESS OF PROMPT-SPECIFIC WRITING GUIDANCE FOR STUDENTS OF LOWER AND MIDDLE GRADES</b> <i>D. Dutta, S. Dixit, P. Gaurangi</i>	2348
<b>THE BENEFITS OF THE EARLY INTRODUCTION OF SEO TO THE NEW DIGITAL GENERATION</b> <i>I. Stefanov, G. Atanasova</i>	2357
<b>ON THE COURSE OF DEVELOPMENT OF STRESS COPING COMPETENCE AMONG PROSPECTIVE NURSES AND ITS SUPPORTING FACTORS - WHAT ROLE DO TRAINING CONDITIONS PLAY?</b> <i>J. Warwas, P. Krebs, S. Seeber, U. Weyland, E. Wittmann</i>	2364
<b>RESTRUCTURING INTERDISCIPLINARY TEACHING MATERIALS: CROSSING OVER FROM NON-STEM TO STEM</b> <i>W.C. Chen</i>	2365
<b>TEACHER REQUIREMENTS FOR A WEBSITE PROVIDING EDUCATIONAL MATERIAL ON INLAND WATERWAY TRANSPORT: EVALUATION USING A USER-CENTERED DESIGN PROCESS</b> <i>A. Haller, S. Dopler, S. Dopler, L.M. Putz-Egger</i>	2366
<b>UTILIZING ACTIVE LEARNING TECHNIQUES TO LESSEN PASSIVITY IN DISTANCE LEARNING DUE TO THE COVID-19 PANDEMIC</b> <i>A. Salem</i>	2372
<b>SOFT SKILLS: EXPERIENCES FROM AN INTERDISCIPLINARY PHD PROGRAM IN INFORMATION SYSTEMS AND WORK INTEGRATED LEARNING</b> <i>C. Gjellebæk, A. Fuentes Martinez</i>	2381
<b>WHAT IS THE RELATIONSHIP BETWEEN SELF-CONCEPT AND SCHOOL PERFORMANCE IN PRIMARY SCHOOL?</b> <i>R. Barroso, D. Dias</i>	2391
<b>LEARNING THROUGH EMOTION: LEARNING BY COMMUNICATING IN EARTH SCIENCES</b> <i>P. Cabello, A. Sáez, M. Guinau, M. Garcés, L. Cabrera, M. López-Blanco, G. Lastras, O. Ferrer, O. Gratacós, X. Delclòs, C. Martín-Closas, J. Sanjuan, I. Cacho, J. Palau, M. Rosell, A. Soler, C. Torrento, P. Piña, P. Granada</i>	2400
<b>LEARNING BY COMMUNICATING IN EARTH SCIENCES: AUDIOVISUAL NOTES IN THE FIELD AND AUDIOVISUAL PRESENTATIONS</b> <i>P. Cabello, A. Sáez, M. Guinau, M. Garcés, L. Cabrera, X. Delclòs, M. López-Blanco, O. Ferrer, O. Gratacós, G. Lastras</i>	2407
<b>DISTANCE LEARNING DURING THE LOCKDOWN: METHODOLOGIES EMPLOYED AND TEACHERS' THOUGHTS</b> <i>G. Cioci</i>	2415
<b>SERVICE LEARNING AND CIRCULAR ECONOMY: TYRE RECOVERY ACTIVITY IN STRATEGIC MANAGEMENT COURSE</b> <i>R. Marcos, D. Ferrández, A. Zaragoza, C. Morón</i>	2426
<b>RESEARCH-BASED LEARNING PROPOSAL FOR THE INTEGRATION OF ELT TEXTILE FIBRE AND RECYCLED STEEL FIBRES IN BUILDING CONSTRUCTION</b> <i>D. Ferrández, M. Alvarez, A. Zaragoza, C. Morón</i>	2433

<b>THE SCHOOL ENGAGEMENT OF SLOVAK ADOLESCENTS IN RELATION TO THEIR SELF-CONCEPT</b>	2439
<i>L. Ďuricová, B. Žitniaková Gurgová</i>	
<b>METAVEVERSE, AUGMENTED REALITY, VIRTUAL REALITY, ARTIFICIAL INTELLIGENCE, GAMING AND NFT: PREPARING MARKETING STUDENTS FOR TODAY AND TOMORROW'S NEW DIGITAL REALITIES</b>	2445
<i>N. Sarrasin, M. Zumstein, A. Widmer</i>	
<b>LEARNING LANDSLIDE HAZARDS AT THE UNIVERSITY LEVEL BY COMBINING REAL CASE STUDIES, COLLABORATIVE WORK, AND INNOVATIVE TOOLS</b>	2455
<i>M. Guinau, P. Cabello, E. Playà</i>	
<b>PREDICTING GRADES ON AN EXAM THROUGH GAMIFICATION TECHNIQUES. TO WHAT EXTENT DOES THE PARTICIPATION ON A GAMIFICATION ACTIVITY IMPACT POSITIVELY ON THE MARK OBTAINED IN THE EXAM?</b>	2463
<i>G. Morales-Alonso, A. Urueña, R.E. González, A. Hidalgo</i>	
<b>DECREASING BOREDOM BY FLIPPING A CLASSROOM AT KING SAUD UNIVERSITY</b>	2469
<i>R. Almazyad</i>	
<b>GAME-BASED LEARNING TO ACCELERATE THE ENERGY TRANSITION THROUGH EDUCATIONAL ESCAPE ROOMS</b>	2475
<i>T. Ouariachi, M. Groote, A. Van Houwelingen</i>	
<b>RIGHT TO ONLINE EDUCATION FOR VILLAGE GIRLS IN INDIA</b>	2481
<i>R. Tripathi</i>	
<b>THE DEGREE TO WHICH STUDENTS OF ISLAMIC EDUCATION COURSES USE SOCIAL NETWORKS IN EDUCATION AND THE OBSTACLES TO THEIR USE</b>	2487
<i>M. Almashaleh</i>	
<b>DIGITAL LEARNING COMPETENCIES AMONG FEMALE STUDENTS OF THE LEARNING DISABILITIES DEPARTMENT AT THE ARAB OPEN UNIVERSITY- JORDAN</b>	2496
<i>L. Damrah</i>	
<b>IMPLEMENTATION OF PROBLEM-BASED LEARNING METHODOLOGY IN COMBINATION WITH COOPERATIVE LEARNING IN THE "MATERIALS SCIENCE" SUBJECT</b>	2505
<i>J. Gomez-Caturla, O. Fenollar, R. Tejada-Oliveros, D. Lascano, D. Garcia-Garcia</i>	
<b>PUTTING THE PIECES TOGETHER: COMBINING INTERDEPENDENT SUPPORT STRUCTURES FOR FOSTERING DIGITAL COMPETENCIES OF PRE-SERVICE TEACHERS IN A PROJECT-BASED APPROACH</b>	2510
<i>A. Aumann, L. Heiberger, C. Schmidt, S. Schnebel, H. Weitzel</i>	
<b>IMPROVING SUSTAINABLE MOBILITY, SPATIAL-DATA AND CORE SKILLS THROUGH A SERVICE-LEARNING PROJECT</b>	2517
<i>E. Ortega, B. Martín, M.E. López-Lambas, C. Jorquera, S. González, C. Iglesias Merchan</i>	
<b>THE IMPACT OF NURSING MODELS IN NURSE EDUCATION</b>	2525
<i>U. Kõrgemaa, K. Puusepp</i>	
<b>EXPERIENCES IN EXTERNAL CURRICULAR INTERNSHIPS IN THE DEGREE OF FOOD SCIENCE AND TECHNOLOGY</b>	2531
<i>M.D. Rivero Perez, M. Cavia-Saiz, G. Gerardi, M. Ortega-Heras, I. Gómez, P. Muñiz</i>	
<b>TEAM EFFECTIVENESS IN STUDENTS' TEAM PROJECT</b>	2539
<i>L. Piki, N. Posarić</i>	
<b>EXPERIENCES IN INNOVATIVE TRAINING TOOLS AT THE SERVICE OF UNIVERSITY LEARNING</b>	2545
<i>G. Gerardi, M. Cavia-Saiz, M.D. Rivero Perez, M. Ortega-Heras, I. Gómez, M.L. González-Sanjosé, P. Muñiz</i>	
<b>PARENTAL BACKGROUND AND CHILDREN'S VIEW OF CIVIC SCIENCE EDUCATION – NARROWING THE EDUCATION GAP BY IDEALISM?</b>	2550
<i>S.B. Linek, A. Schmidt</i>	
<b>PROFESSIONAL DEVELOPMENT AND CREATING CHANGE OF TEACHING BY TAKING PART IN A COURSE IN DIGITAL PEDAGOGY AND DIDACTICS</b>	2559
<i>O.M. Lindgaard</i>	
<b>EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) IN PRIMARY SCHOOL – AN EXAMPLE AND INVESTIGATION ON HOW PROSPECTIVE PRIMARY SCHOOL TEACHERS CAN DEAL WITH THE EDUCATIONAL CONCEPT OF ESD</b>	2568
<i>M. Gröger, A. Dorn</i>	

<b>THE ROLE OF E-LEARNING SUPPORT CENTERS IN MOBILE LEARNING AND THE DIGITAL TRANSFORMATION</b>	2574
<i>V. Kasapidis, I.E. Lasica, D. Spanos, S. Pitsikalis, A. Kostas, A. Sofos, C. Vitsilaki</i>	
<b>SYSTEM ANALYSIS OF A MOTORCYCLE SIMULATOR FOR RESEARCH AND EDUCATION PURPOSES</b>	2584
<i>V. Mašek, R. Čermák, D. Fait</i>	
<b>A SERVICE-LEARNING EXPERIENCE FOR FIGHTING FAKE NEWS ABOUT FOOD AND NUTRITION</b>	2592
<i>M.C. Sánchez Mata, M. Cámara, M.C. Matallana, M.L. Pérez Rodríguez, V. Fernández-Ruiz, P. Morales, P. García-Herrera, E. Arranz, S. Fernández-Tomé, R.M. Cámara, M. Ciudad-Mulero, L. Domínguez, E.N. Vega, C. Tamayo-Vives, L. González-Zamorano</i>	
<b>PODCAST AS E-LEARNING METHODOLOGY IN FOOD SCIENCE AND NUTRITION AT UNIVERSITY LEVEL</b>	2598
<i>R.M. Cámara, M. Cámara, M.C. Matallana, M.C. Sánchez-Mata, V. Fernández-Ruiz, P. Morales, P. García-Herrera, E. Arranz, S. Fernández-Tomé, M. Ciudad-Mulero, L. Domínguez, E.N. Vega, C. Tamayo-Vives, T. Jaramillo</i>	
<b>EMPLOYMENT OF UNIVERSITY GRADUATES IN THE SELECTED SERVICE SECTOR IN THE SLOVAK REPUBLIC</b>	2603
<i>M. Strenitzerova, T. Corejova</i>	
<b>PILOT STUDY TO ENHANCE THE CONTENT VALIDITY OF HISTORY TAKING OSCE FOR THE SECOND-YEAR MEDICAL STUDENT</b>	2611
<i>Q.B. Le, T.M.H. Nguyen, H. Ho</i>	
<b>TEAM-BUILDING QUIZ ACTIVITY BASED ON SUSTAINABLE DEVELOPMENT GOALS FOR THE ENVIRONMENTAL SCIENCE CLASSROOM</b>	2617
<i>E. Quintano, R. Esteban</i>	
<b>SOCIAL WORK THROUGH THE AGES: THE CASE STUDY OF PORTUGUESE HIGHER EDUCATION</b>	2623
<i>D. Dias, E. Justino</i>	
<b>HELPING FIRST YEAR COLLEGE STUDENTS TRANSITION TO UNIVERSITY LIFE BY STUDYING THE SCIENCE OF HAPPINESS</b>	2629
<i>E. Pappamihel</i>	
<b>MULTILATERAL TRAINING AS AN INNOVATIVE TEACHING METHOD TO SUPPORT THE RESILIENCE IN PEOPLE WITH DISABILITIES</b>	2634
<i>G. Ferrara, F. La Versa, G. Battaglia</i>	
<b>VIRTUAL REALITY IN PSYCHOTHERAPY TRAINING: SHIFT TOWARDS MODERN TRAINING ENVIRONMENTS</b>	2641
<i>K. Varšová, V. Juřík, O. Janoušek</i>	
<b>A TRAINING PATH FOR UNIVERSITY TUTORS. THE EXPERIENCE OF THE UNIVERSITY OF PADUA (ITALY)</b>	2651
<i>R. Bonelli, A. Bonin, L. Da Re</i>	
<b>LOW-COST CHIP PROGRAMMING FOR TEACHING AND LEARNING DIGITAL SKILLS</b>	2662
<i>N.C. Cruz, J.F. Sanjuan Estrada, M. Lupión, E.M. Garzón, P.M. Ortigosa</i>	
<b>A PILOT STUDY OF VIETNAMESE MEDICAL STUDENTS' SELF-DIRECTED SIMULATION ACTIVITIES WITH CONSTRUCTIVE FEEDBACK</b>	2672
<i>N.L. Ho, H. Ho</i>	
<b>ANALYZING THE IMPACT OF AI-ASSISTED DIAGNOSIS ON MEDICAL STUDENTS' UNDERSTANDING OF NEUROLOGICAL DISORDERS</b>	2673
<i>H. Riasi, F. Nakhaei, A. Rajabpour Sanati, S.H. Sepideh</i>	
<b>THE INTERNSHIP E-DIARY OF FUTURE TEACHERS: A LEARNING TOOL FOR BECOMING A PROFESSIONAL</b>	2674
<i>I. Tandzegolskiene-Bielaglove, N. Ciuciulkiene, A. Lapeniene</i>	
<b>USING STANDARDIZED PATIENTS TO ASSESS COMMUNICATION SKILLS OF MEDICAL STUDENT YEAR 2 IN A CLINICAL SIMULATION ENVIRONMENT IN VIETNAM</b>	2682
<i>N.L. Ho, T.M.H. Nguyen, H. Ho</i>	
<b>DEVELOPING AN AI-BASED PLATFORM FOR PERSONALIZED LEARNING IN NEUROLOGY EDUCATION FOR MEDICAL STUDENTS</b>	2686
<i>A. Rajabpour Sanati, H. Riasi, F. Nakhaei, S.H. Sepideh</i>	
<b>VIDEO REPORTING FOR THE DEVELOPMENT OF MEDIA LITERACY IN TEACHER EDUCATION</b>	2687
<i>N. Ciuciulkiene, I. Tandzegolskiene-Bielaglove</i>	

<b>ARTIFICIAL INTELLIGENCE APPLIED TO TEACHING</b>	2692
<i>J.F. Sanjuan Estrada, N.C. Cruz, M. Lupión, E.M. Garzón, P.M. Ortigosa</i>	
<b>PROMOTING ACTIVE CITIZENSHIP THROUGH CIVIC EDUCATION AND ACTIVE ONLINE PARTICIPATION OF YOUTH ROLE MODELS: THE CASE OF ACTION PROJECT</b>	2702
<i>S. Tagmat, T. Arsova-Netzelmann, K. Aue</i>	
<b>TEAMWORK USING COLAB NOTEBOOKS IN THE CLOUD</b>	2710
<i>J.F. Sanjuan Estrada, N.C. Cruz, M. Lupión, E.M. Garzón, P.M. Ortigosa</i>	
<b>A VIRTUAL REALITY TRAINING PLATFORM FOR CBRN OPERATORS IN A DECONTAMINATION PROCEDURE</b>	2719
<i>F. De Lorenzis, M. Nadalin, F. Scarrone, M. Migliorini, F. Lamberti</i>	
<b>DESIGN OF THE MASTER DEGREE IN HUMAN NUTRITION BLOG (UNIVERSITY OF GRANADA) AS A VIRTUAL TOOL FOR ACTIVE LEARNING AND KNOWLEDGE TRANSFER PROMOTION</b>	2728
<i>T. Nestares, R. Martín-Masot, J.L. Quiles, M. López-Frías, V. Aparicio, J. Mora, F.J. Amaro-Gahete</i>	
<b>TAKE A LOOK AT MODERN PHYSICS: VIRTUAL REALITY FOR SCHOOLS TO EXPLORE PARTICLE PHYSICS</b>	2733
<i>A. Budano, I. De Angelis, A. Postiglione, R. Antonietti, C. Martellini, D. Tagnani</i>	
<b>TEACHING QUALITY ASSURANCE MODEL</b>	2738
<i>D. Zhukova, K. Tishkina</i>	
<b>ON MACHINE LEARNING SUPPORTED CURRICULUM DESIGN AND DEVELOPMENT</b>	2739
<i>N. Bijedić, D. Gašpar, A. Joldić</i>	
<b>UNDERSTANDING OF WORKPLACE SUPERVISION IN VOCATIONAL AND HIGHER EDUCATION. THE CASE OF HOSPITALITY STUDIES</b>	2744
<i>A. Roosipõld, M. Kurvits, K. Loogma</i>	
<b>ORGANISATION OF INCLUSIVE LEARNING ENVIRONMENT: CASES OF THE VISUALLY IMPAIRED</b>	2750
<i>I. Dansevičiūtė, A. Lapėnienė</i>	
<b>DOODLING AND ALGORITHMICS</b>	2757
<i>P.R. Osztián, Z. Kátai, E. Osztián</i>	
<b>EXAMINING THE STUDENTS' STATISTICAL LITERACY CONCERNING THE REPRESENTATION AND ANALYSIS OF THE DATA</b>	2767
<i>S.E. Elma, M. İşıksal-Bostan</i>	
<b>TAILORING A UNIVERSITY EFL COURSE: TEACHING METHODS AND STUDENTS' PERSPECTIVES</b>	2774
<i>A. Vlasova</i>	
<b>DIGITAL SKILLS IN AIR TRANSPORT</b>	2781
<i>F. Pérez Moreno, R.M. Arnaldo Valdés, S.E. Zaharia, R. Delgado-Aguilera Jurado, V.F. Gómez Comendador, A.P. Pavel</i>	
<b>THE IMPORTANCE OF ECOLOGY FIELDWORK IN ENGLISH SECONDARY SCHOOL CURRICULA</b>	2789
<i>R. Tynan</i>	
<b>HOW AND WHY DOES THE DEMAND OF AN EXAM QUESTION CHANGE IF WE MANIPULATE IT SO IT CAN BE AUTO-MARKED?</b>	2798
<i>C. Green</i>	
<b>STUDENT LEARNING EXPERIENCE DURING THE COVID-19 PANDEMIC – IMPLICATIONS FOR LEARNING DESIGN</b>	2799
<i>O. Lungu, D. Zhang</i>	
<b>STUDENT AND INSTRUCTOR VIEWS OF MACHINE TRANSLATION IN TRANSNATIONAL HIGHER EDUCATION</b>	2808
<i>M. High, A. McIntosh, S. Li, Y. Ji</i>	
<b>FRIENDSHIPS ON DEMAND? THE USE OF SOCIAL MEDIA BY MIDDLE SCHOOL YOUNGSTERS IN MEXICO CITY</b>	2809
<i>P. Baptista-Lucio, T. Nicolás-Gavilán</i>	
<b>PROBLEMS AND POSSIBILITIES WITH ONLINE EXAMINATION PROCTORING: STATE OF THE RESEARCH</b>	2816
<i>D. Woldeab, T. Brothen</i>	
<b>MAKE LEARNING FUN: IMMERSIVE LEARNING ENVIRONMENT FOR THE TRAINING OF EDUCATORS SPECIALIZED IN LEARNING DISORDERS</b>	2817
<i>C. Gaggioli, S. Casale, M. Ranieri</i>	

<b>AN ALL-IN-ONE WEB-BASED E-RADIO PLATFORM TO SUPPORT COLLEGE RADIO STATIONS</b>	2827
<i>N. Pylarinos, E. Papaioannou, C. Kaklamanis</i>	
<b>TECHNOLOGY ENHANCED STEM EDUCATION FOR CHILDREN WHO LIVE IN URBAN DISADVANTAGED AREAS: AN IRISH CASE STUDY</b>	2836
<i>A. Tamtam, G.M. Muntean, S. Sharma, C. Hava Muntean</i>	
<b>MULTIMEDIA-ENHANCED ENGLISH PRESENTATION TRAINING WITH THE AUDIENCE IN MIND</b>	2844
<i>W.C. Chen</i>	
<b>IMPROVING OPPORTUNITIES IN ENGINEERING THROUGH A DEGREE APPRENTICESHIP PROGRAMME IN NEW ZEALAND</b>	2849
<i>J. Mackay, H. Cadzow</i>	
<b>REVOLUTIONIZING SPATIAL LEARNING: UNLOCKING THE POTENTIAL OF 3D MODELING IN TEACHING 2D PLAN READING</b>	2855
<i>J. Kang, N. Sadeghi</i>	
<b>ENHANCING EMPATHIC UNDERSTANDING OF HOSTILE OTHERS IN PREPARATION OF PERSUASIVE PRESENTATION THROUGH ENACTING HOSTILE'S LIFE EPISODE</b>	2861
<i>H. Suzuki, H. Funaoi, Y. Kubota, T. Mochizuki, H. Kato</i>	
<b>THE LEARNING EXPERIENCE OF CHINESE POSTGRADUATE STUDENTS IN A LITHUANIAN UNIVERSITY: THE ROLE OF TEACHERS</b>	2870
<i>J. Lasauskiene</i>	
<b>RESEARCH ON THE SYMPTOMS OF CIVILIZATIONAL STRESS AMONG UNIVERSITY STUDENTS DURING THE COVID-19 PANDEMIC, THE WAR IN UKRAINE AND THE ONGOING ECONOMIC CRISIS IN THE EUROPEAN REGION</b>	2878
<i>V. Strnadová, P. Voborník, K. Provazníková</i>	
<b>DEVELOPMENT AND EVALUATION OF A MULTIMODAL DIDACTIC CONCEPT FOR TEACHING EMERGING TRENDS IN BUSINESS INFORMATICS</b>	2889
<i>A. Rottensteiner, C. Ploder, R. Bernsteiner, T. Dilger</i>	
<b>DEVELOPING INSIGHTFUL AND TECHNOLOGY ENHANCED INTERNSHIP IN DIGITAL MARKETING CONTEXT</b>	2894
<i>R. Ahlgren, H. Neuvonen</i>	
<b>TEACHING EMBODIMENT DESIGN RULES FOR 3D PRINTING THROUGH PROJECT-BASED LEARNING</b>	2899
<i>T. Sauer, M. Nutzmann, M. Vofß, H. Bozkurt</i>	
<b>A CASE STUDY ON THE USE OF DIGITAL SIGNATURES AND THE RELEVANCE OF CERTIFYING ONLINE CONTENT FOR EDUCATION</b>	2904
<i>M. Marian, I. Borcoşi, C.A. Borcosi, D. Popescu, A. Cusman, D. Ionică</i>	
<b>PREDICTIVE MODELING AND ANALYTICS OF EDUCATIONAL DATABASES</b>	2914
<i>D. Višnjic, M. Cerjan, D. Oreški</i>	
<b>SATISFACTION AND LEARNING AFTER THE APPLICATION OF STUDENT-CENTRED H5P ACTIVITIES</b>	2922
<i>C. López-Gutiérrez, A. Pérez</i>	
<b>DEVELOPING GLOBAL EMPLOYABILITY SKILLS VIA STUDENTS' COLLABORATIVE ONLINE INTERNATIONAL LEARNING (COIL) ACTIVITIES – A CASE STUDY OF FINLAND AND UK COLLABORATION TO SHARE BEST PRACTICE</b>	2923
<i>N. Ivarsson-Keng, M. Crossan</i>	
<b>KNOWLEDGE AND INNOVATION MANAGEMENT</b>	2927
<i>T. Limba, L. Lelešienė, S. Novogreckas, A. Kowalewska</i>	
<b>VALUES AND EMOTIONAL INTELLIGENCE IN PSYCHOLOGY STUDENTS: MANIFESTATION OF THE RELATION</b>	2936
<i>G. Kozhukhar, A. Belousova, E. Breus</i>	
<b>HIGH SCHOOL AND HIGHER EDUCATION STUDENTS' PERSPECTIVES ABOUT RELEVANT SKILLS FOR A SUCCESSFUL TRANSITION TO HIGHER EDUCATION</b>	2943
<i>M. Lara, J. Brouwer</i>	
<b>ASPECTS AND ROLES OF DIFFERENT PROGRAMING LANGUAGES AND THEIR USE IN STEM EDUCATION</b>	2944
<i>I. Srpak, L. Havaš, T. Horvat, E. Tomičić</i>	
<b>USING OF MACHINE LEARNING METHODS IN LABORATORY FOR THE RENEWABLE ENERGY SOURCES ON THE UNIVERSITY NORTH</b>	2954
<i>T. Horvat, L. Havaš, J. Srpak, V. Šac</i>	

<b>RETHINKING AND REDESIGNING TEACHING METHODS IN POST-PANDEMIC ENVIRONMENTS</b>	2962
<i>E. Dumić, E. Tomičić, D. Srpak</i>	
<b>ADAPTING UNIVERSITY CURRICULUM TO MEET THE DEMANDS OF THE DIGITAL MARKETING INDUSTRY</b>	2970
<i>R. Bílková, M. Kašparová</i>	
<b>IDENTIFYING THE COMPETENCIES OF BUSINESS STUDENTS TO CREATE EFFECTIVE MULTIMEDIA CONTENT BY USE OF ASSOCIATION RULES</b>	2978
<i>P. Petr, M. Kašparová, R. Bílková</i>	
<b>DEBATE AS AN ASSESSMENT TOOL IN HEALTHCARE ETHICS MODULE</b>	2987
<i>E. Naser</i>	
<b>DESIGN THINKING IN TEACHER TRAINING USING THE EXAMPLE OF MULTILINGUAL DIDACTICS</b>	2991
<i>N. Naugk, P. Kofahl</i>	
<b>IMPLEMENTATION OF THE CONSTRUCTIVE ALIGNMENT OF THE TEACHING PROGRAM AND AWARENESS OF THE ENVIRONMENT FOR LEARNING - ACESIQ PROJECT</b>	2999
<i>J.B. Giménez, L. Pastor, B. Solsona, R. Sánchez-Tovar, M. Izquierdo, J. Ribes, A. Robles, M.V. Ruano, A. Jiménez, J. Carrillo, N. Martí, R. Fernández, A. Cháfer, J. Badia, A. García, J.M. Peñarrocha, R. Jiménez, P. San Valero</i>	
<b>QUALITY ASSURANCE DURING THE PREPARATION AND PERFORMANCE OF LABORATORY EXERCISES</b>	3010
<i>J. Nađ, A. Šinjori, J. Srpak, D. Srpak</i>	
<b>THE SOCIAL WORK STUDENTS' PERCEPTIONS OF FACE-TO-FACE LEARNING VS. ONLINE LEARNING IN WESTERN ROMANIA</b>	3020
<i>C. Feher, R. Ungureanu, M. Tomita</i>	
<b>ENGLISH PRONUNCIATION IN THE ERA OF GLOBALISATION: TO TEACH OR NOT TO TEACH?</b>	3021
<i>A. Malinka</i>	
<b>THE MOTIVATION OF VOCATIONAL TRAINING STUDENTS: A KEY ELEMENT IN THE PREVENTION OF DROPOUT</b>	3029
<i>C. Pinya-Medina, C. Vecina-Merchante, M.R. Ferreira Puertas, F. Salvà-Mut, A. García-De Olaya, E. Quintana-Murci, O. Álvarez-García, M.F. Oliver-Trobat, M.T. Adame-Obrador</i>	
<b>POSSIBLE DIFFICULTIES IN CHILD DEVELOPMENT BEFORE ENTERING KINDERGARTEN</b>	3034
<i>M. Popelková, E. Jurišová, L. Ráczová</i>	
<b>DEVELOPMENT AND EVALUATION OF PROFESSIONAL SKILLS ASSOCIATED WITH THE BASIC DOCUMENTS ON ENERGY SAVING AND HEALTH OF THE TECHNICAL BUILDING CODE ON THE SUBJECT "BASIC MECHANICAL INSTALLATIONS"</b>	3040
<i>L.M. López-Ochoa, J. Las-Heras-Casas, C. García-Lozano, L.M. López-González</i>	
<b>HOW CAN THE TEACHING E-MENTORING PROCESS MODEL HELP ADDRESS THE VARIOUS CHALLENGES HIGHER EDUCATION EDUCATORS FACE?</b>	3046
<i>O. Lahav, N. Katz</i>	
<b>STUDENTS' PERCEPTION OF TEACHING SKILLS IN EARLY CHILDHOOD EDUCATION</b>	3047
<i>C. Pinya-Medina, M.M. Oliver-Barceló, V. Morcillo-Loro, B. Cabrer-Servera, M.J. Ferrer-Ribot</i>	
<b>PARTICIPATION FROM THE BEGINNING: CONCEPTION, IMPLEMENTATION, OUTPUT AND EVALUATION OF A WORKSHOP FOR THE TARGET GROUP-SPECIFIC DEVELOPMENT OF A SERIOUS GAME</b>	3054
<i>M. Verhoovnik-Heinze, J. Griinkorn</i>	
<b>HOW TO TRANSFER THE APPLIED RESEARCH DEVELOPED AT THE UNIVERSITY TO THE SCIENTIFIC COMMUNITY, RESPONSIBLE AUTHORITIES INVOLVED, UNIVERSITY STUDENTS AND SOCIETY</b>	3062
<i>D. Fernández-Nóvoa, O. García-Feal, J. González-Cao, X. Costoya, A.J.C. Crespo, M. de Castro, C. Ruiz Del Portal, M. Gómez-Gesteira</i>	
<b>THE ROLE OF EMOTIONAL INTELLIGENCE WITHIN THE ENTREPRENEURIAL INTENTION OF GRADUATE STUDENTS: INFORMING CURRICULUM IN PRIVATE HIGHER EDUCATION</b>	3070
<i>R. Swanzen, C. Botha</i>	
<b>TEACHER ETHICS TRAINING FOR LEARNERS WITH SPECIAL EDUCATIONAL NEEDS</b>	3080
<i>S. Bester</i>	

<b>EXPLORING THE IMPACT OF THE PANDEMIC ON INTEREST IN TEACHING AS A CAREER PATH</b>	3081
<i>T. Bidjerano</i>	
<b>DEVELOPMENT AND APPLICATION OF TUTORING SOLUTIONS USING CHATBOOT SOFTWARE IN MATHEMATICS TEACHING</b>	3087
<i>C. Lucas, J. Becker, J. Lourenço, J. Morais</i>	
<b>SMALL PRIVATE ONLINE COURSES AND THEIR IMPORTANCE IN THE EDUCATION OF SMALL AND MEDIUM ENTERPRISES</b>	3092
<i>E. Kicova, O. Ponisciakova, Z. Rosnerova</i>	
<b>WEB APPLICATIONS IN EDUCATION: CONTRIBUTIONS TO STATISTICAL LEARNING</b>	3100
<i>M.M. Pinheiro, V. Santos</i>	
<b>DO UNIVERSITY FACULTY MEMBERS OBSERVE UNDERGRADUATE STUDENTS' DISHONEST BEHAVIORS DURING EXAMS?</b>	3106
<i>N. Alcalde-Fradejas, M. Marzo-Navarro, M. Ramírez-Alesón</i>	
<b>COMPUTATIONAL THINKING AS AN EDUCATIONAL TREND IN EDUCATION: SOME REFLECTIONS</b>	3113
<i>M.M. Pinheiro, C. Albuquerque, F.T. Moreira, J.V. Torres, J.M. Sousa</i>	
<b>MOOC PLATFORMS: MODERN DISTANCE LEARNING</b>	3122
<i>J. Fabus, M. Garbarova, I. Kremenova, L. Vartiak</i>	
<b>HEALTHCARE CURRICULA IMPLEMENTING CHATBOTS - NEEDS AND ROLE</b>	3131
<i>S. Konstantinidis, M. Pears, S. Reppou, N. Stathakarou, E. Schiza, E. Gkoukoudi, K. Karlgren, C. Pattichis, P. Bamidis, H. Wharrad</i>	
<b>TEACHER PROFESSIONAL DEVELOPMENT PROGRAMMES: DIGITAL COMPETENCIES AND BEST PRACTICE FOR THE MODERN CLASSROOM</b>	3132
<i>O. Naidoo, G. Lautenbach</i>	
<b>INNOVATIVE APPROACHES IN LIFE-LONG LEARNING IN OFFSHORE RENEWABLE ENERGIES - FLORES PROJECT</b>	3143
<i>V. Diaz-Casas, L. Santiago Caamaño, S. Ferreño Gonzalez, A. Munin Doce, M. Miguez González</i>	
<b>ANALYSIS OF GENDER DIFFERENCES IN THE SELF-PERCEPTION OF ENGINEERING STUDENTS ABOUT GAMIFICATION AS AN EDUCATIONAL STRATEGY</b>	3144
<i>S. Bueno, M.D. La Rubia, J.M. Romero-García, L. Pérez-Villarejo, D. Eliche-Quesada, I. Romero-Pulido, S. Martínez-Martínez, A. Galán-Martín</i>	
<b>BEST PRACTICES AND CHALLENGES IN A DEVELOPMENT ASSISTANCE PROJECT: A CASE STUDY OF TECHNICAL VOCATIONAL EDUCATION TRAINING PROGRAM IN MARAWI, PHILIPPINES</b>	3151
<i>E. Amoloza</i>	
<b>SCIENCE AND SCIENTISTS FROM CHILDREN'S POINT OF VIEW</b>	3159
<i>G. D'Addezio, N. Besker</i>	
<b>EMDIGITAL INTO ACTION: AN OVERVIEW OF THE TOOL FOR ASSESSING THE DIGITAL ENTREPRENEURIAL COMPETENCES OF UNIVERSITY STUDENTS</b>	3165
<i>V. Simovic, M. Lazic, M. Safi, B. Alkhalifah, H. Sarhan</i>	
<b>ARE THE TRENDS OF EDUCATION AND TRAINING SYSTEMS IN EUROPEAN COUNTRIES IMPROVING AND CONVERGING?</b>	3172
<i>A. Camanho, D. Stumbriene, F. Barbosa, A. Jakaitiene</i>	
<b>SIMPLE REGISTER TRANSFER SIMULATOR FOR TEACHING COMPUTER ARCHITECTURE</b>	3173
<i>S. Kristofik, O. Urban</i>	
<b>A NEW MATHEMATICAL DEVELOPMENT TO MODEL AND ADJUST INDIVIDUAL LEARNING</b>	3182
<i>D. Crous Mayné, E. Calle Ortega, J. Batlle Grabulosa</i>	
<b>CO-CREATION OF A VIRTUAL INTERACTIVE TEACHING PACKAGE FOR AUDITORS OF HEALTHCARE PLACEMENTS – TOWARDS ASSURANCE OF QUALITY OF HEALTH CARE TRAINEESHIPS</b>	3189
<i>S. Konstantinidis, Z. Tilley, S. Ko, J. Henderson, S. Cunningham, P. Hodge, A. Stefanowicz-Kocol, A. Jankowicz-Szymanska, A. Grochowska, M. Kołpa, M. Lillo-Crespo, J. Riquelme Galindo, M.P. Catala Rodriguez, V. Höjjer-Brear, M. Törne, S. Feliciano, A. Camilleri, I. Poultourtzidis, F. Papamalis, D. Spachos, N. Athanasopoulos, M. Nikolaidou, P. Bamidis, C. Hall</i>	
<b>THE DIGITAL SKILLS OF TEACHER TRAINERS AT A HIGHER EDUCATION INSTITUTION IN PORTUGAL</b>	3196
<i>D. Mascarenhas, U. Prates, M. Cruz</i>	



<b>THE TANGRAM STUDY FOR MIXED REALITY AFFORDANCE COMPARISON</b>	3205
<i>L. Sommaruga, N. Catenazzi, C. Locatelli</i>	
<b>EXPERIENCES, BARRIERS AND SUPPORTS IN DIGITAL ASSESSMENT ACROSS 4 EUROPEAN EDUCATIONAL INSTITUTIONS</b>	3213
<i>N. Biega, D. Kilanska, S. Hourican, D. Lehwaldt</i>	
<b>DESIGN, IMPLEMENTATION AND ASSESSMENT OF A REINFORCEMENT ACTIVITY IN A MACHINE DESIGN SUBJECT</b>	3214
<i>S. Gregori, J.M. Navarro, E.M. Sánchez-Orgaz</i>	
<b>INTERACTIVE PHYSICS DEMONSTRATIONS FOR ACTIVE LEARNING</b>	3221
<i>Y. Andrew, V. Tymms</i>	
<b>EXPERIENCES IN DESIGNING THRESHOLD MATH CONCEPTS QUIZ FOR A MATERIALS SCIENCE COURSE</b>	3231
<i>A.I. Pruna, F. Salas, A. Vicente Escuder, E.M. Sánchez-Orgaz, S. Martínez-Sanchis</i>	
<b>THE SIGNIFICANCE AND GOOD PRACTICE OF APPLYING CREATIVE LEARNING METHODS IN DEVELOPING THE COMPETENCIES OF MILITARY OFFICERS AND SHAPING MILITARY CREATIVITY</b>	3237
<i>V. Giedraitytė, R. Kazlauskaitė Markelienė</i>	
<b>IMPROVING THE ABILITY OF UNDERGRADUATE ENGINEERING AND SCIENCE STUDENTS TO PREPARE TECHNICAL REPORTS BY MEANS OF A PEER REVIEW METHODOLOGY</b>	3238
<i>J. García-Cañadas, F. Romero-Gavilán</i>	
<b>THE USE OF GEOGRAPHIC INFORMATION SYSTEMS WITH OPEN-SOURCE SOFTWARE FOR TEACHING LANDSCAPE PLANNING IN DISTANCE EDUCATION ENVIRONMENTS</b>	3243
<i>J. Velázquez Saornil, F. Herráez, A. Hernando Gallego, J.D. Araya, A. López</i>	
<b>MOOC PLATFORMS AS AN E-LEARNING PHENOMENON</b>	3249
<i>J. Fabus, M. Garbarova, I. Kremenova, L. Vartiak</i>	
<b>SMARTERP EDUCATIONAL: A VIRTUAL LABORATORY TO TRAIN SIMULTANEOUS INTERPRETING</b>	3257
<i>C. Arriaga Prieto, I. Villamayor, A. Serrano Leiva, A. Cascallana Rodríguez, S. Rodríguez, A. Pozo Huertas, A. Alonso González</i>	
<b>VIEW AND CHOICE - CARD GAME ON THE STATE OF MATTER WITH AUGMENTED REALITY</b>	3265
<i>S. Syskowski, J. Huwer</i>	
<b>MORE ACCESSIBLE AND INCLUSIVE LAB EXPERIMENTS THROUGH EASY READING AND PICTOGRAMS</b>	3272
<i>A. Herrero, C. Reguera, S. Sanllorente, S. Palmero, M.J. Arteaga, L. Aparicio, D.C. Castellano</i>	
<b>COMPILATION AND ANALYSIS OF PHYSICS AND CHEMISTRY SIMULATORS AND VIRTUAL LABORATORIES FOR SECONDARY EDUCATION</b>	3277
<i>J. Herrera Vergara, J. Cuadros Margarit, V. Serrano Molinero</i>	
<b>THE EFFECT OF REVIEWING FORMATIVE OSCE VIDEO RECORDINGS ON THE MEDICAL STUDENT'S PERFORMANCE IN SUMMATIVE OSCE ASSESSMENT</b>	3278
<i>T. Phan</i>	
<b>PEER MENTORING AND ACADEMIC ASSESSMENT</b>	3279
<i>P. Sposetti, G. Szpunar, MG. Rionero, E. Mattarelli, G. Vincenti, S. Gabrielli</i>	
<b>EMPLOYMENT RATE AND OCCUPATIONAL DESTINATION FOR UPV/EHU DOCTORS</b>	3286
<i>G. Barandika, E. Portillo, E. Simon, O. González-Abrisketa</i>	
<b>EVALUATING STUDENT INTERNSHIP EXPERIENCE AND ITS IMPACT ON CURRICULUM IMPROVEMENTS: A CASE STUDY FOR SOFTWARE ENGINEERING STUDENTS</b>	3292
<i>Y.G. Sahin, U. Celikkan</i>	
<b>OCCUPATIONAL DESTINATION OF GRADUATES IN CHEMISTRY AT THE UPV/EHU: WOMEN-FOCUSED EVOLUTION OVER THE LAST 10 YEARS</b>	3301
<i>G. Barandika</i>	
<b>SIMULATION-BASED EDUCATION: A SOLUTION TO CHALLENGES ENCOUNTERED WITH CLINICAL TEACHING IN NURSING AND MIDWIFERY EDUCATION IN MALAWI</b>	3309
<i>G. Mwalabu, A. Msosa, I. Tjoflåt, P. Mapulanga, M. Msiska</i>	
<b>JUPITER (AND ITS MOONS) IN A ROOM</b>	3310
<i>L. Giacomini, I. De Angelis, F. Aloisi, F. Duras</i>	

<b>THE QUANTUM FOR ALL PROJECT: RATIONALE AND OVERVIEW</b> <i>R. Lopez, K. Matsler</i>	3311
<b>FROM LEARNING PATHWAYS TO CAREER: BUILDING E-PORTFOLIOS IN HIGHER EDUCATION TO DEMONSTRATE SKILLS ACQUISITION FOR CAREER READINESS</b> <i>B.S. Todeschini, E. Sollberger</i>	3317
<b>EXPERIENTIAL LEARNING APPROACHES IN ENTREPRENEURSHIP AND ENTERPRISE EDUCATION</b> <i>A. Frost</i>	3327
<b>THE QUANTUM FOR ALL PROJECT: TEACHER PROFESSIONAL DEVELOPMENT MODEL</b> <i>K. Matsler, R. Lopez</i>	3337
<b>THE RELATIONSHIP BETWEEN SOCIO-DEMOGRAPHIC CHARACTERISTICS OF ADULT STUDENTS AND THEIR ENGAGEMENT IN ONLINE-EDUCATION</b> <i>A. Grishina</i>	3346
<b>TRANSVERSAL COMPETENCES: ACCOMPANIMENT AND PROFESSIONAL GUIDANCE IN THE SIGNALS AND SYSTEMS COURSE OF TELECOMMUNICATIONS ENGINEERING</b> <i>A. Carrión, L. Pereira, J.A. Álvarez, J. Gosálbez, R. Miralles</i>	3352
<b>TRAINING SOCIAL EDUCATORS' PROFILES IN HIGHER EDUCATION IN ITALY: LEARNING OBJECTIVES AND COMPETENCES</b> <i>M.G. Rionero</i>	3361
<b>SHARING EDUCATIONAL RESOURCES THROUGH A WEBSITE TO HELP RIDE THE WAVES OF THE PANDEMIC</b> <i>R. Fernández-Flores, B. Hernández-Morales</i>	3366
<b>ADVOCATING FOR EQUITABLE EDUCATION: TRANSFORMING INEQUITABLE EDUCATIONAL PRACTICES TO SERVE DIVERSE LEARNERS</b> <i>J. Collazo</i>	3371
<b>DEVELOPMENT OF SOCIAL RESPONSIBILITY AND OTHER 21ST CENTURY COMPETENCES OF UNIVERSITY STUDENTS VIA A SERVICE-LEARNING EDUCATIONAL STRATEGY</b> <i>D. Hanesová, L. Rovanova, L. Fecková</i>	3372
<b>PARENTING STYLE, TEACHING STYLE AND TEACHER ENTHUSIASM: DO THESE VARIABLES PREDICT THE CHILDREN'S NEEDS FOR AUTONOMY, COMPETENCE AND RELATEDNESS?</b> <i>A. Mărincaș, S. Trif, N.A. Opre</i>	3378
<b>TECHNOLOGY-RELATED ETHICAL ISSUES IN FOREIGN LANGUAGE LEARNING</b> <i>I.A. Drobot</i>	3386
<b>MUSIC AND NEW TECHNOLOGIES TO SUPPORT THE LEARNING OF DYSLEXIC PRIMARY SCHOOL STUDENTS: RESULTS OF A SCOPING REVIEW</b> <i>A. Di Paolo, M.D. Todino</i>	3393
<b>OPENNESS TO LINGUISTIC AND VALUE DIVERSITY AS A KEY FACTOR IN THE DEVELOPMENT OF A LEARNING COMMUNITY</b> <i>T. Sbardella, C. Calicchio</i>	3401
<b>MIND MAP AS A CREATIVE TOOL IN THE ADVERTISING CONTEXT: A TEACHING METHODOLOGY</b> <i>A.C. Boechat, N. Baptista</i>	3405
<b>LET'S LEARN WITH ASTROEDU!</b> <i>L. Giacomini, E. Gomez, G. Mazzolo, G. Sanderson</i>	3412
<b>FACULTY PERCEPTIONS AND EXPERIENCES OF ANTI-OPPRESSION PEDAGOGY IN US SCHOOLS OF PUBLIC HEALTH</b> <i>A. Aqil, M. Malik, K. Jacques, K. Lee, C. Kennedy, G. Mooney, D. German</i>	3413
<b>DEVELOPING MULTIMODAL ASSESSMENT TYPES FOR TECHNOLOGY-ENHANCED AND INCLUSIVE LEARNING</b> <i>L. Barrio-Vilar</i>	3414
<b>CULTIVATING ANTI-OPPRESSIVE LEARNING COMMUNITIES (CAOLC): TRANSFORMING PEDAGOGY USING THE PRINCIPLES OF ANTI-OPPRESSION</b> <i>A. Aqil, K. Jacques, G. Mooney, K. Lee</i>	3415
<b>BLENDED LEARNING READINESS IN A MEXICAN HIGHER EDUCATION INSTITUTION: A PILOT STUDY</b> <i>E. Peñalosa-Castro, R. García-Ros, F. Pérez-González, P. Hernández-Cerrito</i>	3416

<b>THE EDUCATIONAL VALUE OF REAL-LIFE SCENARIOS: EXPERIENTIAL LEARNING AT ART FAIRS</b>	3430
<i>A. Vico-Belmonte, D. Benito-Osorio, A. Martinez-Fernandez, J. Palomo-Martinez</i>	
<b>THE KEEP IN SCHOOL SHAPE PROGRAM: ENGAGING STUDENTS IN REVIEW ACTIVITIES OVER ACADEMIC BREAKS</b>	3436
<i>C. van de Sande, J. Turner, J.E. Vandenberg, H. Allen, E. Castro, S. Chacon, A. Jenkins, A. Mcinnis, M. Morton, L. Reichert, H. Shaw, V. Valia</i>	
<b>THE KEEP IN SCHOOL SHAPE PROGRAM: NUDGING STUDENTS TO REVIEW OVER ACADEMIC BREAKS AND ADOPT A GROWTH MINDSET</b>	3446
<i>C. van de Sande, J. Turner, J.E. Vandenberg, H. Allen, E. Castro, S. Chacon, A. Jenkins, A. Mcinnis, M. Morton, L. Reichert, H. Shaw, V. Valia</i>	
<b>JOURNALISM AS A TRANSVERSAL AXIS IN THE TRAINING OF COMMUNICATION PROFESSIONALS IN MEXICO</b>	3454
<i>C. García-Hernández</i>	
<b>TUTORING HIGHER EDUCATION MATHEMATICS STUDENTS THROUGH INTELLIGENT LEARNING SOFTWARE</b>	3462
<i>J. Lourenço, C. Lucas, J. Morais, J. Becker, A. Silva</i>	
<b>THE CHANGE IN THE POLICY OF THE CENTER'S SUPPORT SYSTEM FOR STUDENTS WITH LEARNING DISABILITIES AND/OR ATTENTION DEFICIT DISORDERS (ADHD) IN THE DAYS OF COVID-19</b>	3468
<i>A. Frishman Shitrit, O. Tykochinsky</i>	
<b>MAXIMISING THE POTENTIAL OF LABORATORIES TO DELIVER TRANSFORMATIVE ACTIVE LEARNING OPPORTUNITIES VIA EFFECTIVE USE OF LEARNING MANAGEMENT SYSTEMS</b>	3469
<i>P. Holland, L. Mason</i>	
<b>CROSS-CULTURAL AND DISCIPLINARY DESIGN WORKSHOPS: SHARING NEW PUBLIC SPACE ACTIVATION APPROACHES</b>	3470
<i>L.M.F. Fabris, R.M. Balzarotti, A. Ros Campos, G. Semprebon, M. Twardowski</i>	
<b>ORGANIZING A WRITING SESSION FOR C2 STUDENTS</b>	3477
<i>A. Sigaev</i>	
<b>TEACHING ARCHITECTURE DESIGN: EXPERIMENTS WITH COLOR AND LIGHT</b>	3483
<i>D.S. Opincariu, L. Patachi, A. Pop, L. Vartic</i>	
<b>PERSONALITY TRAITS OF MEN AND WOMEN AND PROCRASTINATION LEVEL</b>	3492
<i>M. Berinšterová, M. Bozogánová, T. Pethö</i>	
<b>CHALLENGES OF SECOND LANGUAGE ACQUISITION IN PRIMARY EDUCATION IN AN INTERNATIONAL CONTEXT</b>	3499
<i>L. Šimanová</i>	
<b>PRACTICAL ACTIVITIES IN ARCHITECTURAL TRAINING: SURVEYING HERITAGE BUILDINGS</b>	3508
<i>D.S. Opincariu, L. Patachi, A. Pop, L. Vartic</i>	
<b>USING COOPERATIVE LEARNING TO ENHANCE PROGRAMMING SKILLS IN INDUSTRIAL AUTOMATION DESIGN COURSES</b>	3513
<i>R.P. Něco, J.R. Pérez Beltrán</i>	
<b>FACTORS AND BARRIERS IN THE STRATEGIC MANAGEMENT OF UNIVERSITY COOPERATION WITH THE BUSINESS ENVIRONMENT CASE STUDY</b>	3522
<i>T. Corejova, M. Strenitzerova</i>	
<b>'WALKING IN SOMEONE ELSE'S SHOES': REDUCING AGGRESSION IN A ROMANIAN DELINQUENT POPULATION THROUGH ACTIVE LEARNING TECHNIQUES</b>	3528
<i>L.M. Sabareanu, C.E. Oprea, V. Gonța</i>	
<b>IMPROVING LEARNING OF COMPUTER PROGRAMMING BASICS IN SECONDARY EDUCATION THROUGH COLLABORATIVE METHODS</b>	3535
<i>J.R. Pérez Beltrán, R.P. Něco</i>	
<b>COMPUTATIONAL THINKING: CONTRIBUTIONS TO BEST IN-SERVICE PRACTICES</b>	3541
<i>V. Santos, M.M. Pinheiro</i>	
<b>PERCEPTION OF SOCIAL DEVIANCE IN A ROMANIAN DELINQUENT POPULATION: A QUALITATIVE STUDY</b>	3547
<i>L.M. Sabareanu, C.E. Oprea, M. Virlan</i>	
<b>PEDAGOGICAL INTERACTION MODEL FOR DEVELOPMENT OF STUDENTS' SELF-DIRECTED LEARNING SKILLS IN PRIMARY SCHOOL (CLASS 1-3) – APPROBATION AND OUTCOME ANALYSIS</b>	3552
<i>I. Pelněna, A. Medveckis</i>	

<b>APPLIED THEATRE METHODS AS A PROMISING INNOVATION IN A RESEARCH FIELD</b>	3562
<i>R.A. Medeišienė</i>	
<b>DESIGNING AUTHENTIC ONLINE PROJECT-BASED LEARNING DURING CRISIS USING THE UDL FRAMEWORK: THE DISTANCE LEARNING SURVIVAL GUIDE</b>	3567
<i>J. Collazo</i>	
<b>AI-CHATBOT-INTEGRATION IN CAMPUS-MANAGEMENT-SYSTEMS</b>	3574
<i>S. Bieletzke</i>	
<b>METHODS FOR EVALUATING TECHNICAL DRAWING AIMED AT IMPROVING THE QUALITY OF TEACHING AND INCREASING STUDENTS' LEVELS OF KNOWLEDGE</b>	3584
<i>P. Hofrichterová, D. Fait</i>	
<b>COMPETENCY-BASED LEARNING AND ITS APPLICATION TO TEACHING THE FUNDAMENTALS OF ENGINEERING DESIGN</b>	3592
<i>D. Fait, P. Hofrichterová, V. Mašek, R. Čermák</i>	
<b>EXAMINING CHATGPT: HOW GOOD IS CHATGPT AT WRITING ENGINEERING COURSEWORK AND ITS IMPLICATIONS ON ACADEMIC INTEGRITY MISCONDUCT</b>	3598
<i>A. Joshi, D. Shamvedi</i>	
<b>SUBITIZING SKILL OF A THIRD-GRADE STUDENT WITH DYS CALCULIA</b>	3599
<i>N.B. Duran, M. İşıksal Bostan</i>	
<b>THE INNOVATIVE ROLE OF THE METAVERSE IN THE EDUCATION OF YOUNG STUDENTS</b>	3604
<i>I. Petcu</i>	
<b>ANALYSIS OF TEACHERS' MANUSCRIPTS ABOUT SCHOOL LIFE STORED IN THE ARCHIVE OF THE DEPARTMENT OF ETHNOLOGY, CROATIAN ACADEMY OF SCIENCES AND ARTS</b>	3611
<i>M. Buterin Mičić, D. Birt Katić</i>	
<b>ANALYSING THE POTENTIAL OF DIGITAL TOOLS FOR TEACHING PEDAGOGICAL DISCIPLINES AT UNIVERSITIES THROUGH THE EST&amp;LDE CONCEPT</b>	3622
<i>M. Kolář, J. Malach, D. Vicherková</i>	
<b>UNIVERSITY TEACHERS' PERCEPTIONS ON PROFESSIONAL DEVELOPMENT OPPORTUNITIES. A CASE STUDY</b>	3630
<i>M. Seppälä</i>	
<b>ACCELERATING GENDER EQUITY IN TECHNOLOGY</b>	3635
<i>M. Hernandez, D. Reed, P. Beltran</i>	
<b>HIGHER EDUCATION FOR GOOD: PBL PRACTICES WITH POSITIVE IMPACT ON THE COMMUNITY</b>	3640
<i>S. Filipe, T. Aragonez, I. Saur-Amaral</i>	
<b>WORK FOR PROJECTS AS A STRATEGY FOR SELF-REGULATION OF LEARNING</b>	3648
<i>S. Pereira, L. Mestre, A. Neto</i>	
<b>GLOBAL SPOTLIGHT OF STUDENTS AND TEACHERS WELL-BEING: A BIBLIOMETRIC VIEWPOINT</b>	3658
<i>S.A. Olaleye, E.O. Olaleye, M.A. Balogun, O.S. Balogun</i>	
<b>PROJECT WORK IN THE 1ST CYCLE: LEARNING PATHWAYS</b>	3667
<i>A. Neto, L. Mestre, S. Pereira</i>	
<b>EVALUATION OF VIRTUAL EDUCATION IN LATIN AMERICAN UNIVERSITIES. A SUCCESS CASE: UNIVERSIDAD ESTATAL DE MILAGRO</b>	3677
<i>F. Guevara-Viejó, R. Ramírez-Anormaliza, J. Valenzuela-Cobos</i>	
<b>THE INSTRUMENTAL APPROACH IN THE DESIGN OF LEARNING SCENARIOS BY PRE-SERVICE ELEMENTARY TEACHERS</b>	3678
<i>S. Martins</i>	
<b>PRIVACY VS. LEARNING ANALYTICS</b>	3688
<i>I. Rosanda Žigo, M. Šantalab, N. Lazić</i>	
<b>THE VOICE OF STUDENTS FOR PEDAGOGICAL INNOVATION OF HIGHER EDUCATION: ADAPTING INTERNATIONAL MODELS AND PRACTICES TO THE ITALIAN CONTEXT</b>	3695
<i>V. Grion, M. Ranieri, G. Cuozzo</i>	
<b>OPEN MIDDLE PROBLEMS: MATH CHALLENGES THAT PROMOTE DEBATE AND CRITICAL THINKING</b>	3703
<i>V. Santos, N.R.O. Bastos</i>	

<b>TEACHERS' PERCEPTIONS OF SELF-REGULATED LEARNING AND THE SKILLS NEEDED TO IMPLEMENT IT IN THE CLASSROOM</b>	3709
<i>M. Lázaro Alcalde, B. Ortega-Ruiperez, A. Castellanos Sánchez, A. Pereles López</i>	
<b>CO-CONSTRUCTING WELL-BEING AT SCHOOL BETWEEN PERCEPTION AND REALITY</b>	3710
<i>B. Bocchi</i>	
<b>TEACHER TRAINING IN DIGITAL TECHNOLOGIES FOR INCLUSION</b>	3715
<i>B. Bocchi, E. Bortolotti</i>	
<b>CHALLENGES IN DESIGNING ONLINE LEARNING ENVIRONMENTS FOR HEARING IMPAIRED UNIVERSITY STUDENTS AT THE SCHOOL FOR THE HANDICAPPED</b>	3720
<i>S. Unluer</i>	
<b>DEVELOPMENT AND COORDINATION OF A MENTORING PROGRAM FOR SIX DIFFERENT DEGREES</b>	3721
<i>E. Rubio, T. Olivares Montes, A. Rubio-Moraga, E. Amo-Saus, C. Martín, J.C. García Martínez, E. Sánchez López</i>	
<b>CRITICAL THINKING SKILLS FOR DATA SCIENCE STUDENTS</b>	3730
<i>H. Belchior-Rocha, R. Mauritti</i>	
<b>PLANNING, EVALUATING, AND CERTIFYING THE DEVELOPMENT OF STUDENT COMPETENCIES USING A COMPUTERIZED SCOREBOARD: A 360° ASSESSMENT</b>	3731
<i>S.C. Poitras, S. Rivest, J. Robitaille, S. Verreault</i>	
<b>START IT: MOBILITY OF STUDENTS AS AN ACTIVE LEARNING METHOD FOR THE PROMOTION OF ENTREPRENEURSHIP AND DIGITAL SKILLS</b>	3741
<i>J.C. Monteiro, H. Bollaert, K. Dziergwa, J. Hautamaki, A. Khavasi, K. Podlaski, P. Possemiers, D. O'Reilly, K. Simbeck, Z. Stawska</i>	
<b>PERCEPTIONS OF READINESS FOR ONLINE LEARNING BETWEEN SIGHTED AND VISUALLY IMPAIRED STUDENTS</b>	3747
<i>E. Huff, J. Brinkley</i>	
<b>UNCOVERING ACADEMIC MISCONDUCT AMONG ETHNIC MINORITY STUDENTS: PERSPECTIVES FROM ACADEMIC INTEGRITY OFFICERS AND IMPLICATIONS FOR HIGHER EDUCATION</b>	3756
<i>P. Seuvou, A. Daxini, A. Ige-Olaobaju, N. Dodzo, M. Opoku Agyeman</i>	
<b>GAMES FOR GOALS: EDUCATION FOR SUSTAINABLE DEVELOPMENT</b>	3765
<i>J.C. Monteiro, C. Arragon, D. Bol, H. Bollaert, A. Bouin, P. Collin, F. Ederer, J. Ides</i>	
<b>E-SAFETY AT HOME: EXPLORING THE 21ST CENTURY SKILLS OF YOUNG PEOPLE AT HOME AND AT SCHOOL</b>	3769
<i>M. Cowling, K.N. Sim, J. Orlando</i>	
<b>ON E-SAFETY DISCONNECTION: PARENTS AND GRANDPARENTS DIFFERENT PERCEPTIONS OF DIGITAL LITERACY AT HOME COMPARED TO YOUNG PEOPLE</b>	3770
<i>J. Orlando, M. Cowling, K.N. Sim</i>	
<b>RETHINKING THE POTENTIAL OF UNIVERSITY ENTREPRENEURSHIP EDUCATION</b>	3771
<i>A. Soler-Domínguez, J.C. Matallín-Sáez, L. Morales, L. Pop</i>	
<b>FROM DIVERSITY TO INCLUSION: UNDERSTANDING LEARNING STYLES AND ADJUSTMENT CHALLENGES OF INTERNATIONAL STUDENTS - A LITERATURE REVIEW</b>	3776
<i>S. Sawesi, G. Tusch</i>	
<b>A COMPARATIVE ANALYSIS OF INTERNATIONAL AND US GRADUATE STUDENTS: PRE, DURING, AND POST COVID-19</b>	3784
<i>S. Sawesi, G. Tusch</i>	
<b>RUBRIC: EVALUATION OF SKILLS ACQUIRED WHEN READYING SOFTWARE DEVELOPMENT PROJECTS</b>	3791
<i>D.I. Ortiz Esquivel, M.A. Araiza Esquivel, C.A. Olvera Olvera, S. Villagrana Barraza, A. López Martínez, G. Díaz Flórez, H.A. Durán Muñoz, C.H. Castañeda Ramírez</i>	
<b>AUGMENTED REALITY ON THE EFFECTIVENESS OF NATURAL SCIENCE TEACHING IN PRIMARY AND SECONDARY SCHOOLS: A META-ANALYSIS</b>	3801
<i>Q. Shen, L. Kuo, P. Tsai</i>	
<b>SOFTWARE PROJECT MANAGEMENT EDUCATION DURING THE COVID-19 PANDEMIC: AN EXPERIENCE REPORT OF EMERGENCY REMOTE EDUCATION</b>	3811
<i>M.L. Fioravanti, R.T. Vaccare Braga, E.F. Barbosa</i>	
<b>MENTORING AS A TOOL FOR RESEARCH INITIATION</b>	3816
<i>J.L. Sánchez-Jiménez, F.J. Muñoz-Rodríguez, J.I. Fernández-Carrasco, J.D. Aguilar-Peña, M.D. La Rubia, C. Rus-Casas</i>	

<b>DEVELOPMENT AND IMPLEMENTATION OF AN EDUCATIONAL PROGRAM THAT LINKS COMPUTATIONAL THINKING EDUCATION TO INQUIRY-BASED LEARNING FOR LOCAL COMMUNITY</b>	3824
<i>K. Takemata, A. Minamide, S. Fujishima</i>	
<b>INTERACTIVE MASS LECTURING: THE USE OF ANIMATED VIDEOS TO ENHANCE ACTIVE LEARNING IN BUSINESS ETHICS SUBJECT</b>	3830
<i>A. Ko, E.W.K. Yeung</i>	
<b>FLIPPED CLASSROOM TO IMPROVE THE PERCEPTION OF THE INDUSTRIAL REALITY IN SCIENCE AND ENGINEERING UNDERGRADUATE STUDIES</b>	3836
<i>A.M. Díez, S. Escudero, A. Fdez-Sanromán, M. Pazos, E. Rosales, M.A. Sanroman</i>	
<b>DIGITAL LITERACY AMONG TEACHERS OF LEARNERS WITH DISABILITIES IN KENYA AND THE CZECH REPUBLIC</b>	3837
<i>M. Kavua</i>	
<b>IMPLEMENTATION OF ACTIVE LEARNING ACTIVITIES AND THEIR EFFECT ON STUDENT MOTIVATION IN CHEMICAL TECHNOLOGY SUBJECT</b>	3838
<i>A. Fdez-Sanromán, A.M. Díez, S. Escudero, M. Pazos, E. Rosales, M.A. Sanroman</i>	
<b>POSSIBILITIES OF DEVELOPING THE TECHNICAL CREATIVITY OF STUDENTS IN SECONDARY SCHOOLS</b>	3839
<i>R. Loskot, Š. Major</i>	
<b>THE EFFECT OF ACADEMICIANS' ATTITUDES TOWARDS DIGITAL TECHNOLOGY ON JOB PERFORMANCE</b>	3845
<i>G. Sart, F.H. Sezgin</i>	
<b>EVALUATION OF ACADEMICIANS' ATTITUDES TOWARDS SUSTAINABILITY ACTIVITIES OF UNIVERSITIES</b>	3851
<i>G. Sart, F.H. Sezgin</i>	
<b>NUDGING AT-RISK STUDENTS TOWARDS SUCCESSFUL COMPLETION</b>	3857
<i>C. Kaur, J. Luu, T. Cui, R. Yuniasih</i>	
<b>THE RELATIONSHIP BETWEEN DIGITAL GAME ADDICTION AND SUBJECTIVE WELL-BEING IN UNIVERSITY STUDENTS</b>	3864
<i>G. Sart</i>	
<b>ANALYSIS OF SOCIAL MEDIA ADDICTION IN UNIVERSITY STUDENTS</b>	3870
<i>G. Sart</i>	
<b>THE ROLE OF EDUCATION IN THE PROCESS OF HELPING UKRAINIAN WAR REFUGEES</b>	3876
<i>V. Demidenko</i>	
<b>THE HEALTH RISKS POSED BY EXCESSIVE USE OF MOBILE DEVICES AS THE TOPIC OF MEDICAL EDUCATION</b>	3883
<i>M. Trnka, N. Koscova, E. Kralova</i>	
<b>3D PRINTING IN ARCHITECTURE</b>	3887
<i>M. Valiente Lopez, S. Moyano Sanz, A. Verdú Vázquez, S. Díez Sanz, N. León-Martínez</i>	
<b>CLUSTERING AND VISUALIZATION OF AUTHORS' FEATURE USING WORD FORMATTING INFORMATION TO SUPPORT PLAGIARISM DETECTION IN CLASS ASSIGNMENT REPORTS</b>	3897
<i>A. Ohno</i>	
<b>RETHINKING HOW TO OPTIMIZE DISSEMINATION OF THE SOLUTIONS REACHED BY THE STUDENTS TO SOLVE COMPANIES' PROBLEMS WITH PBL+ LEARNING-TEACHING METHODOLOGY</b>	3902
<i>E.J. Martínez, R. Mateos, O. Martínez-Morán, M. Barquero, A. Crespo, C. Fernández, J. Cara, M.E. Sánchez, A. Morán, B. Urbano, X. Gómez, F. Gonzalez-Andres</i>	
<b>APPLIED ELECTRONICS TEACHING: PBL BASED ON RADIO CONTROL VEHICLES</b>	3910
<i>M. Fuentes Conde, M. Vivar García, J. Torres López</i>	
<b>DO JOURNALISTS WITH A NON-JOURNALISTIC UNIVERSITY DEGREE WANT TO STUDY JOURNALISM REMOTELY? THE CASE OF CROATIA AND COUNTRIES IN THE REGION</b>	3920
<i>T. Vukić, A. Bilan, K. Čirjak</i>	
<b>THE EXPERIENTIAL DIMENSION OF TIME AND HOPE: A QUALITATIVE STUDY WITH HEALTH PROFESSIONALS IN TRAINING</b>	3932
<i>F. Marone, M. De Simone, M. Navarra</i>	
<b>OPERATIONAL EPISTEMOLOGY: PROMOTING AWARENESS OF ONE'S OWN COGNITIVE PROCESSES THROUGH METAPHORICAL LANGUAGE</b>	3939
<i>M. De Simone, M.R. Strollo, F. Marone</i>	

<b>GREEN SKILLS FOR SUSTAINABLE AIR TRANSPORT</b>	3947
<i>S.E. Zaharia, A.P. Pavel, S. Toma, F. Pérez Moreno, M. Zamarreño Suárez</i>	
<b>REVISITING LI JINHUI'S MUSIC TEACHING METHODS FOR PRESCHOOLERS FROM HIS BOOK "POPULAR TEXTBOOK - MUSIC TEXTBOOK AND TEACHING METHODOLOGY IN KINDERGARTEN"</b>	3957
<i>Y. Huang, F.C. Loo</i>	
<b>E-LEARNING AS AN INTEGRAL PART OF STUDY - EXPERIENCE WITH THE USE OF E-LEARNING COURSE IN THE SUBJECT NUMERICAL METHODS AND STATISTICS</b>	3964
<i>I. Pobočková, Z. Sedláčková, M. Michalková, Z. Malacká</i>	
<b>FEAR OF MISSING OUT SYNDROME (FOMO) AND EMOTIONAL REGULATION IN ADOLESCENTS</b>	3970
<i>M. Popelková, E. Jurišová, M. Zatková</i>	
<b>NANOLEARNING: TIKTOK MICROVIDEOS AS A NEW LEARNING SOURCE</b>	3975
<i>M. Vergara-Barberán, M.J. Lerma-García, J.M. Herrero-Martínez, E.F. Simó-Alfonso, M. Beneito-Cambra, E.J. Carrasco-Correa</i>	
<b>EVALUATION OF THE EFFECTIVENESS OF INSTRUCTIONAL VIDEOS AS A SUPPLEMENTARY SELF-LEARNING TOOL IN ANALYTICAL CHEMISTRY SUBJECTS</b>	3984
<i>M.J. Lerma-García, M. Beneito-Cambra, M. Vergara-Barberán, J.M. Herrero-Martínez, E.F. Simó-Alfonso, E.J. Carrasco-Correa</i>	
<b>NEW PERSPECTIVES FOR CLEANROOM TRAINING USING VIRTUAL REALITY</b>	3994
<i>T. Kaiser, F. Lukas, M. Steinert, J. Kretzschmar, A. Tünnermann</i>	
<b>A SYSTEM FOR REPORTING AND ANALYZING LIVE DATA FROM INTERNAL COMBUSTION ENGINE EMISSIONS WITH APPLICATION IN ENGINEERING EDUCATION</b>	3995
<i>S. Asenov, D. Shehova, H. Kanevski</i>	
<b>ARTIFICIAL INTELLIGENCE IN THE EDUCATION OF HEALTH PROFESSIONS: A DESCRIPTIVE ANALYSIS THROUGH BIBLIOMETRICS</b>	4000
<i>A. Alves Lopes</i>	
<b>REAL-WORLD PROJECTS IN THE CLASSROOM: AN AUTHENTIC LEARNING APPROACH</b>	4006
<i>H.Y.J. Tan, M. Neo, T.K. Neo, S.H. Hew, K. Hamidani</i>	
<b>GENDER PERSPECTIVE IN BUSINESS: THE MACROECONOMIC STUDENTS POINT OF VIEW</b>	4010
<i>M.T. Bartual-Figueras, J. Turmo Garuz, A. Colom-Cabau, M.A. Felipe-Checa, J. González-Calvet, M. Gres-Llort, F. Sánchez-Losada</i>	
<b>THE USE OF A PROGRAMMABLE MODEL OF AN AUTOMATED WAREHOUSE IN THE TEACHING PROCESS</b>	4015
<i>V. Binasova, B. Mičičeta, M. Krajčovič, G. Gabajová, M. Gašo, M. Kasajová, Š. Mozol</i>	
<b>INTERACTING WITH "ZOOMIES": DIFFICULTIES AND CHALLENGES THROUGH THE EYES OF LECTURERS</b>	4022
<i>A. Carvalho, V. Lima, S. Silva, C. Silva, J. Fernandes, P. Peres</i>	
<b>COMPETENCES, MOTIVATION AND SUITABILITY OF INTERNSHIPS TO IMPROVE EMPLOYABILITY</b>	4031
<i>J. Turmo Garuz, M.T. Bartual-Figueras, F.J. Sierra-Martínez</i>	
<b>ONLINE PEER EDITING: EFFECTS OF ITS ELEMENTS (COMMENTS AND TRACKED CHANGES) AND STUDENTS' PERCEPTION OF PARTICIPATION IN THIS COLLABORATIVE ACTIVITY ON WRITING PERFORMANCE</b>	4037
<i>G. Shulgina, J. Costley, I. Shcheglova, H. Zhang, N. Sedova</i>	
<b>DISSERTATION RESCUE AND FLEX CHAIR MENTORING FOR SOCIAL AND CULTURAL INCLUSION</b>	4038
<i>L.L. Neiworth</i>	
<b>LEARNING INSIDE THE BOX: STUDENTS' PERCEPTIONS OF EMERGENCY REMOTE LEARNING</b>	4043
<i>J. Fernandes, S. Silva, C. Silva, V. Lima, A. Carvalho, P. Peres</i>	
<b>TRAINING IN SUSTAINABLE DEVELOPMENT GOALS (SDGS) VIA WEBINAR TRANSMISSION WITH RESPONSIBLE COMPANIES</b>	4048
<i>P. Talón-Ballesteros, M.P. Abad-Romero, A. Orea-Giner</i>	
<b>"DIGITAL LEARNING TO (RE)IMAGINE A POSITIVE DIRECTION FOR POST-COVID EDUCATION": EUROPEAN PERSPECTIVES</b>	4053
<i>T.M. Loureiro Cardoso, G. Bastos, F. Pestana, A.P. Rocha, M.P. Casanova, M. Beaton</i>	
<b>THE ROLE OF QUESTIONS IN SOCIAL INTERACTIONS OF SCHOOL DISCOURSE</b>	4058
<i>K. Rysová</i>	

<b>INTERFERENCE OF LANGUAGE COMPETENCES OF STUDENTS WITH SPECIFIC LEARNING DISABILITIES IN HIGHER EDUCATION ENVIRONMENT</b>	4064
<i>R. Kovářová, H. Chlebcová</i>	
<b>GOING PAPERLESS: BETTER FOR THE ENVIRONMENT, BUT BETTER FOR THE STUDENTS? STUDENT PERCEPTIONS OF TEACHING USING ONLY ELECTRONIC HANDOUTS</b>	4073
<i>A. Millward-Sadler</i>	
<b>CONFRONTING ATTITUDES OF TEACHERS TOWARDS INCLUSIVE EDUCATION PREDETERMINED BY UNFAVOURABLE EDUCATIONAL FACTORS: GERMANY, POLAND AND LITHUANIA</b>	4079
<i>A. Galkienė, O. Monkevičienė</i>	
<b>SIMULATION VS CASE STUDIES: MAXIMIZING THE IMPACT OF INCLUDING ETHICAL ISSUES IN THE HIGHER EDUCATION CURRICULA FROM AN INTEGRATIVE POINT OF VIEW</b>	4090
<i>J. Valero-Gil, F. Llena, E. Llera-Sastresa, M. Marco-Fondevila, T. Montaner, A. Perez, A. Sanz-Hernandez, S. Scarpellini, I. Suárez-Perales, A. Aranda-Usoń, A. Garrido, J. Gutierrez</i>	
<b>THE CHALLENGES AND OPPORTUNITIES INCORPORATION WORK-INTEGRATED LEARNING IN ONLINE HIGHER EDUCATION</b>	4091
<i>S. Nilsson, U. Hedman</i>	
<b>INTRODUCING CASE STUDY AUDIO PODCASTS IN BUSINESS AND INFORMATION SYSTEMS STUDIES</b>	4097
<i>J. Jäger, S. Korkut, T. Inglese, T. Schmiedel</i>	
<b>COOPERATION OF KEY ACTORS IN THE CONTEXT OF SCHOOL EDUCATION OF TWICE EXCEPTIONAL PUPILS</b>	4106
<i>R. Kovářová, M. Kaleja</i>	
<b>THE DEVELOPMENT STATUS AND DILEMMA OF VOCATIONAL EDUCATION FOR PEOPLE WITH INTELLECTUAL DISABILITIES IN CHINA</b>	4107
<i>A.J. Yang</i>	
<b>QUESTION PAPER DESIGN IN ENGINEERING EDUCATION – AN ANALYSIS</b>	4111
<i>H. Hussain, S. Mandal</i>	
<b>THE INFLUENCE OF FAMILY ON THE ORIGIN AND DEVELOPMENT OF EATING DISORDERS IN ADOLESCENT GIRLS</b>	4118
<i>V. Kolková</i>	
<b>LET'S GET INSPYRED: THE IMPACT OF THE "INTERNATIONAL SCHOOL ON MODERN PHYSICS AND RESEARCH" ON HIGH SCHOOL STUDENTS' STEM CAREER ASPIRATIONS</b>	4127
<i>A. Postiglione, S. Bertelli, C. Curceanu, S. Arnone, D. Bifaretti, E. Patrignanelli, S. Reda, E. Santinelli</i>	
<b>MINDING MEDIA MINECRAFT WORLD: DEVELOPING MEDIA LITERACY CONCEPTS THROUGH GAMIFICATION</b>	4136
<i>V. O'Rourke, J. Blue, G. Gkogkas, K. Roumbas, T. Femić Bumbić</i>	
<b>EXPLORING THE LIVED EXPERIENCES OF EXTENDED CURRICULUM PROGRAMME STUDENTS AT STELLENBOSCH UNIVERSITY IN SOUTH AFRICA</b>	4141
<i>M. Mouton</i>	
<b>GAMIFICA - CONTINUOUS LEARNING THROUGH GAMIFICATION MECHANISMS FOR MACHINE LEARNING</b>	4148
<i>E. García-Cuesta, E. Serrano, A.M. López, I. Garrido Cerezo, R. Valle, B. Mihaljevic, D. Zanardini, J. Bajo</i>	
<b>INFORMATICS IN THE FIRST LEVEL OF PRIMARY SCHOOL</b>	4155
<i>V. Stoffová, A. Katyetova, J. Obonya</i>	
<b>INCLUSIVE SECONDARY VOCATIONAL EDUCATION SYSTEM IN RUSSIA: MONITORING AND EVALUATION AND "BEST PRACTICES"</b>	4165
<i>A. Yang</i>	
<b>DESIGN, SIMULATION, AND ENERGY ASSESSMENT OF THE ENERGY PRODUCTION OF A 10 KW PHOTOVOLTAIC SYSTEM AT PU "PAISIY HILENDARSKI", SMOLYAN, BULGARIA</b>	4166
<i>S. Asenov, D. Shehova, H. Kanevski, S. Lyubomirov</i>	
<b>BADGES - THE POSSIBILITY OF INCREASING MOTIVATION IN THE EDUCATIONAL PROCESS</b>	4175
<i>L. Gajanova, J. Michulek, J. Majerová</i>	
<b>DIGITAL MARKETING COMMUNICATION IN THE PROMOTION OF UNIVERSITIES: CASE STUDY OF SLOVAK REPUBLIC</b>	4180
<i>M. Nadanyiova, J. Majerova, A. Krizanova</i>	



<b>IMPROVING RESEARCH SKILLS OF UNDERGRADUATE STUDENTS USING A PRACTICAL APPROACH</b>	4188
<i>A.V. Herrera-Herrera, B. Socas-Rodríguez, R. Rodríguez-Ramos, Á. Santana-Mayor, A. Conde-Díaz</i>	
<b>LEARNING MOTIVATION OF STUDENTS AND THE WAYS OF ITS DEVELOPMENT IN THE ENGLISH LANGUAGE TEACHING PROCESS AT UNIVERSITIES</b>	4196
<i>O. Danilova, A. Zabolotskaya</i>	
<b>PIXEL - PICTURE (OF) THE UNIVERSE: AN EDUCATIONAL BOARD GAME ABOUT ASTROPHYSICS RESEARCH WORLD</b>	4202
<i>R. Toniolo, G. Inchingolo, S. Casu, G. Contino, V. La Parola, R. Leoni, S. Varano, A. Zanazzi, A. Ligabue, S. Ricciardi</i>	
<b>THE NEEDS OF ELEMENTARY SCHOOLS IN THE CZECH REPUBLIC IN THE CONTEXT OF THE INTRODUCTION OF THE SOCIAL PEDAGOGUE POSITION</b>	4210
<i>J. Šmída, T. Čech, T. Hormanďlová, A. Jůvová</i>	
<b>USING CHATGPT TO INVESTIGATE TRENDS IN DIGITAL STORYTELLING AND KNOWLEDGE SHARING IN HIGHER EDUCATION</b>	4217
<i>D. Cranfield, I. Venter, A. Daniels</i>	
<b>DEVELOPMENT OF SELF-REGULATORY SKILLS AT UNIVERSITY: COMPARING OPINION OF JAPANESE AND LITHUANIAN STUDENTS</b>	4226
<i>R. Kurita, G. Ciuladiene</i>	
<b>WHAT PROGRAMMING TOOL TO CHOOSE FOR TEACHING PROGRAMMING</b>	4232
<i>V. Stoffová</i>	
<b>HOW TO BE “ACROBATS OF TIME”: TEACHING CLIMATE CHANGE TO PRIMARY STUDENTS</b>	4240
<i>M. Massignani, S. Pacchini, E. Piva, S. Schumann, G. Santovito, P. Irato</i>	
<b>INTERVENTION FOR THE IMPROVEMENT OF SPATIAL INTELLIGENCE IN SECONDARY SCHOOL STUDENTS THROUGH GAMIFICATION WITH THE GAME BLOCK &amp; GO! ©</b>	4248
<i>I. Sánchez-Ramos, M. Mesa Sanz, M.J. Casati Calzada</i>	
<b>LEARNING LABORATORY SKILLS USING VIRTUAL SIMULATORS IN A SEPARATION METHODS COURSE</b>	4255
<i>A.V. Herrera-Herrera, B. Socas-Rodríguez, R. Rodríguez-Ramos, Á. Santana-Mayor, A. Conde-Díaz</i>	
<b>BLENDED LEARNING AS A MEANS OF INTENSIFICATION OF THE ENGLISH LANGUAGE TEACHING AT A UNIVERSITY</b>	4262
<i>A. Zabolotskaya, O. Danilova</i>	
<b>REVEALING GENDER DIFFERENCES IN SELF-REGULATION SKILLS USING CLICKSTREAM DATA</b>	4268
<i>A. Fayzullina, A. Kapuza</i>	
<b>SUSTAINABLE EDUCATION MODEL FOR HUMANOID ROBOT INTEGRATION IN EDUCATIONAL PROCESS</b>	4274
<i>D. Zemljak, M. Kerneža</i>	
<b>OPTIMIZATION AND STATISTICS IN HIGHER EDUCATION: A PROJECT BASED LEARNING IN THE SUSTAINABLE DEVELOPMENT GOALS CONTEXT</b>	4283
<i>H.S. Rodrigues</i>	
<b>ENHANCING CREATIVE AND INNOVATION SKILLS IN ENGINEERING STUDENTS THROUGH PROJECT-BASED LEARNING</b>	4290
<i>J. López Santiago, M.T. Gómez Villarino, D. Pereira Jerez, J. Urquijo Reguera, M. de Francisco Alonso</i>	
<b>THE CLASSIFICATION OF THE ANIMAL KINGDOM. A GUIDED DIDACTIC PATH TO DISCOVER SYSTEMATICS STARTING FROM SPONTANEOUS HYPOTHESES</b>	4295
<i>B. Tonon, M. Massignani, S. Pacchini, E. Piva, S. Schumann, G. Santovito, P. Irato</i>	
<b>UNDERSTANDING PEDAGOGIES OF WRITING FOR MIDDLE SCHOOL WRITING CLASSROOMS</b>	4303
<i>N. Mather</i>	
<b>TEACHING AND LEARNING USING DIGITAL TECHNOLOGY: WHAT ARE THE AFFORDANCES AND HOW DO THEY ALIGN WITH THE AFFORDANCES OF DIGITAL ASSESSMENT?</b>	4314
<i>S. Hughes, C. Green</i>	
<b>UNIVERSITY STUDENTS’ MOTIVATIONAL ORIENTATIONS, LEARNING STYLES, THINKING STYLES, AND ACADEMIC BEHAVIORS: COMMON COURSES IN SCIENCE, MATHEMATICS, AND ENGINEERING (SME) OF GENERAL EDUCATION CURRICULA</b>	4315
<i>A. Gogus, N.G. Gogus</i>	

<b>USING MDM (MOBILE DEVICE MANAGEMENT) FOR APPLE IPAD IN THE SCHOOL ENVIRONMENT</b> <i>J. Kucerik</i>	4326
<b>USING FLOWCHARTS IN COMPUTER MODELING AND INFORMATION TECHNOLOGY TRAINING FOR DRAWING COMPLEX GEOMETRIC FIGURES</b> <i>S. Neykova-Karagaeva, S. Tsankov</i>	4331
<b>AN EXPLORATION OF MIDDLE SCHOOL BOYS' PERCEPTIONS OF THE WRITING PROCESS</b> <i>N. Mather</i>	4341
<b>STUDEA: DIGITAL BOOKLET FOR APPRENTICESHIP</b> <i>B. Mbaye, L. Lazar-Favory, F. Lallemand</i>	4351
<b>THE PERCEPTION OF STUDENTS AT THE UNIVERSITAT POLITÈCNICA DE VALÈNCIA (SPAIN) ABOUT TRAINING IN TRANSVERSAL COMPETENCES</b> <i>L. Canós-Darós, V.E. García Félix, F. Castelló-Sirvent</i>	4356
<b>DESIGNING, IMPLEMENTING AND EVALUATING A CO-CREATIVE SUPPORT TECHNOLOGY</b> <i>M. Pifarre</i>	4364
<b>EQUITY EXPLORED: THE SACRIFICE OF INDIGENOUS STUDENTS OF NICARAGUA</b> <i>B. Mills, P. Lane</i>	4368
<b>EVALUATING THE LEARNING EXPERIENCE OF A PROGRAMMING LANGUAGE AT DIFFERENT UNIVERSITY STAGES</b> <i>X. Costoya, D. Fernández-Nóvoa, O. García-Feal, I. Martínez-Estévez, J.M. Domínguez, M. Gómez-Gesteira, M. de Castro</i>	4375
<b>THE INFLUENCE OF LOCKDOWN IN TEACHING A CHEMISTRY LABORATORY FROM THE TEACHER'S PERSPECTIVE</b> <i>E.J. Delgado-Pujol, G. Martínez, M. Merinero, D. Casado, J.J. González, B. Begines, A. Alcudia</i>	4380
<b>METACOGNITIVE ACTIVITIES FOR IMPROVING TEACHERS' AND LEARNERS' PERFORMANCE</b> <i>A. Zernova</i>	4387
<b>THE ADVANTAGES OF INCORPORATING ANIMATION AND VISUALIZATION IN DATA STRUCTURES COURSE</b> <i>G. Kogan, H. Chassidim, I. Rabaev</i>	4394
<b>BAUHAUS AT FAUHAUS</b> <i>D.S. Opincariu, A. Pop, L. Patachi, L. Vartic</i>	4401
<b>EVOLUTION OF ADMISSION AND FINAL GRADES IN DIFFERENT SUBJECTS AND UNIVERSITY DEGREES ANALYSED FROM A GENDER PERSPECTIVE</b> <i>A. Vidaurre Garayo, I. Tort Ausina, M.A. Serrano Jareño, J. Riera Guasp, S. Quiles Casado, N. Navajas Pertegás, J. Molina Mateo, J.M. Meseguer Dueñas, R. Martín Cabezuelo, J.A. Gómez Tejedor</i>	4406
<b>EFFECTIVENESS OF AN EMOTION REGULATION SKILLS TRAINING TO ALUMNI STUDYING A MASTER'S DEGREE IN GENERAL HEALTH PSYCHOLOGY: PRELIMINARY RESULTS</b> <i>M.V. Navarro-Haro, O. Péris-Baquero, J. Osma, S. Valdivia, A. Díaz-García</i>	4412
<b>THE FIRST ARCHITECTURE PROJECT: A CONTINUOUS EXPERIMENT IN THE FIRST YEAR OF STUDY</b> <i>D.S. Opincariu, A. Pop, L. Patachi, L. Vartic</i>	4413
<b>USE OF QUIZZI TO PROMOTE ACTIVE LEARNING IN THE SUBJECT "GENERAL PSYCHOPATHOLOGY"</b> <i>O. Péris-Baquero, L. Martínez-García, M.V. Navarro-Haro, J. Osma, A. Díaz-García, V. Martínez-Loredo</i>	4419
<b>MEDICAL HUMANITIES AND CULTURE AS PART OF MEDICAL STUDENTS' TRAINING IN FOREIGN LANGUAGE CLASSES</b> <i>L.I. Leon</i>	4420
<b>STUDENTS' ATTITUDE TO LECTURERS LEADERSHIP: THE CASE OF THE MILITARY ACADEMY OF LITHUANIA</b> <i>R. Kazlauskaitė Markelienė, V. Giedraitytė</i>	4428
<b>ANALYSIS OF PALEONTOLOGICAL AND EVOLUTIONARY KNOWLEDGE OF COMPULSORY EDUCATION STUDENTS FROM MADRID (SPAIN)</b> <i>B.A. García Yelo, D. Romero-Nieto, O. Fesharaki</i>	4429
<b>NEW SKILLS IN THE MODERN ACCOUNTANTS' PROFESSION: INTERNATIONAL EDUCATION STANDARDS AND THE UNIVERSITY-BUSINESS EXPECTATIONS</b> <i>T. Cunha, A. Carvalho, M. González-Loureiro</i>	4438

<b>AN EPORTFOLIO PROCESS: HOW STUDENTS CURATE SUCCESSFUL FUTURE CAREER THINKING</b>	4450
<i>N. Yeo, J. Rowley</i>	
<b>GENDER AND SOCIALIZATION DIFFERENCES DETECTED IN A UNIVERSITY GEOLOGICAL FIELDWORK ACTIVITY</b>	4455
<i>O. Fesharaki, B.A. Garcia Yelo</i>	
<b>AI IN HIGHER EDUCATION: NEW ETHICAL CHALLENGES FOR STUDENTS AND TEACHERS</b>	4463
<i>F. Castelló-Sirvent, V.E. García Félix, L. Canós-Darós</i>	
<b>EDUCATIONAL STRATEGIES TO MITIGATE CLIMATE CHANGE SCEPTICISM</b>	4471
<i>L. Vladu, M. Enache</i>	
<b>VIRTUAL ANATOMICAL SKULL STUDY OF THE BEARDED VULTURE: COMPARING 3D TECHNIQUES FOR EDUCATIONAL INNOVATION</b>	4477
<i>J.A. De Pablo-Moreno, R. Sánchez-Belinchón, A. Miguel-Batuecas, M. Fuertes-Recuero, L. Revuelta</i>	
<b>SCHOOL ENGAGEMENT OF SLOVAK ADOLESCENTS IN RELATION TO THE BIG FIVE PERSONALITY TRAITS</b>	4478
<i>B. Žitniaková Gurgová, L. Ďuricová</i>	
<b>IMAGES OF SMART COMMUNITIES WITH DIGITAL SUSTAINABILITY FROM THE YOUNG GENERATIONS IN AUSTRIA AND IN TAIWAN</b>	4484
<i>J. Lu Hsu, M. Pivec</i>	
<b>PILOT IMMERSION OF UNDERGRADUATE STUDENTS IN THE SCIENTIFIC METHOD BY APPLYING FOR A RESEARCH PROJECT IN A SIMULATED CALL FOR PROPOSALS</b>	4488
<i>M.M. Caja, M.A. Martín, B. López-Ruiz, A.I. Olives</i>	
<b>A CURRICULUM FOR CHOICE: HOW WE CAN BUILD THE CAPACITY OF YOUNG PEOPLE TO BECOME BETTER CHOOSERS</b>	4493
<i>J. Playfoot, M. Hall</i>	
<b>ROADMAP FOR NEW PEACE GAMES DEVELOPMENT</b>	4501
<i>M. Pivec, A. Kronberger, U. Lagger</i>	
<b>DROPOUT AT UTAD: EVOLUTION AND MECHANISMS OF SUPPORT</b>	4506
<i>T. Ferreira, J.P. Cravino</i>	
<b>USEFULNESS OF THE GUIDED CLINICAL CASE TO IMPROVE STUDENT MOTIVATION AND LEARNING IN THE SUBJECT OF ENDOCRINOLOGY AND NUTRITION IN THE MEDICAL DEGREE. TWO YEARS EXPERIENCE</b>	4512
<i>S. Martínez-Hervas, D. Ortiz Masiá, H. Gonzalez-Navarro, F.J. Ampudia-Blasco, J.F. Merino Torres, C. Sánchez Juan, J.T. Real</i>	
<b>HIGHER EDUCATION STUDENTS' PERCEPTION OF UNIVERSITY SOCIAL RESPONSIBILITY, SATISFACTION, SERVICE QUALITY AND SUSTAINABLE DEVELOPMENT GOALS 2030</b>	4516
<i>Z.C.D. Sarmiento, C.S. Marques, G. Santos, T. Ferreira</i>	
<b>APPLICATIONS OF ANALOG BOARD GAME PLAY IN HIGHER EDUCATION TEACHING AND LEARNING: A SYSTEMATIC REVIEW</b>	4523
<i>N. Bareford</i>	
<b>ENHANCING EXPERIENCED EXPERTS' CONTRIBUTION IN HIGHER EDUCATION OF SOCIO-PEDAGOGICAL EDUCATORS</b>	4533
<i>M. Sottocorno</i>	
<b>IMPROVING LEARNING EFFECTIVENESS AND STUDENT ENGAGEMENT THROUGH REAL-LIVE SIMULATIONS - RESULTS FROM A STUDY ON APPLICATION OF KPI-BASED PREDICTIVE ANALYTICS IN REAL-LIVE SPORTS EVENT FORECASTING</b>	4537
<i>S. Dressler, D. Foerster-Trallo, T. Rachfall, S. Dressler</i>	
<b>COMPARISON OF CLASSICAL AND INQUIRY-BASED INSTRUCTION USING VIRTUAL REALITY IN GEOGRAPHY LESSONS</b>	4546
<i>J. Vojteková, K. Brestičová, M. Vojtek</i>	
<b>ENHANCING LEARNER MOTIVATION THROUGH INNOVATIVE TEACHING METHODOLOGIES: A HYBRID STUDY ON COLLABORATION AND MOBILE LEARNING</b>	4553
<i>A.B. Mudarra Fernández, R. Puentes Poyatos, D. Fernández Uclés, A. Liceran Gutierrez</i>	
<b>NON-LINEAR MICROWAVE DEVICE CHARACTERIZATION: A STEP FORWARD FROM S-PARAMETERS IN GRADUATE AND UNDERGRADUATE ENGINEERING TEACHING</b>	4560
<i>M. García Palomo, F. Pasadas, S. Ortiz Ruiz, A. Medina-Rull, M.C. Fernández-Sánchez, E. G. Marin, C. Torres Montijano, M. Fernández-Pantoja, F. García Ruiz</i>	

<b>CONTRIBUTING TO THE SUSTAINABLE DEVELOPMENT GOALS THROUGH TRAINING: AN EMPIRICAL STUDY</b>	4561
<i>R. Puentes Poyatos, A.B. Mudarra Fernández, D. Fernández Ucles, A. Liceran Gutiérrez</i>	
<b>FUTURE OF SCHOOL BASED STUDIES (SBS) POST COVID 19</b>	4570
<i>K. Paulus, M. Kalengay, B. Kerima</i>	
<b>TEACHING COMPUTATIONAL THINKING WITH SCAFFOLDED PROGRAMMING SCRIPTS</b>	4575
<i>C. Angeli</i>	
<b>FAST AND AUTOMATIC FABRICATION OF RADIOFREQUENCY CIRCUITS FOR FUTURE ELECTRONIC AND TELECOMMUNICATION ENGINEERS</b>	4576
<i>F. Pasadas, A. Medina-Rull, M. García Palomo, S. Ortiz Ruiz, M.C. Pardo, M. Fernández Pantoja, E. G. Marin, F. G. Ruiz</i>	
<b>THE EFFECTS OF COGNITIVE TYPE AND LEARNING WITH GAMES ON SECONDARY EDUCATION STUDENTS' UNDERSTANDING OF IF-THEN-ELSE</b>	4577
<i>C. Angeli, K. Tortouri</i>	
<b>ONLINE TEST ANALYSIS FOR THE EVALUATION OF THE FLIPPED LEARNING METHODOLOGY AND THE LEARNING PROCESS IN TECHNICAL STUDIES</b>	4578
<i>Z. Azkorra-Larrinaga, I. Gómez-Arriaran, M. Odriozola-Maritorea, J. Gainza-Barrencia, N. Romero-Antón</i>	
<b>A FRAMEWORK FOR ASSESSING THE ROLE OF HIGHER EDUCATION PEDAGOGIES IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS IN AFRICA</b>	4584
<i>M. Achieng</i>	
<b>FLEXI-COMP PROJECT: DIGITAL COMPETENCES FOR A FLEXIBLE AND INCLUSIVE FRAMEWORK FOR TRANSFORMATIVE TEACHERS</b>	4594
<i>M.J. Hernandez-Serrano, N. Morales-Romo</i>	
<b>STUDENTS' MOBILITY IN THE COVID-19 ERA: AN EMPIRICAL STUDY IN ITALY</b>	4600
<i>P. Bernardi, L. Tebaldi, B. Bigliardi, A. Volpi, E. Bottani</i>	
<b>NON-FORMAL ACTIVITIES IN NANOTECHNOLOGY AREA FOR INCREASING STUDENTS' MOTIVATION</b>	4610
<i>T. Esperanca, S. Nunes</i>	
<b>MASSIVE DATA-MINING ANALYSIS OF DISTANCE SCIENCE EDUCATION LEARNING SYSTEMS</b>	4611
<i>L. Kuo, P. Tsai, C. Chiang, K. Tu</i>	
<b>DESIGN AND IMPLEMENTATION OF A NUTRITIONAL EDUCATION PROGRAM FOR PATIENTS WITH COLON CANCER AS A LEARNING TOOL FOR STUDENTS OF THE MASTER'S DEGREE IN HUMAN NUTRITION AT THE UNIVERSITY OF GRANADA</b>	4620
<i>F.J. Amaro-Gahete, A. Cisneros, J. Jurado, A. Orellana, J. Contreras, V. De León, N. Martínez, G. Morata, C. González-Callejas, S. Candeias, M. Fernández, M. Flor-Aleman, P. Corres, T. Nestares</i>	
<b>FUTURE TEACHERS AS PROSUMERS OF VIDEOS ON EDUCATIONAL THEORISTS: YOUTUBE FOR PROMOTING INNOVATION IN CLASSROOMS</b>	4627
<i>M.J. Hernandez-Serrano, P. Renés Arellano, F.J. Lena Acebo, M. Buenestado Fernandez</i>	
<b>FACTORS ASSOCIATED WITH THE LEVEL OF SATISFACTION OF STUDENTS IN STATISTICS AND COMPUTER SCHOOLS WITH VIRTUAL TEACHING IN TIMES OF THE COVID-19 PANDEMIC</b>	4632
<i>M. Correa, F. Li, J. Aquino, N. Germán</i>	
<b>WELL-BEING, MOTIVATION, AND ADAPTATION OF UNIVERSITY STUDENTS: THE POTENTIAL INFLUENCE OF MENTORING PROGRAMS</b>	4636
<i>P. Paulino, S. Ibérico Nogueira, L. Almeida, M. Claro</i>	
<b>USE OF MOODLE FOR INTEGRATED MANAGEMENT OF OBJECTIVE STRUCTURED CLINICAL EXAMINATIONS (OSCE)</b>	4643
<i>G. Gonzalez-Caminal, R. Samson, R. Pujol-Farriols, J. Roma-Millan, C. Gomar-Sancho, M. Boteller</i>	
<b>DO VISUAL THINKING STRATEGIES IMPROVE THE LEARNING EXPERIENCE?</b>	4650
<i>V. Pitrella, A. Re, S. Perna, G. Città, S. Ottaviano</i>	
<b>DEVELOPMENT OF CREATIVITY AND CRITICAL THINKING SKILLS: FINDINGS FROM STUDENTS PARTICIPATING IN A PBL EXPERIENCE</b>	4655
<i>F. Castro-Lopes, S. Fernandes</i>	
<b>INCLUSIVE EDUCATION AND GIFTED CHILDREN</b>	4663
<i>E.L. Mara</i>	

<b>WORKING METHODOLOGY TO ANALYZE THE CURRENT STATUS OF SDG INTEGRATION IN ENGINEERING SUBJECTS</b>	4669
<i>R. Benavente, A. Borrell, J. Lluch, J. Martínez-Casas, M.D. Navarro, M.J. Rupérez, O. Sahuquillo, F. Salas, M.D. Salvador, A. Sonseca, A.M. Pedrosa</i>	
<b>THE IMPACT OF A FLIPPED CLASSROOM DESIGN OF AN ENGLISH AS A FOREIGN LANGUAGE LISTENING COURSE ON STUDENT'S SELF-EFFICACY</b>	4676
<i>J.B. Yang, M. Valcke</i>	
<b>PREREQUISITES FOR EFFECTIVE FOREIGN LANGUAGE ACQUISITION AMONG ADULT LEARNERS AGED 50+: THE CASE STUDY OF LATVIA</b>	4681
<i>M. Burima, J. Tretjakova, S. Zarina</i>	
<b>THE PREPAREDNESS OF CITIZENS IN MUNICIPALITIES FOR EMERGENCY EVENTS WITH REGARD TO THE QUALITY OF LIFE</b>	4682
<i>J. Kubás, M. Ballay, S. Strelcová, A. Kelíšek, P. Gapová</i>	
<b>EDUCATIONAL ESCAPE ROOMS AS GAME-BASED ENVIRONMENTS</b>	4690
<i>F. Rodrigues, F. Gonçalves, J. Brigas, J. Gonçalves, H. Engrácio</i>	
<b>DEVELOPMENT OF AN INTERACTIVE TECHNOLOGY PLATFORM FOR AN AI CAPABILITY TEST AND SELF-LEARNING SERVICE SYSTEM FOR TAIWAN'S INDIGENOUS LANGUAGE LITERACY</b>	4698
<i>L. Kuo, P. Tsai, W. Chang, Y. Hsiao, C. Chiang, K. Tu</i>	
<b>THE INFLUENCE OF LOCKDOWN IN TEACHING A CHEMISTRY LABORATORY FROM THE STUDENTS' PERSPECTIVE</b>	4707
<i>G. Martínez, E.J. Delgado-Pujol, M. Merinero, D. Casado, J.J. González, B. Begines, A. Alcudia</i>	
<b>GREEN CENTRE FOR AN ECOLOGY OF ENVIRONMENT, MIND AND COMMUNITY</b>	4713
<i>O. Bertoncetto, D. Sartor, R. Simonetto, L. Battistella, M. Daniel, P. Bragagnolo, S. Martinello, G. Santovito</i>	
<b>EMPLOYING SOCIAL MEDIA TO IMPROVE UNIVERSITY FIELD TRIPS EXPERIENCE</b>	4722
<i>F. Rodrigues, F. Goncalves, J. Brigas, J. Gonçalves, H. Engrácio</i>	
<b>TEACHER AND STUDENT EXCHANGE ACTIVITIES IN HIGHER EDUCATION: EXPERIENCES AND REFLECTIONS FROM ENGINEERING EDUCATION</b>	4730
<i>S. Khoshaba, V. Haralanova</i>	
<b>USE OF VIRTUAL AND MIXED REALITY IN SECURITY EDUCATION</b>	4736
<i>A. Kelíšek, S. Strelcová, J. Kubás, M. Ballay, E. Svonteková</i>	
<b>COMPARATIVE OF TWO TEACHING METHODOLOGIES IN ENVIRONMENTAL ENGINEERING: FLIPPED VS. TRADITIONAL LEARNING</b>	4745
<i>C. Pascual, M. Quintanilla-Benito, I. Izquierdo, M. Godino, F. Marcos</i>	
<b>DECOLONISING BIOCHEMISTRY</b>	4750
<i>A. Stavrou, K. Garrie, D. Hindley</i>	
<b>INSIGHTS ON ENGINEERING EDUCATION 4.0: A SYSTEMATIC LITERATURE REVIEW</b>	4751
<i>B. Bigliardi, E. Bottani, B. Pini, L. Tebaldi, A. Volpi</i>	
<b>QUI-BOT: CHEMISTRY AND PROGRAMMING CHALLENGES FROM EARLY CHILDHOOD TO SECONDARY SCHOOL INCLUSIVELY</b>	4758
<i>M.I. Tarrés-Puertas, A.D. Dorado Castaño</i>	
<b>LANGUAGE CLUB AS A TOOL OF INFORMAL FOREIGN LANGUAGE LEARNING BY ADULTS</b>	4759
<i>M. Burima</i>	
<b>FROM POWERS TO SUPERPOWERS: SKILL DISCOVERY BY PERSONALIZED LEARNING IN DESIGN EDUCATION</b>	4760
<i>H. Coman, P. Opincariu</i>	
<b>THE STORYLINE APPROACH IN EDUCATION FOR SUSTAINABILITY: A TEACHER TRAINING WORKSHOP ON THE SUSTAINABLE BRUNCH</b>	4768
<i>I. Iliopoulou, A. Papadimitriou, A. Tsigkou, S. Petrogiannou, D. Brella, D. Kyndelerou</i>	
<b>EDUCATION FOR SUSTAINABLE ECONOMIC DEVELOPMENT – INSIGHTS FROM TURMALINA PROVINCE IN BRAZIL</b>	4777
<i>O. Rodrigues da Rocha, L. Morales, J.H. Coetzer, C. MacMahon</i>	
<b>THE RELATIONSHIP BETWEEN CORPOREALITY AND DISABILITY</b>	4778
<i>D. Chiusaroli, G. Arduini</i>	
<b>EXPERIENCING EXPERIENCE: EXERCISES AND ENHANCERS FOR THE FUTURE OF CREATIVITY IN DESIGN EDUCATION</b>	4784
<i>P. Opincariu, H. Coman</i>	

<b>THE USE OF SELF-ASSESSMENT AND FLIPPED CLASSROOM IN AN UNDERGRADUATE MATHEMATICS COURSE FOR MANAGEMENT STUDENTS</b> <i>N.R.O. Bastos</i>	4791
<b>SEK CAMPUS MADRID: LEARNING PATHS - OUTDOOR LEARNING IN THE CENTER OF MADRID</b> <i>J. Pro, W. Ivey, M. Cotelo</i>	4799
<b>TEACHER TRAINEES' ATTITUDES TOWARDS INTEGRATING INFORMATION TECHNOLOGIES IN ENGLISH LANGUAGE TEACHING</b> <i>J. Hrinak</i>	4805
<b>SERIOUS GAMES FOR CYBERSECURITY: EVALUATING A DESIGN FRAMEWORK</b> <i>V.S. Barletta, M. Calvano, F. Caruso, A. Curci, V. Rossano</i>	4810
<b>FROM SCRATCH TO SKETCH: TRACING METHODS OF TRANSFORMING THOUGHTS INTO REALITY</b> <i>P. Opincariu, H. Coman</i>	4816
<b>CAN SCIENCE EXIST WITHOUT DOUBT? REFLECTION ABOUT SCIENCE IN SECONDARY EDUCATION</b> <i>L. Vervoacke, L. Van Den Broeck, B. Delanote, L. Boven, J. De Schrijver</i>	4823
<b>EXAMS THROUGH E-LEARNING ENVIRONMENTS</b> <i>O. García, F. Leon, A. Aguilar, M. Pineda</i>	4830
<b>ANALYSING THE EFFECTIVENESS AND OUTCOMES OF A BLENDED AND SELF-DIRECTED E-LEARNING APPROACH THROUGH THE MOODLE PLATFORM FOR STATISTICAL TRAINING IN SOCIAL SCIENCE DEGREES</b> <i>M. Pérez Priego, M.B. García-Moreno García, G. Gómez-Casero, J.R. Caro-Barrera</i>	4836
<b>THE ANALYSIS OF ENGLISH LANGUAGE AND LITERATURE TEACHER TRAINEES' OUTPUTS IN ACADEMIC WRITING COURSE AT THE TERTIARY LEVEL OF EDUCATION</b> <i>J. Hrinak</i>	4842
<b>IN-COURSE EXPERIENCES WITH A SCIOER FOR OBJECT-ORIENTED PROGRAMMING</b> <i>J. Nelson, J. McCuaig, M. Asch, N. Laundry</i>	4847
<b>ASSESSING ORGANIZATIONAL BEHAVIOR FROM AN ORGANIZATIONAL PSYCHOLOGY PERSPECTIVE: DEVELOPMENT AND APPLICATION OF A HOSPITAL TEACHING CASE</b> <i>J.P. Czakert, J.A.M. Reif, R. Berger</i>	4857
<b>CAN HISTORY REPEAT ITSELF? PHILOSOPHICAL QUESTIONS TO ENHANCE STUDENTS' CRITICAL THINKING ABOUT HISTORY</b> <i>B. Delanote, L. Van Den Broeck, L. Vervoacke, J. De Schrijver</i>	4864
<b>CRUSTACEANS, MOLLUSCS AND THEIR INVOLVEMENT IN MARINE WATER POLLUTION: AN EXPERIMENTAL EDUCATIONAL PROJECT TO INVOLVE THE PRIMARY SCHOOL IN CURRENT ENVIRONMENTAL ISSUES</b> <i>G. Massarin, S. Vecchiato, E. Piva, S. Pacchini, S. Schumann, M. Bellio, P. Irato, G. Santovito</i>	4871
<b>"HOUSE NEPAL": HOW A BUILDING WORKSHOP CAN SUPPORT AND PROMOTE THE EXCHANGE OF KNOWLEDGE ON MATERIALS AND CONSTRUCTION TECHNIQUES</b> <i>M. Lidón de Miguel, V. Cristini, F. Vegas López-Manzanares, C. Mileto, N. Adhikary</i>	4881
<b>WHATSAPP AS A TOOL FOR COLLECTING VOICE NOTED ORAL JOURNALS FROM PARTICIPANTS IN A SHARED HOME READING INTERVENTION</b> <i>A. Dillon, K. Gallagher, C. Habak, S. Saqr, Y. Alramamneh</i>	4889
<b>AN APPROACH TO IMPROVE THE MANAGER'S SKILLS IN THE DECISION-MAKING PROCESS</b> <i>E. Mitan</i>	4890
<b>THE CULTURAL VALUES OF EARTHEN ARCHITECTURE: A HERITAGE EDUCATION EXPERIENCE IN NEPAL</b> <i>V. Cristini, M. Lidón de Migue, C. Mileto, F. Vegas López-Manzanares, N. Adhikary</i>	4900
<b>TEACHERS' SURVEY ON THE TEACHING OF COMPUTING AS A COMPULSORY SUBJECT FOR PUPILS OF AGE 8</b> <i>E. Stankov, M. Jovanov, M. Jancheski</i>	4906
<b>IMPROVING MOTIVATION IN SECOND LANGUAGE ACQUISITION THROUGH DIGITAL TOOLS</b> <i>D. Popa, I. Cora, V. Borcan</i>	4916

<b>LEARNING MATERIALS CONTAINING MULTIMEDIA: THE EXPERIENCE OF SECONDARY SCHOOL TEACHERS IN ESTONIA</b>	4922
<i>L. Feklistova, M.H. Tiik</i>	
<b>DEVELOPING A COLLABORATIVE LEARNING APPLICATION TO SUPPORT EFFECTIVE STUDENT COLLABORATION IN HYBRID LEARNING ENVIRONMENTS</b>	4931
<i>S. O'Neill, A. Mooney</i>	
<b>STIMULATING STUDENTS IN LOGICAL THINKING AND IMAGINATION THROUGH A NEW MULTI-ANALYSIS METHOD - A SINO-ITALIAN COLLABORATIVE CLASS EXPERIENCE</b>	4937
<i>L.M.F. Fabris, M. Li, V. Labriola</i>	
<b>THE IMPORTANCE OF DATA VISUALISATION IN INTRODUCTORY STATISTICS COURSES IN SOCIAL SCIENCES DEGREES</b>	4943
<i>J.R. Caro-Barrera, M.B. García-Moreno García, C.A. Jara Alba, M. Pérez Priego</i>	
<b>WHEN STUDENTS TAKE THE ROLE OF INSTRUCTIONAL DESIGNERS</b>	4952
<i>M. Banek Zorica, J. Klindžić, S. Spiranec, D. Kos</i>	
<b>POST COVID-19 PANDEMIC ON MODALITY PREFERENCES, EXPERIENCES, AND FACTORS CONTRIBUTING TO STUDENTS' SUCCESS IN MATHEMATICS COURSES</b>	4960
<i>M. Bode, S. Devi</i>	
<b>DESIGN OF CONTEXT AWARE MOBILE APPS: A USE CASE CENTERED TEACHING APPROACH BASED ON VISUAL PROGRAMMING</b>	4970
<i>M. Zimmermann, C. Merschroth, G. Seilheimer</i>	
<b>ILARGI PROJECT: PROMOTION OF EFFICIENCY IN BUILDING THROUGH STUDENTS AND STEM PROJECTS</b>	4978
<i>P. Sarriguarte-Onandia, E. Trebolazabala, J. Aldasoro, A. Picallo-Perez</i>	
<b>BUILDING AND STRENGTHENING THE ENTREPRENEURIAL UNIVERSITY - TAPPING INTO THE POTENTIAL OF LIBRARIES</b>	4979
<i>S. Spiranec, M. Banek Zorica, D. Kos</i>	
<b>INVESTIGATING THE IMPACT OF COLLABORATIVE LEARNING ON UNDERGRADUATE COMPUTER SCIENCE STUDENTS</b>	4986
<i>S. O'Neill, A. Mooney</i>	
<b>EPORTFOLIOS AND SELF-EFFICACY: GAUGING BEGINNING DESIGN STUDENTS' CONFIDENCE LEVELS USING EPORTFOLIOS</b>	4993
<i>C. Fulford Iii, R. Nobles</i>	
<b>YOUTH PARTICIPATION WITHIN THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT: A PEDAGOGICAL PERSPECTIVE BASED ON A QUALITATIVE CONTENT ANALYSIS</b>	4998
<i>M. Ratotti, D. Bianchi, L. Carriera</i>	
<b>IDENTIFICATION AND SYSTEMATISATION OF REGULAR ERRORS IN RESEARCH PROTOCOLS SUBMITTED FOR ANALYSIS BY AN ETHICS COMMITTEE: THE EXPERIENCE OF ESCOLA SUPERIOR DE SAÚDE – INSTITUTO POLITÉCNICO DO PORTO</b>	5005
<i>D. Tavares, A. Cruz, A. Machado, A.P. Cabral, H. Sousa, H. Curado, I. Faria, M.J. Gonçalves, M.M. Amorim, P. Lopes, P. Monteiro</i>	
<b>STUDENTS' OPINIONS ON APPLICATION OF DIGITAL GAME-BASED LEARNING STRATEGY IN EDUCATION AT FACULTY OF EDUCATION</b>	5010
<i>R. Pondelíková, L. Lipárová</i>	
<b>IMPROVING OF MATHEMATICAL EDUCATION OF GENERATION Z</b>	5020
<i>N. Krivoňáková, I. Hrivová</i>	
<b>WE SPEED UP: PAPER-BASED DOCTORAL DISSERTATIONS GIVE RISE TO NEW BIAS</b>	5027
<i>Z. Baracskaí, A. Nemeth, B. Tamas</i>	
<b>THE IMPACT OF DOCTORAL STUDY ON THE DEVELOPMENT OF PROFESSIONAL IDENTITY AND INDIVIDUAL CONCEPTS OF EDUCATOR PROFESSIONALISM WITHIN THE CONTEXT OF EDUCATION SETTINGS</b>	5033
<i>L. Devlin, R. Morgan Guthrie</i>	
<b>QUESTIONS AND SUGGESTIONS: WHAT KIND OF INFORMATICS EDUCATION IS NEEDED AND HOW CAN WE DELIVER IT?</b>	5039
<i>N. Annuš</i>	
<b>YOUTH AND OUT OF SCHOOL CONTEXTS: FIRST FINDINGS OF A NARRATIVE REVIEW ABOUT CRITICAL THINKING WITHIN THE 21ST-CENTURY SKILLS</b>	5045
<i>M. Ratotti</i>	

<b>DEVELOPMENT OF A PEDAGOGICAL DIAGNOSTIC INSTRUMENT "PROFILER OF ARTISTIC POTENTIAL"</b>	5055
<i>L. Lipároová, R. Pondelíková</i>	
<b>USABILITY OF ARTIFICIAL INTELLIGENCE TO CREATE PREDICTIVE MODELS IN EDUCATION</b>	5061
<i>N. Annuš</i>	
<b>CRITICAL THOUGHT IN OBSTETRIC TEACHING</b>	5066
<i>V. Henriques</i>	
<b>EDUCATION FOR SUSTAINABLE DEVELOPMENT</b>	5070
<i>D. Smolčić Jurdana, R. Agbaba</i>	
<b>ANALYSIS OF TOOLS FOR GENERATION OF EDUCATIONAL CONTENT USING ARTIFICIAL INTELLIGENCE</b>	5078
<i>I. Blagoev, G. Vassileva, V. Monov</i>	
<b>ARTIFICIAL INTELLIGENCE AND MEDIA COMPETENCE: A SYSTEMATIC LITERATURE REVIEW ON WEB OF SCIENCE</b>	5087
<i>O. Vite-León, C. Poggi-Parodi, J. Lopera-Moreno</i>	
<b>ADAPTING COMPANY EMPLOYEE TRAINING IN SALES AND MANUFACTURING SECTORS USING VIRTUAL REALITY: A CASE STUDY COMPARISON</b>	5095
<i>S. Morrissey, K. Maye, K.J. Heinz Tegtmeier, M. Casey, J. Moolman, J. Walsh</i>	
<b>CONCEPTUAL MODEL REPORT: A SIGNIFICANT ELEMENT FOR PEDAGOGICAL STRATEGIES IN CLINICAL TEACHING</b>	5104
<i>V. Henriques</i>	
<b>HOW TO IMPROVE LIFELONG LEARNING WITH PSYCHOLOGICAL MANAGEMENT</b>	5109
<i>J. Taylor</i>	
<b>LEARNING PREFERENCES IN HIGHER EDUCATION ACCOUNTING COURSES IN PORTUGAL</b>	5114
<i>F. Campos, F. Carvalho, R. Domingos, G. Azevedo, A.M. Bandeira, C. Góis</i>	
<b>STUDENTS OF ENVIRONMENTAL ENGINEERING AS THE MAIN CHARACTERS OF THE CLASS WITH GAME BASED LEARNING</b>	5123
<i>M. Quintanilla-Benito, C. Pascual, I. Izquierdo, M. Godino, F. Marcos</i>	
<b>THE EFFICACY OF ISSUING BADGES AS AN INCENTIVE DURING EMERGENCY REMOTE TEACHING: A CASE STUDY</b>	5129
<i>H. Schoeman, F. Fon</i>	
<b>AWARENESS OF SUSTAINABLE DEVELOPMENT GOALS OF STUDENTS IN THE SUBJECTS "STATISTICS" AND "ENERGY TECHNOLOGY"</b>	5138
<i>S. Gallardo, M. Lorduy-Alós, J. Marín, M.J. Palomo</i>	
<b>GROSSO GUAIO AL MUSEO DI CALCI: A DIGITAL ADVENTURE TO LEARN THE SECRETS OF THE MUSEUM OF NATURAL HISTORY OF THE UNIVERSITY OF PISA</b>	5147
<i>R. Barbuti, E. Bonaccorsi, M. Bondioli, P. Milazzo, P. Nepa</i>	
<b>MODELLING THE PROCESS OF IMPROVING THE ACTIVITY OF THE OFFICE OF DOCTORAL STUDIES IN UNIVERSITY</b>	5155
<i>L.G. Popescu, M.V. Zerbés</i>	
<b>PERSPECTIVE MATTERS: A PRELIMINARY LOOK INTO THE DIFFERENCES BETWEEN PROFESSOR AND STUDENT PERCEPTION OF TEST DIFFICULTY AND THEIR RELATIONSHIP WITH TEST PERFORMANCE</b>	5163
<i>I. Pesovski, R. Santos, S. Kagan</i>	
<b>AUTOMATIZED CONGRUENCE OF REVIEWERS' ASSESSMENTS AND RAW DATA FOR EDUCATIONAL OBJECTS IN COMPARATIVE QUALITY EVALUATION</b>	5170
<i>H. Kostadinova, G. Totkov</i>	
<b>LECTURER'S EXPERIENCES ON THE ADOPTION OF IPADS AS A TOOL FOR TEACHING AND LEARNING IN A HIGHER EDUCATION INSTITUTION</b>	5178
<i>D. Robertson, R. Singh</i>	
<b>EVALUATION OF THE PERCEPTION AND ATTITUDES OF UNIVERSITY STUDENTS TOWARDS ECOLOGICAL ISSUES</b>	5179
<i>M. Navrátilová, M. Beranová</i>	
<b>CAREER MANAGEMENT IN THE PORTUGUESE NAVY: SPECIALIZATION AS CASE STUDY</b>	5186
<i>J. Abreu, I. Soares</i>	
<b>E-LEARNING IN CONTINUING VOCATIONAL EDUCATION AND TRAINING OFTEN USED AND (HARDLY) ACCEPTED?</b>	5195
<i>C. Siegfried</i>	



<b>TOWARDS A SUSTAINABLE FUTURE: THE ROLE OF EDUCATION SYSTEMS IN ACHIEVING AGENDA 2030 GOALS</b> <i>V. Dolci, E. Gianatti, S. Kuhzaee, B. Pini</i>	5196
<b>COMBATTING STUDENT DEMOTIVATION ONLINE: LESSONS FROM QATAR</b> <i>R. Bianchi, B. Yyelland, A. Weber, K. Kittaneh</i>	5204
<b>COOPERATIVE-LEARNING TO SUPPORT SOCIAL SKILLS IN AUTISM</b> <i>S. Rizzo, A. Cavallaro</i>	5205
<b>OPTIMIZING THE CURRICULUM IN STATE KINDERGARTENS IN ROMANIA</b> <i>L.G. Popescu, M.V. Zerbos, O. Artene-Piloiu</i>	5214
<b>PARENTS' ATTITUDES TOWARDS THEIR CHILDREN'S LEISURE USE OF DIGITAL TECHNOLOGIES</b> <i>P. Kockova, K. Kilianova, K. Kostolanyova</i>	5224
<b>PILOT STUDY: ARTIFICIAL INTELLIGENCE THROUGH THE EYES OF UNIVERSITY STUDENTS</b> <i>K. Kilianova, P. Kockova, L. Klubal, K. Kostolanyova</i>	5229
<b>TRENDS AND CHALLENGES IN UNIVERSITY-INDUSTRY COLLABORATION: A SYSTEMATIC AND DESCRIPTIVE ANALYSIS OF LITERATURE</b> <i>V. Dolci, E. Gianatti, B. Pini</i>	5237
<b>KNOWLEDGE OF THE KEY POLITICAL DOCUMENT BY TEACHING STAFF IN THE CZECH REPUBLIC</b> <i>R. Kárníková</i>	5246
<b>OPEN EDUCATION RESOURCES IN HIGHER EDUCATION CLASSROOM</b> <i>M. Hunter, S. King</i>	5251
<b>GENDER DIFFERENCES IN CLASSROOM CLIMATE PERCEPTION BEFORE P4C METHOD IMPLEMENTATION</b> <i>L. Kaliska</i>	5252
<b>BEHIND THE NUMBERS: A DATA-DRIVEN LOOK AT ACADEMIC PROCRASTINATION AND PERFORMANCE</b> <i>J. Calleja-Blanco, A. Núñez-Carballosa</i>	5260
<b>CRITICAL THINKING AND IDEOLOGY IN EDUCATION</b> <i>J. Kaliský</i>	5266
<b>COMMUNITY-ENGAGED PEDAGOGY BY DESIGN: PRACTICAL STRATEGIES FOR PROMOTING TRANSFORMATIVE LEARNING</b> <i>C.L. Blitz, I. Yanovitzky, D. Amiel</i>	5270
<b>SLOVAK FUTURE EDUCATIONAL LEADERS' EMOTIONAL INTELLIGENCE IN THE CONTEXT OF TRANSFORMATIONAL LEADERSHIP</b> <i>L. Kaliska</i>	5276
<b>MINDFULNESS PRACTICES IN UNIVERSITY AND HIGH SCHOOL SETTINGS: A SYSTEMATIC LITERATURE REVIEW</b> <i>R. Baker, K. Karadjova-Kozhuharova</i>	5283
<b>USING VIDEO REFLECTIONS AS AN ALTERNATIVE TO TRADITIONAL ASSESSMENTS IN INTRODUCTORY ECONOMICS</b> <i>M. Cameron, N. Dodamgoda, G. Piercy</i>	5291
<b>MICROEXPERIMENTS, A RESPONSE TO THE CRISIS OF THE TEACHING OF PHYSICS AND MATHEMATICS IN BLENDED LEARNING</b> <i>A.M. Garces Madrigal, C. Alvarado Zamorano</i>	5292
<b>INTELLECTUAL DISABILITY AND UNIVERSITY STUDIES - AN EXAMPLE OF INCLUSIVE EDUCATION</b> <i>J. Calleja-Blanco, M. Romeo-Delgado, K.P. Hernández Del Valle</i>	5297
<b>ACADEMIC TEACHING: ARE WE STILL DYING BY POWERPOINT?</b> <i>M. Milani</i>	5301
<b>CAREER DEVELOPMENT FOR WOMEN IN MANAGEMENT</b> <i>M-A. Loiselle, D. Fortier</i>	5306
<b>INVESTIGATING THE IMPACT OF A CHATBOT'S DISCLOSURE BEHAVIOR ON RAPPORT BUILDING IN STUDENT COACHING</b> <i>V. Mai, H. Maloko, P. Varney, A. Richert</i>	5312
<b>THE SOCIAL ROLE OF DIGITAL DESIGN IN INCLUSION AND DIVERSITY: A REFLECTION-IN-ACTION APPROACH IN THE CONTEXT OF THE SKILLS FOR A NEXT GENERATION PROJECT</b> <i>B. Giesteira, V. Peçaiibes, L. Lino, G. Vila Maior</i>	5322

<b>A ROLE PLAY TO APPROACH COMPLEXITY TOPICS LEARNING: THE CASE OF CLIMATE CHANGE AND FOOD SYSTEM INTER-DEPENDENCIES</b>	5329
<i>J. Urquijo-Reguera, M.T. Gómez-Villarino, D. Pereira Jerez, J. López Santiago, M. de Francisco Alonso</i>	
<b>INTERNATIONAL EDUCATED NURSES' CO-DESIGN OF A VIRTUAL SERIOUS GAME</b>	5330
<i>C. Da Silva, A. Torres, B. Kapralos, E. Peisachovich, C. Anyinam, S. Coffey, L. Graham, A. Dubrowski</i>	
<b>CREATING A RUBRIC FOR THE STOP HYPERTENSION SERVICE-LEARNING PROJECT</b>	5337
<i>M. Hernández-Martín, M.D. Vicente-Torres, L. Rivera, D. Prieto, S. Benedito, N. De las Heras, A. López-Calderón, J.A. García-Donaire, M. Abad-Cardiel, N. Martell, R. Redondo-Castillejo, S.D. Paredes, D. Gómez-Garre, J.A. Issa, M.P. Montenegro, C. Contreras, V. Azcutia, M.C. Lozano-Estevan, V. Hurtado-Carneiro, R. Rodríguez-Díez, A.I. Martín-Velasco, F. Das Chagas Vasconcelos, G. Segovia, T. Priego, R. Gredilla, V. Cachofeiro, M.V. Hernández, A. Agis-Torres, P. Recio, M. Muñoz-Picos, J. Navarro-Dorado, N.F. Pascual, B. Colino, A. Gómez Del Val, I. Rodríguez-Ramiro, R. Raposo, C. Soriano, M. Sancho, V.S. Leite, J.M. Bravo, J.A. García-Baró, E. Martínez-Martínez, A. Moreno, E. Nebot, A. Sánchez-Aguilera, A. Sánchez-Pina, M.E. López-Oliva</i>	
<b>MENTORING OF ENGINEERING STUDENTS IN SUSTAINABLE ENTREPRENEURSHIP IN THE INNOVATOR ECOSYSTEM UNIVERSITIES-TECHNOLOGICAL CENTRES</b>	5347
<i>M.D. La Rubia, C. Rus-Casas, D. Eliche-Quesada, S. Jurado-Contreras, F.J. Navas-Martos</i>	
<b>STUDENTS' SUCCESS MONITORING: USING DECISION TREES AND SOCIAL NETWORK ANALYSIS</b>	5353
<i>J. Gusić Mundař, D. Mundař</i>	
<b>USES OF THE MODEL CLASSROOMS CREATED FOR THE UNAM HIGH SCHOOL PROGRAM</b>	5359
<i>A.M. Ramírez Bedolla, M. Zúñiga González, M.H. Avila Arciniega</i>	
<b>MENTORING BOT FOR SCALABLE REVIEW SUPPORT</b>	5368
<i>U.U. Shegupta, R. Schmidt, W. Hardt</i>	
<b>REFLECTIONS OF MEXICAN UNIVERSITY PROFESSORS ON THE EXECUTION OF THEIR TEACHING-LEARNING SEQUENCES</b>	5377
<i>C. Alvarado Zamorano, R. Castañeda, G. de la Cruz Martínez, A.L. Eslava Cervantes, A.M. Garces Madrigal, J. Ramirez Ortega</i>	
<b>THE INCLUSION OF YOUNG PEOPLE WITH DISABILITIES IN THE UNIVERSITY ENVIRONMENT THROUGH THE FORMATION OF A SOCIALLY ACTIVE POSITION</b>	5386
<i>N. Cebotaru, S. Racu</i>	
<b>DIFFERENCES IN PARENTAL SUPPORT FOR CHILDREN'S PHYSICAL ACTIVITIES WITH REGARD TO THE LEVEL OF PARENTS' PHYSICAL ACTIVITY</b>	5390
<i>J. Alić, S. Jenko Miholić, D. Kuna</i>	
<b>MORAL EDUCATION TRANSFORMATIONS IN THE SLOVAK STATE EDUCATIONAL PROGRAM</b>	5396
<i>J. Kaliský</i>	
<b>ANALYSIS ABOUT THE EFFECTIVENESS OF THE INTEGRAL EDUCATION PROGRAM (PEI) IN ELEMENTARY EDUCATION I STUDENTS OF A PUBLIC SCHOOL IN THE STATE OF SÃO PAULO - BRAZIL</b>	5402
<i>R. Ponchio, A. Nobel, A. Cara, I. Ribeiro</i>	
<b>WHEN THE 'M' IN 'STEM' STANDS FOR MUSIC: SOME IDEAS FOR TEACHING ENVIRONMENTAL TECHNOLOGY</b>	5409
<i>R.J. Aguado, L.V. Merchante, Q. Tarrés, G.A. Bastida, A. Mazega, M. Delgado-Aguilar</i>	
<b>A NEW MODEL OF INTEGRATED FINAL MASTER PROJECT IN ACTUARIAL SCIENCE</b>	5410
<i>M.C. Mayorga-Toledano, A. Fernández-Morales, E. Trigo-Martínez, O. Gómez Pérez-Cacho</i>	
<b>DEVELOPMENT OF EXPERIENTIAL LEARNING PROJECTS IN THE ONLINE EDUCATIONAL ENVIRONMENT</b>	5416
<i>P. Norton, E. Mosser, P. Jain, F. Krebs, S. Jennings</i>	
<b>USE OF THE ELEVATOR PITCH METHODOLOGY TO INTEGRATE THE CIRCULAR ECONOMY IN THE FIELD OF BUSINESS MANAGEMENT AND FINANCE</b>	5417
<i>E. Escrig-Olmedo, M.A. Fernández-Izquierdo, I. Ferrero-Ferrero, M.J. Muñoz-Torres, J.M. Rivera-Lirio</i>	
<b>FACTORS INFLUENCING EMPLOYABILITY OF NEETS 25+ IN SELECTED EUROPEAN COUNTRIES</b>	5424
<i>P. Fanta</i>	
<b>EVALUATING THE TECHNICAL EFFICIENCY IN HIGHER EDUCATION INSTITUTIONS THROUGH MULTI-DIRECTIONAL ANALYSIS</b>	5429
<i>K. Murillo</i>	

<b>RELATIONSHIP BETWEEN DARK TRIAD TRAITS AND SUBJECTIVE PERCEIVED PERSONAL EXISTENTIAL FULFILLMENT IN FUTURE TEACHERS</b>	5437
<i>P. Skobrtal, R. Pospíšil</i>	
<b>EFFECTS OF VISUALIZATION OF MATHEMATICAL TERMS WITH THE EMPHASIS ON BETTER UNDERSTANDING</b>	5444
<i>I. Ilavská, J. Gazdíková, L. Kontrová</i>	
<b>REMOTE LEARNING AND ASSESSMENT OF GREEK SIGN LANGUAGE IN THE UNDERGRADUATE CURRICULUM IN COVID TIME</b>	5452
<i>G. Sapountzaki, E. Efthimiou, S.-E. Fotinea, K. Papadimitriou, G. Potamianos</i>	
<b>EXPLORING TRANSITION INTO INDUSTRY 4.0 WITH CASE STUDIES ON FOUR ENGINEERING EDUCATION DISCIPLINES</b>	5460
<i>D. Shetty, C. Campana</i>	
<b>OPEN KNOWLEDGE IN HIGHER EDUCATION: CLASSROOM CIBERIMAGINARIO AS A TOOL IN THE AREA OF COMMUNICATION SCIENCES</b>	5465
<i>M.C. Galvez de la Cuesta, M. Gértrudix Barrio, M.C. Gertrudis Casado, A. Carbonell Alcocer, J. Romero Luis, M. Rajas Fernández, M. Baños Fernández, E. Tabora Hernandez, L. Matosas López, R. Arcos Martín, J.L. Rubio Tamayo</i>	
<b>INCLUSIVE DESIGN, STORYTELLING AND TEACHER TRAINING</b>	5466
<i>P. Aiello, F. Sabatano, I. Viola, F. Capodanno</i>	
<b>MODERNIZATION OF THE EDUCATIONAL PROCESS IN THE MATHEMATICS STUDY PROGRAM USING GRAPHIC DIGITAL TECHNOLOGIES</b>	5471
<i>I. Ilavská, J. Gazdíková, L. Kontrová</i>	
<b>EFFECT OF A SCHOOL-BASED MULTIDISCIPLINARY HEALTH PROGRAM ON OBESITY PARAMETERS IN ADOLESCENTS FROM MEXICO</b>	5477
<i>M.A. Enríquez Martínez, J.A. Valadez Lira, A. Cocca, M. Cocca, O. Ceballos Gurrola</i>	
<b>ENHANCING MULTILINGUAL AND INTERCULTURAL COMPETENCES THROUGH LANGUAGE ETWINNING</b>	5478
<i>A. Pakula</i>	
<b>LANGUAGE ACQUISITION BY MINORITY CHILDREN IN LATVIAN PRESCHOOL EDUCATION PROGRAMMES: PARENTS' VIEWPOINTS</b>	5486
<i>S. Zariņa, M. Burima, J. Davidova, S. Ignatjeva, S. Mickeviča</i>	
<b>INTEGRATING SOCIAL INCLUSION, GENDER PERSPECTIVE AND SUSTAINABILITY INTO THE SKILLS DEVELOPMENT PROCESS IN HIGHER EDUCATION</b>	5487
<i>M.C. Mayorga-Toledano, A. Fernández-Morales, O. Gómez Pérez-Cacho, E. Trigo-Martínez, R. Moreno-Ruiz, J.D. Cisneros-Martínez, B. Lacomba-Arias</i>	
<b>QUANTIFICATION OF THE CONTRIBUTION OF DIGITIZED TECHNIQUES IN INCREASING STUDY PERFORMANCE IN CONTEMPORARY DENTISTRY</b>	5494
<i>M.E. Antohe, C.G. Dascalu, I. Gradinaru</i>	
<b>"I NEED YOUR HELP TO STAY IN SCHOOL": THE ROLE OF PERSONAL AND INSTITUTIONAL FACTORS IN THE INTENTION TO DROP OUT</b>	5500
<i>I.D. Stanciu, M.L. Maier, N. Cobarzan</i>	
<b>EXPERT SYSTEMS AND SIMULATION METHODS FOR OPTIMIZING FORMATIVE ACTIVITY IN DENTISTRY</b>	5511
<i>I. Gradinaru, C.G. Dascalu, M.E. Antohe</i>	
<b>DON'T UNDERESTIMATE MICROLEARNING: UNIVERSITY STUDENTS' PERSPECTIVE AND POSSIBLE FUTURE SCENARIOS</b>	5517
<i>A. Rof, A. Bikfalvi, P. Marques</i>	
<b>SUMMER SCHOOLS FOR INTERNATIONAL STUDENTS: INTERCULTURAL SENSITIVITY AND LANGUAGE DEVELOPMENT</b>	5525
<i>S.C. Munteanu, A.-M. Capraru, S. Paduretu</i>	
<b>UNDER THE KNIFE: COMPENSATORY TOOLS IN THE ENGLISH FOR NURSING (EFL) CLASSROOM</b>	5529
<i>J. Duarte</i>	
<b>UNPACKING IMMERSION TEACHERS' EXPERIENCES OF HYBRID PROFESSIONAL DEVELOPMENT</b>	5537
<i>T. O Ceallaigh, K. Ní Chlochasaigh</i>	
<b>ENGLISH FOR NON-ACADEMIC STAFF: NAVIGATING INTERNATIONALIZATION, TACKLING INTERCULTURAL COMMUNICATION AND DEVELOPING LANGUAGE COMPETENCE</b>	5538
<i>S. Paduretu, A.M. Capraru</i>	

<b>INTERNATIONAL STUDENTS LEARNING EXPERIENCE IN A POST COVID ERA: PREFERENCE ON DELIVERY MODEL FOR ACADEMIC ENGLISH SUPPORT</b> <i>A. Hidalgo-Bastida, C. Collier, S. Sashikumar</i>	5542
<b>THE TRANSFORMATION OF TEACHERS' TRAINING POLICY IN ITALY: TRACING CHANGES IN THE AFTERMATH OF THE COVID-19 CRISIS</b> <i>A. Favella</i>	5547
<b>TEACHING PHOTOGRAPHY IN SPECIAL NEEDS EDUCATION</b> <i>D. Gounari, A. Papadopoulou</i>	5555
<b>SPIKE UP PRIME INTEREST IN SCIENCE AND TECHNOLOGY THROUGH CONSTRUCTIONIST GAMES</b> <i>P. Petrovič, F. Agarshev</i>	5562
<b>LATENT PROFILE ANALYSIS OF COMPUTING IDENTITY: A STUDY OF ELEMENTARY SCHOOL STUDENTS IN COMPUTER SCIENCE IMMERSION PROGRAM</b> <i>B. Kim, L. Peterson, C. Scharber</i>	5571
<b>ADDRESSING STUDENTS ALTERNATE CONCEPTIONS OF CHEMISTRY AT THE TRANSITION FROM SECONDARY TO TERTIARY STUDIES</b> <i>J. Lovatt, O.E. Finlayson</i>	5579
<b>SUPPORT FOR MINORITY LEARNERS' SUCCESSFUL STUDIES IN LATVIAN: VIEWPOINTS OF PRIMARY SCHOOL TEACHERS</b> <i>S. Zarina, J. Davidova, M. Burima, L. Krastiņa</i>	5586
<b>ESSENTIAL BUSINESS-TO-BUSINESS SELLING SKILLS IN TODAY'S DIGITAL ERA: THE EMPLOYERS' PERSPECTIVE</b> <i>M. Berger, J.P. Koch, V. Koch, B.M. Zunk</i>	5587
<b>ALIVE AND KICKING: REVAMPING ASSESSMENT IN THE ENGLISH FOR NURSING CLASS</b> <i>J. Duarte, A. Albuquerque</i>	5592
<b>DYNAMIC AND ACTIVE ASSESSMENT IN MECHANICAL ENGINEERING</b> <i>I. Llop-Harillo, M.C. Mora</i>	5600
<b>DEVELOPMENT AND EVALUATION OF A TRAINING FOR VOCATIONAL TEACHERS AND TRAINERS TO DESIGN PROBLEM-ORIENTED TECHNOLOGY-BASED EXAMINATION TASKS</b> <i>H. Meiners, S. Seeber</i>	5601
<b>LEARNING SATISFACTION STUDENTS OF A NOVEL CONSTRUCTIVIST PROBLEM BASED-LEARNING (PBL) STRATEGY THROUGH VIDEO IN PATHOPHYSIOLOGY</b> <i>V.S. Leite, M. Hernández-Martín, S. Bedito, A. Sánchez-Pina, L. Rivera, D. Prieto, C. Contreras, R. Redondo-Castillejo, J.A. Issa, A. Gómez Del Val, J. Navarro-Dorado, M. Muñoz-Picos, N.F. Pascual, B. Colino, M.P. Montenegro, C. Soriano, J.J. Merino, A. Agis-Torres, B. Climent, P. Recio, R. Raposo, M. Hernández, M.E. López-Oliva</i>	5602
<b>NIGHTMARE OR GAMECHANGER: PROJECT BASED LEARNING OF PROJECT MANAGEMENT FOR GENERATION Z: BEST PRACTICES FOR BLENDED LEARNING</b> <i>J. Griminger, M. Priester</i>	5608
<b>INTERNATIONALIZATION OF HIGHER EDUCATION IN EASTERN EUROPE</b> <i>A. Mucsi, E. Malota, T. Gyulavári</i>	5619
<b>USING PROGRAMMABLE DRONE IN EDUCATIONAL PROJECTS AND COMPETITIONS</b> <i>P. Petrovič, P. Verčimák</i>	5624
<b>THE USE OF A SERVICE-LEARNING METHODOLOGY FOR END-OF-DEGREE PROJECTS IN INDUSTRIAL ENGINEERING-RELATED DEGREES</b> <i>A. Jiménez-Suárez, A. Cortés, S. Cifuentes, S. García-Rodríguez</i>	5634
<b>THE MEDIATING EFFECT OF ATTITUDES TOWARDS STATISTICS AND TECHNOLOGY IN UNIVERSITY STUDENTS</b> <i>O. Silva, Á. Sousa</i>	5642
<b>EFFECTS OF THE COVID-19 PANDEMIC ON READING AND WRITING SKILLS OF ELEMENTARY STUDENTS WITH AND WITHOUT LEARNING DISABILITIES IN GREECE: EDUCATORS' PERSPECTIVES</b> <i>S. Tziivnikou, A. Moutavelis, Z. Krokou, M. Louari, P. Papadimitriou</i>	5649
<b>THE POWER OF GAME JAMS UNDER LOCKDOWN</b> <i>E. Pietrikova</i>	5658
<b>SCHOOL OF THE FUTURE THROUGH THE EYES OF SLOVAK STUDENTS</b> <i>J. Fabus, A. Chrenkova, Z. Kolarovszka, D. Tothova</i>	5667

<b>INTERNATIONAL STUDENTS' TRANSITION INTO THE UK'S HIGHER EDUCATION</b> <i>A. Hidalgo-Bastida</i>	5674
<b>GENERATIVE DESIGN IN INTERIOR DESIGN: EXAMINING ITS FEASIBILITY AND IMPLEMENTATION IN PRACTICE AND EDUCATION</b> <i>H. El-Hammali, M. Suleiman</i>	5675
<b>IMPACTS OF YOUNG PEOPLE'S BEHAVIOR ON THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b> <i>O. Silva, Á. Sousa, J. Nunes</i>	5676
<b>DISRUPTIVE TECHNOLOGIES IN STEM EDUCATION – A METHOD FOR BROADENING THE SPECTRUM OF IT TEACHER EDUCATION</b> <i>G. Bujdosó, K. Teperics, T. Roskó, E. Jász, K. Szilágyi-Czimre, E. Molnár, J. Kapusi, C.M. Novac, O.C. Novac</i>	5684
<b>A FRAMEWORK FOR EVALUATING STEAM EDUCATIONAL PRACTICES</b> <i>P. Russo, N. Spyropoulou, A. Kameas</i>	5693
<b>GUIDED PLAY AND ALGORITHMIC THINKING: A STUDY IN EARLY CHILDHOOD EDUCATION</b> <i>M. Figueiredo, D. Gomes, V. Alves</i>	5700
<b>ARE WE ASSESSING TEACHER STUDENTS IN WAYS THAT COULD HELP THEM TO BECOME GOOD TEACHERS? -THE EXAMPLES ARE FROM PHYSICAL EDUCATION</b> <i>A.R. Jenssen</i>	5701
<b>IS CHATGPT GOOD FOR YOUR STUDENTS? A STUDY DESIGN OF THE IMPACT OF AI TOOLS ON THE STUDENT EXPERIENCE IN LEARNING JAVA</b> <i>M.L. Maher, Y. Tadimalla, D. Dhamani</i>	5702
<b>TOWARDS A HOLISTIC COMPETENCE FRAMEWORK FOR INCLUSIVE STEAM EDUCATORS</b> <i>G. Sakellariopoulou, N. Spyropoulou, A. Kameas</i>	5710
<b>EFFICACY OF BLENDED LEARNING AND TEACHING FOR HE PHYSICS COURSES</b> <i>V. Tymms, Y. Andrew</i>	5718
<b>CHILDREN'S LITERATURE AND PERSONAL AND SOCIAL DEVELOPMENT IN EARLY CHILDHOOD EDUCATION: A PRACTITIONER RESEARCH STUDY</b> <i>M. Figueiredo, A.C. Fernandes, I. Aires de Matos</i>	5719
<b>EXPERIENCES IN EDUCATION: UNDERSTANDING THE ROLE OF PSYCHOMETRIC TESTING TO PREDICT OUTCOMES OF ADULT LEARNERS RETURNING TO EDUCATION ON GOVERNMENT FUNDED RESKILLING INITIATIVES</b> <i>S. Creaner, G. Creaner, C. Creaner</i>	5720
<b>IMMERSION-SPECIFIC TEACHER COMPETENCIES: A ROADMAP FOR SUSTAINABLE CHANGE</b> <i>T. O Ceallaigh, G. Nig Uidhir</i>	5730
<b>RESEARCH ON COMPETENCY OF NURSES: A COMPARISON WITH WORKFORCE COMPETENCY</b> <i>T. Nishizono, Y. Minoura</i>	5731
<b>DIVERSITY IN HIGHER EDUCATION: STUDENTS' GRITS AND FEARS</b> <i>G. Santos, D. Dias, T. Candeias, E. Pinto da Costa, E. Justino</i>	5732
<b>LECTURE BOARD GAME</b> <i>B. Kouch, R. Angotti, K. Sung</i>	5733
<b>A CRITICAL REVIEW OF THE EDUCATIONAL SYSTEM IN GHANA, WEST AFRICA</b> <i>P. Yeboah-Hammond, E. Kumi, E. Glakpe</i>	5740
<b>THE ROLES OF INSTITUTIONS IN ADDRESSING THE NEEDS OF STUDENTS FROM MARGINALISED BACKGROUNDS IN HIGHER EDUCATION IN NAMIBIA</b> <i>M. Sheyapo, C. Haihambo, E. Mbongo</i>	5749
<b>LITERA BRAILLE: PROTOTYPING AND DEVELOPMENT OF LOW-COST DEVICE BASED ON BRAILLE TYPEWRITER</b> <i>T. Ribeiro Alves, C. Pinto Pereira, T. Cerqueira de Jesus</i>	5759
<b>DISTANCE LEARNING SYSTEM FOR SHARING DEVICES BETWEEN MULTIPLE LEARNING INSTITUTIONS WITH USE OF REMOTE ACCESS</b> <i>J. Baláži, L. Vacho, M. Baráth, P. Kósa, B. Švidraň</i>	5769
<b>THE EFFECT OF ENGAGING WITH IN-CLASS POLLS, BOTH OF A QUALITATIVE AND QUANTITATIVE NATURE, ON STUDENTS' FINAL GRADES</b> <i>C. Godfrey, P. Perlman-Dee</i>	5774

<b>EXPLORING DIGITAL TOOLS IN HUMANITIES FOR UNDERGRADUATE STUDENTS IN LINGUISTICS</b>	5775
<i>J. Kuzmina</i>	
<b>IMMERSIVE LEARNING ENVIRONMENTS: DO THEY IMPROVE STUDENT SKILLS OR CAUSE COGNITIVE OVERLOAD? A LITERATURE REVIEW</b>	5780
<i>J.P. Graham, J. Murray, B. Allen</i>	
<b>EDUCATIONAL SWITCHED MODE POWER SUPPLY TEST BENCH, FOR LABORATORY EXPERIMENTS AND TEACHING</b>	5787
<i>C. Nagy, D.C. Zuideroliet, P.J. van Duijsen</i>	
<b>COVID-19: THE CONSTRAINT AND ENABLER IN CHANGING THE TEACHING AND LEARNING ENVIRONMENT</b>	5798
<i>K. Naidoo, H. Schoeman</i>	
<b>ORGANIZATIONAL COMMUNICATION AND SOCIAL RESPONSIBILITY: A CASE REPORT OF A VIRTUAL EXCHANGE BETWEEN BRAZIL AND PORTUGAL</b>	5803
<i>P. Patrício, A. Torres, P. Pinheiro</i>	
<b>TEACHING POWER ELECTRONICS USING MODELING AND SIMULATION</b>	5812
<i>T.R. Kerssens, D.C. Zuideroliet, P.J. van Duijsen</i>	
<b>ENHANCING STUDENT SKILLS TO UNDERSTAND GLOBALIZATION AND EMERGING CHALLENGES</b>	5822
<i>I. Casquilho-Martins, H. Belchior-Rocha, D. Alves</i>	
<b>TRENDS IN EXECUTIVE EDUCATION FOR INTERACTIVE DIGITAL DESIGN FIELD: A TEN-YEAR CASE STUDY</b>	5828
<i>B. Nobre, E. Duarte</i>	
<b>ACTIVE LEARNING IN A VOCATIONAL EDUCATION AND TRAINING PROGRAMME</b>	5837
<i>N.R.O. Bastos, M.P. de Sousa Oliveira, I. Ferreira</i>	
<b>ENHANCING CRITICAL THINKING SKILLS IN THE FLUID AND THERMAL SCIENCES</b>	5846
<i>M. Clark, E. Gibson, E. Glakpe</i>	
<b>LEARNING WITH A NEWBORN BEE – DESIGN AND DEVELOPMENT OF A VIDEOGAME</b>	5852
<i>V. Alves, N. Carapito, C. Sousa, R.P. Duarte, J. Braguez, F. Fonseca, J. Cardoso, B. Lamelas, C.A. Costa</i>	
<b>PROMOTING BEST TEACHING PRACTICES</b>	5853
<i>A. Hassan, J. Crandall</i>	
<b>COMPETENTIAL METHODOLOGICAL CHANGE IN ENGINEERING: COMPUTER SCIENCE AS A MEANS FOR THE LINK BETWEEN CONCEPTS AND THE MODELLING AND CONSTRUCTION OF LOGICAL STRUCTURES</b>	5858
<i>M. Dádamo, S. De Federico, G. Cánaves</i>	
<b>EMBEDDING CULTURE AND LOCAL HERITAGE ELEMENTS IN LEARNING EXPERIENCES FOR THE DEVELOPMENT OF DIGITAL COMPETENCIES IN THE SENIOR POPULATION</b>	5869
<i>M. Amorim, R. Castro Madureira, M. Rodrigues, M. Ferreira Dias, C. Alves, M. Madaleno</i>	
<b>BACK TO THE POST-PANDEMIC CLASSROOM: LESSONS LEARNED FROM TEACHING CYBERSECURITY ONLINE</b>	5876
<i>B. Taylor, S. Kaza, P. Zaleppa</i>	
<b>UNDERSTANDING THE CHALLENGES OF E-LEADERSHIP: THE IMPORTANCE OF COMMUNICATION COMPETENCIES FOR REMOTE WORK CONTEXTS</b>	5877
<i>M. Amorim, B. Lins, C. Silva, R. Castro Madureira, M. Ferreira Dias, M. Rodrigues</i>	
<b>COMPARISON BETWEEN POWERPOINT SLIDES AND VIDEOS IN EFFECTIVENESS FOR E-LEARNING</b>	5887
<i>W. Weng, M. Zheng</i>	
<b>RETHINKING TEACHING AND LEARNING IN A LARGE LECTURE COMMUNICATION COURSE</b>	5894
<i>N. Linardopoulos</i>	
<b>MATLAB GUI EXECUTABLE FOR MATRIX ALGEBRA</b>	5895
<i>L. Villegas, F. Li</i>	
<b>ISOCIAL: VIRTUAL SOCIAL SKILLS INTERVENTION FOR NEURODIVERSE INDIVIDUALS WITH HIGH FUNCTIONING AUTISM</b>	5900
<i>J. Bruno</i>	

<b>COMPARATIVE RESULTS OF PROGRAM EVALUATION FROM BRAZILIAN SHORT-TERM COURSES</b>	5905
<i>B. Wilges, P.R. Martins, V.M. Silva, V.B. Martins, R. Cislighi, G.P. Mateus, D.H. Longo</i>	
<b>A MATLAB GUI FOR TEMPERATURE DEPENDENT UNDERGRADUATE LAB EXPERIMENTS</b>	5913
<i>E. Momox, D. Cajas-Morales, R. Muñoz-Castillo K, J. Cedillo-Zertuche</i>	
<b>BUILDING COMPUTER SCIENCE EDUCATION CAPACITY IN MIDDLE SCHOOLS: A UNIVERSITY-DISTRICT PARTNERSHIP</b>	5922
<i>C.L. Blitz, D. Amiel</i>	
<b>EMERGENCY GAMIFICATION AND 3D SLIDES AS A TOOL FOR ONLINE LEARNING IN COVID19</b>	5931
<i>L. Guerra-Menéndez, B. Crilly-Montague, M.V. Naval López, J. Del Pino, P.V. Moyano-Cires</i>	
<b>DIGITAL SKILLS MATRIX WITH FOCUS ON TEACHING AND LEARNING ACTIVITIES</b>	5937
<i>A.M. Ramírez Bedolla, G.P. González Alarcón, S. García Garibay, M. Avila Quintana</i>	
<b>RE-IGNITING CREATIVE CULTURAL SCHOOLS</b>	5946
<i>P. Lane, B. Mills, J. Benavides, E. Gomez</i>	
<b>ARTIFICIAL INTELLIGENCE IN EDUCATION: ETHICS AND TRUST CHALLENGES</b>	5951
<i>D. Pantazatos, M. Grammatikou, V. Maglaris</i>	
<b>USING FLIPPED CLASSROOMS AND ACTIVE LEARNING ACTIVITIES IN STEM EDUCATION: ENHANCING STUDENT ENGAGEMENT AND LEARNING EFFECTIVENESS</b>	5958
<i>R. Azimzadeh, S. Rodchua, M. Watson</i>	
<b>GATHERING TO LEARN, GROW, AND COLLABORATE FROM ANYWHERE</b>	5959
<i>A.C. Vidaña Montes</i>	
<b>DEVELOPING GROWTH MINDSET IN COLLEGE CLASSROOMS</b>	5963
<i>R. Azimzadeh, A. Danley, S. Rodchua, M. Watson</i>	
<b>METHODOLOGY FOR THE DEVELOPMENT AND DESIGN OF EDUCATIONAL PROGRAMS IN KAZAKHSTAN</b>	5964
<i>A. Niyazgulova, Y. Daineko, D. Tsoy</i>	
<b>BLOOD FLOW DESCRIPTION USING MATH MODEL AND ITS VISUALIZATION IN UNITY 3D ENGINE AS A PART OF MEDICAL EDUCATIONAL SIMULATOR</b>	5971
<i>B. Alipova, Y. Daineko, F. Tokmukhamedova, M. Ipalakova, ZH. Bolatov, D. Tsoy</i>	
<b>DIGITAL TRANSFORMATION OF EDUCATIONAL ECOSYSTEM AND GRANTS SUPPORT SYSTEM IN SCHOOLS</b>	5976
<i>I. Pihir, M. Tomičić Furjan, K. Tomičić-Pupek</i>	
<b>PROJECT-BASED LEARNING: CREATING AN IMMERSIVE EXPERIENCE FOR LEARNERS</b>	5982
<i>A. Ko</i>	
<b>COPEs MODEL BASED UX DESIGN AND IMPLEMENTATION WITH A MOBILE APP TO ENHANCE SPONTANEOUS REVIEW HABITS FOR SECOND LANGUAGE LEARNING</b>	5983
<i>R. Nakagawa, Y. Ohkawa, X. Zhao, A. Takahashi, T. Ohyama, T. Mitsuiishi, Y. Hayakawa</i>	
<b>COMPUTATIONAL THINKING IN CHILDHOOD MATHEMATICS EDUCATION: TOWARD A STRATEGIC USE OF DIGITAL AND COMPUTATIONAL LITERACIES IN TEACHER PREPARATION</b>	5988
<i>H. Haydar</i>	
<b>EXPLORING STUDENT EXPERIENCES AND ATTITUDES TOWARDS COMPUTER-BASED TESTING AND FEEDBACK IN MATHEMATICS EDUCATION</b>	5994
<i>T. Kraav, K. Orav-Puurand, H. Jukk, S. Pihlap, E. Kirsiaed</i>	
<b>METAVErSE IN THE PROCESS OF ARCHITECTURAL PROJECTS</b>	5999
<i>M. Valiente Lopez, N. León-Martínez, S. Moyano Sanz, A. Verdú Vázquez</i>	
<b>THE SUPPORT FOR TEACHERS AND SCHOOL LEADERS IN THEIR PROFESSIONAL GROWTH AND PERSONAL DEVELOPMENT</b>	6007
<i>A. Mišianiková, V. Hubeňáková, K. Kozelková, K. Lukáčová, V. Ondová, M. Babinčáková, D. Šveda</i>	
<b>THE IMPORTANCE OF TECHNOLOGY-ENHANCED BIOLOGY EDUCATION IN PRIMARY AND SECONDARY SCHOOLS</b>	6016
<i>A. Mišianiková, A. Lešková</i>	
<b>WEBQUEST FOR THE DEVELOPMENT OF INTERCULTURAL COMMUNICATIVE COMPETENCE OF ITALIAN SECOND LANGUAGE LEARNERS</b>	6026
<i>A. Pakula, T. Sbardella</i>	

<b>APPLICATIONS OF VIRTUAL AND AUGMENTED REALITY IN DENTISTRY EDUCATION</b> <i>S.M.N. Haider, D. Topalli</i>	6034
<b>SELF-EFFECTIVENESS OF ENGINEERING STUDENTS IN FACE-TO-FACE, DISTANCE AND REMOTE ACCESS LEARNING</b> <i>T. Ivanova, N. Kafadarova</i>	6043
<b>CURRENT TRENDS IN THE DEVELOPMENT OF PROFESSIONAL LITERACY IN CRITICAL SOCIAL WORK EDUCATION</b> <i>M. Gruslyté</i>	6050
<b>THE RELEVANCE OF CREATIVITY, CRITICAL THINKING, COMMUNICATION, AND COLLABORATION IN UNIVERSITY STUDENTS: A LONGITUDINAL FOLLOW-UP STUDY IN THE FIRST TWO ACADEMIC YEARS</b> <i>J.F. Luesia, I. Benítez, P.P. Pérez, J.F. Plaza Sánchez, R.M. Vilches-Cansino, M. Sánchez-Martín</i>	6056
<b>BREAKING DOWN GEOGEBRA: TWO DIMENSIONS OF THE GEOGEBRA SOFTWARE APPLICATION</b> <i>M. Jancheski, S. Jancheska, M. Jovanov, E. Stankov</i>	6061
<b>DEVELOPMENT OF A SYSTEM OF LABORATORY EXERCISES FOR THE DISCIPLINE "ELECTRONICS" USING THE METHODS: FACE-TO-FACE LEARNING, DISTANCE LEARNING WITH SIMULATIONS AND REMOTE ACCESS LEARNING</b> <i>T. Ivanova, N. Kafadarova, S. Milev</i>	6071
<b>EFFECTS OF AN EXERGAME ON MENTAL ROTATION AND MENTAL CALCULATION</b> <i>P. Fargier, V. Cécé, N. Burel, C. Roure, V. Lentillon-Kaestner</i>	6076
<b>FINDING A SUITABLE METHOD FOR TEACHING PHRASEOLOGICAL UNITS</b> <i>D. Kuzmanovska, V. Koceva, A. Vitanova-Ringaceva, S. Kirova, B. Ivanova</i>	6085
<b>"FLIPPED CLASSROOM" – THE FUTURE OF MODERN TEACHING</b> <i>A. Vitanova-Ringaceva, D. Kuzmanovska, V. Koceva, B. Ivanova, S. Kirova</i>	6093
<b>INVESTIGATING FACTORS NECESSARY FOR THE DEVELOPMENT OF EFFECTIVE STUDENT RECRUITMENT CAMPAIGNS: A SURVEY STUDY</b> <i>R. Chinoracky, N. Stalmasekova, M. Majercakova, L. Madlenakova</i>	6098
<b>SLOVAK PARENTS' IMPLICIT THEORIES ABOUT LEARNING BY VERY YOUNG CHILDREN: A FOCUS GROUP STUDY</b> <i>P. Gavora, D. Dvorská, J. Medvedová, Z. Geršicová</i>	6106
<b>COMPARING THE EFFECTIVENESS OF FACE-TO-FACE, EMERGENCY REMOTE, AND HYBRID TEACHING APPROACHES: A CASE STUDY OF AN INFORMATION MANAGEMENT SCHOOL</b> <i>Y. Guan, M.L. Fernandes, R. Henriques</i>	6107
<b>FOSTERING EMPLOYABILITY SKILLS IN ENGINEERING EDUCATION: A GAME BASED LEARNING APPROACH</b> <i>P. Varney, V. Mai, V. Varney</i>	6117
<b>THE IMPORTANCE OF UNDERGRADUATE TEACHER TRAINING IN THE CONTEXT OF THE ECEC SYSTEM IN SLOVAKIA IN EARLY CHILDHOOD</b> <i>Z. Geršicová, M. Masáriková, S. Barnová, S. Krásna</i>	6127
<b>FROM IMAGE TO SPACE: STRATEGIES FOR THE DEFINITION OF GEOMETRIC AND CONSTRUCTIVE SYSTEMS BASED ON INTUITIVE CREATIVE PROCESSES</b> <i>Y. Zhang, J. Mosquera González</i>	6134
<b>TEACHING VISUAL PROGRAMMING: HUMANOID ROBOT PROGRAMMING AS A CASE STUDY</b> <i>M. Zimmermann</i>	6143
<b>THE ETHICAL AND PEDAGOGICAL ISSUES OF LEARNING ANALYTICS IN HIGHER EDUCATION INSTITUTIONS</b> <i>M. Kláčmer Čalopa, I. Ďunděk Kokotec, K. Kokot</i>	6150
<b>HOW DO ADOLESCENTS LIVE THEIR SOCIAL MEDIA?</b> <i>G. Fulantelli, L. Scifo, D. Taibi</i>	6160
<b>THE USE OF VIRTUAL REALITY IN OSH EDUCATION</b> <i>A. Ďaďová</i>	6168
<b>APPLICATION OF THE CASE-STUDY METHOD OR THE METHOD OF SPECIFIC SITUATIONS IN THE PROCESS OF FORMATION OF STUDENTS' CRITICAL THINKING</b> <i>I. Balandina, L. Yuzdova, T. Moskvitina, I. Kazachuk, A. Milyutina, G. Shiganova</i>	6178
<b>USING SMART LABS TO SUPPORT STUDENTS AND TEACHERS</b> <i>M. Zamiri, J. Sarraipa, J. Calado, R.J. Goncalves</i>	6182



<b>STRATEGY FOR SYSTEMATIC EDUCATION OF ROBOTICS, DRONES AND UNMANNED SYSTEMS THROUGH CASE STUDIES</b> <i>D. Shetty</i>	6191
<b>A COMPARISON OF COVID-19 DISTANCE LEARNING AND FACE-TO- FACE EXPERIENCES IN USING PROJECT-BASED PEDAGOGIES FOR UNDERGRADUATE ENGINEERING STUDENTS</b> <i>G. Ragusa</i>	6196
<b>ONLINE POST-GRADUATE PROGRAM IN DIGITAL EDUCATION: AN ASSESSMENT OF STUDENT'S PERCEPTION</b> <i>A. Cardoso, C. Martinho, R. Pereira Rodrigues, V. Manteigas, R. Abreu, M.J. Escudeiro</i>	6202
<b>CHALLENGES AND OPPORTUNITIES IN INTEGRATING STEM EDUCATION AT THE ELEMENTARY LEVEL IN NORTHERN QUEBEC</b> <i>B. El Fadil</i>	6206
<b>INCORPORATING MICROSOFT EXCEL INTO UNDERGRADUATE DEGREES: A CASE STUDY</b> <i>I. Tsener</i>	6207
<b>BUILDING BRIDGES: ALIGNING TEACHERS' PERCEPTIONS OF STUDENT WRITING WITH STUDENTS' PERCEPTIONS OF TEACHERS' FEEDBACK</b> <i>A. Albuquerque</i>	6208
<b>TRANSACTIONAL AND TRANSFORMATIVE COACHING AND ITS VALUE</b> <i>K. Schneider</i>	6215
<b>GAMIFIED NETWORK TRACE ANALYSIS: AN EDUCATIONAL ESCAPE ROOM TO RAISE LEARNERS' AWARENESS OF DATA PRIVACY AND DATA ENCRYPTION</b> <i>T. Baumeister</i>	6216
<b>STUDENTS AND THE INTERNET: USES, PROBLEMS AND BENEFITS DURING THE COVID-19 PANDEMIC IN PORTUGAL</b> <i>N.S. Morais, T. Pestana</i>	6222
<b>AN INQUIRY INTO HOW ACADEMIC FACULTY MEMBERS IN SAUDI ARABIAN UNIVERSITIES VIEW THE POSSIBILITY OF UTILIZING AUGMENTED REALITY AS A TEACHING TOOL</b> <i>E. Alqahtani</i>	6230
<b>USING PHOTOGRAMMETRIC 3D MODELS AS LEARNING SOURCES IN ARCHAEOLOGY</b> <i>M. Bouzas</i>	6231
<b>TEACHING THE LITERATURE OF NEW YORK IN THE UNIVERSITY STUDIES OF ENGLISH AS A FOREIGN LANGUAGE AND ITS IMPACT ON THE DEVELOPMENT OF READING SKILLS</b> <i>B. Jerliu</i>	6236
<b>THE IMPACT OF THE PROGRAMME NURTURING PHYSICAL SCIENCES EDUCATORS ON IMPROVING LEARNER PERFORMANCE</b> <i>K.J. Tlhabane, M.P. Rankhumise</i>	6244
<b>PSYCHOSOCIAL OUTCOMES OF A DRAMA-PEDAGOGY TRAINING FOR UNIVERSITY STUDENTS: ANXIETY AND POSITIVE EMOTIONS</b> <i>M.M.P. Celume, B. Dauvier</i>	6245
<b>DEVELOPING INTUITIVE THINKING IN MATHEMATICS STUDENTS ENGAGED IN SEARCH ACTIVITY</b> <i>Z. Dedovets, M. Rodionov, A. Nazarov</i>	6256
<b>PEDAGOGICAL GARDEN IN THE TEACHING-LEARNING PROCESS IN A MUNICIPAL SCHOOL IN CAMPOS DOS GOYTACAZES-RJ, BRAZIL</b> <i>P.C. Dos Santos, R.A. Beltrame, J.F. Lima, J.S.B. Lirio, L.F.S. Siqueira, A.J.C. Carvalho</i>	6261
<b>CONCEPT MAPS, KNOWLEDGE GRAPHS, ONTOLOGIES AND INTELLIGENT SEMANTICS - BASED APPROACHES FOR PERSONALIZED LEARNING</b> <i>T. Ivanova</i>	6266
<b>THE DIDACTIC EFFECTIVENESS VERIFICATION OF THE TEACHING MODEL THAT USES AN INNOVATIVE E-LEARNING MODULE</b> <i>M. Misutova, M. Misut</i>	6276
<b>THE PLAY IN TEACHING FRENCH BETWEEN TECHNIQUES AND CLASS PRACTICE</b> <i>K. Aada</i>	6282
<b>TERTIARY TEACHERS' REFLECTION ON ONLINE TEACHING IN AUSTRIA</b> <i>M. Beňo, D. Cagáňová, J. Hvorecký</i>	6283

<b>CLASSROOMS FOR PARTICIPATION: AN EXPERIENCE OF EDUCATION FOR CITIZEN PARTICIPATION USING SOCIAL MEDIA</b>	6291
<i>A. Sanz-Hernández, L. Bacallao-Pino, E. Monforte García, E. Edo Agustín, P. Jiménez-Caballero</i>	
<b>DISTANCE EDUCATION IN UKRAINE DURING THE WAR</b>	6300
<i>L. Movchan, N. Komisarenko, Y. Fernos, V. Kolisnyk</i>	
<b>GENDER DIFFERENCES IN STUDENTS' ATTITUDES TOWARDS ECONOMETRICS</b>	6306
<i>M. Cladera, A. Suárez-Álvarez, M.R. Vicente</i>	
<b>LEADERSHIP IN EDUCATION: A CASE STUDY OF SUCCESSFUL TEAM LEARNING ACTIVITIES</b>	6314
<i>A. Barbu, O.C. Dochia, G. Militaru, D.C. Deselnicu</i>	
<b>INCLUSIVE EDUCATION IN MALAYSIAN PRIMARY SCHOOLS: A REVIEW OF MAINSTREAM TEACHERS' EXPERIENCES OF TEACHING LEARNING-DISABLED CHILDREN</b>	6323
<i>H. Kaur</i>	
<b>FACTORS AFFECTING PERFORMANCE OF FACULTY MEMBERS IN LEBANESE HIGHER EDUCATION DURING ECONOMIC CRISIS- A STUDY ON PRIVATE HIGHER EDUCATION INSTITUTIONS</b>	6324
<i>L. Saleh, K. Bourdoukani, J. Arida</i>	
<b>ANALYZING THE EFFECTIVENESS OF ONLINE VS. FACE-TO-FACE WINE COURSES IN AN EXPERIMENT</b>	6335
<i>A. Stoeckl, C. Di Gennaro, D. Dotto, A. Gallaun, M. Wilfinger</i>	
<b>IMPROVING LABORATORY SKILLS IN HIGHER EDUCATION WITH A FLIPPED-CLASSROOM CONTEST</b>	6344
<i>F. Aznar, M. García Bosque, C. Aldea, E. Cascarosa, C. Sánchez-Azqueta, S. Celma</i>	
<b>RETHINKING THE CAPSTONE EXPERIENCE: OFFERING MINI PROJECT MODULES IN A SOFTWARE DEVELOPMENT MSC PROGRAMME</b>	6348
<i>N. Anderson, A. McGowan, D. Stewart, E. Barlaskar, L. Galway, P. Hanna, J. Bustard, J. Adhikari</i>	
<b>LEADING IN TIMES OF INSTABILITY: VOICES FROM THE SCHOOL PRINCIPALS</b>	6354
<i>B. Kafu-Quvane</i>	
<b>INSPIRING HUMANNESS THROUGH CHILDREN'S LITERATURE</b>	6359
<i>M. McMartin, T. Campbell</i>	
<b>IMPACT OF THE MIGRATION OF TEACHING ACTIVITIES DURING THE HEALTH CONTINGENCY IN FES ZARAGOZA, UNAM</b>	6367
<i>J.L.A. Mora, F. Palestino, G.M. García Escalante, M.S. Gonzalez, R. Rangel Corona, G. Gonzales, V. Moreno Mtz</i>	
<b>LEVERAGING GENERATIVE ASSISTIVE INTELLIGENCE (AI) FOR INSTRUCTIONAL DESIGN: A CASE STUDY USING ELABORATION THEORY</b>	6373
<i>R. Robinson, T. Kayalackakom, S. Philip, S. Modise, M. Millis</i>	
<b>USING INTERNET OF THINGS AND MAKER CULTURE FOR TEACHING FIRE DETECTION SYSTEMS IN HIGH SCHOOL</b>	6374
<i>A. Montenegro, C. Oliveira, S. Cruz, B. Cunha, V. Bremgartner, A. Araújo, F. Teixeira, W. Cativo</i>	
<b>USING AN AUTOMATED SPACED REPETITION ALGORITHM TO ENHANCE LEARNING IN CARIBBEAN MEDICAL STUDENTS: A PILOT STUDY</b>	6380
<i>R. Robinson, E. Schneider</i>	
<b>ROBÔ-EDU: EDUCATIONAL ROBOTICS STIMULATING THE INVOLVEMENT OF ELEMENTARY SCHOOL PUBLIC SCHOOL STUDENTS IN TECHNOLOGICAL INITIATION</b>	6384
<i>V. Bremgartner, J. Sousa, A. Ribeiro, M. Reis, G. Mendonça, J. Silva, D. Sousa, H. Lima, G. Silva</i>	
<b>RETHINKING EDUCATION: A CASE STUDY IN THE FIELD OF POPULAR AND SECOND-CHANCE SCHOOLS</b>	6391
<i>V. Cotza</i>	
<b>VOLUMETRIC VIDEO BROADCASTING AND CAPTURE: UNLEASHING THE FUTURE OF EDUCATION</b>	6402
<i>B. Carter</i>	
<b>CURRICULUM DEVELOPMENT BASED ON STATE SCIENCE ASSESSMENT DATA AND A TEACHER NEEDS SURVEY</b>	6403
<i>P. Pinner</i>	
<b>IN-SERVICE EDUCATION OF MUSIC THERAPIST AIMING TO HELP THE VULNERABLE GROUPS SUPPORTED BY AUTO-ETHNOGRAPHIC RESEARCH</b>	6412
<i>J. Duras Gled, Z. Bagaric, E. Strucic</i>	

<b>LIVING LABS AS PARTICIPATORY AND COMMUNITY LEARNING APPLIED TO REGIONAL DEVELOPMENT</b>	6421
<i>N. Cruz-Pérez, J.S. Rodríguez-Alcántara, J. Rodríguez-Martín, C. Moujan, I. La Jeunese, J.C. Santamarta</i>	
<b>FOSTERING ROBOTICS EDUCATION THROUGH IMMERSIVE AND INTERACTIVE LEARNING CONTENT</b>	6425
<i>L. Hornung, D. Puljiz, P. Augenstein, C. Gonzalez, C. Wurrll, F. Bellalouna</i>	
<b>ONLINE LANGUAGE MODULE: LEARN CROATIAN!</b>	6434
<i>A. Ordulj</i>	
<b>UNLEASHING CREATIVITY FROM A WELSH PERSPECTIVE: DEVELOPING RESEARCH-BASED EVIDENCE FOR THE SUSTAINABILITY OF SOCIAL PRESCRIBING ART-ON-PRESCRIPTION FOR THE HEALTH AND WELLBEING OF THE NATION</b>	6442
<i>M.S. Rogers</i>	
<b>USING INNOVATIVE ARTISTIC RESOURCES FOR LEARNING ABSTRACT CHEMISTRY CONCEPTS</b>	6449
<i>M.T. Doménech-Carbó</i>	
<b>A PERSPECTIVE OF UNIVERSITY AND FABLAB NETWORKS TO INTEGRATE SUSTAINABILITY INTO FASHION DESIGN CURRICULA THROUGH INDUSTRY 4.0 TECHNOLOGIES</b>	6450
<i>G. Rizzi, P. Bertola</i>	
<b>RESILIENCE FOR INNOVATION PROJECTS IN THE EDUCATION SECTOR</b>	6460
<i>R. Lamscheck-Nielsen</i>	
<b>UNIVERSITY NETWORK COLLABORATION IN HIGHER EDUCATION: CASE CERN BOOTCAMP SUMMER SCHOOL</b>	6470
<i>J. Ojasalo</i>	
<b>LIVING LAB APPROACH TO IMPROVING THE QUALITY OF TRAINING SPACES</b>	6477
<i>A. Violano, R.G. Aenoai</i>	
<b>IMPROVISATION TO ADDRESS INDIGENOUS KNOWLEDGE IN THE TEACHING OF LIFE SCIENCES</b>	6487
<i>R. Kgopong, X. Khalo</i>	
<b>TEACHING MECHATRONICS, ROBOTICS AND AUTOMATION WITH ARDUINO</b>	6497
<i>R. Čermák, V. Mašek, D. Fait</i>	
<b>ASSESSING THE VIABILITY OF GENERATIVE AI FOR CREATING FORMATIVE MULTIPLE-CHOICE QUESTIONS TO ENHANCE FORMATIVE LEARNING IN CARIBBEAN MEDICAL STUDENTS: A PHENOMENOLOGICAL STUDY</b>	6503
<i>R. Robinson, R. Millis, T. Kayalackakom, T. Joy, N. Karanja, S. Philip, S. Modise</i>	
<b>ETHNOGRAPHIC RESEARCH OF PARTICIPATORY STORYTELLING IN THE CONTEXT OF SOCIAL INCLUSION OF CHILDREN WITH DEVELOPMENTAL DISABILITIES</b>	6504
<i>D. Mikulec, S. Stibohar, Z. Bagaric</i>	
<b>STABILITY AND VARIABILITY, A VITAL BALANCE BETWEEN GENOME EVOLUTION AND DISEASE: POSITIVE EFFECTS OF A NEW DOCENDO DISCIMUS TEAM DISSEMINATION SCIENCE PROJECT</b>	6510
<i>R. del Gaudio</i>	
<b>INTERACTIVE VIRTUAL SIMULATORS FOR THE DISCIPLINE OF ELECTRICAL CIRCUITS</b>	6511
<i>G. Mata Hernández</i>	
<b>TECHNOLOGICAL DESIGN WORKSHOP FOR THE PARTICIPATED ENERGY RETROFIT OF THE 'VIVIENDAS SOCIALES ANTONIO RUEDA' IN VALENCIA</b>	6518
<i>A. Violano, L.P. Palmero, G. Bernardo, M. Cannaviello, M. Merola</i>	
<b>EMPOWERING EARLY CHILDHOOD PROFESSIONALS: A EUROPEAN PROJECT ON PROGRAMME-WIDE POSITIVE BEHAVIOUR SUPPORT DEVELOPED IN 4 COUNTRIES</b>	6519
<i>S. Barros, V.H. Oliveira, M. Santos, S. Araújo, A. Otero-Mayer, V. Michaelidou, M. O'Brien, A. Szproch, K. Krousorati, A. Agathokleous, V. Grammatikopoulos</i>	
<b>ONLINE KNOWLEDGE ASSESSMENTS DURING THE CORONAVIRUS QUARANTINE: A STUDENT PERSPECTIVE ON E-LEARNING SYSTEMS</b>	6527
<i>M. Ražnjević Zdrilić, V. Kalajžić, J. Grzunov</i>	
<b>DEVELOPMENT AND IMPLEMENTATION OF INTELLECTUAL COMPONENTS OF THE DIGITAL EDUCATIONAL ENVIRONMENT</b>	6535
<i>S. Krashennnikov, F. Novikov, M. Nakhatovich, D. Kurnosov</i>	

<b>DEVELOPING DESIGN PRINCIPLES FOR CREATING A MEANINGFUL LEARNING ENVIRONMENT</b>	6542
<i>M. Al Abri, A. Al Aamri, A. Elhag</i>	
<b>CHANGE GAME AND PLAY WITH EARTH: A MANAGEMENT GAME FOR COLLABORATION, EDUCATION AND DIGITALISATION</b>	6552
<i>L. Oliveti</i>	
<b>THE LIGHTING EFFECTS ON TACTILE PERCEPTION IN INTERIOR DESIGN STUDIOS</b>	6561
<i>N.S. Abdelaziz Mahmoud</i>	
<b>PROBLEM &amp; PROJECT-BASED LEARNING IN PRE-UNIVERSITY EDUCATION: FROM IDEOLOGY TO PRACTICE</b>	6568
<i>C. Costa-Lobo, A. Vazzoler-Mendonça, V. Capellini, H. Wafunga</i>	
<b>TRENDS IN PHOTOVOLTAIC ENGINEERING EDUCATION</b>	6574
<i>D. Shehova, S. Shotarova, S. Lyubomirov, R. Popov, A. Parushev</i>	
<b>REMOTE LABORATORY FOR PHOTOVOLTAIC SYSTEM RESEARCH IN ENGINEERING EDUCATIONAL INSTITUTIONS</b>	6584
<i>S. Shotarova, D. Shehova, H. Kanevski, S. Lyubomirov, S. Asenov</i>	
<b>LEADERSHIP FOR EVERYONE: EMPOWERING LEADING FEMALES</b>	6593
<i>S. Karmysov</i>	
<b>DIGITAL DISTANCE LEARNING EXPERIENCES IN THE COVID-19 CRISIS: THE CASE OF BIFRÖST UNIVERSITY, ICELAND</b>	6600
<i>E. Svansson, S.L. Einarsdottir</i>	
<b>EMBEDDED SOFTWARE DEVELOPMENT WITH A MOBILE ROBOT</b>	6601
<i>M. Hodoň, P. Ševčík, J. Kapitulík, P. Danišovič</i>	
<b>ESCAPE ROOM "FUTURE EXPLORATION": COLLABORATIVE VIRTUAL REALITY FOR TEACHING STRATEGIC FORESIGHT</b>	6607
<i>G. Gándara, A.G. Rodríguez, M. Martínez</i>	
<b>BRAND COMMUNITY AS A VERSATILE BRAND-BUILDING TOOL</b>	6614
<i>E. Juozėnaitė</i>	
<b>GENIUSUP! AN EDUCATIONAL EXPERIENCE THROUGH SERIOUS GAMES USING AUGMENTED REALITY</b>	6623
<i>F.J. Perales Lopez, A.F. Florit</i>	
<b>LEARNING SPECIFIC SKILLS IN TECHNICAL SUBJECTS WITH A LARGE NUMBER OF STUDENTS: ANALYSIS OF THE ANALOG ELECTRONICS SUBJECT</b>	6629
<i>G. Prats-Boluda, J. Garcia-Casado, Y. Ye-Lin, B. Trénor Gomis, E. Guijarro-Estellés, J.L. Martínez-de-Juan</i>	
<b>ARE MORE EFFICIENT UNIVERSITIES MORE TRANSPARENT, OR VICE VERSA?</b>	6637
<i>J.L. Zafra-Gómez, J.C. Garrido-Rodríguez, G. Pérez-López, P. Povedano-Fernández, L. Marques-Arenas, G. Lopez-Perez</i>	
<b>VOICE - A DIGITAL OPEN EDUCATIONAL PLATFORM FOR SUPPORTING TEACHERS' PROFESSIONAL LEARNING: DESIGN AND EVALUATION</b>	6646
<i>S. Avgitidou, S. Theodosiou, S. Lykomitrou, C. Sidiropoulou, K. Karadimitriou</i>	
<b>SELF-STUDY, LEARNER CENTRED EDUCATION ABOUT ACTIVE CITIZENSHIP ON AN APP TO BE DOWNLOADED FOR FREE</b>	6652
<i>I. Häuser</i>	
<b>THE PROBLEM WITH THE SELF-LEARNING MACHINES: TOWARDS THE DEVELOPMENT OF THE PEDAGOGY OF ARTIFICIAL INTELLIGENCE</b>	6660
<i>R. Tomaszewska, A. Pawlicka</i>	
<b>LEVERAGING PODCASTS IN ENGLISH LANGUAGE TEACHING: ENHANCING COLLABORATIVE LEARNING THROUGH GOOGLE MEET IN THE CONTEXT OF COVID-19</b>	6669
<i>E. Bañares-Marivela, L. Rayón-Rumayor, J. Hernández Ortega, C. Barroso Moreno</i>	
<b>ROBOT CAR - LEARNING BY DOING</b>	6677
<i>M. Hodoň, P. Ševčík, J. Kapitulík, P. Danišovič</i>	
<b>STATE-OF-THE-ART OF ASSESSMENT PRACTICES IN STEM REMOTE LEARNING</b>	6684
<i>M. Manatos, A.R. Dias, P. Sampaio, A.S. Barbosa Pereira, J.P. Teixeira Domingues</i>	
<b>HISTORY OF SCIENCE AND TECHNOLOGY IN THE CONTEXT OF STEAM EDUCATION: A NON-FORMAL EDUCATION PROJECT FOR THE DEVELOPMENT OF SCIENTIFIC LITERACY IN BASIC SCHOOL STUDENTS</b>	6693
<i>C. Venturine, I. Malaquíás</i>	
<b>UNETHICAL USE OF ARTIFICIAL INTELLIGENCE IN EDUCATION</b>	6703
<i>A. Elmessiry, M. Elmessiry, K. Elmessiry</i>	

<b>INCLUDING NEWLY ARRIVED CHILDREN IN THE EDUCATION SYSTEM OF LATVIA: ASPECTS OF THE ASSOCIATED PROBLEMS AND POSSIBLE SOLUTIONS</b>	6708
<i>I. Prudnikova, V. Lubkina, L. Danilane, J. Dzerviniks, S. Usca, I. Bruveris</i>	
<b>STUDYING THE DISTRIBUTION OF THE RESULTS OF VIRTUAL EXPERIMENTS IN PHYSICS</b>	6718
<i>C. Ionascu, R. Dinescu, A. Jipa</i>	
<b>QUALITATIVE ANALYSIS TEACHING AND LEARNING: A FEW PEDAGOGICAL PRINCIPLES FOR DESIGNING DIGITAL LEARNING OBJECTS</b>	6719
<i>D. Dumitrica, N. Oosterman</i>	
<b>IMPLEMENTING TEAM-BASED LEARNING IN DATA SCIENCE EDUCATION: ENHANCING STUDENT SATISFACTION AND PERFORMANCE</b>	6720
<i>R. Henriques, L. Oliveira, R. Santos, C. Albuquerque</i>	
<b>POST-PANDEMIC EDUCATIONAL INSIGHTS IMPLEMENTING THE PEDAGOGICAL VARIATION MODEL (ROGERS, 2013)</b>	6730
<i>M.S. Rogers, A. Grunewald Nichele</i>	
<b>NEW EXPERIENCES IN LEARNING ABOUT ENTREPRENEURSHIP FOR ENGINEERING STUDENTS AT THE UNIVERSITY OF JAÉN</b>	6739
<i>L. Hontoria, C. Rus-Casas, J.D. Aguilar-Peña, F.J. Muñoz-Rodríguez, F. Baena</i>	
<b>STUDYING CHALLENGES, TASKS AND BENEFITS OF USING VIRTUAL SPACES FOR EDUCATIONAL, LEARNING AND SHOWCASING PURPOSES</b>	6745
<i>M. Jäntti, M. Aho, J. Kalermo-Poranen</i>	
<b>PROPOSALS FOR TRAINING IN SOLAR PHOTOVOLTAIC ENERGY FOR SECONDARY EDUCATION LEVELS</b>	6755
<i>V. Raya, J.D. Aguilar, L. Hontoria, C. Rus-Casas, F.J. Muñoz-Rodríguez</i>	
<b>COOPERATIVE LEARNING IN THE NANOMATERIALS SUBJECT TO OBTAIN DIFFERENT NANOSTRUCTURED MATERIALS THROUGH VARIOUS TECHNIQUES</b>	6761
<i>V. Moreno Garcia, C. Pavón Vargas, H. De La Rosa Ramírez, J. López Martínez, S. Ferrándiz Bou</i>	
<b>IMPACT OF THE FLIPPED CLASSROOM METHODOLOGY IN THE SOLID WASTE TREATMENT LABORATORY</b>	6767
<i>C. Pavón Vargas, V. Moreno, M.D. Samper, M. Aldas, J.M. Ferri, J. López-Martínez</i>	
<b>LEARNING TO PERFORM BIBLIOMETRICS: LIBRARIANS TRAINING RESEARCHERS THROUGH RAPID REVIEWS</b>	6774
<i>A. López-Martínez, M. González-Gallarza, R. Sánchez-Fernández, M. Cuadrado-García, M. Portelli-Giner, C. Gimeno-Estornell</i>	
<b>VALUE CO-CREATION BETWEEN LIBRARIANS AND RESEARCHERS: AN EXAMPLE AROUND THE EXPERIENCE VALUE CONCEPT IN THE ARTS</b>	6782
<i>A. López-Martínez, M. González-Gallarza, M. Cuadrado-García, R. Sánchez-Fernández, C. Gimeno-Estornell, M. Portelli-Giner</i>	
<b>WHAT IF ALL COURSES ARE ONLINE: LEARNING APPROACHES AND STRATEGIES OF STUDENTS OF MEDICAL SCIENCES AND THEIR PERCEIVED LEARNING ACHIEVEMENT AND SATISFACTION</b>	6788
<i>A.N. Diep, G. Philippe, L. Counasse, P. Hubert, A.F. Donneau</i>	
<b>CRIBEL: LIFELONG LEARNING SOCIAL NETWORK GOVERNED BY ACADEMIC INSTITUTIONS: AN AFFORDABLE SERVERLESS MODEL IN THE CLOUD</b>	6789
<i>J.A. Romero-Del-Castillo, J. Mancha-Dieguez, D. Ortiz-Boyer</i>	
<b>APPLYING THE ADJUNCT MODEL OF CONTENT-BASED LANGUAGE INSTRUCTION IN A TERTIARY-LEVEL ENGINEERING SETTING</b>	6796
<i>A. Casey</i>	
<b>AN INNOVATIVE LEARNING SYSTEM FOR INTERCONNECTED EMBEDDED SYSTEMS</b>	6801
<i>L. Formanek, V. Olesnanikova, P. Sarafin, P. Sevcik</i>	
<b>THE ROLE OF THE FAMILY IN THE EDUCATION OF A CHILD WITH LEARNING DIFFICULTIES</b>	6805
<i>C.C. Pascariu</i>	
<b>PROTOTYPE FOR MEASURING AND PREDICTING AIR QUALITY USING UAVS</b>	6810
<i>L. Formanek, V. Olesnanikova, P. Sarafin, P. Sevcik</i>	
<b>DOUBLE HELIX'S PLATINUM ANNIVERSARY : A NEW HANDS-ON/STEM-BASED PROJECT TO LEARN DNA STRUCTURE BUILDING 3D CREATIVE MODELS USING RECYCLED AND ECO-SUSTAINABLE MATERIALS FROM PAPER TO BIOPLASTIC</b>	6815
<i>R. del Gaudio</i>	
<b>"SIRIUS": A SERIOUS KNOWLEDGE GAME FOR ANDROID</b>	6816
<i>F. Gedeon, E. Papaioannou, C. Kaklamanis, E. Psarrou</i>	

<b>MEDIA LITERACY IN HIGHER EDUCATION: PERCEPTIONS ABOUT ETHICAL ISSUES IN JOURNALISM AMONG STUDENTS OF A SOCIAL COMMUNICATION COURSE</b>	6825
<i>N.S. Morais, J. Martins, M. Midões</i>	
<b>WHAT HAPPENS WHEN A USER FIRST ENTERS AN ONLINE ASYNCHRONOUS LEARNING COURSE AND HOW TO DESIGN A USER-FRIENDLY ENTRY SPACE</b>	6832
<i>M. Norscini, P.G. Rossi, M. Amicucci</i>	
<b>MOTIVATION AND TEAMWORK IN A MULTIDISCIPLINARY PROJECT</b>	6842
<i>L. Canós-Darós, E. Babiloni, C. García Gallego, M. García Gallego, C. Santandreu-Mascarell, E. Guijarro</i>	
<b>USE OF ELECTRONIC DEVICES WITH SCREENS BY PRE-ADOLESCENTS AND THE ASSOCIATION WITH SELF-CONTROL</b>	6848
<i>I. Becerril-Atxikallende, J. Jaureguizar</i>	
<b>TEACHERS' ATTITUDES TOWARDS PROBLEM-BASED APPROACH IN PRIMARY SCHOOL BIOLOGY TEACHING</b>	6855
<i>V. Županec, D. Raletić</i>	
<b>IMPLEMENTATION OF CORRELATIVE-INTEGRATIVE APPROACH IN BIOLOGY TEACHING IN PRIMARY SCHOOL</b>	6863
<i>V. Županec, V. Sekulić, T. Lazarević, T. Pribičević</i>	
<b>FAST TRACK FOR UNIVERSITY - SME COOPERATION</b>	6870
<i>P. Rantanen, O. Bogdanova</i>	
<b>DEMOCRATIZING ACCESS FOR SMES TO THE RESULTS OF PUBLICLY FUNDED RDI PROJECTS</b>	6875
<i>O. Bogdanova, P. Rantanen</i>	
<b>INTEGRATING BIOPHILIC APPROACH AND STAND EXHIBITION IN INTERIOR DESIGN EDUCATION</b>	6880
<i>G. Elsamanoudy</i>	
<b>FAIRSCHOOL: THE COLLABORATIVE DIGITAL PLATFORM THAT CONNECTS SCHOLARS AND TEACHERS</b>	6888
<i>L. Olivoeti</i>	
<b>EVALUATION OF THE DESIGN OF AN ONLINE COURSE FOR SCRATCHJR LEARNING IN STUDENTS OF THE PEDAGOGY UNDERGRADUATE DEGREE</b>	6895
<i>M. Santos Miranda-Pinto, P. Ibañez-Cubillas, S. López Rodríguez</i>	
<b>EVALUATION OF THE IMPACT OF TRAINING IN PROGRAMMING WITH SCRATCHJR ON FUTURE PEDAGOGY PROFESSIONALS</b>	6900
<i>P. Ibañez-Cubillas, M. Santos Miranda Pinto, S. López Rodríguez</i>	
<b>THE PEDAGOGICAL TRAINING OF FUTURE ICT TEACHERS: AN EXPERIENCE REPORT FROM THE UNIVERSITY OF THE AZORES</b>	6905
<i>A.C. Loureiro, A.I. Santos</i>	
<b>BOUNDED SCALES: A NEW TYPE OF SCALE FOR EDUCATIONAL PRACTICE AND RESEARCH</b>	6912
<i>P.H. Vossen, S. Ajit</i>	
<b>PERCEPTIONS OF THE EDUCATIONAL POTENTIAL OF ROBOTICS AND CODING IN INCLUSIVE SETTINGS</b>	6923
<i>A.C. Loureiro, M. Santos Miranda Pinto</i>	
<b>PROBLEM-POSING TO DEVELOP PROPORTIONAL AND PROBABILISTIC REASONING</b>	6931
<i>M. Burgos, N. Tizón-Escamilla</i>	
<b>PRIMARY SCHOOL PUPILS' INTUITIONS AND STRATEGIES WHEN SOLVING FAIR GAME TASKS</b>	6938
<i>M. Burgos, N. Tizón-Escamilla, M.M. López-Martín</i>	
<b>EXPLORING TEACHERS' DIGITAL KNOWLEDGE AND SKILLS: A COMPARATIVE STUDY IN THE PANDEMIC PERIOD 2020-2023</b>	6946
<i>G. Kalogeratos, C. Pierrakeas</i>	
<b>LOW COST 360 DEGREE VIRTUAL REALITY VIDEO CREATION FOR NURSING INTENSIVE CARE UNIT PRACTICES: A DESCRIPTIVE STUDY</b>	6957
<i>P. García-Pazo, F.J. Perales Lopez, A. Babiloni Coll, C. Moreno, L.A. Brogi</i>	
<b>ARTIFICIAL INTELLIGENCE IN THE PUBLIC GREEK SCHOOL AFTER THE COVID-19 ERA</b>	6958
<i>G. Kalogeratos, C. Pierrakeas</i>	

<b>AN ASSESSMENT OF ONLINE COURSES FOR SUPPORTING GREEK HIGHER EDUCATION TEACHERS' DIGITAL COMPETENCE</b>	6965
<i>E. Bitakou, K. Demestichas, M. Ntaliani, C. Costopoulou</i>	
<b>TEACHING PHASORS WITH THE AID OF GAMING TOOLS</b>	6970
<i>G. Pagiatakis, N. Voudoukis, D. Uzunidis</i>	
<b>USING KAHOOT TO TEACH WAVE BASICS</b>	6974
<i>N. Voudoukis, G. Pagiatakis, D. Uzunidis</i>	
<b>GROUP-PEER-ASSESSMENT FROM A QUANTITATIVE POINT OF VIEW</b>	6979
<i>P.H. Vossen, S. Ajit</i>	
<b>WAYS OF COMMUNICATION USED BY THE MUSIC TEACHER AS A MEDIATOR TO ENCOURAGE CHILDREN TO DISCERN AND DEMONSTRATE THE PERCEIVED QUALITIES OF MUSICAL SOUNDS</b>	6990
<i>D. Žitkevičienė</i>	
<b>SOCIOMETRIC ASSESSMENT FOR MEASURING THE DEGREE OF COLLABORATION IN STEM EDUCATIONAL ENVIRONMENT</b>	6998
<i>D. Donev, G. Avramova-Todorova</i>	
<b>DEVELOPMENT OF PERSONAL COMPETENCES THROUGH STEM: EVIDENCE-BASED METHODS AND THEIR USE IN EDUCATIONAL SYSTEMS</b>	7007
<i>M. Manolov, G. Avramova-Todorova</i>	
<b>EXPRESSING THE CULTURE OF EDUCATIONAL INNOVATIONS IN EARLY CHILDHOOD EDUCATION</b>	7016
<i>D. Žitkevičienė, R. Barusevič</i>	
<b>ACTIVE AND COLLABORATIVE LEARNING ENVIRONMENTS IN HIGHER EDUCATION: A PARTICIPATORY CONSTRUCTION PROCESS AT ISCTE-UNIVERSITY INSTITUTE OF LISBON</b>	7017
<i>S. Pintassilgo, J. Monteiro, A. Paio, S. Fonseca, P. Sebastião, N. Pedro</i>	
<b>COACHING AS A MODEL FOR SUCCESSFUL EDUCATION</b>	7027
<i>A. Pukiene, I. Brazauskaite-Zubaviciene, C. Saccone</i>	
<b>STUDENTS AS TEACHERS: INTERDISCIPLINARITY AND PEER-LEARNING IN TOURISM EDUCATION</b>	7036
<i>S. Vasconcelos, A. Balula, R. Costa</i>	
<b>QUEST-DRIVEN EXPLORATION OF INTERACTIVE INSTALLATIONS IN SCIENCE CENTRES</b>	7040
<i>J. Wideström, R.J. Cumming, C. Larsson, S. Siddiqui, J. Boström, C. Djurelind, C. Sandberg, C. Törn-Lindhe</i>	
<b>USING LEARNING ANALYTICS TO MOTIVATE PROGRAMMING NOVICES</b>	7047
<i>E. Pietrikova</i>	
<b>EVOLVING NON-PLAYER CHARACTERS IN EDUCATIONAL GAMES IN VIRTUAL WORLDS</b>	7053
<i>P. Athanasiou, E. Voyiatzaki, I. Hatzilygeroudis</i>	
<b>TO WHAT EXTENT ARE ENTREPRENEURIAL EDUCATION AND NATIONAL HUMAN CAPITAL CONNECTED TO THE DEVELOPMENT OF ENTREPRENEURSHIP IN EUROPE?</b>	7060
<i>I. Fojs, K. Detelj</i>	
<b>INTELLIGENCE AND SOCIO-DEMOGRAPHIC CHARACTERISTICS OF STUDENTS WITH SPELLING DIFFICULTIES</b>	7069
<i>S. Trecha, A. Tsibidaki</i>	
<b>FROM SIMULATION TO REAL CHARACTERIZATION TO TEACH SCANNING PROBE MICROSCOPES TO STUDENTS OF NANOSCIENCE AND NANOTECHNOLOGIES DEGREE</b>	7075
<i>M.B. Montero Rodriguez, M.C. Ramírez Gómez, M. Rico Varela, R. Bouza Padín, J.C. López Lago, J. Martín Pérez</i>	
<b>UNIVERSITY BRAND: STUDYING ALUMNI REPRESENTATION PRACTICES</b>	7080
<i>K. Dimopoulos, E. Voyiatzaki</i>	
<b>DEVELOPING A NEW FUNCTIONAL SKILLS MATHS (PAPER-BASED) INITIAL ASSESSMENT AND EXPLORING ITS EFFECTIVENESS</b>	7086
<i>K. Norley</i>	
<b>AUTOMATIC ASSESSMENT WITH MATLAB GRADER IN ENGINEERING EDUCATION: THE CASE OF INDUSTRIAL PROCESS CONTROL</b>	7094
<i>I. Tejado, R. de la Encarnación-Sama, C. Nuevo-Gallardo, E. Pérez</i>	

<b>EXPERIENCES OF GLOBAL ETHNIC MAJORITY STUDENTS IN UK HIGHER EDUCATION: EVALUATING MULTIPLE THEORETICAL FRAMEWORKS TO UNDERSTAND THE GLOBAL ETHNIC MAJORITY AWARDING GAP</b> <i>H. Chepkurui, P. Seuwou, N. Dodzo, M. Opoku Agyeman</i>	7104
<b>DESIGN OF AN ONLINE MASTER'S DEGREE THROUGH THE LENS OF THE SENIOR TEACHING QUALIFICATION PROFESSIONAL DEVELOPMENT PROGRAM: THE CASE OF ERASMUS UNIVERSITY ROTTERDAM</b> <i>D. Vlachopoulos, J. Maarschalkerweerd</i>	7112
<b>ACADEMIC SKILLS FOR IMPROVING SUCCESS: A PROPOSAL ORIENTED TO STUDENTS IN POST-GRADUATION CYCLES</b> <i>R. Mauritti, H. Belchior-Rocha, S. Pintassilgo, J. Monteiro</i>	7121
<b>TEACHING COMPUTER PROGRAMMING LANGUAGES BY EXPERIENTIAL LEARNING</b> <i>Y. Tseng</i>	7126
<b>MODELLING GAMIFIED E-LEARNING EXPERIENCES WITH USER PROFILES</b> <i>J. Miškov</i>	7131
<b>EDUCATIONAL CONTINUITY PROGRAM PLANNING: LESSONS LEARNED FROM THE COVID-19 PANDEMIC FOR EDUCATIONAL ADMINISTRATION IMPROVEMENT</b> <i>B. Barrett</i>	7141
<b>ENHANCING STEM EDUCATION USING MACHINE LEARNING AND REINFORCEMENT LEARNING TECHNIQUES FOR EDUCATIONAL SOFTWARE AND SERIOUS GAMES</b> <i>Y. Liu, B. Zoghi</i>	7148
<b>EMERGING TECHNOLOGIES IN EDUCATION: ENHANCING DISTANCE LEARNING WITH TECHNOLOGY-ENHANCED LEARNING</b> <i>Y. Liu, B. Zoghi</i>	7153
<b>APPLICATION OF DIFFUSION OF INNOVATION APPROACH IN CREATING THE LA ADOPTION MATURITY FRAMEWORK</b> <i>N. Kadoic, N. Begičević Ređep</i>	7158
<b>DEDUCTIVE AND INDUCTIVE INSTRUCTIONAL SEQUENCE: THE IMPACT ON STUDENTS' PERFORMANCE</b> <i>A. Gorbunova, J. Costley, A. Savelyev, I. Shcheglova, C. Lange</i>	7164
<b>THE IMPORTANCE OF INTEGRATING PHARMACOGENETICS AS A NEW SUBJECT IN THE MEDICINE AND PHARMACY DEGREES AT THE MIGUEL HERNANDEZ UNIVERSITY</b> <i>P. Castro-Sanchez, M.J. Prieto-Castelló, L. Pitaluga-Poveda, D. Marhuenda-Amorós, A. Cardona-Llorens, A. Corno-Caparrós</i>	7165
<b>THE LEARNING APPROACHES OF LYCEUM STUDENTS ATTENDING THE COURSE "PRINCIPLES OF ECONOMIC THEORY"</b> <i>S. Asonitou, E. Pantzouri</i>	7172
<b>HYPertext IN EDUCATION: A 40-YEAR HISTORY</b> <i>G. Fulantelli</i>	7182
<b>PIAE+: AN UNIVERSITY PROJECT IN STUDENT ACCOMPANIMENT</b> <i>M. Alonso Diaz, V.E. García Félix, M.C. Rodriguez Monzonis, M.E. Gomez Martin</i>	7191
<b>CURRICULUM DESIGN FOR DISTANCE AND REMOTE LEARNING IN LEGAL STUDIES</b> <i>O. Dorul, A. Nastas</i>	7200
<b>STUDENTS' ATTENDANCE, STUDY HABIT AND PERFORMANCE IN AN ANIMAL PHYSIOLOGY CLASS</b> <i>K.M. Yam</i>	7204
<b>TOWARDS AN EVALUATION CONCEPT FOR IMMERSIVE TEACHING BASED ON THE "COGNITIVE AFFECTIVE MODEL OF IMMERSIVE LEARNING (CAMIL)" FRAMEWORK</b> <i>M. Stirzel</i>	7211
<b>THE FREQUENCY OF PLAYING ONLINE GAMES IN THE STUDENT POPULATION BEFORE AND DURING THE COVID-19 PANDEMIC</b> <i>D. Vučić, V. Vidaček Hainš, S. Čurković</i>	7219
<b>MASTERING THE ART OF TEACHING: HOW TO DEVELOP STUDENTS' SKILLS THROUGH VIRTUAL MOBILITY?</b> <i>J. Bruneckiene, V. Kumpikaitė-Valiūnienė, I. Zykiene</i>	7226



<b>INTERNATIONAL ASSESSMENT OF MATHEMATICAL KNOWLEDGE – THE SOURCE OF NEW APPROACHES IN PRIMARY EDUCATION</b>	7234
<i>A. Prídavková</i>	
<b>A NEW METHODOLOGY FOR LEARNING HOW TO DESIGN HEALTH CAMPAIGNS</b>	7244
<i>E. García-Cabrera, J.J. Marin-López, S. Sanchez Fidalgo, F. Morales Marin, L. Bejar-Prado, A. Vilches-Arenas</i>	
<b>MODELLING OF ELEMENTARY MATHEMATICAL CONCEPTS USING AUGMENTED REALITY TECHNOLOGY IN PRIMARY EDUCATION</b>	7249
<i>A. Prídavková</i>	
<b>DATA ACQUISITION SYSTEM AS A SYSTEM TO SUPPORT THE TEACHING OF TECHNICAL DISCIPLINES</b>	7255
<i>J. Míček, O. Karpis, V. Olesnanikova, M. Chochul</i>	
<b>TEACHING DESCRIPTIVE STATISTICAL METHODOLOGY USING TWO APPS FOR THE COLLECTION AND ANALYSIS OF ANTHROPOMETRIC DATA</b>	7261
<i>E. García-Cabrera, A. Quintero-Florez, J.R. Lacalle-Remigio, A. Fernández-Palacín, J. Polo Padillo, A. Vilches-Arenas</i>	
<b>TESTING SYSTEM TO INCREASE LISTENER ACTIVITY</b>	7265
<i>J. Míček, O. Karpis, V. Olesnanikova, M. Chochul</i>	
<b>MINECRAFT AS A REMOTE LAB FOR ACTIVE LEARNING: THE STUDENTS' EXPERIENCE DURING THE PANDEMIC</b>	7271
<i>M.E. Cigognini, A. Benassi, A. Nardi</i>	
<b>TEACHING LSP THROUGH PROJECT-BASED LEARNING IN MIXED SPECIALISATION CLASSES</b>	7281
<i>L. Mayorova, V. Avdeeva, A. Kravchenko, A. Bogatov, D. Bogatova</i>	
<b>EXPERIENCE IN DESIGNING AN INDIVIDUAL SELF-DEVELOPMENT TRAJECTORY OF THE PEDAGOGICAL MASTER'S PROGRAM STUDENTS</b>	7287
<i>G. Melnikova, S. Gilmanshina, R. Sagitova, A. Galeeva, I. Gilmanshin</i>	
<b>DEVELOPING STUDENTS' SKILLS IN NATURAL RESOURCES MANAGEMENT THROUGH SERIOUS GAMES</b>	7292
<i>M. Tramonti, A.M. Dochshanov, L. Tramonti</i>	
<b>TECHNOLOGIES OF PEDAGOGICAL ADAPTATION OF FOREIGN SCHOOLCHILDREN TO THE NEW EDUCATIONAL ENVIRONMENT</b>	7297
<i>S. Gilmanshina, D. Darzemanova, R. Sagitova, A. Galeeva, I. Gilmanshin</i>	
<b>ANALYSIS OF THE INTRODUCTION OF LITERATURE INTO FOREIGN LANGUAGE TEACHING</b>	7305
<i>N. Ta</i>	
<b>FROM REGULATORY INNOVATION TO EDUCATIONAL INNOVATION: WHEN EVALUATION SUPPORTS LEARNING PROCESSES AND INCREASES STUDENTS' MOTIVATION</b>	7310
<i>M.E. Cigognini, L. Parigi</i>	
<b>LEARNING AIDS ON A VIRTUAL CAMPUS: CORRELATING USAGE WITH EXAM SCORES AND IMPROVING PERFORMANCE</b>	7323
<i>M.P. Vinardell, R. Martín-Venegas, J. Olloquequi, J. Del Valle, C. Pelegrí, M. Rabanal, R. Ferrer, M.J. Rodríguez-Lagunas, M.C. Morán, T. Cambras, M. Mitjans</i>	
<b>EDUCATING THE BOARDS OF FAMILY FIRMS IN SUSTAINABILITY: WHERE DO WE STAND?</b>	7328
<i>M. Madaleno, E. Vieira, D. Magueta</i>	
<b>SATISFACTION SURVEYS OF STUDENTS IN THE OCCUPATIONAL RISK PREVENTION MASTER OF MIGUEL HERNANDEZ UNIVERSITY: A TEMPORARY EVOLUTION THAT INCLUDES THE PANDEMIC OF COVID19 (2018-2022)</b>	7339
<i>M.J. Prieto-Castelló, A. Cardona-Llorens, P. Castro-Sánchez, L. Pitaluga-Poveda, D. Marhuenda-Amorós</i>	
<b>SOCIAL ROLES AND INDIVIDUAL INTEREST OF STUDENTS IN A HIGHER VOCATIONAL TRAINING CYCLE</b>	7345
<i>Y. Martínez-Hierrezuelo, D. Gil Pareja, L. Lucio González</i>	
<b>POSSIBILITIES OF USING THE EDUCATIONAL MOBILE APPLICATION IN TEACHING EDUCATIONAL PSYCHOLOGY</b>	7351
<i>M. Mesárošová, R. Miháliková</i>	
<b>THE RELIABILITY OF A QUESTIONNAIRE OF STUDENTS' EXPECTATIONS AND INDIVIDUAL INTEREST IN A HIGHER VOCATIONAL TRAINING CYCLE</b>	7356
<i>V. García Aparicio, J. Muñoz Martín, Y. Martínez-Hierrezuelo</i>	

<b>SENSORY INTEGRATION OF CHILDREN WITH AUTISM SPECTRUM DISORDER: PARENTS' EXPERIENCES</b>	7364
<i>M. Jurevičienė, I. Kaffemanienė, I. Bilbokaitė-Skiauterienė, R. Bilbokaitė, K. Gindulytė, V. Linkuviene</i>	
<b>ENABLING STUDENT CHOICE OF ASSESSMENT STYLE: CONSIDERATIONS AND PRACTICALITIES</b>	7373
<i>G. Hopkins</i>	
<b>GROUPING BACHELOR'S STUDENTS ACCORDING TO THEIR MOODLE INTERACTION PROFILES: A K-MEANS CLUSTERING APPROACH</b>	7383
<i>R. Santos, R. Henriques</i>	
<b>INSPIRING EDUCATORS TO RETHINK SUSTAINABILITY</b>	7390
<i>L.F. Dal Pian, M.C. Dal Pian, M. Dal Pian</i>	
<b>INFORMAL LEARNING EXPERIENCES BY EXPLORATION OF VISUAL RESEARCH DATA IN A SCIENCE CENTER</b>	7400
<i>L. Pareto, I. Pettersson, M. Söderberg</i>	
<b>CROSS-CULTURAL ANALYSIS OF CONFIDENCE IN ANSWERING MULTIPLE-CHOICE COGNITIVE PROBLEMS FROM THE MATHEMATICAL KANGAROO COMPETITION FOR SCHOOLGIRLS OF THE 4TH AND 5TH GRADES</b>	7410
<i>S. Churbanova, M. Martynovsky</i>	
<b>SATISFACTION SURVEYS TO PROFESSORS REGARDING TEACHING AND SERVICES IN THE MASTER'S DEGREE IN OCCUPATIONAL RISK PREVENTION AT THE MIGUEL HERNÁNDEZ UNIVERSITY</b>	7411
<i>A. Cardona-Llorens, P. Castro-Sanchez, M.J. Prieto-Castelló, L. Pitaluga-Poveda, D. Marhuenda-Amoros</i>	
<b>QUALITY INDICATORS OF THE OCCUPATIONAL RISK PREVENTION MASTER IN THE MIGUEL HERNANDEZ UNIVERSITY. A TEMPORAL EVOLUTION THAT INCLUDES THE PANDEMIC OF COVID19 (2018-2022)</b>	7418
<i>M.J. Prieto-Castelló, A. Cardona-Llorens, P. Castro-Sánchez, L. Pitaluga-Poveda, D. Marhuenda-Amorós</i>	
<b>DEVELOPMENT OF SOCIAL SKILLS FOR CHILDREN WITH SEVERE AND PROFOUND SPECIAL EDUCATIONAL NEEDS</b>	7424
<i>M. Jurevičienė, A. Vaitkevičienė, I. Bilbokaitė-Skiauterienė, I. Kaffemanienė, R. Bilbokaitė</i>	
<b>INVESTIGATING THE INNOVATION CAPABILITIES OF DESIGN STUDENTS IN HIGHER EDUCATION: A CASE STUDY IN SPAIN</b>	7433
<i>L.M. Cerdá Suárez</i>	
<b>A THEMATIC SYNTHESIS OF EARLY CHILDHOOD EDUCATORS' PERCEPTIONS OF CREATIVE TEACHING AND COVID-19</b>	7441
<i>A.G. Tan, S.E. Lim</i>	
<b>AN INTERGENERATIONAL PERSPECTIVE ON GAMIFICATION IN EDUCATION AND RESEARCH</b>	7449
<i>I.G. Mocanu, M. Velciu, O. Cramariuc</i>	
<b>SELF-CARE USING TECHNOLOGICAL MEDIA IN VULNERABLE CONTEXTS</b>	7454
<i>S. Vasquez, E. Flores</i>	
<b>HIGHER EDUCATION IN WARTIME: CHALLENGES AND PRACTICES</b>	7459
<i>O. Labenko, T. Ugryn, A. Skrypnyk, I. Sytdykova</i>	
<b>SOCIAL INTERRELATIONSHIPS A KEY ASPECT TO ACHIEVE AN INCLUSIVE UNIVERSITY: FACULTY MEMBERS PERCEPTION ABOUT THE INCLUSION OF MASTER STUDENTS WITH DISABILITIES</b>	7465
<i>I. Heras, I. Becerril-Atxikallende, B. Marcos-Rivero, K. Gonzalez-Antona, J.M. Becerril</i>	
<b>VIDEO AS A TOOL FOR UNDERSTANDING CREATIVE TEACHING PRACTICES IN EARLY CHILDHOOD SETTINGS</b>	7473
<i>K.H. Phua, A.G. Tan</i>	
<b>ETHICAL PRINCIPLES AND PEDAGOGICAL TACT – SURVEY AT THE FACULTY OF MEDICINE COMENIUS UNIVERSITY IN BRATISLAVA</b>	7479
<i>E. Kralova, L. Martauzova, M. Trnka</i>	
<b>MEASUREMENT INVARIANCE AND LATENT MEAN DIFFERENCES OF SOCIAL SKILLS AS A SCHOOL READINESS TEST FOR HUNGARIAN PRESCHOOL CHILDREN IN HUNGARY AND SLOVAKIA</b>	7483
<i>K. Józsa, D. Borbélyová, T.Z. Oo, A. Nagyová, J. Podráczy, G. Zentai</i>	
<b>BENEFITS OF TEACHING 3D PRINTING IN THE EDUCATION PROCESS AT THE FACULTY OF MANAGEMENT SCIENCE AND INFORMATICS</b>	7492
<i>L. Formanek, A. Tupy, L. Cechovic, P. Sarafin</i>	

<b>CHILDREN’S PERSPECTIVE ON EDUCATIONAL CONTEXT THROUGH PHOTOVOICE</b> <i>L. Luini, M. Guerra</i>	7499
<b>THE IMPORTANCE OF SAFE WATER AND ITS PERCEPTION BY STUDENTS IN EUROPE AND AFRICA AS PART OF A TRANSNATIONAL RESEARCH PROJECT</b> <i>O. Cramariuc, H. Lebig, T. Kodom, I.G. Mocanu, K. Bierwirth, E.S. Lohan</i>	7505
<b>INMOOV PROJECT CONTROLLED BY ROBOT OPERATING SYSTEM (ROS)</b> <i>L. Formanek, A. Tupy, L. Cechovic, P. Sarafin, M. Buchta</i>	7511
<b>ST3LLARSAT1 “BOIRA”: ESTABLISHING THE FIRST STUDENT CUBESAT PROGRAM AT UC3M</b> <i>A. Marcos, A. Ponche</i>	7521
<b>INVESTIGATING THE KNOWLEDGE OF PRE-SERVICE PRIMARY SCHOOL TEACHERS REGARDING DIVISION OPERATION</b> <i>E. Balci, M. İşıksal-Bostan</i>	7531
<b>HUMANISTIC LEARNING IN ONLINE TEACHING ENVIRONMENT: PRINCIPLES AND IMPLICATIONS</b> <i>M. Bava Harji, L. Ravindran, N. Saffari, L. Habeb Al-Obaydi</i>	7537
<b>REFRAMING THE IMPACT OF INNOVATIVE LEARNING TECHNOLOGIES ON UNIVERSITY STUDENTS AND LECTURERS TO SAVE TIME AND IMPROVE LEARNING CHALLENGES &amp; OPPORTUNITIES</b> <i>A. Majeed, A. Asim, P. Bocij</i>	7546
<b>DIGITAL JEWELRY AND VIRTUAL EXHIBITION: INTERACTION IN THE METAVERSE</b> <i>L. Tenuta, B. Rossato</i>	7554
<b>INTELLECTUAL PROPERTY AT THE UNIVERSITY IN CROATIA - UNDERSTANDING, DIFFERENCES, DISPOSITION</b> <i>M. Kos Weissbarth, M. Šantalab, J. Lasić Lazić</i>	7561
<b>DIMENSIONS OF FAMILY DYNAMICS AND SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PARENTS OF CHILDREN WITH SPELLING DIFFICULTIES</b> <i>A. Tsidaki, S. Trecha</i>	7567
<b>IEEE STANDARDS: TECHNICAL STANDARDS POWERING INNOVATION AND NEXT GEN EDUCATIONAL PROGRAMS</b> <i>E. Vega Janica</i>	7573
<b>THE SDG AT ISEC LISBOA: STUDENTS AND TEACHERS’ AWARENESS AND KNOWLEDGE</b> <i>A. Oliveira, T. Carraquico</i>	7574
<b>SPREADING DIGITAL INNOVATION CULTURE AMONG STUDENTS: A MULTI-STAGE LABORATORY MODEL ON AI AND ANTICIPATORY THINKING FOR SCHOOLS</b> <i>S. Bocconi, F. Talamini, G. Trentin</i>	7579
<b>POLICY FOR DIGITAL TRANSFORMATION IN SCHOOLS – CASE STUDY OF VIETNAM</b> <i>H. Trinh, P. Le, H. Mac, A. Nguyen, H. Trinh</i>	7585
<b>FACTORS THAT INFLUENCE TEACHERS’ PERCEPTIONS OF ENGINEERING EDUCATION: A SURVEY STUDY</b> <i>M. Ben Ghalia, M. Al Mestiraihi, E. Donaire</i>	7594
<b>INTERDISCIPLINARY FRAMEWORK FOR PYTHON PROGRAMMING AT SECONDARY SCHOOL</b> <i>R. Papancheva</i>	7600
<b>A TAXONOMIC FRAMEWORK FOR DEVELOPMENT OF ADAPTIVE METRIC SYSTEM FOR ASSESSMENT OF STEM-COMPETENCIES</b> <i>N. Kaloyanova, R. Papancheva</i>	7608
<b>ELABORATING GROUP POSTERS TO COOPERATIVE LEARN STORAGE DEVICES AND FILE SYSTEMS FOR DATA CENTRES</b> <i>M.F. Dolz, S. Catalán, M. Castillo, V.R. Tomás</i>	7615
<b>ACTIVE LEARNING IN COMPUTER NETWORKS</b> <i>S. Catalán, R. Moreno-Vozmediano, M.F. Dolz, M. Castillo</i>	7621
<b>DEVELOPMENT AND OPERATION OF ONLINE SCHOOLS: A CASE STUDY OF VIETNAM</b> <i>H. Trinh, H. Mac</i>	7628
<b>ENHANCING APPRENTICESHIP AND TECHNICAL EDUCATION WITH AI: IMPROVING TEACHING &amp; LEARNING IN COMPUTER SCIENCE AND DATA ANALYTICS</b> <i>P. Bocij, A. Majeed, M. Warsame</i>	7636

<b>THE EFFECTIVENESS OF SYNTHETIC SPEECH FOR SECOND LANGUAGE LISTENING: AN EXPERIMENT USING THE MERE EXPOSURE EFFECT</b> <i>N. Matsuda</i>	7643
<b>THE VIRTUAL READING CHALLENGE: AN EDUCATIONAL TOOL TO PROMOTE READING AND PEER COOPERATION</b> <i>G. Moretti, A. Morini, F. Sidoti</i>	7644
<b>TEACHERS' AND STUDENTS' KNOWLEDGE FOR INFORMATION AND COMMUNICATION TECHNOLOGIES INTEGRATION INTO THE CURRICULUM DURING THE COVID-19 PANDEMIC</b> <i>D. Monteiro Will, M. Bazzo de Espíndola, S. da Aparecida Martins, E. Vasconcelos de Almeida</i>	7653
<b>INQUIRY-BASED INFORMAL MATHEMATICS LEARNING IN A SCIENCE CENTER</b> <i>L. Pareto, J. Wideström, H. Sigurdsson, C. Sandberg</i>	7659
<b>RATIONALITY, MATHEMATICS &amp; SELF-ESTEEM - INNOVATION IN MATHEMATICS EDUCATION IS THE KEY FOR SUSTAINABILITY</b> <i>M. Farkas-Kis</i>	7669
<b>EVERY TEACHER SHOULD HAVE A STUDENT LIKE CHRIS: EMBRACING NEURODIVERGENCE, UDL, AND EDUCATING A VARIETY OF LEARNERS</b> <i>B. Sundararajan, M. Sundararajan, K. Haigh, S. Vimalraj</i>	7678
<b>YOUTH AND CHILDREN'S PARTICIPATION THROUGH CO-DESIGN OF PLACES</b> <i>L. Luini, F. Rota</i>	7688
<b>EDUCATIONAL ROBOTICS AS A TOOL FOR THE ACQUISITION OF TECHNICAL AND SOFT SKILLS IN UNIVERSITY EDUCATION</b> <i>J. Ruiz-de-Garibay, P. Garaizar</i>	7694
<b>THE DEVELOPMENT OF SDGS IN COMPUTER SCIENCE SUBJECTS</b> <i>V.R. Tomás, G. León, L. García, M.J. Aramburu</i>	7703
<b>TEACHER TRAINING FOR DIGITAL INFORMATION AND COMMUNICATION TECHNOLOGIES INTEGRATION INTO THE CURRICULA DURING THE COVID-19 PANDEMIC</b> <i>R. Zen Cerny, M. Bazzo de Espíndola, D. Monteiro Will</i>	7709
<b>PRE-SERVICE SCIENCE TEACHERS' OPINIONS ON HOW TO DECOLONIZE THE PHYSICAL SCIENCES CURRICULUM BY INCLUDING INDIGENOUS KNOWLEDGE</b> <i>B. Mzilikazi</i>	7718
<b>BRIDGING PROBLEM BASED LEARNING (PBL) TO VALUE CREATION (VC) IN PHYSICS CURRICULUM</b> <i>I. Stroe</i>	7723
<b>THE EXPERIENCE OF COOPERATION BETWEEN A UNIVERSITY AND AN AIRPORT FOR THE RECYCLING OF AIRCRAFT FOR HOUSING</b> <i>B. Serrano Lanzarote, J. Romero, A. Rubio, I. Villanova</i>	7724
<b>FACE-TO-FACE TEACHING: THE OPINION AND THE COMMITMENT OF THE STUDENTS OF PHYSIOLOGY AND PATHOPHYSIOLOGY III IN THE PHARMACY DEGREE OF THE UNIVERSITY OF BARCELONA</b> <i>J. Del Valle, C. Pelegrí, À. Franch, M.E. Juan, M. Massot-Cladera, L. Miró, J. Olloquequi, M. Riba, J. Vilaplana, R. Ferrer, R. Martín-Venegas</i>	7735
<b>TEACHERS OR INFLUENCERS? A NEW MODEL OF EDUCATION BASED ON TRUST</b> <i>J.L. Galdón Salvador, I. Gil Pechuán</i>	7742
<b>VOLUMETRIC COMMUNICATION IN MEDICAL TRAINING - CPR EMERGENCIES</b> <i>K. Pietroszek</i>	7747
<b>AN AUTOMATIZED QUALITY ASSESSMENT SYSTEM BASED ON A NATURAL LANGUAGE INTERFACE FOR EXTRACTION AND PROCESSING OF RAW DATA OF THE EDUCATIONAL SYSTEM</b> <i>G. Totkov, M. Zhekova, H. Kostadinova, G. Pashev</i>	7748
<b>ACADEMIC BURNOUT VS. ENGAGEMENT: A MIXED-TECHNIQUE STUDY AMONG UNDERGRADUATE STUDENTS OF BIOTECHNOLOGY BACHELOR'S DEGREE</b> <i>A. Heredia, C. Barrera, M. Martínez-Gómez, M.C. Rodríguez Monzonis, A. Albors, P. Gutiérrez-Colomer, A. Jiménez-Belenguer, C. Rubio-Michavila</i>	7758
<b>EVALUATION RUBRIC BASED ON BLOOM TAXONOMY FOR ASSESSMENT OF STUDENTS LEARNING THROUGH EDUCATIONAL RESOURCES</b> <i>M. Moreira Gois, M.A. Eliseo, R. Mascarenhas, I. Carlos Alcântara de Oliveira, F. Silva Lopes</i>	7765
<b>USAGE MATTERS: LONGITUDINAL BENEFITS OF COMPUTER-ASSISTED INSTRUCTION FOR EARLY LEARNERS</b> <i>H. Shamir, E. Yoder, D. Pocklington</i>	7775

<b>TEACHERS' INTERACTION STYLES IN ONLINE UNIVERSITY LESSONS</b> <i>R. Miháliková, M. Mesárošová</i>	7783
<b>SUSTAINABLE DEVELOPMENT GOALS APPROACHED THROUGH CHALLENGE BASED LEARNING</b> <i>L. Seguí, C. Barrera, M.L. Castelló, J. García-Hernández, A. Heredia</i>	7790
<b>CHANGES IN COGNITIVE PROCESSING SPEED AFTER REGULAR AND PHYSICAL EDUCATION CLASSES IN EARLY ADOLESCENTS FROM SOUTH TIROL, ITALY</b> <i>A. Cocca, C. Carmignola, M. Niedermeier, M. Kopp, K. Greier, G. Ruedl</i>	7799
<b>THE ROLE OF GAMIFICATION IN THE DEVELOPMENT OF (FAKE) NEWS LITERACY IN HIGHER EDUCATION</b> <i>J. Jäger, C. Eisemann, C. Pimmer</i>	7800
<b>EXPANDING VOCABULARY AND IMPROVING SPEAKING SKILLS THROUGH CONTEXTUALIZED LEARNING</b> <i>D. Bogatova, A. Bogatov, V. Avdeeva, A. Kravchenko, L. Mayorova</i>	7808
<b>EVALUATION OF THE BASIC THEORETICAL AND PRACTICAL TRAINING OF FIREFIGHTING MEMBERS</b> <i>M. Ballay, J. Kubás</i>	7813
<b>OUTCOMES OF THE USE OF VIRTUAL UNIVERSE PRO AS A SUPPORT FOR TEACHING IN AUTOMATION: FIRST STEPS TOWARDS IMMERSIVE EXPERIENCES</b> <i>E. Pérez, P. Merchán</i>	7819
<b>TEACHING APPLIED IT IN SOCIAL SCIENCES FOR ENGLISH SPECIALIZATIONS: INTERNATIONAL STUDENTS' GROUP INTERACTIONS IN DIGITAL SOCIETY TOPICS</b> <i>A.B. Andreica</i>	7826
<b>EFFECTIVENESS OF PEER-TO-PEER CRIME PREVENTION PROGRAM IN THE FIELD OF EDUCATION ABOUT INTERNET SECURITY</b> <i>V. Soltes, V. Adamova, S. Hubocan</i>	7836
<b>STRATEGIES OF THE MEXICAN STATE FOR THE INCLUSION OF INDIGENOUS PEOPLES IN A DIGITAL SOCIETY</b> <i>O. Allende-Hernandez, C. Reyes, L. Sanchez</i>	7842
<b>ARCHITECTURAL SCALABILITY OF TUTORING WITHIN INTELLIGENT TUTORING SYSTEMS</b> <i>A. Ebale Nnemetete, L. Capus</i>	7849
<b>FACTORS INVOLVED IN RESPONSIBLE CONSUMPTION BEHAVIOR IN HIGHER EDUCATION STUDENTS: A CASE STUDY</b> <i>M. Martínez-Gómez, E. Bustamante-García, C. Berna Escriche</i>	7860
<b>CHEMISTRY EDUCATION: TEACHING STRATEGIES USED DURING THE FIRST YEAR OF THE PANDEMIC</b> <i>F. Nunes da Silva, A. Grunewald Nichele</i>	7865
<b>ENGLISH AS A FOREIGN LANGUAGE (EFL) UNIVERSITY STUDENTS' ATTITUDES TOWARDS THE USE OF AN AUGMENTED REALITY APP FOR VOCABULARY LEARNING</b> <i>A. Guamán, L. Villagómez, L. Sánchez</i>	7873
<b>AN INVESTIGATION ABOUT THE USE OF PADLET FOR CHEMISTRY TEACHING</b> <i>F. Nunes da Silva, G. A. Flores de Almeida, A. Grunewald Nichele</i>	7878
<b>EXPERIENCE OF INTERNATIONAL COLLABORATION BETWEEN UNIVERSITIES AND TECHNOLOGY CENTERS BASED ON THE CASE OF THE DESIGN OF A SMART FAÇADE SYSTEM</b> <i>J. Alarcón Castro</i>	7884
<b>THE EFFECTS OF USING FLIPPED CLASSROOM ON LEARNING CHEMICAL REACTIONS SUBJECT IN THE MIDDLE SCHOOL</b> <i>E. Anjass, E. Aguaded Ramírez</i>	7890
<b>SENIOR CITIZENS AND ICT USE: NEW HORIZONS</b> <i>J. Pange, R. Madlenak, E. Evangelou</i>	7891
<b>FOSTERING STUDENTS' EMPLOYABILITY IN TOURISM AND HOSPITALITY: A CROSS-CUTTING VIEW AT THE ROLE OF HEI AND STUDENTS' PERCEPTIONS</b> <i>C. Melo, S. Vasconcelos, A. Melo</i>	7896
<b>THE USE OF CHATGPT AS A CASE STUDY IN A CHANGE MANAGEMENT STUDY MODULE: TO BAN OR ALLOW?</b> <i>A. Daunoriene, J. Baryniene, V. Jonaitiene</i>	7902
<b>BUILDING CIRCUITS FROM SCRATCH</b> <i>C. de Trazegnies Otero, J.M. Vargas Domínguez</i>	7907

<b>THE IMPACT OF THE COVID-19 PANDEMIC ON TEACHING MATHEMATICS IN INCLUSIVE SECONDARY SCHOOLS: SPECIAL EDUCATORS' VIEWS AND PERCEPTIONS</b> <i>S. Tziivnikou, P. Papadimitriou</i>	7913
<b>GROUP WORK 2.0 – INTERACTIVE GROUP WORK IN SERIOUS GAMING ENVIRONMENTS</b> <i>V. Göhler, S. Walter</i>	7923
<b>PRESCHOOLERS' HOME LEARNING ACTIVITIES IN RELATION TO DIFFERENT TYPES OF KINDERGARTENS</b> <i>J. Kvintová, L. Vachova, M. Bucharova, M. Pugnerova, I. Plevova, J.S. Novotny, R. Cuberek</i>	7924
<b>REAL EXPERIENCE WITH THE PROCESS OF RECOGNITION OF PRIOR FORMAL AND NON-FORMAL LEARNING AND WORK EXPERIENCE IN THE FRAMEWORK OF THE ARPEL4ENTREP PROJECT</b> <i>R. Madlenak, S. D'Alessandro, A. Pagano, D. Rasimavičienė, J. Pange</i>	7931
<b>CHALLENGE-BASED LEARNING AS A TOOL FOR THE DEVELOPMENT OF SOCIOEMOTIONAL COMPETENCES IN ARCHITECTURE STUDIES</b> <i>G. Ramírez Pacheco, P. De Mingo Palacios, S. Domínguez Gil, A. San José, B. González-Fierro, P. Miguel-Sin Monge, S. Alonso de los Ríos, S. García Morales</i>	7939
<b>LEARNING THROUGH COMPETITION: AN EVALUATION OF STUDENT PERFORMANCE IN THE DESIGN EVENTS AT THE NATIONAL COLLEGIATE LANDSCAPE COMPETITION</b> <i>J. Walker, T. Schauwecker</i>	7946
<b>SOCIOEMOTIONAL COMPETENCES IN ARCHITECTURE STUDIES: A MATTER OF NEW REQUIREMENTS ON THE LABOR MARKET</b> <i>G. Ramírez Pacheco, B. González-Fierro, P. Miguel-Sin Monge, P. De Mingo Palacios, A. San José, S. Domínguez Gil, J. Armengot Paradinas</i>	7947
<b>LITERACY AND DIGITAL LITERACY: REVISITING FUNDAMENTAL EDUCATIONAL CONCEPTS FOR BETTER INTEGRATION INTO TEACHING AND LEARNING</b> <i>K. Schneider</i>	7955
<b>INTEGRATION OF SUSTAINABLE DEVELOPMENT GOALS (SDG) IN THE CURRICULUM: FINDINGS BASED ON THE ANALYSIS OF HIGHER EDUCATION PROGRAMMES</b> <i>A.S. Albuquerque, S. Fernandes, A. Araújo, P. Morais, E. Barros</i>	7964
<b>MORNING MEETING AS THE CORE OF ORAL COMMUNICATION AND DEMOCRATIC VALUES ALONG THE WHOLE EDUCATIVE SYSTEM: FROM PRESCHOOL TO UNIVERSITY</b> <i>A.B. Abril Les</i>	7972
<b>TEACHING PORTUGUESE TO CHINESE STUDENTS: COMPARATIVE STUDY BETWEEN REMOTE AND IN PERSON TEACHING IN A LANGUAGE IMMERSION CONTEXT</b> <i>C. Mangas</i>	7973
<b>AN EXPERIENCE OF ORGANIZING AN INTERNATIONAL CONTEST IN ROBOTICS ENGINEERING</b> <i>N. Aliane, G. Mariscal</i>	7983
<b>DESIGNING A TOOLKIT FOR TOURISM EDUCATORS: FROM PAPER TO ACTION</b> <i>S. Vasconcelos, C. Melo, A. Melo</i>	7994
<b>STUDENT EXPERIENCE: EXPLORING THE PARADIGM SHIFT WITH INTERNATIONAL POSTGRADUATE STUDENTS</b> <i>D. Nwaozuzu</i>	8001
<b>THE HUMAN-CENTRED COMPUTING EXPERIMENT PLATFORM: A PRACTICAL DESIGN FOR ENGAGING AND ACCESSIBLE STUDENT EXPERIMENT PARTICIPATION</b> <i>Z. Jin, T. Gedeon, S. Caldwell</i>	8008
<b>WORKING TOWARDS A THINKING CLASSROOM IN A LARGE INTRODUCTORY CALCULUS COURSE</b> <i>A.H. Jonsdottir, E.K. Hafsteinsson</i>	8015
<b>VIRTUAL MINERAL RECOGNITION LABORATORY</b> <i>D. Fdez-Aviles Pedraza, J.C. Salazar Calderón, J.E. Ortiz Menéndez, M. García Romo</i>	8020
<b>TO PLAY OR NOT TO PLAY: A SNAPSHOT OF THE CONTRIBUTION OF GAME-BASED APPROACHES IN TOURISM HIGHER EDUCATION</b> <i>C. Melo, S. Vasconcelos, A. Melo</i>	8028

<b>EXPLORING STUDENTS' SELF-REGULATED LEARNING IN ONLINE LEARNING ENVIRONMENTS: THE MULTIMODAL LEARNING ANALYTICS APPROACH</b> <i>L. Juhaňák</i>	8038
<b>FOSTERING ECONOMIC GROWTH IN RURAL COMMUNITIES THROUGH EXPERIENTIAL LEARNING AND ENTREPRENEURIAL LEADERSHIP: A CASE STUDY FROM CENTRAL APPALACHIA, USA</b> <i>J.L. Milan Garcia, P. Hackbert</i>	8046
<b>EFL STUDENTS' PERCEPTION OF THE USE OF GOOGLE CLASSROOM DURING THE COVID-19 PANDEMIC</b> <i>M. Jović, V. Stevanović</i>	8052
<b>EXPERIENTIAL LEARNING AS A KEY FACTOR IN CURRICULUM INTERNATIONALIZATION: HANDS-ON APPROACH TO ENHANCE A STRONG GLOBAL MINDSET IN FACULTY DEVELOPMENT</b> <i>A. Pietraszek</i>	8060
<b>DESIGN THINKING AND SOCIAL INNOVATION IN PLANNING EDUCATION</b> <i>S. Tsenkova</i>	8065
<b>REFLECTION ON TEACHING PEDAGOGY INNOVATION: REIMAGINING HISTORIC PLACES THROUGH DESIGN THINKING</b> <i>S. Tsenkova</i>	8073
<b>EDUCATING INDUSTRIAL DESIGNERS FOR THE DEVELOPMENT OF THE TERRITORY THROUGH INNOVATION DRIVEN DESIGN</b> <i>J. Alarcón Castro, J. Brañes Alarcón, J. Brañes Alarcón, G. Ormeño Bustos</i>	8082
<b>INTEGRATING DESIGN THINKING APPROACHES TO ENHANCE UNDERGRADUATE STUDENT OUTCOMES</b> <i>L. Summers, P. Hackbert</i>	8089
<b>ANOMALY DETECTION IN LEARNING ANALYTICS: FACILITATING DOMAIN EXPERTS' SENSEMAKING OF HETEROGENEOUS STUDENT DATA</b> <i>A. Al Doulat, M.L. Maher</i>	8094
<b>PHOTOVOICE: A TEACHING AND EVALUATION TOOL FOR STUDY ABROAD COURSES</b> <i>M. Navarro</i>	8104
<b>AN INSTRUCTIONAL DESIGN MODEL BASED ON AN INTELLIGENT SITUATIONAL ASSESSMENT FOR DETECTING MATH LEARNING DIFFICULTIES IN ONLINE SPACES</b> <i>N. Rigaud Téllez, R. Blanco Bautista, J.M. Flores Pérez, A. Rodríguez García, V. Flores Herrera</i>	8105
<b>CITATION REPOSITORY: A PILOT STUDY IN TEACHING STUDENTS LITERATURE REVIEW SKILLS</b> <i>R. Nieto-Aguilar, A. Aguilera-Méndez, I.A. Nambo-Castro</i>	8113
<b>CO-CURRICULAR PROGRAMMING TO ENHANCE THE UNDERGRADUATE RESEARCH EXPERIENCE: A CONCEPTUAL FRAMEWORK</b> <i>M. Navarro</i>	8117
<b>INVESTIGATION OF IMPACT ON STUDENT PERFORMANCE FROM MODE OF INSTRUCTION AND TYPE OF LEARNING MATERIAL</b> <i>W. Weng, M. Zheng</i>	8118
<b>REMOTE LEARNING OF PHYSICAL PROTECTION STUDENTS DURING THE COVID-19 PANDEMIC</b> <i>J. Durica, Z. Zvakova</i>	8124
<b>TEACHBACK INTEGRATED WITH PROBLEM SOLVING FOR ENHANCED STUDENT LEARNING</b> <i>M. Rahman, K. Nguyen</i>	8129
<b>READING LITERACY AS AN ELEMENT OF FUNCTIONAL LITERACY</b> <i>I. Balandina, T. Moskvitina, L. Yuzdova, N. Glukhikh, Z. Krovatti, S. Bondarenko, M. Kulakovich</i>	8136
<b>PICTURE THIS: EVALUATING HEALTHCARE EDUCATION USING STUDENT GENERATED PICTORIAL DATA</b> <i>C. Gordon, C. Fletcher</i>	8140
<b>ASSESSMENT AND BACKWARD DESIGN: REFLECTIONS FROM A NEWLY IMPLEMENTED BACCALAUREATE DEGREE PROGRAM</b> <i>N. Rodríguez</i>	8141
<b>EXPLORING THE CLASSROOM ROOTS OF FOREIGN LANGUAGE ANXIETY</b> <i>A. Danilova, O. Rotko</i>	8142

<b>DECONSTRUCTION OF LINGUISTIC AND CULTURAL STEREOTYPES IN MULTILINGUAL GROUPS OF STUDENTS: OVERCOMING THE NARROW LIMITS OF PREJUDICE</b> <i>A.M. Toma</i>	8148
<b>MULTIDISCIPLINARY WITHIN THE AREAS OF CHEMISTRY AS A WAY TO IMPROVE LEARNING OF UNDERGRADUATES IN THEIR FINAL DEGREE THESIS</b> <i>J. Sánchez Bodón, I. Moreno, M. Azkune, A. Goñi, A. Peña, L. Lezama, L. Ruiz-Rubio</i>	8149
<b>DEVELOPMENT OF A KNOWLEDGE DEMONSTRATING/SHARING BLOG IN HEALTH-BASED RADIATION PROTECTION: EXPERIENTIAL LEARNING THAT LEVERAGES THE WEB 2.0 EXPERIENCE OF LEARNERS IN A COMMUNITY OF PRACTICE AND INFLUENCED BY PRESSURES OF THE COVID-19 PANDEMIC</b> <i>I. MacDonald</i>	8153
<b>A COMMODITY MATERIAL AS A MAIN DRIVING FORCE: A PROJECT BASED LEARNING IN POLYMER CHEMISTRY</b> <i>J. Sánchez Bodón, I. Moreno, J.L. Vilas-Vilela, L. Ruiz-Rubio</i>	8154
<b>STUDENT COGNITION IN THE CLASSROOM LEARNING: A PERSPECTIVE FROM TEACHERS</b> <i>M.T.O.V. Peiris</i>	8158
<b>A STUDY ON EDUCATION IN TIMES OF CRISES: COVID 19 AND REMOTE LEARNING</b> <i>V. Gaur</i>	8168
<b>TEACHER AND LEADER VACANCY CRISIS IN VIRGINIA, UNITED STATES</b> <i>K. Cassada</i>	8177
<b>MONITORING AND TRACING MOVEMENT AND CONTACT OF INDIVIDUALS IN HEALTHCARE FACILITIES THROUGH THE COV-ID PROJECT</b> <i>L. Mariš, A. Velis</i>	8178
<b>I WILL SURVIVE! - TEACHING STUDENTS IN EMERGENCY AND NATURAL DISASTER MANAGEMENT SKILLS</b> <i>L. Mariš, M. Lusková</i>	8182
<b>LEARNING WITH 512. A PROPOSAL FOR THE ACTIVE RECOVERY OF POST-PANDEMIC LEARNING FOR PRESCHOOL BOYS AND GIRLS INTEGRATING FAMILY AND SCHOOL</b> <i>A. Espanol, M. Cabrera, M. Guzman, R. Blais</i>	8187
<b>ALL ABOARD: A COMPREHENSIVE PROPOSAL FOR SCHOOL HEALTH AND PREVENTION</b> <i>A. Espanol, M. Cabrera, M. Guzman, R. Blais</i>	8188
<b>AFTER THE PANDEMIC, DO HEI PROFESSORS STILL FEEL THE NEED TO IMPROVE THEIR ONLINE TEACHING SKILLS?</b> <i>M. Montanari, F. Martinez de Carnero, G. Cibulskis, D. Pantazatos, M. Grammatikou, K. Dostatnia, R. Teles</i>	8189
<b>STATISTIC MOOC: A DESIGN PROPOSAL</b> <i>C. Martinho, C. Silvestre, C. Luz, C. Nunes</i>	8195
<b>BOOSTING AGILE PROJECT-BASED TEACHING AND LEARNING THROUGH AN ONLINE COMMUNITY OF PRACTICE</b> <i>K. Nikolakopoulou, C. Pierrakeas, A. Kameas</i>	8200
<b>ENHANCING ICT SKILLS OF MANAGEMENT EDUCATORS WITH THE OLMEDU MOOC AND TOOLKIT</b> <i>A. Kameas, A. Achilleos, G. Vonitsanos, F. Gatomati, P. Kyriakou</i>	8210
<b>THEMATIC ANALYSIS OF FACTORS INFLUENCING INDIAN STUDENTS' AND THEIR ACHIEVEMENT IN UK HIGHER EDUCATION</b> <i>M. Kanubhai Patel, H. Cui, M. Opoku Agyeman</i>	8219
<b>THEMATIC ANALYSIS OF FEMALE SOFTWARE DEVELOPERS' WORKPLACE EXPERIENCE IN NIGERIAN COMPANIES</b> <i>A. Shamsudeen Imam, M. Opoku Agyeman</i>	8229
<b>TO EMBRACE, OR NOT TO EMBRACE: CHATGPT IS THE QUESTION</b> <i>J. Murray, A. Williamson</i>	8239
<b>COVID-19 HERITAGE: ARE SPANISH PROFESSORS TREASURING THEIR ONLINE TEACHING EXPERIENCE?</b> <i>M. Montanari, F. Martinez de Carnero, A. Hernando García-Cervigón, E. Garayzabal Heinze, P.C. Bonnin Arias, L. Sanz Simon</i>	8246



<b>CURSE OR OPPORTUNITY: ONLINE LEARNING AFTER THE COVID EMERGENCY FROM THE ITALIAN PROFESSORS' POINT OF VIEW</b>	8251
<i>M. Montanari, F. Martinez de Carnero, S. Celani, G. Di Flumeri, V. Ronca, R. Capotorto</i>	
<b>LEARNING MANAGEMENT SYSTEMS AFTER LOCKDOWN A CASE STUDY OF POST GRADUATE CERTIFICATE IN EDUCATION STUDENTS IN SOUTH AFRICA</b>	8261
<i>N. Nosihle</i>	
<b>THE LEARNING MODEL MARTAPURA: IS IT EFFECTIVE IN IMPROVING STUDENTS' CREATIVITY AND MULTIPLE INTELLIGENCE?</b>	8262
<i>A.R. Agusta, A. Suriansyah, D.A. Pratiwi, B.B. Wiyono, N. Noorhapizah</i>	
<b>A COMPARATIVE ASSESSMENT OF EMPLOYMENT CHALLENGES OF STUDENTS IN UNIVERSITY OF NORTHAMPTON BEFORE AND AFTER THE CORONA VIRUS LOCKDOWN: A CASE OF NIGERIAN STUDENTS</b>	8277
<i>I. Abigail Osunkojo, M. Opoku Agyeman, H. Cui</i>	
<b>THE CONSEQUENCES OF ONLINE LEARNING ON THE GRADES OF NIGERIAN INTERNATIONAL STUDENTS DURING THE COVID-19 LOCKDOWN AT UNIC, UK</b>	8288
<i>E. Kehinde Egedson, M. Opoku Agyeman</i>	
<b>EXPLORING THE RELATIONSHIP BETWEEN LANGUAGE BARRIER AND THE POOR PERFORMANCE OF BAME/INTERNATIONAL STUDENTS IN THE UNITED KINGDOM UNIVERSITIES</b>	8298
<i>P. Alunyo Bello, M. Opoku Agyeman</i>	
<b>IMPLEMENTING TOKENS FOR PERSONALIZED LEARNING IN A BIOMEDICAL ENGINEERING PROGRAM: LESSONS LEARNED AND FUTURE CONSIDERATIONS</b>	8308
<i>E. Alvarez, R. Striker, D. Ewert</i>	
<b>INFORMAL EDUCATION AND ITS IMPACT ON JOB MARKET: ANALYSIS AND RECOMMENDATIONS FOR THE FUTURE</b>	8315
<i>N. Dominguez-Vergara</i>	
<b>A SYSTEMATIC REVIEW OF VIRTUAL REALITY AND USER EXPERIENCE IN MEDICINE</b>	8325
<i>G. Atas, D. Topalli, N.E. Cagiltay</i>	
<b>CHALLENGES AND SOLUTIONS FOR THE AGING FACULTY POPULATION AT THE UNIVERSIDAD AUTÓNOMA METROPOLITANA (UAM)</b>	8332
<i>N. Dominguez-Vergara</i>	
<b>TEAM MOTIVATION AND COMMUNICATION AS KEY FOR ASSESSING THE QUALITY OF SCHOOL PERFORMANCE</b>	8342
<i>I. Bilbokaitė-Skiauterienė, R. Bilbokaitė, G. Petrauskienė</i>	
<b>TRENDS IN CHILDREN'S INDEPENDENT READING AND MOTIVATION: THE CONTEXT OF PEDAGOGUES' OPINIONS</b>	8349
<i>I. Bilbokaitė-Skiauterienė, R. Bilbokaitė</i>	
<b>INTERNATIONAL PROJECTS, CHALLENGES AND BEST PRACTICES</b>	8357
<i>D. Cagáňová, N. Horňáková</i>	
<b>FACTORS INFLUENCING INTERNATIONAL STUDENTS' DECISION-MAKING WHILE CHOOSING A STUDY DESTINATION: A COMPARISON BETWEEN GERMANY AND UNITED KINGDOM</b>	8365
<i>L. Jeena Prasad, M. Opoku Agyeman</i>	
<b>THE IMPACT OF SELF-SPONSORSHIP ON ACADEMIC PERFORMANCE AMONG UNDERREPRESENTED ETHNIC MINORITIES IN THE UNITED KINGDOM</b>	8374
<i>O. M. Osadugba, M. Opoku Agyeman</i>	
<b>INTEGRATED APPROACH IN TEACHING LANGUAGE DURING PHYSICAL EDUCATION CLASSES IN MULTILINGUAL COMMUNITIES</b>	8383
<i>G.A. Nacula</i>	
<b>ENHANCING ELEMENTARY SCHOOL STUDENTS' ENVIRONMENT AWARENESS THROUGH VIRTUAL REALITY BASED IMMERSIVE LEARNING EXPERIENCES</b>	8384
<i>D. Sulisworo, V.Y. Eroviana, B. Robiin</i>	
<b>THE COOPERATION BETWEEN UNIVERSITY-INDUSTRY-SCIENCE ELEMENTS</b>	8391
<i>M. Dakova</i>	
<b>DIGITAL TOOLS FOR PROFESSIONAL DEVELOPMENT IN CLASSES OF ENGLISH FOR SPECIFIC PURPOSES</b>	8398
<i>E. Polyudova</i>	
<b>THE EFFECT OF COMPUTATIONAL ACTION ON STUDENTS' COMPUTATIONAL IDENTITY AND SELF-EFFICACY</b>	8404
<i>H.N. Pang, R. Parks, C. Breazeal, H. Abelson</i>	

<b>QTL MAPPING MADE EASY: A PRACTICAL TUTORIAL USING R/QTL</b> <i>G. Villanueva, E. Rosa-Martínez, S. Vilanova, P. Gramazio, J. Prohens, M. Plazas</i>	8413
<b>CHROMOSOME VISUALIZATION WITH INTROGRESSIONS: A TUTORIAL USING TASSEL AND GGT2 SOFTWARE</b> <i>G. Villanueva, E. Rosa-Martínez, S. Vilanova, P. Gramazio, J. Prohens, M. Plazas</i>	8419
<b>EMBEDDING SUSTAINABILITY INTO THE EDUCATION OF HEALTH PROFESSIONALS</b> <i>A. Flynn</i>	8423
<b>NURSES' ATTITUDES TO SUSTAINABILITY</b> <i>A. Flynn</i>	8424
<b>IMPROVING THE EXPERIENCE OF OLDER ADULT LEARNERS</b> <i>M. Velciu</i>	8425
<b>TEACHING SUSTAINABLE ENTREPRENEURSHIP USING CHALLENGE-BASED LEARNING METHODS</b> <i>F. Stel</i>	8430
<b>MODEL OF EDUCATIONAL EXPERIENCE IN SPOKEN DIALOGUE SYSTEMS FOR LANGUAGE LEARNING</b> <i>E. Ericsson</i>	8441
<b>FLIPGPT - PILOT EXPERIMENT: EXPLORING THE POTENTIAL OF AI IN HIGHER EDUCATION</b> <i>T.B. Godinho, J. Mouro, N.R. Oliveira</i>	8442
<b>DEVELOPMENT OF AN E-LEARNING PROGRAM WITH 'EASY JAPANESE' FOR TRAINING MEDICAL INTERPRETERS</b> <i>N. Ono, T. Hamai, J. Okabe</i>	8443
<b>ENHANCING EFFECTIVE LEARNING EXPERIENCES IN CHALLENGING TIMES: A REVIEW OF THE MODELS FOR ONLINE LEARNING</b> <i>A. Gogus</i>	8444
<b>USING DIGITAL RHYTHM TRAINING TO IMPROVE READING FLUENCY IN CHILDREN</b> <i>A. Giannakopoulou, T. Zanto, C. Gallen, A. Ostrand, J. Younger, R. Anguera, J. Anguera, A. Gazzaley</i>	8445
<b>COACHING BY LEADERS IS IN DEMAND BUT GOOD LEADERS AS COACHES ARE HARD TO FIND</b> <i>J. Milner</i>	8446
<b>DIALOGIC TEACHING IN THE ESP CLASSROOM: CHALLENGES AND SOLUTIONS</b> <i>I. Bocianu</i>	8447
<b>RUBRICS FOR ASSESSMENT: IMPROVING THE ROLE OF THE RATER</b> <i>K.A. Martinez Algeciras, P. Elosua Oliden</i>	8454
<b>BUSINESS STUDENTS INVEST THEIR TIME IN COMPLEX AND CHALLENGING PROCESS DIGITALIZATION TASKS INSTEAD OF PREPARING FOR THE EXAM</b> <i>A. Dannecker</i>	8461
<b>PEER INFLUENCES ON THE LONG-TERM DEVELOPMENT OF HIGHLY SKILLED AND LESS SKILLED VOLLEYBALL PLAYERS</b> <i>P. Coutinho, C. Bessa, I. Mesquita</i>	8468
<b>CAN HETEROGENEOUS GROUP IMPROVE MORE STUDENTS' GAME INVOLVEMENT THAN HOMOGENEOUS GROUP IN PE?</b> <i>C. Bessa, B. Vilaça, C. Farias, I. Mesquita</i>	8469
<b>FOSTERING CROSS-CULTURAL UNDERSTANDING THROUGH TECHNOLOGY-LED EDUCATIONAL PRACTICES: PERSPECTIVES FROM GREEK TEACHERS</b> <i>I. Lefkos, E. Chanioti, M. Karatsiori</i>	8470
<b>IMPROVING THE MOOD AND WELL-BEING OF MUSIC STUDENTS THROUGH MUSIC THERAPY</b> <i>M.D. Rucsanda, A. Belibou, A.I. Rucsanda, N. Karacsony</i>	8471
<b>THE IMPACT OF EMERGENT LITERACY AND COGNITIVE LINGUISTIC SKILLS ON ESL READING SUCCESS IN SOUTH AFRICA: IMPLICATIONS FOR TEACHERS AND POLICYMAKERS</b> <i>A. van Staden</i>	8479
<b>OVERCOMING COMMUNICATION OBSTACLES CAUSED BY THE COVID-19 PANDEMIC IN BANGLADESH: RECOGNITION OF ZOOM AS AN IMMINENT TECHNOLOGICAL ASSET</b> <i>R. Hossain</i>	8489

<b>EVALUATION OF THE PUBLIC MANAGEMENT DEGREE (ISCAP – PORTO)</b> <i>A.A. Pereira, T. Teixeira</i>	8500
<b>TEACHERS' PERSPECTIVES ON THE USE OF HUMANOID ROBOTS AT PRIMARY AND SECONDARY EDUCATION LEVEL, WITH A FOCUS ON NATIVE LANGUAGE TEACHERS</b> <i>M. Kerneža, D. Zemljak</i>	8504
<b>VIDEO LECTURES – THE DIGITAL ASSISTANT IN THE HIGHER MATHEMATICS EDUCATION PROCESS AT RIGA TECHNICAL UNIVERSITY</b> <i>I. Volodko, S. Cernajeva</i>	8512
<b>THE DEVELOPMENT DIRECTIONS OF TEACHERS' TRAINING STUDY PROGRAMS IN LATVIA</b> <i>J. Davidova, S. Zarina, I. Kokina</i>	8517
<b>CREATION AND TRANSFER OF KNOWLEDGE AND THE CONTRIBUTION OF HEI TO ECONOMIC DEVELOPMENT</b> <i>M. Dakova</i>	8525
<b>HOW ANYONE IN EDUCATION CAN FURTHER INSTRUCTIONAL IMPACT WITH AI TOOLS</b> <i>M. Macfarlan</i>	8531
<b>EVALUATING EFFORT, NOT PERFECTION, INCENTIVISES IMPROVEMENT IN ACADEMIC PERFORMANCE</b> <i>O. Lewandowska, M. Sama</i>	8532
<b>SOCIAL MEDIA AS A TOOL OF MOTIVATION AND LEARNING OF BASIC AND TRANSVERSAL SKILLS OF GASTRONOMY AND CULINARY ARTS STUDENTS</b> <i>A. Valdés García, S. Ortiz Calabuig, M. Mateo Tomás, E. Fuster Aparicio, B. Orts Romero, A.G. Martín Blanco, P. Fullana Puig, L. Blanco Domínguez, J.D. Jordá Guijarro, R.M. Torres Valdés</i>	8533
<b>THE ROLE OF INFORMAL LEARNING PROGRAMS IN THE RELATIONSHIP BETWEEN INTEREST, PERCEPTION, AND PARTICIPATION OF STUDENTS IN STEM EDUCATION</b> <i>Z. Ahmad</i>	8534
<b>AUCTIONS, A.I., AND “ART COURT”: A GAMIFIED AND INCLUSIVE APPROACH TO ARTS CURRICULUM</b> <i>L. Dade</i>	8535
<b>ATTITUDES OF TRAINEE ENGLISH TEACHERS TOWARDS THE USE OF LITERATURE IN EFL TEACHING</b> <i>L. Kocianova</i>	8536
<b>CHALLENGES AND BARRIERS FACED BY LANGUAGE LEARNERS WHEN STUDYING LITERATURE IN THE TARGET LANGUAGE</b> <i>L. Kocianova</i>	8542
<b>MICRO-CREDENTIALS IN DIGITAL FORM - LIFELONG DEVELOPMENT PATH</b> <i>M. Nowakowski</i>	8543
<b>TRANSLANGUAGING IN ACTION AT A BILINGUAL INSTITUTION OF HIGHER EDUCATION: ST. AUGUSTINE COLLEGE SHOWCASE</b> <i>J. Villegas</i>	8544
<b>THE PERCEPTION OF THE UNIVERSITY STUDENTS OF THE USE OF CHATGPT DURING THE UNIVERSITY EDUCATION: CASE OF TURKEY</b> <i>G. Sart</i>	8545
<b>THE EFFECTS OF THE EFFECTIVE USAGE AND THE DEVELOPMENT OF TECHNOLOGY AS 21ST CENTURY SKILLS ON UNIVERSITY STUDENTS' SELF-CONFIDENCE</b> <i>G. Sart</i>	8546
<b>THE USE OF DIGITAL ESCAPE ROOM AND GAMIFICATION TOOLS IN MANAGERIAL SKILLS AND THEIR IMPACT ON LEARNING AND STUDENTS' SATISFACTION</b> <i>J. Barrena-Martínez, J. de Frutos-Belizón, M.J. Foncubierta- Rodríguez, F. Guerrero-Alba, J.A. Medina-Garrido, T. Rodríguez-Gonzalez, M. Ruiz-Martínez</i>	8547
<b>MOBILE TECHNOLOGY IMPACT IN SUPPORT NOTE-TAKING AND SHARING ACTIVITIES DURING EDUCATIONAL BIOLOGY FIELD TRIPS</b> <i>T. Becker</i>	8548
<b>POST-COVID-19 ADAPTATION: THE SHIFT TOWARDS ONLINE LEARNING AND THE IMPLICATION FOR MATHEMATICS TEACHER PREPARATION IN HIGHER EDUCATION INSTITUTIONS</b> <i>B. Olawale, W. Hendricks, V. Mncube</i>	8549

<b>IMPROVING SECONDARY SCHOOL STUDENTS' ACHIEVEMENT IN TRIGONOMETRY USING GAME BASED LEARNING APPROACH</b> <i>M. Mosimege, F. Egara</i>	8556
<b>GENDER DIFFERENCE IN SECONDARY SCHOOL STUDENTS' RETENTION OF MATHEMATICS CONCEPTS: A FLIPPED CLASSROOM LEARNING APPROACH</b> <i>F. Egara, M. Mosimege</i>	8566
<b>PRE-SERVICE TEACHERS' EXPERIENCES OF LEARNING ECONOMICS EDUCATION: THE CASE OF THE MULTIPLIER EFFECT, SIMPLE KEYNESIAN MODEL</b> <i>M. Mphuthi, M. Kimanzi</i>	8574
<b>ONLINE EDUCATIONAL TECHNOLOGIES AS A CURRICULUM APPROACH IN TEACHING AND LEARNING FOR FIRST YEAR PRE-SERVICE TEACHERS</b> <i>M. Mphuthi, M. Tshelane</i>	8582
<b>TEACHER EDUCATION AND REFLECTIVE PRACTITIONER DEVELOPMENT: THE IMPACT ON EDUCATIONAL LEADERSHIP</b> <i>E. Seghedin</i>	8590
<b>WHAT HAS CHANGED? AN INSIGHT ON COMMUNIST'S YOUTH PERSPECTIVE ON EDUCATION</b> <i>S. Nitu, E. Seghedin</i>	8591
<b>RETHINKING SCHOOL BUSINESS PARTNERSHIPS TO DRIVE COLLABORATION AND INNOVATION IN PUBLIC SCHOOLS: A CASE OF SOUTH AFRICAN PUBLIC SCHOOLS IN LIMPOPO PROVINCE</b> <i>M. Lamola</i>	8598
<b>TRANSFORMING THE INDUSTRIAL &amp; ACADEMIC CAPABILITY DEVELOPMENT SYSTEM TO ADDRESS SOCIAL &amp; GOVERNMENT PRIORITIES FOR A SUSTAINABLE FUTURE IN PAKISTAN</b> <i>F. Azmat, K. Stansfield, R.F. Colmenares Quintero, M.B. Khan</i>	8606
<b>EARLY CHILDHOOD EDUCATORS' BELIEFS AND KNOWLEDGE CONSISTENTLY INFORMS THEIR LITERACY DEVELOPMENT AND LITERACY LEARNING ENVIRONMENTS</b> <i>L.A. Kahla</i>	8614
<b>PERCEPTIONS OF PARENTS ON THE SOUTH AFRICAN EARLY CHILDHOOD DEVELOPMENT CENTRES</b> <i>N. Skota-Dayile, M.S. Mkhomi</i>	8619
<b>"WE ARE ON OUR OWN"- LIVED LEARNING EXPERIENCES OF LEARNERS FROM CHILD-HEADED HOUSEHOLDS</b> <i>T. Ngqushwa, M.S. Mkhomi</i>	8625
<b>ORANGE CANVAS - BUSINESS MODEL FOR CREATIVE INDUSTRIES</b> <i>F. Palma, R. Rodriguez, V. Ferrari</i>	8632
<b>FRAMEWORK FOR IMPROVING SPEAKING SKILLS IN GRADE 4 ENGLISH FIRST ADDITIONAL LANGUAGE LEARNERS DURING ENGLISH LESSONS IN RURAL AREAS</b> <i>M.A. Linake, F. Lizitwe, C. Kleinbooi</i>	8638
<b>GRADE FOUR TEACHERS' EXPERIENCES ON USING ENGLISH AS A MEDIUM OF INSTRUCTION: A CASE STUDY OF TWO PRIMARY SCHOOLS IN MDANTSANE TOWNSHIP</b> <i>L.A. Kahla, M. Ngozi, E. Adu, M.A. Linake</i>	8647
<b>THE DEVELOPMENT OF LEARNING COMPETENCES OF PRIMARY SCHOOL CHILDREN BASED ON A CASE STUDY IN NORTH-RHINE-WESTPHALIA, GERMANY</b> <i>K. Knees</i>	8651
<b>A DIGITAL LEARNING GAME ON BUILDING AWARENESS AND SKILLS TOWARDS NATURAL RESOURCES MANAGEMENT</b> <i>H. Tsalapatas, O. Heidmann, G. Senka, T. Jesmin, J. Terasmaa, C. Vaz de Carvalho, M. Caeiro</i>	8652
<b>VIRTUAL TRIP: EXPLORING A 360-DEGREE MUSEUM FOR STUDENTS WITH IMMERSIVE EXPERIENCE</b> <i>S. Tanabashi</i>	8653
<b>ANALYSIS ON THE BLENDED TEACHING MODEL OF FOREIGN LANGUAGES BASED ON FLIPPED CLASSROOM</b> <i>N. Ta</i>	8654
<b>REVEALING PATTERNS OF STUDENT ONLINE LEARNING BEHAVIORS THROUGH LATENT PROFILE ANALYSIS</b> <i>F. Gao, E. Mandell, L. Li</i>	8655

**THE PASSIVE VOICE: CHALLENGES AND SUGGESTIONS FOR ENGLISH  
LANGUAGE TEACHING**

8656

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# TECHVETLAB: TURNING THE VET CLASSROOM INTO A VIRTUAL DEPARTMENT OF A TECHNOLOGY COMPANY

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## Abstract

In this communication we will present the contents and objectives of the METHODOLOGICAL GUIDE TO TURNING THE CLASSROOM INTO A PART OF A COMPANY: FROM A CLASSROOM TO A RESEARCH LAB "BEING A PART OF IT", developed within the framework of the Erasmus Plus Programme project "TECHVETLAB: A SOLUTION FOR POSTCOVID-19 LABORAL MARKET THROUGH A TECHNICAL TRAINING OF VET STUDENTS WITH OBSTACLES".

This guide, addressed to VET teachers and technology companies, defines the BEING A PART OF IT (BPI) methodology, a working method devised by experts linked to the entities involved in the project. This methodology is an innovative evolution of Project Based Learning. Through this method, a VET educational centre and a technological company establish a collaboration agreement that allows a VET classroom to become a department of the company. The objectives and work plan are proposed by the company, while the work of the students in the classroom is supervised by the teacher. The classroom becomes an active, virtual, part in the research and development department of the company. The classroom as a whole is integrated into the planning and responsibilities of the company through networking, behaving as a whole as an appendix of the company thanks to modern digital methods and tools. The main objective is to generate learning processes that make it possible to alleviate the deficit of training in the working environment in current VET education.

We intend that the student learns to work in a team with the rest of the classmates, to assume responsibilities and initiatives that lead to results, to present progress reports, to learn the manufacturing and work processes of the companies. In short, to know what it means to work in a technology company.

Keywords: VET, technology companies, critical thinking.

## 1 INTRODUCTION

The COVID-19 pandemic has had terrible consequences on the global economy, employment and education, complicating access to the labor market for many students. This situation is more precarious for those students with obstacles, as their limited employment opportunities have been further diminished. In this sense, VET may be the most effective way to improve the employability of individuals in a labor market transformed by the pandemic. However, to achieve this, vocational education must adapt to the post-COVID-19 reality, becoming more attractive and focused on the lines required to alleviate the economic consequences of the pandemic and offer better alternatives to its students.

In this context, with the Erasmus Plus project "Techvetlab: a solution for postCOVID-19 labor market through a technical training of VET students with obstacles", we have created and implemented the methodology "Being a Part of It (BPI)". A working method that allows linking VET training directly to the technological sector and to the research projects that companies, and research centers carry out, introducing the classroom as a whole in the working dynamics of the technological company. We focus especially on training in the technology sector, promoting the learning of transversal skills, favoring the digitization of active training and, above all, betting on the research capacity of vocational training.

This methodology is embodied in one of the main results of the project: the "Being a Part of It methodological guide to turn the classroom into part of a company: from a classroom to a research laboratory". This guide, addressed to companies and VET teachers, includes all the necessary guidelines for a vocational training classroom to become a virtual department of a technological company, participating in technological research projects for a certain period of time. In this sense, this guide offers a global adaptation of the classroom planning, the implementation of virtual networking routines with the company and the use of digital tools that equate the classroom with the company allowing students as a whole to develop critical parts within cutting-edge innovation projects.

This project seeks to respond to the needs raised by European and international institutions to generate new Vocational Training graduates capable not only of adapting to the reality of the post-COVID-19 labor market, but also of being fundamental agents in the post-COVID-19 European reconstruction, focusing especially on the students who have more difficulties to achieve it, those with economic, social and cultural barriers coming from segregated environments.

## 2 METHODOLOGY

The Being a Part of It (BPI) methodology is a work method devised by experts linked to the entities of the Erasmus + project mentioned above. It is an evolution of Project Based Learning, PBL, (Larmer, Mergendoller, 2012) in accordance with constructivist pedagogical principles where knowledge is actively constructed by the student, being in movement and in constant change, incorporating it through study and theoretical-practical assimilation instruments such as the development of projects (Carretero, 1993).

BPI methodology is a student-centered teaching-learning method in which students acquire knowledge, skills and attitudes through the development of technological projects, which unlike PBL are not simulations, but active and developing projects to achieve technological innovations that will change the future. With BPI, students are offered an opportunity to integrate into real development processes, facing the problems of this work environment, but from the classroom itself through collaborative work, in trusted environments and directly linked to common learning processes typical of PBL. The technology sector is a market of great growth and recruitment capacity. With BPI methods, the competencies acquired by the students are enhanced in line with what the technological companies ask in their personnel selection processes. The curricula of the students improve and the working experience favor their employability (Feijao, Flanagan, van Stolk, Gunashekar, 2021).

A vocational education center and a technology-based company will reach collaboration agreements that allow a classroom led by a teacher to participate in a technological research project as if it were a virtual department of the company. Task management and working teams' organization are implemented in the classroom. These are tools analogous to those used by technology companies in order to define tasks, schedule them and integrate them into the work times of the rest of the company's departments. Through networking, students and the school will be involved in future products that reach the market.

For example: A VET school reaches an agreement with a technology company to implement the BPI method in its first year classroom; after signing the confidentiality and authorship documents, the teacher will begin to participate in meetings with the company's department heads, where they will learn about aspects of the project and the work plan created by the company, allowing them to assign specific tasks to their students. The students in the classroom will have to access the management program "Techvetlab", developed within the framework of the Erasmus+ project mentioned above, where they will be assigned the processes and times in which they must jointly develop the tasks of the established work plan. Techvetlab is a completely free and innovative software compatible with the one used by technology companies to control operational and productive processes, but directly adapted to the characteristics and educational needs of VET students. Through an intuitive design, this software allows defining an online project in which the technicians of a company, the teacher of a classroom and the students will work as a team and coordinate their work.

Throughout the whole process, the students will have to hold joint meetings as if they were a department of a company, as well as contact the tutor in the company and other employees to develop their work. On the other hand, with the work done by the students, the company's technicians will implement in their facilities certain activities required by the Project and that would not be available in the VET center including prototyping and manufacturing.

The implementation of this methodology is intended for intermediate training cycles of professional families of the scientific and technological branch, such as Computer Science and Communications,

Electronics and Electricity, Chemistry or Imaging. We consider that the first year of these training cycles is the most appropriate for its implementation, since students will acquire, from the beginning of their studies, knowledge and develop transversal competences that we consider essential for the development of a professional career in technological companies. Many of these competencies are related to critical thinking skills applied to science and technology. In the following, we briefly analyze how the methodology we propose contributes to develop some of these competencies:

- Setting objectives. If the group of students is large, it is suggested that it be divided into several teams that will be assigned specific objectives. Each team will have to specify these objectives and plan its work to achieve them.
- Responsibility, fulfillment of objectives. The project as a whole will be presented as a challenge to the classroom. Students should be made to see that successfully developing this project as a group is an important achievement for each of those who participate in it and at the same time that success requires the contribution of all those who make up the group.
- Group work skills. Effective work in each of the teams that are formed does not come naturally. You need to understand and internalize certain organizational strategies and many social, communication and personal interaction skills.
- Effective oral and written communication. All students must participate in the oral presentation of results and progress reports throughout the internship. They should do so both in group meetings and reporting to the company tutor. These presentations should be rehearsed, use appropriate means and be open to comments and suggestions for improvement. On the other hand, the evaluation of each student will be based on their writing of the workbook that we will see later, in which they will be asked to reflect on their contribution to the work of the team, the analysis of the results obtained and the critical view of the progress of the project.
- Use of Information Communication Technology, ICT, tools. Much of the work that can be done in the classroom will involve the use of computer-aided design and management software packages, simulators and automatic control systems, three-dimensional printing, teleworking tools, etc.
- Autonomous learning. We will dedicate an important part of the practice to the critical search for information on the concepts and tools necessary for the realization of the project, the organization of this information, and its understanding.
- Intellectual honesty. We refer to honesty when judging one's own thinking, the way in which one has made a certain decision or accepted some information or a message. It also refers to self-criticism for the work done.

### **3 RESULTS**

The BPI methodology focuses on the development of transversal competencies related to autonomous lifelong learning, teamwork, leadership, communication, goal achievement and critical thinking applied to science and technology. Therefore, with this methodology we consider it necessary to program in detail and pay attention to how to adapt the project proposed to the constraints imposed by the work in the classroom and the capabilities of the specific group of students involved. We intend our methodology to bring to VET students, at the beginning of their studies, the experience of working in the environment of a technological company.

All this means that both the company's project and the work plan in the classroom must be thoroughly prepared. It will require a significant commitment from the people involved and the proposed methodology must consider how to make this work and this commitment be rewarded by the development of the project itself.

To help in the implementation of this methodology in the classroom, the technology companies of the Erasmus Plus project "Techvetlab" have prepared a template for the creation of a work plan in the classroom, as well as concrete work models that can serve as a reference.

The subject matter of the projects in which students can participate in the classroom can be very diverse (programming of a digital environment, construction of 3D machinery...). For this reason, with the BPI methodology, we have established essential points that we consider necessary to think carefully about in order to prepare the work plan in the classroom by the company and the educational center.



### 3.1 The definition of the project by the company

- **Describing the company environment.** We consider it convenient to explain the main characteristics of the company, detailing its production and innovation lines, the projects it develops and in which it collaborates, even the departments that compose it, as a way to situate the students. It will be motivating to show how useful the project will be for the company.
- **The educational objectives of the project.** The proposed project has a fundamentally educational purpose. The collaboration between the company and the educational center in the realization of the classroom practice is aimed at training students in a series of transversal skills that we consider important in order for them to direct their professional careers towards innovation. With this in mind, we can consider that the choice of the project topic itself is less important than the methodologies used to carry it out and that, consequently, we should not be afraid that the proposed project does not directly relate to the subject taught in the plan of studies of the VET degree, although we do want it to be able to capture the interest of students and teachers, and this implies that the project is within the scope of the specialty of the previous studies.
- **The level of difficulty.** The background of the students in terms of the scientific and technical concepts involved in the project may vary greatly from one student to another, from one study center to another and from one country to another in the European Union. We do not believe it is key that students have previously studied and mastered subjects specifically related to the problem they will be faced with. In our teaching approach we want to fight against the conception of vocational training as training for the performance of specific functions in a narrow range of companies. The student should understand professional training as the acquisition of skills and abilities through the whole life to face a professional activity that most likely has not been studied before. This will open up an enormous field of possibilities for their career. It does not seem necessary or useful for them to look for the technology company that is the perfect match for a particular curriculum. Rather, it will be the other way around: the classroom will have to adapt to the project that is proposed in order to be successful.
- This means that the methodology applied to the development of the practice will have to consider a first stage of training the students in the fundamental aspects of the technology they will have to apply. It is essential that understanding and assimilating these concepts or acquiring the necessary skills is accessible to them and do not constitutes an initial barrier that discourages them or makes them feel incapable. In fact, the main teaching objective is the opposite: we want the student to see that they are capable of going beyond what they have studied so far. The close collaboration between the company's technicians and the school's teachers will ensure a good definition of the project in this sense.
- **General objective and definition of specific objectives.** The possibility that the resolution of the problem posed as the general objective of the project be broken down into a series of specific objectives will be of great help in organizing the work in the classroom. Since the project is going to be carried out by a group with a large number of students, they should be organized in smaller work teams in charge of specific tasks. We will be interested in defining these tasks on the basis of specific objectives that we can evaluate throughout the project and at the end. It will be necessary to combine the distribution of work with the responsibility of achieving the general objective. Each team will be responsible for achieving its objectives and for ensuring that the classroom as a whole achieves the general objective.
- **Degree of difficulty of the objectives.** It may be an advantage in terms of achieving the teaching objectives if the degree of difficulty of the project objectives can be modulated, so that it is not an all-or-nothing proposition. One idea could be to set a general objective that is considered attainable and variants of improvement on that basic objective that can be taken further and that will be achieved or not depending on the evolution of the work in the classroom, the imagination of the students, their abilities, luck and so many other aspects that will influence the work of the group.
- **Reports on the project results.** The format in which the results of the project will be presented will be discussed with the students from the very beginning. On the one hand, throughout the execution of the project, students will have to present the progress of their results to the company in team meetings. One of the competencies we want to address is that of effective oral and written communication. It means for the students to identify the essential points of their presentation and how to express them, as well as to prepare relevant questions in advance and be effective in communication. It is important to set the frequency of the meetings, their duration and the format of presentation of the results. On the other hand,

at the end of the project they should deliver a final report with annexes. Its length, electronic file format and the server where it should be deposited can be fixed.

- **Evaluation.** The teacher will be responsible for the evaluation of each student. Additionally, the company may be interested in interviewing those students who have shown special leadership in the project with a view to future internships or labor contracts.

Templates have been prepared that may be useful to carry out this programming, both by the company and by the teacher; due to their length, only an abstract have been included below, but can be consulted on the project website (Techvetlab, 2021). Four concrete examples of work plans have also been prepared and will be implemented as a pilot test at the beginning of the 2023-2024 academic year.

<b>PART 1.- Project approach (to be filled in by the company)</b>		
<b>A. Title</b>	<b>B. Shared folder /server</b>	<b>C. Duration.</b>
<b>D. Brief description. Technical problem.</b>		
<b>E. Area or project of the company in which it is framed.</b>		
<b>F. General objective of the proposal and possibilities of going further: How far are students expected to go in solving the problem posed?</b>		
<b>G. Specific objectives: How can the general problem be broken down into several more specific problems that the teacher in the classroom can assign to different work subgroups?</b>		
<b>H. Required equipment.</b>		
<b>I. Meetings. Relationship between the classroom and the tutor in the company: Frequency of meetings. Presentation of project progress. Duration and agenda of the meetings.</b>		

**J. Format for presentation of the final results and conclusions of the work done in the classroom to the company.**

**K. Initial information that the company can give to the students about the proposed project.**

*Include as many pages as necessary*

**PART 2.- Detailed work plan.**

It can be indicated if the work plan is designed so that the tasks are distributed among a number of teams of the order of 4 or 5 for example.

**PHASE 1. Preparation. Initial tasks.**

This first phase should be dedicated to the search for information on a series of technical and conceptual aspects of the project. The company can anticipate those it considers important, although later the classroom teacher and the students themselves may identify other points to be studied.

Other tasks to be included in this first phase are the installation of the necessary software, which must be free software, and the initiation of the students in its use.

<b>Task 1.1.</b> Objectives: Description:	<b>Team:</b>	<b>Duration:</b>

**PHASE 2. Design and manufacturing, data analysis and others.**

The body of the work plan will be broken down into work packages and tasks with specific milestones and time schedules that will be transferred to the Techvetlab software.

<b>Task 2.1.</b> Objectives: Description:	<b>Team:</b>	<b>Duration:</b>
<b>Task 2.2.</b> Objectives: Description:	<b>Team:</b>	<b>Duration:</b>

**PHASE 3. Conclusions. Final report**

<b>Task 3.1.</b> Writing of the final report.	<b>Team:</b>	<b>Duration:</b>

<b>Task 3.2.</b> Verification of the final documentation deposited in the project folder.	<b>Team:</b>	<b>Duration:</b>
<b>Task 3.3.</b> Preparation of the end-of-project oral presentation	<b>Team:</b>	<b>Duration:</b>
<i>Include as many pages as necessary</i>		

### 3.2 The organization of the work in the classroom by the teacher

- **The educational objectives of the project.** We come back in this section to the teaching objectives that we discussed above in relation to the preparation of the project by the company. As we said there, the teaching objectives of this internship focus less on content and the acquisition of knowledge and more on the development of key transversal competencies by the students.
- **Work teams.** Depending on the specific project objectives defined by the company, the teacher will plan the number of teams and the number of students in each team. The teacher should consider whether to assign students to each team or let them choose.
- **Concepts that students should learn.** We intend to focus on the students' strategies to search for information autonomously. However, to ensure that students acquire the necessary knowledge and key competencies, the teacher will guide them and complement their training with key concepts from the syllabus of their studies.
- **Follow-up.** In the initial programming of the practice, the frequency with which each team will present the progress of their work in meetings of the whole classroom and the mechanisms of interaction between the teams can be included, because obviously the work of some will depend on the results of others. On the other hand, each student should write a daily work notebook in which he/she presents the activity carried out, the results obtained (if applicable) and carries out a critical and scientific analysis of the work done.
- **Evaluation.** To carry out the evaluation, the teacher will have at their disposal the daily work notebooks presented by each student, the team presentations of the progress of the results and the final report.

Below is a template that may be useful for teachers:

<b>PART 3.- Classroom work organization (to be filled in by the teacher)</b>		
<b>A. Title:</b>	<b>B. Shared folder/server</b>	<b>C. Duration:</b>
<b>D. Concepts and tools that students should learn in the first phase of the project. Documentation that can be provided by the teacher if necessary.</b>		
<b>E. Number of work teams and specific objectives of each team.</b>		
<b>F. Evaluation criteria</b>		
<b>G. Notes on the evolution of classroom work throughout the project.</b>		
<i>Include as many pages as necessary</i>		

## 4 CONCLUSIONS

Through the Erasmus Plus Program project "TECHVETLAB: A SOLUTION FOR POSTCOVID-19 LABORAL MARKET THROUGH A TECHNICAL TRAINING OF VET STUDENTS WITH OBSTACLES", technology-based companies and VET educational centers in Spain, Portugal, Italy, France and Greece, we have developed an innovative learning methodology that allows VET students to acquire key knowledge and skills for their access to the labor market in the technology sector. In this communication we have presented the main characteristics of the methodology, as well as a work plan model that facilitates the work of technology companies and educational centers to implement this methodology.

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