Knowledge Management & E-Learning



ISSN 2073-7904

Editor-in-Chief

Maggie M. Wang The University of Hong Kong Hong Kong

Co-Editor-in-Chief

Stephen J. H. Yang National Central University Taiwan

Managing Editor

Haijing Jiang The University of Hong Kong Hong Kong

Editorial Advisory Board

Neil Mercer University of Cambridge, UK Paul A. Kirschner (AERA Fellow) Open University of the Netherlands, NL Jonathan Grudin (ACM Fellow; CHI Fellow) Microsoft Research, USA Fanny Klett (IEEE Fellow) German Workforce ADL Partnership Laboratory, DE Dr. Kinshuk University of North Texas, USA Michael J. Jacobson The University of Sydney, AU Kuldeep Kumar Florida International University, USA Tefko Saracevic (ASIS Award of Merit) Rutgers University, USA Kevin C. Desouza Arizona State University, USA Jay Liebowitz University of Maryland University College, USA

J. Michael Spector (IBSTPI Fellow) University of North Texas, USA Chin-Chung Tsai National Taiwan University of Science and Technology, TW Wayne Wei Huang Ohio University, USA Toshio Okamoto University of Electro-Communications, JP Nian-Shing Chen National Sun Yat-Sen University, TW Rob Koper Open University of the Netherlands, NL Doug Vogel (AIS Fellow) City University of Hong Kong, HK Huaiqing Wang City University of Hong Kong, HK Qiang Yang (IEEE; AAAI; AAAS; IAPR Fellow) Hong Kong University of Science and Technology, HK Demetrios G. Sampson Curtin University, Australia

Knowledge Management & E-Learning, Vol.8, No.4. Dec 2016

Associate Editors

Patricia A. Abbott (ACMI Fellow; AAN Fellow) University of Michigan, USA Xun Ge University of Oklahoma, USA Anders Morch University of Oslo, NO Shengquan Yu Beijing Normal University, CN Xiaochun Cheng Middlesex University, UK Waltraut Ritter Knowledge Enterprises, HK Rajiv Khosla La Trobe University, AU Alexandra I. Cristea (BCS Fellow) University of Warwick, UK Michael Chau The University of Hong Kong, HK

Mark Klein Massachusetts Institute of Technology, USA Andre W. Kushniruk (ACMI Fellow; CAHS Fellow) University of Victoria, CA Jürgen Moormann Frankfurt School of Finance & Management, DE Siu Cheung Kong The Education University of Hong Kong, HK Jianwei Zhang State University of New York at Albany, USA Murali Raman Multimedia Univeristy, MY David Guralnick Kaleidoscope Learning, New York, USA Dickson K.W. Chiu The University of Hong Kong, HK

Editorial Board Members

Irene Y.L. Chen National Changhua University of Education, TW Heinz Ulrich Hoppe University Duisburg-Essen, DE Jiyou Jia Peking University, CN Qiyun Wang Nanyang Technological University, SG Jean H.Y. Lai Hong Kong Baptist University, HK Xiaojing Liu Indiana University, USA Kiyoshi Nakabayashi Chiba Institute of Technology, JP Mark E. Nissen Naval Postgraduate School, USA Xiaohui Zhao University of Canberra, AU Mudasser F. Wyne National University, USA Bian Wu The University of Hong Kong, HK Wenying Zhou Michigan State University, USA

Sabine Graf Athabasca University, CA Elizabeth Borycki University of Victoria, CA Wan Ying Tay Ministry of Education, SG David M. Kennedy James Cook University, Singapore Campus, AU Chien-Sing Lee Sunway University, MY Marcelo Milrad Linnaeus University, SE Eugenia M.W. NG The Education University of Hong Kong, HK Ijaz A. Qureshi The University of Lahore, PK Ming-Hsiung Ying Chung-Hua University, TW Yang-Hsueh Chen National University of Tainan, TW Sun Joo Yoo Samsung SDS, KR Jenny S. Wakefield Dallas County Community College, USA

Knowledge Management & E-Learning, Vol.8, No.4. Dec 2016

Contents

514	Using cloud computing to develop an integrated virtual system for online GIScience programs
	Germana Manca, Nigel W. Waters and Gustavo Sandi
528	Knowledge retention in capstone experiences: An analysis of online and face-to-face courses John P. Girard, Johnathan Yerby and Kevin Floyd
540	Design of a computer-based learning environment to support diagnostic problem solving towards expertise development <i>Bei Yuan, Minhong Wang, Andre W. Kushniruk (ACMI Fellow; CAHS</i> <i>Fellow) and Jun Peng</i>
550	Automatic annotation of lecture videos for multimedia drivenpedagogical platformsAli Shariq Imran, Faouzi Alaya Cheikh and Stewart James Kowalski
581	Integrating virtual manipulative with the use of iPad in the teaching and learning of fractions Hajah Nadzirah Fatin Mohammad Malik Finti, Masitah Shahrill and Sallimah M. Salleh
602	Virtual team learning: The role of collaboration process and technology affordance in team decision making Sean Cordes
628	Encouraging knowledge sharing behavior through team innovation climate, altruistic intention and organizational culture <i>Irfan Ullah, Khalid Mahmud Akhtar, Irram Shahzadi, Muhammad Farooq</i> <i>and Robina Yasmin</i>
646	Does social presence relate to knowledge sharing in virtual learning teams? Ruzanna Topchyan