

2015 IEEE 15th International Conference on Advanced Learning Technologies (ICALT 2015)

**Hualien, Taiwan
6-9 July 2015**



IEEE Catalog Number: CFP15261-POD
ISBN: 978-1-4673-7335-7

2015 IEEE 15th International Conference on Advanced Learning Technologies

ICALT 2015

Table of Contents

Preface	xvi
List of Chairs and PC Members.....	xvii
Additional Reviewers	xxvi

Invited Papers

Educational Games and the Design Based Research Approach	1
<i>Miguel Nussbaum</i>	
Advancing the State of the Art in Advanced Learning Technologies: [Re-]Connecting Theory, Research, Practice and Policy	2
<i>J. Michael Spector</i>	
Technology and Knowledge Creation	4
<i>Seng Chee Tan</i>	

Track 1. Digital Systems for Open Access to Education and Learning

SangeetKosh: An Open Web Platform for Music Education	5
<i>Tejaswinee Kelkar, Anon Ray, and Venkatesh Choppella</i>	
Exploring Different Routes from LMS Towards PLE: A Dialectical Perspective	10
<i>Vladimir Tomberg, Mart Laanpere, and Hans Põldoja</i>	
Designing and Developing Cloud-Based eBooks for Solving Teachers' Usage Barriers	13
<i>I-Ching Chao, Po-Sheng Chiu, Chih-Chien Kao, Ying-Hung Pu, and Yueh-Ming Huang</i>	
Assessing Students' Learning Experience and Achievements in a Medium-Sized Massively Open Online Course	15
<i>Weichao Chen, Jiyoun Jia, Jingmin Miao, Xiaomeng Wu, Aihua Wang, and Baijie Yang</i>	
Understanding Student Disaffection in Large-Scale Online Learning	17
<i>Khe Foon Hew</i>	

Track 2. Adaptive and Personalised Technology-Enhanced Learning

Classification-Based Approach to Concept Map Generation in Adaptive Learning	19
<i>Xiaopeng Huang, Kyeong Yang, and Victor Lawrence</i>	
Towards an Integrative Learning Environment for Java Programming	24
<i>Sebastian Gross and Niels Pinkwart</i>	
Online Tests Based on Contributions Provided by Teachers and Students during Face to Face Lectures	29
<i>Franck Silvestre, Philippe Vidal, and Julien Broisin</i>	
Constructing Collaborative Learning Groups with Maximum Diversity Requirements	34
<i>Yulei Pang, Raymond Mugno, Xiaozhen Xue, and Huaying Wang</i>	
Indexing Learning Scenarios by the Most Adapted Contexts: An approach Based on the Observation of Scenario Progress in Session	39
<i>Mariem Chaabouni, Claudine Piau-Toffolon, Mona Laroussi, Christophe Choquet, and Henda Ben Ghezala</i>	
Towards a Web-Based Adaptive Problem-Based Learning Application	44
<i>Yongwu Miao, Disi Wang, Mbombui Nongho Fon-Pah, Mohammed Samaka, and Ulrich Hoppe</i>	
Modeling Learner's Emotions with PAD	49
<i>Matthias Chan Yong Shun, Miao Chun Yan, An Bo, and Leung Cyril</i>	
Eye-Tracking Assisted Self-Directed Learning System	52
<i>Eman Yasser Daraghmi, Chih-Tien Fan, Wei-Jun Lin, Zih-You Peng, and Shyan Ming Yuan</i>	
Students' Satisfaction in Learning Style-Based Adaptation	55
<i>Mohammad Alshammari, Rachid Anane, and Robert J. Hendley</i>	
Using Knowledge Space theory to Personalize Teaching for Groups of Students	58
<i>Rim Zakaria and Imran A. Zualkernan</i>	
Improving Communication and Project Management through an Adaptive Collaborative Learning System	61
<i>Jeffrey M. Kurcz, Ting-Wen Chang, and Sabine Graf</i>	
On Generic Communication Patterns between Courseware Objects in Extensible Learning Support System Architecture for Self- and Group Learning	64
<i>Kiyoshi Nakabayashi and Yosuke Morimoto</i>	
Modelling Learner's Personality Profile through Analysis of Annotation Digital Traces in Learning Environment	66
<i>Nizar Omheni, Anis Kalboussi, Omar Mazhoud, and Ahmed Hadjkacem</i>	
Student Daily Practices Identification Algorithm for Mobile Learning Application	68
<i>Neculai Ivascu, Maiga Chang, and Kristin Garn</i>	
PECALE: An Environment for Enhancing Personalization and Learner Engagement in an Online Learning Platform	70
<i>Betty Mayeku, Sviatoslav Edelev, Sunaina Prasad, Hemanth Karnal, and Dieter Hogrefe</i>	
A Boosting Algorithm for Auto-Generating Quiz for Traffic Education	72
<i>Jinn-Tser Lin, Wen-Ling Chen, Yu-Chieh Wu, and Jie-Chi Yang</i>	

Towards an Educator-Centred Digital Teaching Platform: The Ground Conditions for a Data-Driven Approach	74
<i>Andrew Koster, Tiago Primo, Fernando Koch, Álysson Oliveira, and Hyunkwon Chung</i>	
An Analysis of Goal Orientation Pattern and Self-Efficacy for Explanation of Programming Plans	76
<i>Chung-Cheng Tseng, Po-Yao Chao, and K. Robert Lai</i>	
Track 3. Wireless, Mobile, and Ubiquitous Technologies for Learning	
Career Support for International Students in Japan Using Ubiquitous Learning Log System	78
<i>Noriko Uosaki, Hiroaki Ogata, Kousuke Mouri, and Erdenesaikahan Lkhagvasuren</i>	
Systematic Fusion of Gesture Sensors for Practical Learning in Virtual Environments	83
<i>Matthias Weise, Raphael Zender, and Ulrike Lucke</i>	
A Web-Based Framework to Design and Deploy Mobile Learning Activities: Evaluating Its usability, Learnability and Acceptance	88
<i>Janosch Zbick, Isabella Nake, Marcelo Milrad, and Marc Jansen</i>	
Preliminary Research on Self-Regulated Learning and Learning Logs in a Ubiquitous Learning Environment	93
<i>Masanori Yamada, Chengjiu Yin, Atsushi Shimada, Kentaro Kojima, Fumiya Okubo, and Hiroaki Ogata</i>	
Analysis of Ubiquitous-Learning Logs Using Spatio-Temporal Data Mining	96
<i>Kousuke Mouri, Hiroaki Ogata, and Noriko Uosaki</i>	
Mobile Devices in English Language Instruction: Facilitation and Benefits	99
<i>Gloria Shu Mei Chwo</i>	
A Dictionary of Gestures for Multitouch-Based Interactive Geometry Software	102
<i>Helena M. Reis, Seiji Isotani, Isabela Gasparini, and Riichiro Mizoguchi</i>	
Technical Description of Equation Sensei: A Mobile-Assisted Learning Application in Mathematics	105
<i>Rex P. Bringula, John Nikko S. Alvarez, Maron Angelo C. Evangelista, Richard B. So, and Marivic M. Gatus</i>	
ContactJS—A Cross-Platform Context Detection Framework	108
<i>Tobias Moebert, Stefanie Lemcke, and Ulrike Lucke</i>	
A Low Cost, Portable Platform for Information Assurance and Security Education	111
<i>Dan Chia-Tien Lo, Kai Qian, Wei Chen, and Tamara Rogers</i>	
The Development of a Decision Support System for Successful Mobile Learning	114
<i>Po-Sheng Chiu, Chih-Chien Kao, Ying-Hung Pu, Pei-Fang Lo, and Yueh-Ming Huang</i>	
Informal Learning Behavior Analysis Using Action Logs and Slide Features in E-Textbooks	116
<i>Atsushi Shimada, Fumiya Okubo, Chengjiu Yin, Kentaro Kojima, Masanori Yamada, and Hiroaki Ogata</i>	
The Effect of Signals in Hypertext Reading by Tablet Computers	118
<i>Xiaoxia Zheng, Wei Cheng, Zhengcheng Fan, and Guang Chen</i>	

Baby Boomers' Behaviors and Attitudes of Newspaper Reading: A Comparison among Three Layouts	120
<i>Lin-Chao Fu and Hsiu-Ping Yueh</i>	

Track 4. Digital Game and Intelligent Toy Enhanced Learning

Math Detective: Digital Game-Based Mathematical Error Detection, Correction and Explanation	122
<i>Hercy N.H. Cheng, Yi-Ju Lin, Meng Wang, and Tak-Wai Chan</i>	
Participatory Design in EU-TOPIA: A Serious Game for Intercultural Competences during Work Mobility	127
<i>Hassina El Kechai and Laëtitia Pierrot</i>	
Augmented Reality Laboratory for High School Electrochemistry Course	132
<i>Ming-Puu Chen and Ban-Chieh Liao</i>	
Make and Play: Card Games as Tangible and Playable Knowledge Representation Boundary Objects	137
<i>Andrea Valente and Emanuela Marchetti</i>	
Musikinésia—An Educational Adventure Game for Keyboard Learning	142
<i>Rogério Augusto Bordini, Joice Lee Otsuka, Delano Medeiros Beder, Lucas Ferreira Fonseca, Pablo Augusto Gonçalves de Freitas, Antônio Avanzi Nunes, Daniel Lopes Santiago, Glauber Lúcio Alves Santiago, and Marcia Rozenfeld Gomes de Oliveira</i>	
Towards a Service-Oriented Architecture Framework for Educational Serious Games	147
<i>Maira B. Carvalho, Francesco Bellotti, Jun Hu, Jannicke Baalsrud Hauge, Riccardo Berta, Alessandro De Gloria, and Matthias Rauterberg</i>	
Effectiveness of MMORPGS in Enhancing Student Interaction	152
<i>Wong Seng Yue and H. Yeong Tze</i>	
An Investigation of a Game-Based Anti-Drug System: Addictive Learners vs. Non-addictive Learners	155
<i>Chang-Mai Huang, Jen-Hang Wang, and Sherry Y. Chen</i>	
Effects of Gesture-Based Fitness Games on Functional Fitness of the Elders	158
<i>Feng-Ru Sheu, Yun-Lin Lee, Hsiu-Tao Hsu, and Nian-Shing Chen</i>	
A Mobile Educational Game for Teaching Computer Architecture	161
<i>Ahmed Tlili, Fathi Essalmi, and Mohamed Jemni</i>	
Urban Data Games: Creating Smart Citizens for Smart Cities	164
<i>Annika Wolff, Gerd Kortuem, and Jose Cavero</i>	
Using NAO Humanoid Robot in Kindergarten: A Proposed System	166
<i>Atheer Alkhalifah, Bashayer Alsalman, Deema Alnuhait, Ohoud Meldah, Sara Aloud, Hend S. Al-Khalifa, and Hind M. Al-Otaibi</i>	
A Mobile-Phone Camera Text-Recognition Game as an Alternative Assessment in Vocabulary Instruction for Learning Indonesian as a Foreign Language Classroom	168
<i>Melissa Mustika, Chi-Te Kao, Antonius Siswanto, Shein-Yung Cheng, Jia-Sheng Heh, and Cheng-Yuan Chang</i>	

Track 5. Computer Supported Collaborative Learning

Towards Designing a Mobile Social Learning Application with Meaningful Gamification Strategies	170
<i>Sei-Young Kim, Hyo-Jeong So, Soonmo Kwon, Seungjae Oh, Kyudong Park, Minjin Ko, Jaewon Yoo, and Gyuhwan Oh</i>	
The Impact of Cross-Age Peer Tutors on Knowledge Elaboration, Knowledge Convergence, and Group Performance in Computer Supported Collaborative Learning	175
<i>Lanqin Zheng</i>	
The Empirical Study on Self-Regulation, Co-Regulation, and Socially Shared Regulation in Computer-Supported Collaborative Learning	180
<i>Lanqin Zheng and Junhui Yu</i>	
Making Explicit the Moodle Instructional Design Language	185
<i>Nour El Mawas, Lahcen Oubahssi, and Pierre Laforcade</i>	
Here's Looking at you, Kid—Can Gaze Awareness Help to Learn to Learn Together in Collaborative Problem Solving?	190
<i>Andreas Harrer, Christian Schlösser, Philipp Schlieker-Steens, and Andrea Kienle</i>	
A Qualitative Analysis on Mutual Engagement in CSCL Scenarios Using Eye-Tracking Technology	195
<i>Andreas Lingnau and Andreas Harrer</i>	
A Study on Collaborative and Competitive Strategies of Learners Used in an Educational Game	200
<i>Vanessa Sissi Herbst</i>	
Online Peer Learning: What Influences the Students' Learning Experience	205
<i>Songlak Sakulwichitsintu, Douglas Colbeck, Leonie Ellis, and Paul Turner</i>	
A Design Proposal for Learner-Centered Visualisations of Learning Analytics in Collaborative Scenarios	208
<i>Andreas Harrer</i>	
Formalization of Recurrent Uses of e-Learning Tools as Reusable Pedagogical Activities	211
<i>Esteban Loiseau, Nour El Mawas, and Pierre Laforcade</i>	
Online Collaborative Learning for Improving Argumentation of Student with Different Levels of Science Prior Knowledge	214
<i>Yu-Ren Lin, Hsiao-Ching She, Wen-Tsung Yang, and Kai-Yi Huang</i>	
Helping Strategy Support in Synchronous Peer Tutoring System for Children	216
<i>Mengping Tsuei</i>	

Track 6. Technology-Enhanced Assessment in Formal and Informal Education

Integrating Assessment into Augmented Reality-Based Learning Environments	218
<i>Maria-Blanca Ibáñez, Diego Villarán, and Carlos Delgado-Kloos</i>	
Exploring Constructive Learning Activity in Online Programming Discussion Forums	223
<i>I. Han Hsiao</i>	
Effects of Group and Task Size in Computer Supported Collaborative Marking	228
<i>Manuel Matas and Jorge Villalon</i>	

What Happened to Non-linear Narrative? A Pedagogical Reflection	233
<i>Emanuela Marchetti and Andrea Valente</i>	
A Preliminary Study of Integrating Flipped Classroom Strategy for Classical Chinese Learning	238
<i>Yi Hsuan Wang</i>	
Combining Mobile Devices with NFC Technology in a Test Assessment System	241
<i>Tsung-Sheng Cheng, Yu-Chun Lu, Chun-Chieh Chang, and Chu-Sing Yang</i>	
Students' Perceptions about Assessment Using an e-Learning Platform	244
<i>Rosalina Bessa Babo, Ana Isabel Azevedo, and Jarkko Suhonen</i>	
Correlation of Grade Prediction Performance with Characteristics of Lesson Subject	247
<i>Shaymaa E. Sorour, Jingyi Luo, Kazumasa Goda, and Tsunenori Mine</i>	
Quality Evaluation of Web-Based Educational Software: A Systematic Mapping	250
<i>Aparecida M. Zem Lopes, Laís Z. Pedro, Seiji Isotani, and Ig I. Bittencourt</i>	
A Formative Assessment Ontology for Students' Lab Reports in Lab Book	253
<i>Hakim Mokeddem, Cyrille Desmoulins, and Chalal Rachid</i>	
Understanding Undergraduates' Information Literacy from their Facebook Usage	256
<i>Kan Min Lin</i>	
Application of Combination Weighting Method to Weight Calculation in Performance Evaluation of ICT	258
<i>Chun Lu, Lili Li, and Di Wu</i>	

Track 7. Big Data in Education and Learning Analytics

Towards Textual Reporting in Learning Analytics Dashboards	260
<i>A. Ramos-Soto, M. Lama, B. Vázquez-Barreiros, A. Bugarín, and M. Mucientes. S. Barro</i>	
Can You Tell If they're Learning? Using a Pedagogical Framework to Measure Pedagogical Activity	265
<i>Tim O'Riordan, David E. Millard, and John Schulz</i>	
Semantic Description of the Experience API Specification	268
<i>Juan C. Vidal, Thomas Rabelo, and Manuel Lama</i>	

Track 8. Technology-Enhanced Science, Technology, Engineering, and Math Education

Equality: A Tool for Free-form Equation Editing	270
<i>Stephen Cummins, Ian Davies, Andrew Rice, and Alastair R. Beresford</i>	
A Conductive Chemistry Online Argumentation Courseware with Website Exploring Support	275
<i>Kai-Yi Huang, Yi-Lin Cheng, Hsiao-Ching She, and Yu-Ren Lin</i>	
Stickipedia: A Search Engine and Repository for Explanatory Analogies	280
<i>Varun Kumar, Savita Bhat, and Niranjana Pedanekar</i>	
Applying the Formal Concept Analysis to Introduce Guidance in an Inquiry-Based Learning Environment	285
<i>Michael A. Bedek, Simone Kopeinik, Bernd Prünster, and Dietrich Albert</i>	

Assessing the Impact of Virtual Labs: A Case Study with the Lab on Advanced VLSI	290
<i>Garima Ahuja, Anubha Gupta, Harsh Wardhan, and Venkatesh Choppella</i>	
A Case Study on LEGO Activity in Physics Class: Taking the “Rotational Kinetic Energy” for Example	293
<i>Qianxia Jing, Lingyu Yang, Menglu Jiang, Ruiying Huai, and Feng-Kuang Chiang</i>	
The Development of Simulation-Based Learning System for Binary Tree of Data Structures	296
<i>Ah-Fur Lai and Pei-Jeng Wu</i>	
Social Media as a Teaching and Learning Tool for In-class Q&A Activities to Promote Learning and Transform College Engineering Classroom Dynamics: The Case of Facebook	299
<i>Fu-Yun Yu and Yu-Hsin Liu</i>	
A Feedback Effectiveness Oriented Math Word Problem E-Tutor for E-Learning Environment	301
<i>Kyle Morton and Yanzhen Qu</i>	
Explore College Students’ Cognitive Processing during Scientific Literacy Online Assessments with the Use of Eye Tracking Technology	303
<i>Pei-Yi Tsai, Ting-Ting Yang, and Hsiao-Ching She</i>	
Explore the Eye Movement Regarding the Cognitive Process of Online Optic Reasoning Learning	305
<i>Chou Wen-Chi and She Hsiao-Ching</i>	
A Generic Model for the Group Formation Problem Using Constraint Logic Programming	307
<i>Grace S. Tacadao and Ramon Prudencio S. Toledo S.J.</i>	

Track 9. Technology Enhanced Language Learning

A Preliminary Study on Taiwanese EFL Adolescents’ Perceptions of Mobile-Assisted Post-Reading Tasks	309
<i>Ya-Wen Ho and Chih-Cheng Lin</i>	
Intelligent Tutoring System for Voice Conversion in English	314
<i>Deepika P. Vinchurkar and M. Sasikumar</i>	
Construction of a Voice-Based Asynchronous Communication System Utilizing Speech Recognition and Its Potential for EFL Learners’ Speaking Ability: A Pilot Study	317
<i>Yuichi Ono, Takumi Ishii, and Akio Ohnishi</i>	
Using Smartphone to Facilitate English Communication and Willingness to Communicate in a Communicative Language Teaching Classroom	320
<i>Bo-Ru Luo, Yu-Lun Lin, Nian-Shing Chen, and Wei-Chieh Fang</i>	
A Domain-Specific Modeling Specification of Visual Instructional Design Languages: A Moodle Experimentation	323
<i>Aymen Abedmouleh</i>	
L3MS: A Lightweight Language Learning Management System Using Mobile Web Technologies	326
<i>Reem A. Alamer, Hind M. Al-Otaibi, and Hend S. Al-Khalifa</i>	
Middle School English Teachers’ Attitude and Motivation Towards ICT-Enabled Teaching in China	328
<i>Kwan C.M. Ming and Sophia H.X. Liu</i>	

Track 10. Motivational and Emotional Aspects in Technology-Enhanced Learning

Towards a Japanese Language Learning Process Based on Japanese Dubbing—A Case Study on University Students	330
<i>Chun-Chia Wang</i>	
Affective States in CSCL Environments: A Systematic Mapping of the Literature	335
<i>Rachel Carlos Duque Reis, Carla Lopes Rodriguez, Kamila Takayama Lyra, Patrícia Augustin Jaques, Ig Ibert Bittencourt, and Seiji Isotani</i>	
Enhancing Student Engagement through Personalized Motivations	340
<i>Athanasios Staikopoulos, Ian O’Keeffe, Bilal Yousuf, Owen Conlan, Eddie Walsh, and Vincent Wade</i>	
Learners’ Level of Metacognitive Awareness and Its Relationship with Listening Performance	345
<i>Yajun Zeng and Christine Goh</i>	
An Affective Learning Environment for Java	350
<i>Ramón Zatarain Cabada, María Lucía Barrón Estrada, Francisco González Hernández, and Raúl Oramas Bustillos</i>	
Learning Personality Modeling for Regulating Learning Feedback	355
<i>Matthias Chan Yong Shun, Miao Chun Yan, Shen Zhiqi, and An Bo</i>	
An Evaluation of the Learning Attitude and Motivation in a Language Learning Support System	358
<i>Jingyun Wang and Takahiko Mendori</i>	
Validation of the Teacher Readiness for Online Learning Measure	361
<i>Min-Ling Hung</i>	
Developing Successful Novice International Faculty through a Mentoring Program	364
<i>Gloria Robles and Ana Lidia Franzoni</i>	
The Effect of Using a Talking Head in Academic Videos: An EEG Study	367
<i>Diana Díaz, Rafael Ramírez, and Davinia Hernández-Leo</i>	

Track 11. Technology Enabled Learning of Thinking Skills

Impact of Blender Based 3D Mental Rotation Ability Training on Engineering Drawing Skills	370
<i>Kapil Kadam and Sridhar Iyer</i>	
Using an Automatic Approach to Classify Reflective Language Learning Skills of ESL Students	375
<i>Gary Cheng and Juliana Chau</i>	
Development of Engineering Design Competencies Using TELE-EDesC: Do the Competencies Transfer?	380
<i>Madhuri Mavinkurve and Sahana Murthy</i>	
Academic Writing Support System Using Bayesian Networks	385
<i>Masaki Uto and Maomi Ueno</i>	
Using Eye-Tracking to Investigate the Different 3D Representation on Students’ Mental Model Construction	388
<i>Sheng-Chang Chen, Hsiao-Ching She, and Mi-Shan Hsiao</i>	

Track 12. Recommender Systems for Learning

Enhancing Learning Object Recommendations for Teachers Using Adaptive Neighbor Selection	391
<i>Stylianios Sergis and Demetrios G. Sampson</i>	
A Utility-Based Semantic Recommender for Technology-Enhanced Learning	394
<i>Andrea Zielinski</i>	
Would Linked MOOC Courseware Enhance Information Search?	397
<i>Shang-Wen Li and Victor Zue</i>	
Towards the Effective Use of Available Educational Resources: Designing Adaptive Hypermedia Environments for the Engineering Sciences	400
<i>Simon Carolan, Guillaume Moreau, Morgan Magnin, and Francisco Chinesta</i>	
Knowledge Recommender: An Application Based on the Social Knowledge Network for Knowledge Recommendation	403
<i>Shan Li, Juan Zheng, and Qianxia Jing</i>	
Social Analytics Framework to Boost Recommendation in Online Learning Communities	405
<i>Yanyan Li, Haogang Bao, Yafeng Zheng, and Zhinan Huang</i>	
Towards a Multi-label Classification of Open Educational Resources	407
<i>Marcos Mourião García, Roberto Pérez Rodríguez, Luis Anido Rifón, and Manuel Vilares Ferro</i>	
An Interactive Annotation System to Support the Learner with Web Services Assistance	409
<i>Anis Kalboussi, Nizar Omheni, Omar Mazhoud, and Ahmed Hadj Kacem</i>	
Learnersourced Recommendations for Remediation	411
<i>Shang-Wen “Daniel” Li and Piotr Mitros</i>	

Track 13. Technology Supported Education for People with Disabilities

Alternative Concepts for Accessible Virtual Classrooms for Blind Users	413
<i>Wiebke Köhlmann and Ulrike Lucke</i>	
A Learning Game for Deaf Learners	418
<i>Mohamed Ali Khenissi, Yosra Bouzid, Fathi Essalmi, and Mohamed Jemni</i>	
Effectiveness of an Immersive Virtual Environment (CAVE) for Teaching Pedestrian Crossing to Children with PDD-NOS	423
<i>Aimilia Tzanavari, Nefi Charalambous-Darden, Kyriakos Herakleous, and Charalambos Poullis</i>	
Effects of Somatosensory Video Games on Simple Reactions of Institutional-Dwelling Older Adults with Mild-Cognitive Impairments	428
<i>Mao Liou, Shang-Ti Chen, Hsiu-Chi Fu, and I-Tsun Chiang</i>	
A Series of Leap Motion-Based Matching Games for Enhancing the Fine Motor Skills of Children with Autism	430
<i>Gaoxia Zhu, Su Cai, Yuying Ma, and Enrui Liu</i>	
Making Linear Equations Accessible for Visually Impaired Students Using 3D Printing	432
<i>Noha Al-Rajhi, Amal Al-Abdulkarim, Hend S. Al-Khalifa, and Hind M. Al-Otaibi</i>	
A Teacher Professional Development Program for Designing Inclusive Learning Experiences	434
<i>Silvia Margarita Baldiris Navarro, Panagiotis Zervas, Ramón Fabregat, and Demetrios G. Sampson</i>	

Track 14. Smart Learning Environments

Integrating SERVQUAL and Importance-Performance Analysis for Assessing Smart Campus Service Quality: A Case Study of an English Training Programme in Vietnam	436
<i>I-Chang Tsai and Chung-Han Yeh</i>	
Investigating the Effectiveness of Speech-to-Text Recognition Application on Learning Performance in Traditional Learning Environment	441
<i>Rustam Shadiey, Yueh-Min Huang, Wu-Yuin Hwang, and Narzikul Shadiey</i>	
Performance Analysis of Parallel Particle Swarm Optimization Based Clustering of Students	446
<i>Kannan Govindarajan, David Boulanger, Jérémie Seanosky, Jason Bell, Colin Pinnell, Vivekanandan Suresh Kumar, Kinshuk, and Thamarai Selvi Somasundaram</i>	
A Framework of Teaching and Learning with e-Textbooks in Smart Learning Environment	451
<i>Lei Fan, Ting-Wen Chang, Ronghuai Huang, and Wei Cheng</i>	
e-Schoolbag in China—Exploring Research Evidence for Large Scale Deployment of e-Textbooks and Services	454
<i>Tore Hoel</i>	
Design of Attention-Based Recommendation Learning Mechanism in the Cloud Computing Environment	456
<i>Hong-Ren Chen and Ju-Hong Chen</i>	
Heuristic-Based Automatic Online Proctoring System	458
<i>R.S. Vishnu Raj, S. Athi Narayanan, and Kamal Bijlani</i>	
Supporting Cognitive Skills of People Suffering from Dementia through a Sensor-Based System	460
<i>Anastasios Karakostas, Ioulietta Lazarou, Georgios Meditskos, Thanos G. Stavropoulos, Ioannis Kompatsiaris, and Magda Tsolaki</i>	
Towards Bringing Adaptive Micro Learning into MOOC Courses	462
<i>Geng Sun, Tingru Cui, Kuan-Ching Li, Dongming Xu, Shiping Chen, Jun Shen, and William Guo</i>	

Track 15. Virtual Worlds in Education and Training

Teaching Interpersonal Problem Solving Skills Using Roleplay in a 3D Virtual World for Special Education: A Case Study in Second Life	464
<i>Anders I. Mørch, Melissa D. Hartley, and Valentina Caruso</i>	
Mind and Body Learn Together: Embodied Cognition and Language Learning	469
<i>Yu-Ju Lan, Nian-Shing Chen, Yao-Ting Sung, and Tzu-Chien Liu</i>	
Teaching Renewable Energy Sources Using 3D Virtual World Technology	472
<i>Foteini Grivokostopoulou, Isidoros Perikos, Kovas Konstantinos, and Ioannis Hatzilygeroudis</i>	

Track 16. Knowledge Management in e-Learning

Validating Algorithmic Optimization of Patient Allocation at Medical Schools: Which Patient is the Best Fit for Undergraduate Training?	475
<i>Felix Balzer, Martin Dittmar, Olaf Ahlers, and Niels Pinkwart</i>	
Exploring the Key Factors for Cooperate Implementation of Mobile Technology	480
<i>Ming-Hsin Lu, Hsiu-Ping Yueh, and Weijane Lin</i>	

Trends in E-Learning Research from 2002-2013: A Co-citation Analysis	483
<i>Xiao-Fan Lin and Qintai Hu</i>	
A Competency-Based Model to Bridge the Gap between Academic Trainings and Industrial Trades	486
<i>Rémi Venant, Césdric Teyslié, Daniel Marquié, Philippe Vidal, and Julien Broisin</i>	
Track 17. Large Scale Implementation of Technology Supported Educational Innovations	
Flipping, Engaging, and Teaming, Oh My! Lessons Learned from a Large Scale Curriculum Reform at a US Medical School	488
<i>Weichao Chen, Mary Kate Worden, and Elizabeth Bradley</i>	
Track 18. Doctoral Consortium on Advanced Learning Technologies	
The Effects of Progress Bars on Diverse Learning Styles in Web-Based Learning	493
<i>Te-Lien Chou and Sufen Chen</i>	
Author Index	495