

2021 19th International Conference on Information Technology Based Higher Education and Training (ITHET 2021)

**Sydney, Australia
4 – 6 November 2021**



**IEEE Catalog Number: CFP21578-POD
ISBN: 978-1-7281-8884-3**

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

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

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

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

IEEE Catalog Number:	CFP21578-POD
ISBN (Print-On-Demand):	978-1-7281-8884-3
ISBN (Online):	978-1-7281-8883-6
ISSN:	2380-1603

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Strengths and Threats of Pervasive Information Technologies: Effect on Engineering Higher Education.....	1
<i>Olivier Bonnaud</i>	
A Support System for Formal College Students: A Case Study of a Community-Based App Augmented with a Chatbot.....	5
<i>Sara Alqaidi; Waad Alharbi; Omaima Almatrafi</i>	
Educational Achievement and Satisfaction During Traditional, Online and Combined Classes Among Students Following Intensive Workplace Related Courses.....	10
<i>Ivica Pesovski; Tamara Dimitrova; Vladimir Trajkovik</i>	
A Case Study of Gender Diversity in a Middle Eastern University.....	19
<i>Jamil Ahmad Haidar; Joelle Oneissi; Mohammad Al-Abbas</i>	
The Peer Evaluation Enhancement Resource (PEER): A New App for Automating Peer Evaluation.....	26
<i>Timothy C. Bednall; Ryan Jopp</i>	
Comparison of Game-Based Learning Frameworks.....	29
<i>Leon Freudenthaler; Sigrid Schefer-Wenzl; Igor Miladinovic</i>	
The Feasibility of Evaluating Critical Thinking Disposition Using Features of Essay Reports.....	37
<i>Minoru Nakayama; Satoru Kikuchi; Hiroh Yamamoto</i>	
An End-To-End Data Pipeline for Managing Learning Analytics.....	43
<i>Juan Carlos Farah; Joana Soares Machado; Pedro Torres Da Cunha; Sandy Ingram; Denis Gillet</i>	
Modelling Socio-Linguistic Profiles in Multilingual Higher Education Institutions (HEI).....	52
<i>Laurent Moccozet; Nicolas Boeckh; Larissa Aronin</i>	
University Students' Views Towards Mathematics.....	60
<i>K. P. Ghimire</i>	
Investigating Learning Experience of MOOCs Learners Using Topic Modeling and Sentiment Analysis.....	64
<i>Siri Amanda Raaf; Johanna Knoos; Fisnik Dalipi; Zenun Kastrati</i>	
Insights in Learners' Behaviour and Early Dropout Detection Based on Coursera MOOCs.....	71
<i>Sarah Frank; Christian Gutl; Mar Perez-Sanagustin; Isabel Hilliger</i>	
A Model of Using WhatsApp for Collaborative Learning in a Programming Subject.....	77
<i>Marisa Venter</i>	
Team Assessment and Self Assessment in High School - Preliminary Results.....	85
<i>Zuzana Kubincova; Kristian Kolcak</i>	
Promoting STEM Learning Through an Interdisciplinary Video Project.....	90
<i>Cuilan Wang; Qing Shao; Xiaoping Li; Weidong Mao; Lee Ann Roberts</i>	
ARChem: Augmented Reality Based Chemistry LAB Simulation for Teaching and Assessment.....	99
<i>Furkan Dinc; Aryadeepta De; Ayanna Goins; Tansel Halic; Marsha Massey; Faith Yarberry</i>	

Teachers' Perceptions of Learning Design Recommendations.....	106
<i>Eleni Zalavra; Kyparisia Papanikolaou; Yannis Dimitriadis; Cleo Sgouropoulou</i>	
SWOT as a Method for Immediate Peer Feedback in Business Education.....	114
<i>Leonore Franz; Elisabeth Katzlinger; Michael A. Herzog; Martin Stabauer</i>	
Digital and e-Learning Accessibility for People with Special Educational Needs: A Robotic Perspective.....	120
<i>Maya Dimitrova; Aleksandar Krastev; Negoslav Sabev; J. David Nunez-Gonzalez</i>	
An Analysis of Tweet Relevance, Twitter Activity and Student Preferences for Universities.....	125
<i>Ilker Cingillioglu; Uri Gal; Artem Prokhorov</i>	
Assistive IoT-Centric Robotics for Senior Living.....	135
<i>Zenon Chaczko; Christopher Chiu; Grzegorz Borowik; Robin Braun</i>	
Students' Approaches to Learning in a Gamified Course in Higher Education.....	141
<i>Monica Raleiras; Fernando A. Costa; Joana Viana</i>	
An Analysis of Programming Course Evaluations Before and After the Introduction of an Autograder.....	148
<i>Gerhard Hagerer; Laura Lahesoo; Miriam Anschutz; Stephan Krusche; Georg Groh</i>	
Estimating Ability of Programming Skills Using IRT Based Peer Assessments	157
<i>Minoru Nakayama; Masaki Uto; Marco Temperini; Filippo Sciarrone</i>	
An Effective Game-Based Business Simulation Tool for Enhancing Entrepreneurial Skills Among Engineering Students.....	163
<i>Bidyut Baruah; Sixiao Mao</i>	
Detecting Micromanagement During Pair Programming	169
<i>Solomon Ubani; Rodney Nielsen</i>	
Peer Assessment Rubric Analyzer: An NLP Approach to Analyzing Rubric Items for Better Peer-Review.....	176
<i>M. Parvez Rashid; Edward F. Gehringer; Mitchell Young; Divyang Doshi; Qinjin Jia; Yunkai Xiao</i>	
The South African Public School System, Education in Crisis: A Review of Our COVID19 Response.....	185
<i>Omesh Narain Singh; Upasana G. Singh</i>	
Cost-Based Framework for Natural Language Argumentation Analysis	192
<i>Kazunori Yamaguchi; Yoshitatsu Matsuda</i>	
Real-Time Web Scraping for Analyzing Moodle Course Material Clickstream.....	202
<i>Konomu Dobashi</i>	
Robot Kits in Primary Informatics Education - What Should Future Teachers Know?.....	212
<i>Karolina Mikova; Lucia Budinska</i>	
Towards Security, Data Privacy and Learning Performance.....	220
<i>Malinka Ivanova; Roumiana Ilieva</i>	
The Role of Intrinsic Motivation in Peer Assessment Activity: An Empirical Evaluation	227
<i>Tania Di Mascio; Sara Peretti; Marco Temperini</i>	

Use of it in Higher Education and Training - Social Learning Through Outdoor Quiz Game App	234
<i>Linda Kionig; Tone Vold; Ole Jorgen Ranglund; Vladimir Trajkovik; Maja Videnovik; Robin Braun</i>	
Roadshow Presentations for Developing Presentation and Feedback Skills in Studio Based Learning	238
<i>Don Bone; Valerie Gay; Wayne Brookes; Franziska Trede; Robin Braun</i>	
LORA: Novel Learning Outcome Modelling Tools and Techniques for Higher Education	249
<i>Aqeel Zeid; Hasna Anees; Mohamed Adheeb; Mohamed Rifan; Kalpani Manathunga</i>	
Ethereum Blockchain and Inter-Planetary File System (IPFS) Based Application Model to Record and Share Patient Health Information: An Exemplary Case Study for e-Health Education in Nepal	256
<i>Mahesh Kayastha; Shakir Karim; Raj Sandu; Ergun Gide</i>	
The Importance of Mentorship to Enhance Online Learning and Teaching in Higher Education in the COVID-19 Era: A Comprehensive Literature Review	263
<i>Domingos Mondego; Ergun Gide</i>	

Author Index