Lecture Notes in Computer Science **9757**

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison
Lancaster University, Lancaster, UK
Takeo Kanade
Carnegie Mellon University, Pittsburgh, PA, USA
Josef Kittler
University of Surrey, Guildford, UK
Jon M. Kleinberg
Cornell University, Ithaca, NY, USA
Friedemann Mattern
ETH Zurich, Zürich, Switzerland
John C. Mitchell
Stanford University, Stanford, CA, USA
Moni Naor
Weizmann Institute of Science, Rehovot, Israel
C. Pandu Rangan
Indian Institute of Technology, Madras, India
Bernhard Steffen
TU Dortmund University, Dortmund, Germany
Demetri Terzopoulos
University of California, Los Angeles, CA, USA
Doug Tygar
University of California, Berkeley, CA, USA
Gerhard Weikum
Max Planck Institute for Informatics, Saarbrücken, Germany

More information about this series at http://www.springer.com/series/7407

Simon K.S. Cheung · Lam-for Kwok
Junjie Shang · Aihua Wang
Reggie Kwan (Eds.)

Blended Learning

Aligning Theory with Practices

9th International Conference, ICBL 2016
Beijing, China, July 19–21, 2016
Proceedings

Springer

Editors
Simon K.S. Cheung
The Open University of Hong Kong
Hong Kong
SAR China

Lam-for Kwok
City University of Hong Kong
Hong Kong
SAR China

Junjie Shang
Peking University
Beijing
China

Aihua Wang
Peking University
Beijing
China

Reggie Kwan
Caritas Institute of Higher Education
Hong Kong
SAR China

ISSN 0302-9743 ISSN 1611-3349 (electronic)
Lecture Notes in Computer Science
ISBN 978-3-319-41164-4 ISBN 978-3-319-41165-1 (eBook)
DOI 10.1007/978-3-319-41165-1

Library of Congress Control Number: 2016942031

LNCS Sublibrary: SL1 – Theoretical Computer Science and General Issues

© Springer International Publishing Switzerland 2016
This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.
The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.
The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

This Springer imprint is published by Springer Nature
The registered company is Springer International Publishing AG Switzerland

Preface

Welcome to the 9th International Conference on Blended Learning (ICBL 2016), which was formerly known as International Conference on Hybrid Learning (ICHL). This year, ICBL 2016 was held at Peking University, Beijing, China, during July 19–21, 2016.

Undoubtedly, blended learning or hybrid learning has become one of the promising approaches to teaching and learning. It aims to integrate traditional learning with innovative means, such as e-learning and open online learning, in order to create a new learning environment to enhance learning effectiveness and enrich learning experience. Hybrid learning literally refers to the combination of traditional learning and nontraditional learning. Blended learning emphasizes not only the combination but also the integration of various modes of learning. This aligns with the latest practices in the field, and hence, our conference name changed accordingly.

ICBL 2016 provided a platform for knowledge exchange and experience sharing among the researchers and practitioners in all areas of blended learning. The theme of ICBL 2016 was "Blended Learning: Aligning Theory with Practices." The focus was placed on how the theoretical ideas and concepts of blended learning can be adopted as good education practices to enhance learning effectiveness and enrich learning experience. The conference was included keynote addresses and parallel paper presentations.

This year, we received over 60 paper submissions. After a rigorous review process, 34 papers were selected for inclusion in this volume. The selected papers cover various areas in blended learning, including collaborative and interactive learning, open and flexible learning, content development, assessment and evaluation, pedagogical and psychological issues, and experience, strategies, and solutions of blended learning.

We would like to take this opportunity to thank the following parties who made the conference a success: (a) the conference Organizing Committee; (b) the international Program Committee; (c) the organizers and co-organizers; (d) the sponsors; (e) the publisher of the conference proceedings; and (f) all the conference participants.

We trust you will enjoy reading these papers.

July 2016

Simon K.S. Cheung
Lam-for Kwok
Junjie Shang
Aihua Wang
Reggie Kwan

Conference Organization

Organizing Committee

Honorary Chairs

Xiaoyu Chen	Peking University, China
Horace H.S. Ip	City University of Hong Kong, Hong Kong, SAR China

Conference Chairs

Lam-for Kwok	City University of Hong Kong, Hong Kong, SAR China
Junjie Shang	Peking University, China

Program Chairs

Simon K.S. Cheung	The Open University of Hong Kong, Hong Kong, SAR China
Aihua Wang	Peking University, China
Fu Lee Wang	Caritas Institute of Higher Education, Hong Kong, SAR China

Organization Chairs

Oliver Au	The Open University of Hong Kong, Hong Kong, SAR China
Rong Miao	Peking University, China
John Hui	City University of Hong Kong, Hong Kong, SAR China

Financial Chair

Steven Ng	Caritas Institute of Higher Education, Hong Kong, SAR China

Registration Chairs

Ivan K.W. Lai	Caritas Institute of Higher Education, Hong Kong, SAR China
Shimei Ma	Peking University, China

Local Arrangements Chair

Keith Lee	The Open University of Hong Kong, Hong Kong, SAR China
Ping Li	Peking University, China

Web Masters

Richard Li	City University of Hong Kong, Hong Kong, SAR China
Xiang Li	Peking University, China

International Program Committee

Oliver Au	The Open University of Hong Kong, Hong Kong, SAR China
Jinnong Cao	The Hong Kong Polytechnic University, Hong Kong, SAR China
Kan-Kan Chan	University of Macau, Macau, SAR China
Keith Chan	The Hong Kong Polytechnic University, Hong Kong, SAR China
Chih-Tsan Chang	National Chung Cheng University, Taiwan
Giuliana Dettori	Istituto di Tecnologie Didattiche del CNR, Italy
David Delahunty	University of Oulu, Finland
Robert Emrich	Pepperdine University, USA
Min Eng	University of Toronto, Canada
Joseph Fong	Caritas Institute of Higher Education, Hong Kong, SAR China
Bob Fox	University of New South Wales, Australia
Wolfgang Halang	Fernuniversität in Hagen, Germany
Owen Hall Jr.	Pepperdine University, USA
Andreas Henrich	University of Bamberg, Germany
Yoko Hirata	Hokkai-Gakuen University, Japan
Yoshihiro Hirata	Hokkai-Gakuen University, Japan
Jenq-Muh Hsu	National Chiayi University, Taiwan
Douglas Jarrell	Nagoya Women's University, Japan
Le Jun	Guangdong Radio and TV University, China
Reggie Kwan	Caritas Institute of Higher Education, Hong Kong, SAR China
Lam-for Kwok	City University of Hong Kong, Hong Kong, SAR China
Ivan K.W. Lai	Caritas Institute of Higher Education, Hong Kong, SAR China
Jeanne Lam	HKU School of Professional and Continuing Education, SAR China
Yan Li	Zhejiang University, China
Yi Li	Nanjing University, China
Will Ma	Hong Kong Shue Yan University, Hong Kong, SAR China
Kousuke Mouri	Kyushu University, Japan
Hiroaki Ogata	Kyushu University, Japan
Diana Perez-Marin	Universidad Rey Juan Carlos, Spain
Junjie Shang	Peking University, China
Fu Lee Wang	Caritas Institute of Higher Education, Hong Kong, SAR China
You Ru Xie	South China Normal University, China
Harrison Hao Yang	State University of New York at Oswego, USA
Liming Zhang	University of Macau, Macau, SAR China

Organizers

Peking University

City University of Hong Kong

Co-Organizers

Caritas Institute of Higher Education

Hong Kong Society for Multimedia and Image Computing

Sponsors

Hong Kong Pei Hua Education Foundation

Keynote Speakers

Li Chen
Beijing Normal University, China
Professor Li Chen is a PhD supervisor. She is a Vice President of Beijing Normal University and the Executive Director of Beijing Institute for the Learning City at Beijing Normal University. She is the President of the Society of International Chinese in Educational Technology, and the President of China Association for ICT in Education for K12. Professor Chen is the leader of Master's and PhD programs on Distance Education at Beijing Normal University. Her research is mainly focusing on interaction principle in distance education and the policy research in lifelong learning. She has authored and published more than 10 books and 100 papers. Professor Chen is deeply engaged in policy consulting in distance education and lifelong learning.

Owen P. Hall Jr.
Pepperdine University, USA
Professor Hall received his PhD from the University of Southern California. He holds the Julian Virtue Professorship and has more than 35 years of academic and industry experience in computer decision systems and technological forecasting. He authored numerous technical papers and several books on computer-based management decision systems. The founder of a high-technology sensor company, Professor Hall has also served on several government panels and corporate boards. Honoured as a Harriet and Charles Luckman Distinguished Teaching Fellow, he has been involved in developing the Graziadio School's entrepreneurial and e-learning programs. His current area of research includes the application of artificial intelligent tutors and integrated blended learning to management education. Professor Hall is a registered professional engineer, State of California and is a member of the Beta Gamma Sigma Honour Society. He is the former Editor-in-Chief of the Graziadio Business Report. He was honoured with the Howard A. White and Sloan Teaching Excellence Awards.

Horace H.S. Ip
City University of Hong Kong, China
Professor Ip is the Vice-President in Student Affairs and a Chair Professor of Computer Science at City University of Hong Kong. He has a BSc in Applied Physics and PhD in Image Processing from University College, London, United Kingdom. His research interests include multimedia content analysis and retrieval, and virtual reality for education. Professor Ip's research has won many awards including Prix Ars Electronica, and a Gold Medal of the Geneva Salon International Des Inventions. He has published over 300 papers in international journals and conference proceedings. Professor Ip is a Fellow of the Hong Kong Institution of Engineers, a Fellow of the Institution of Engineering and Technology, a Fellow of the British Computer Society and a Fellow of the International Association for Pattern Recognition.

Zhuzhu Wang
National Center for Educational Technology, Ministry of Education, China
While leading the National Center for Educational Technology and the National Resource Center for Basic Education for the Ministry of Education (MoE), Professor Zhuzhu Wang is also an Adjunct Professor of East China Normal University and Peking University. Her research interests fall in areas of ICT in basic education and distance education in China. Professor Wang has led many national and MoE key projects, organized or participated in the planning and implementation of national major projects in distance education and ICT in education. She published numerous research papers and the book *Theory and Practice of Project Management in Distance Education*, introducing project management theories in distance education in China.

Harrison Hao Yang
State University of New York at Oswego, USA
Professor Harrison Yang received his Doctor of Education from Florida International University. In addition to his appointment at State University of New York at Oswego (SUNY Oswego), he is the Dean of the School of Educational Information Technology at Central China Normal University. Professor Yang's research specialties include assessment and e-folios, distance/flexible education, information literacy, information technology diffusion/integration, learning theories, issues and trends on vocational-technical education, and Web/learning communities. Professor Yang is the recipient of the SUNY Oswego President Award of Teaching Excellence (2006).

Contents

Collaborative and Interactive Learning

Investigating Collaborative Learning Effect in Blended Learning Environment by Utilizing Moodle and WeChat 3
Ruixue Liu and Changdi Shi

Writing Collaboratively Via WIKI: An English Teaching Study 14
Xiaobin Liu, Jianli Jiao, and Jieling Chen

A Study of Scientific Inquiry Activities in Smart Classrooms of a Primary School 24
Wei Li, Lam-for Kwok, Shaoqin Wu, and Miaoshan Ni

Developing the 3G3L Instructional Model for Primary Chinese Supported by E-Schoolbag 37
Wenqing Pan, Jinhui Guo, Wei Li, and Yang Yang

Collaborative Teaching Approaches: Extending Current Blended Learning Models 49
Harrison Hao Yang, Sha Zhu, and Jason MacLeod

Content Development

Investigating the Effects of Visual Cues in Multimedia Instruction Using Eye Tracking 63
Heng Luo, Tiffany Koszalka, and Mingzhang Zuo

Microlessons in Chinese Universities: Concepts, Technology, and Case Analyses 73
Guodong Zhao, Bingyi Wang, Jinglu Liu, and Jingxing Wang

Designing Effective Materials and Activities for Mobile Augmented Learning 85
Min Chen, Chao Fan, and Di Wu

Virtual Reality Enabled Training for Social Adaptation in Inclusive Education Settings for School-Aged Children with Autism Spectrum Disorder (ASD) 94
Horace H.S. Ip, Simpson W.L. Wong, Dorothy F.Y. Chan, Julia Byrne, Chen Li, Vanessa S.N. Yuan, Kate S.Y. Lau, and Joe Y.W. Wong

Open and Flexible Learning

Adaptive E-Learning Textbook Evaluation Methods 105
Jana Šarmanova and Katerina Kostolányova

Research of Learning Strategies in Flipped Classroom a Case of Extra-Curricular English Study 118
Rong Miao and Ximei Qu

Dealing with Ethical Issues in MOOC Design and Delivery: A Case Study . . . 128
Heng Luo, April Millet, Richard Alley, and Mingzhang Zuo

Research on How to Use OUC Cloud Classroom to Assist Education Development in Tibet 139
Shaogang Zhang, Shunping Wei, Guoxi Zhou, and Lina Wang

The Open Textbooks for Hong Kong: From Conceptualization to Implementation 150
Simon K.S. Cheung

Assessment and Evaluation

Proposal and Evaluation of an SNS-Based Model for Learning of English as a Foreign Language 163
Jun Ge, Cai-Ping Xiong, and Ya-Ping Xiong

A Study on Non-english Majors' Cognitive Adaptation and Learning Performance in Flipped Classroom 175
Yuxia Zhou, Xiaoyan Qiao, and Hongxia Zhang

Connected Classroom Climate in Hybrid Classroom: Model and Comparison 187
Juan Xu, Harrison Hao Yang, and Jason MacLeod

Promoting Students' Engagement? Flipped Classroom Matters a Lot – An Empirical Research in College 196
Lili Chen, Xiaodong Wang, Jiachun Li, Hanzong Bao, and Gaimei Ren

Metamodel for Evaluating the Performance of ICT in Education 207
Yunxiang Zheng and Youru Xie

Pedagogical and Psychological Issues

Blended Learning: Beyond Technology to Pedagogical Structure Design 221
Liru Hu

Exploring the Relationship Between Social Media, Collaborative Learning and Learners' Satisfaction 233
Jing Hin Lam and Will Wai-Kit Ma

Improvement Strategies of Pupils' Self-Efficacy in Smart Learning Environment – A Case Study 246
Youru Xie, Chuangxin Sheng, Yubao Yang, Jiewen Zuo, Lihong Wu, and Xiaotong Yang

Investigating Factors Influencing K-12 Teachers' Intention to Integrate Mobile Devices in Teaching 258
Sha Zhu, Hongjing Qiu, Harrison Hao Yang, and Yi Zhang

User Evaluation of Language Websites as a Way of Students' Engagement into Blended Learning Process Case Study 269
Miloslava Černá

Experience in Blended Learning

Enhancing the Blended Learning Experience Through Crowdsourcing: Applications to Management Education 283
Owen Hall and Michael L. Williams

Convergence and Divergence in Blended Learning 292
Jianrong Sun

The Blended Learning Concept: Comparative Study of Two Universities 302
Ivana Simonova and Katerina Kostolanyova

A Framework to Promote ICT in K-12 Education in Developing Countries: A Case Study in Sudan 312
Adam Tairab, Ronghuai Huang, Ting-Wen Chang, and Lanqin Zheng

Practice and Prospect Analysis of Blended Learning in Primary and Middle Schools in China 324
Zhuzhu Wang and Lu Li

Strategies and Solutions

Blending Smart Phones into Regular Classroom Learning 337
Jiyou Jia and Zhenzhen Chen

Action Research on Visualization Learning of Mathematical Concepts Under Personalized Education Idea: Take Learning of Geometrical Concepts of Elementary Math for Example 348
Ningwei Sun, Kedong Li, and Xuefang Zhu

The Augmented Hybrid Graph Framework for Multi-level E-Learning Applications 360
Di Zou, Haoran Xie, Tak-Lam Wong, Fu Lee Wang, and Qingyuan Wu

Research on Approach of Improving Teaching Quality and Promoting Equity by the Integration of Information Technology and Subject Teaching 371
Shaochun Zhong

Application of VR Glasses in Blended Classroom Teaching with the Combination of Virtual and Real Worlds 379
Ling He, Rui Li, and Junjie Shang

Author Index 387