

ICOIE 2017 International Conference on Open and Innovative Education



PROGRAMME & ABSTRACTS OF PAPERS

12–14 July 2017

Jockey Club Campus
The Open University of Hong Kong
Hong Kong SAR

Organizer:



香港公開大學
THE OPEN UNIVERSITY
OF HONG KONG

政府創辦·多元創新

Government established · Diversified and innovative



開放及創新教育研究所
Institute for Research in
Open and Innovative Education

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The organizer reserves the right to amend the programme as and when necessary.

Message from the President, The Open University of Hong Kong



Prof. Yuk-Shan Wong
President
The Open University of Hong Kong

I am very pleased to welcome you to the Open University of Hong Kong (OUHK). As the organizer of the 2017 International Conference on Open and Innovative Education (ICOIE 2017) — the fourth in the series — I am certain that you will benefit from your participation. I would also like to encourage you to take part in the Open and Innovative Education Week, which features a broad range of scholarly events by renowned experts in the field.

The OUHK has been providing open and distance education in Hong Kong for 28 years. In addition to distance learning students, the University has students in the face-to-face, blended learning and e-learning modes of study, ranging from undergraduate to postgraduate levels. This Conference reflects the University's mission — to make higher education available to all, principally through open and flexible learning. We are committed to organizing this annual event to bring together global experts, researchers and educators from both open and conventional education institutions for exchange, advancement and collaboration on open and innovative education.

The adoption of new technologies and innovative practices in education has become ever more prevalent across the globe, and is bringing about a paradigm shift in contemporary education. For example, the greatly increased attention paid to learning analytics, and the widespread use of mobile devices for learning in recent years, manifest the evolving environment of education. As education providers, we are facing a pressing need to keep abreast of such developments and use them effectively to advance learning and teaching. This Conference serves as an excellent platform for capitalizing on our diverse strengths and building on our common commitments, so that, together, we can realize the potential of technological advances in education and enhance educational access and quality.

I am certain that, as in the last three years, this Conference will be successful in promoting advances and providing solutions to the challenges in the field. In this international event — with authors of papers from 28 countries — I hope that you will have fruitful discussion and build professional relationships. Finally, I would like to thank the ICOIE 2017's Organizing Committee for its enthusiastic work; and I also thank you for participating and wish you a fruitful time in exploring Hong Kong.

Message from the Chair, Conference Organizing Committee



Dr K C Li
Chair
Conference Organizing Committee
Director
University Research Centre
The Open University of Hong Kong

The educational landscape is undergoing significant changes. Learning is becoming more and more open, and the emergence of new modes of e-learning and teaching brings opportunities for both open and conventional higher education institutions to open their borders to the outside world. As institutions across the globe move to more open and flexible delivery of education, it is necessary for us to prepare ourselves for transforming our practices and keep identifying effective ways for changing our institutions. To this end, in 2014, we started an annual conference series — the International Conference on Open and Flexible Education. With the establishment of the Institute for Research in Open and Innovative Education (IROPINE) at the OUHK last year, the Conference has been renamed the International Conference on Open and Innovative Education (ICOIE).

In this Conference, we are honoured to have renowned scholars to deliver keynote speeches and workshops on MOOC, social learning, learning analytics, pedagogical innovation and mobile learning. They include Professor Siu Cheung Kong from the Education University of Hong Kong; Professor Mike Sharples from the UK Open University; Professor Nancy Law from the University of Hong Kong; and Dr Eva Tsang from the Open University of Hong Kong. There are also Distinguished Professor lectures and plenary sessions in the Open and Innovative Education Week which is open to participants in ICOIE 2017. Esteemed speakers who will share their valuable experience and ideas include Professor Dragan Gašević from the University of Edinburgh; Professor Gwo-Jen Hwang from the National Taiwan University of Science and Technology; and Dr Pedro Isaias from the University of Queensland.

To recognize the best contributions to open and innovative education, we will present one Best Paper Award and a number of Excellent Paper Awards to papers of outstanding quality. The Conference also includes the Innovative Practices Award Competition for showcasing exemplary practices. Given the quality of the papers and practices, as in past years, the two judging panels will have difficulty in choosing the winners, and I look forward to exciting work from the awardees.

I would like to thank members of the Organizing Committee and Programme Committee for their professional inputs and diligent work. I also wish to express my sincere gratitude to the President of the OUHK and IROPINE members for their support, as well as to colleagues who have been involved in making this Conference a success. Lastly, I would like to thank each of you for participating in ICOIE 2017 and bringing your expertise to the Conference. I hope to see you again next year.

Committees

Organizing Committee

Chair:	Dr K C LI	The Open University of Hong Kong
Vice-chair:	Dr Eva Y M TSANG	The Open University of Hong Kong
Members:	Dr K S YUEN	The Open University of Hong Kong
	Mr Alex J W WONG	The Open University of Hong Kong
	Dr Franklin S S LAM	The Open University of Hong Kong
	Prof. Robin R W YANG	The Open University of Hong Kong
	Prof. Andrew K F LUI	The Open University of Hong Kong
	Dr Simon C LAM	The Open University of Hong Kong
	Dr C W TAM	The Open University of Hong Kong
	Dr William K W TANG	The Open University of Hong Kong
	Dr Samuel P M CHOI	The Open University of Hong Kong

Programme Committee

Chair:	Dr K C LI	The Open University of Hong Kong, China
Vice-chair:	Dr Eva Y M TSANG	The Open University of Hong Kong, China
Members:	Dr Zahid MAJEED	Allama Iqbal Open University, Pakistan
	Prof. Mohamed ALLY	Athabasca University, Canada
	Prof. Rory MCGREAL	Athabasca University, Canada
	Prof. Li CHEN	Beijing Normal University, China
	Dr Shuang LI	Beijing Normal University, China
	Prof. Philips WANG	Caritas Institute of Higher Education, China
	Prof. Kiyoshi NAKABAYASHI	Chiba Institute of Technology, Japan
	Dr Anuchai THEERAROUNGCHAISRI	Chulalongkorn University, Thailand
	Dr Ishan Sudeera ABEYWARDENA	Commonwealth of Learning, Canada
	Dr Hiroshi KAWAHARA	Cyber University, Japan
	Dr Matthew PISTILLI	Iowa State University, United States
	Prof. Hiroaki OGATA	Kyushu University, Japan
	Prof. Gwo-Jen HWANG	National Taiwan University of Science and Technology, Taiwan
	Dr Farideh MASHAYEKH	Pedagogy.Ir, Iran
	Dr Anatolij GRUZD	Ryerson University, Canada
	Prof. Bebo WHITE	SLAC National Accelerator Laboratory, United States
	Dr Giuliana DETTORI	The Istituto di Tecnologie Didattiche del CNR, Italy
	Dr Samuel P M CHO	The Open University of Hong Kong, China
	Ms Baljit KAUR	The Open University of Hong Kong, China
	Dr Franklin S S LAM	The Open University of Hong Kong, China
	Dr Simon C LAM	The Open University of Hong Kong, China
	Dr Mei Kuen LI	The Open University of Hong Kong, China
	Prof. Andrew K F LUI	The Open University of Hong Kong, China
	Dr C W TAM	The Open University of Hong Kong, China
	Dr William K W TANG	The Open University of Hong Kong, China
	Mr Alex J W WONG	The Open University of Hong Kong, China
	Dr Billy Tak-Ming WONG	The Open University of Hong Kong, China
	Dr Wendy Wing Chi WONG	The Open University of Hong Kong, China
	Prof. Robin R W YANG	The Open University of Hong Kong, China
	Dr K S YUEN	The Open University of Hong Kong, China
	Dr Yosuke MORIMOTO	The Open University of Japan, Japan
	Prof. Tsuneo YAMADA	The Open University of Japan, Japan
	Dr Shironica KARUNANAYAKA	The Open University of Sri Lanka, Sri Lanka
	Dr Alan BRUCE	Universal Learning Systems, Ireland
	Dr Daryono DARYONO	Universitas Terbuka, Indonesia
	Dr Kristanti PUSPITASARI	Universitas Terbuka, Indonesia
	Prof. Dragan GAŠEVIĆ	University of Edinburgh, United Kingdom
	Prof. Bob FOX	University of New South Wales, Australia
	Prof. Shane DAWSON	University of South Australia, Australia
	Prof. Patricia ARINTO	University of the Philippines Open University, the Philippines
	Prof. Melinda BANDALARIA	University of the Philippines Open University, the Philippines
	Dr Juvy Lizette GERVACIO	University of the Philippines Open University, the Philippines
	Dr Jean SALUDADEZ	University of the Philippines Open University, the Philippines
	Dr Rizwan SALEEM	Virtual University of Pakistan, Pakistan
	Dr Muhammad ZAHEER	Virtual University of Pakistan, Pakistan
	Prof. Phalachandra BHANDIGADI	Wawasan Open University, Malaysia

About the Conference

The Open University of Hong Kong (OUHK) has been actively organizing and co-organizing international events to promote and facilitate academic sharing in open and innovative education for more than a decade. In 2014, we started a new annual conference series — International Conference on Open and Flexible Education (ICOFE). With the OUHK's recent establishment of the Institute for Research in Open and Innovative Education (<http://iropine.ouhk.edu.hk/>), the series has been renamed International Conference on Open and Innovative Education (ICOIE).

Openness and innovation are major trends in contemporary education, influencing the whole spectrum of education institutions across the globe. Technological advancement and breakthroughs are bringing about a paradigm shift in contemporary education. Modes of learning and teaching are becoming more open and innovative in terms of time, space, curriculum contents, organization, pedagogical methods, infrastructure and requirements. This change does not only happen in open universities, but also conventional tertiary institutions, as well as schools. With this background, the OUHK has organized the annual conferences on open and innovative education with the following aims:

- provide a platform for sharing research, practices and views relevant to open and innovative education;
- facilitate networking and cross-institutional collaboration among researchers and educators in both open and conventional universities; and
- promote open and innovative education to enhance educational access and quality.

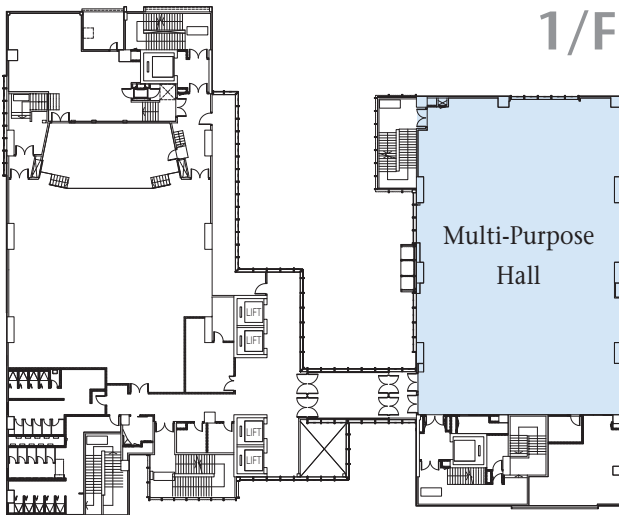
Themes of conference papers include the following:

- 1 Pedagogical innovations;
- 2 Innovations in educational technology;
- 3 Innovations in curriculum development;
- 4 Mobile and ubiquitous learning;
- 5 Open education;
- 6 Engaging students and learning design;
- 7 Social media and technology-mediated learning communities;
- 8 Open educational resources and MOOCs;
- 9 Academic analytics;
- 10 Innovative approaches to higher education management; and
- 11 Other topics relevant to the conference.

Jockey Club Campus, The Open University of Hong Kong

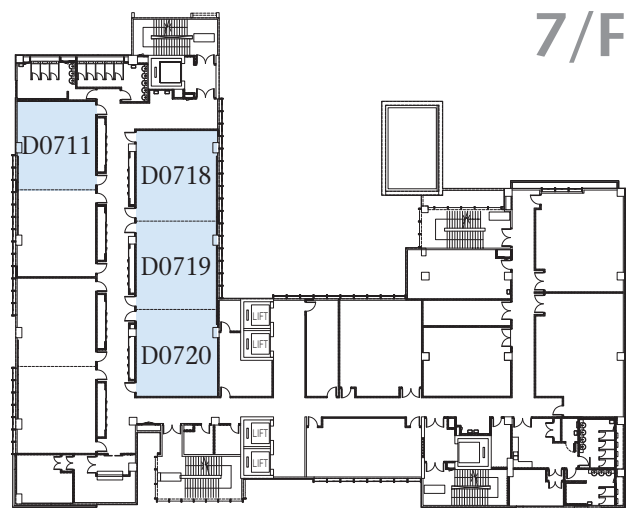


 Wi-Fi Internet access is available throughout the OUHK campus.
Wi-Fi Username: WIFI2017 Password: OUHK2017



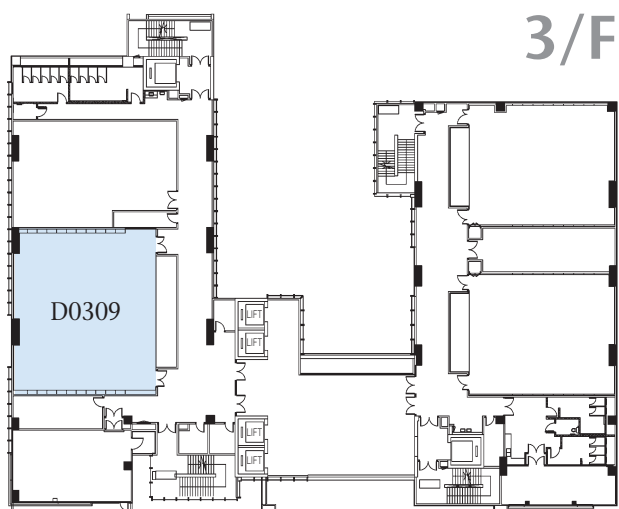
Multi-Purpose Hall (1/F, JCC)

- Registration
- Opening Ceremony
- Keynote Sessions
- Coffee, refreshments and networking
- Plenary Sessions
- Plenary Forums
- Lunches
- Dinners
- Distinguished Professor Lectures
- Closing Ceremony



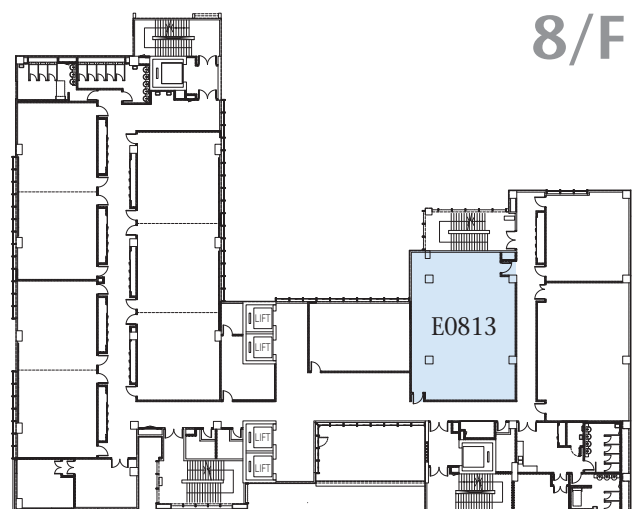
D0711, D0718, D0719, D0720 (7/F, JCC)

- Parallel Paper Presentation Sessions
- Conference Workshops
- Presentations on Innovative Practices



D0309 (3/F, JCC)

- Pre-conference Registration
- Pre-conference Workshop / Distinguished Professor Lecture



E0813 (8/F, JCC)

- Conference Workshop

Programme

**11 JUL
2017**
TUESDAY

Pre-conference Event

15:30–16:00	Registration	Foyer, D0309, 3/F
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16:00–17:30	Pre-conference Workshop / Distinguished Professor Lecture	D0309, 3/F
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Critical Dimensions for Maximizing Impact of Learning Analytics

Speaker

Prof. Dragan Gašević

Chair in Learning Analytics and Informatics

Moray House School of Education and

School of Informatics

University of Edinburgh

Please refer to p.25 for details.

DAY 1
**12 JUL
2017**
WEDNESDAY

13:30–14:30	Registration	Multi-purpose Hall, 1/F
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14:30–15:00	Opening Ceremony	Multi-purpose Hall, 1/F
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Welcoming Remarks

Prof. Yuk-Shan Wong

President

The Open University of Hong Kong

Opening Address

Dr Kam Cheong Li

Chair, Organizing Committee

Programme



15:00–16:00 Keynote Session I Multi-purpose Hall, 1/F

Development of a MOOC for Teacher Professional Development in Mathematics Education

Speaker

Prof. Siu Cheung Kong

Professor of the Department of Mathematics and Information Technology

Director of Centre for Learning, Teaching and Technology

The Education University of Hong Kong

Please refer to p.19 for details.

Chairperson

Prof. Andrew Lui The Open University of Hong Kong

16:00–16:30 Coffee, refreshments and networking Multi-purpose Hall, 1/F

16:30–18:00 Parallel Paper Presentation Session I D0718, D0719, 7/F
Please refer to p.14 for details.

Conference Workshop I D0720, 7/F

Innovating Pedagogy

Speaker

Prof. Mike Sharples

Chair and Professor in Educational Technology

Institute of Educational Technology

The Open University

Please refer to p.24 for details.

18:00–18:45 Welcome Dinner Multi-purpose Hall, 1/F

18:45–19:45 Plenary Session I Multi-purpose Hall, 1/F

Devising and Implementing a Student Dashboard at a Renowned University

Speaker

Prof. Pedro Isaias

Associate Professor

Institute for Teaching and Learning Innovation

The University of Queensland

Please refer to p.22 for details.

Chairperson

Dr Manfred Wu The Open University of Hong Kong

Programme



08:30–09:00	Registration	Multi-purpose Hall, 1/F
09:00–10:30	Parallel Paper Presentation Session II <i>Please refer to p.15 for details.</i>	D0711, D0718, D0719, 7/F
10:30–11:00	Coffee, refreshments and networking	Multi-purpose Hall, 1/F
11:00–12:00	Keynote Session II	Multi-purpose Hall, 1/F

Social Learning at Massive Scale

Speaker

Prof. Mike Sharples

Chair and Professor in Educational Technology

Institute of Educational Technology

The Open University

Please refer to p.20 for details.

Chairperson

Prof. Andrew Lui The Open University of Hong Kong

12:00–13:00	Plenary Forum I	Multi-purpose Hall, 1/F
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Promoting MOOCs in Asia: Issues of Quality and Credit Transfer

Speakers

Prof. Melinda Bandalaria (President, Asian Association of Open Universities, and Chancellor, The University of the Philippines Open University)

Prof. Kandarpa Das (Former Director, Institute of Open and Distance Learning, Gauhati University)

Dr Kam Cheong Li (Director, University Research Centre, Open University of Hong Kong)

Dr Andy Liew (Registrar cum Director of Quality Assurance and External Relations, Wawasan Open University Malaysia)

Prof. Tsuneo Yamada (Professor and Chair, Department of Informatics, Open University of Japan)

13:00–14:00	Lunch	Multi-purpose Hall, 1/F
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Programme



14:00–15:00	Parallel Paper Presentation Session III <i>Please refer to p.16 for details.</i>	D0718, D0719, 7/F
	Presentations on Innovative Practices	D0711, 7/F
15:00–16:30	Parallel Paper Presentation Session IV <i>Please refer to p.17 for details.</i>	D0711, D0718, D0719, 7/F
16:30–17:00	Coffee, refreshments and networking	Multi-purpose Hall, 1/F
17:00–18:00	Plenary Forum II	Multi-purpose Hall, 1/F

Making Education More Open and Innovative

Forum Facilitator

Prof. Reggie Kwan

Vice President (Academic)

The Open University of Hong Kong

Speakers

Prof. Dr Mansor Fadzil (President/ Vice-Chancellor,
Open University Malaysia)

Prof. Bob Fox (Academic Lead (Curriculum), Office of the
Pro-Vice-Chancellor (Education), UNSW Sydney)

Prof. Gwo-Jen Hwang (Chair Professor, Graduate Institute
of Digital Learning and Education, and Dean,
College of Liberal Arts and Social Science,
National Taiwan University of Science and Technology)

18:00–18:45	Dinner	Multi-purpose Hall, 1/F
18:45–19:45	Plenary Session II	Multi-purpose Hall, 1/F

Using a Risk Management Model for Curriculum and Program Quality Enhancement

Speaker

Prof. Pedro Isaias

Associate Professor

Institute for Teaching and Learning Innovation

The University of Queensland

Please refer to p.23 for details.

Chairperson

Dr Samuel Choi The Open University of Hong Kong

Programme



09:00–09:30	Registration	Multi-purpose Hall, 1/F
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09:30–11:00	Parallel Paper Presentation Session V <i>Please refer to p.18 for details.</i>	D0718, D0719, 7/F
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	Conference Workshop II	E0813, 8/F
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Mobilizing Your Class: Pedagogical Strategies for Integrating Mobile Technology in Teaching and Learning

Speaker

Dr Eva Tsang

Director, Educational Technology and Publishing

The Open University of Hong Kong

Please refer to p.24 for details.

11:00–11:30	Coffee, refreshments and networking	Multi-purpose Hall, 1/F
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11:30–12:30	Keynote Session III	Multi-purpose Hall, 1/F
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Bridging Learning Analytics to Learning Design through a Pattern Language Based Learning Design Studio

Speaker

Prof. Nancy Law

Professor, Division of Information and Technology Studies

Faculty of Education

The University of Hong Kong

Please refer to p.21 for details.

Chairperson

Prof. Andrew Lui The Open University of Hong Kong

12:30–13:15	Lunch	Multi-purpose Hall, 1/F
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Programme

DAY 3
14 JUL
2017
FRIDAY

13:15–14:30	Distinguished Professor Lecture E-learning and Innovative Education – Strategies of Adding Innovations and Values to Educational Research Speaker Prof. Gwo-Jen Hwang Chair Professor, Graduate Institute of Digital Learning and Education and Dean, College of Liberal Arts and Social Sciences National Taiwan University of Science and Technology <i>Please refer to p.26 for details.</i> Chairperson Dr Simon Lam The Open University of Hong Kong	Multi-purpose Hall, 1/F
14:30–15:00	Closing Ceremony with Award Presentation Closing Remarks Prof. Reggie Kwan Vice President (Academic) The Open University of Hong Kong Closing Address Dr Eva Tsang Vice-chair, Organizing Committee	Multi-purpose Hall, 1/F

Highlighted sessions are events taking place in parallel. They are substantially supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China. (UGC/IDS16/15)

Parallel Paper Presentation Session I

D0718	D0719
Innovations in educational technology	Engaging students and learning design
<p>The Use of a Web-based Project Management Tool in Implementing an Education Development Programme Emely M. Amoloza University of the Philippines Open University Los Baños, the Philippines</p> <p style="text-align: right;">p.29</p>	<p>A Maker Approach to Teaching Operating Systems with Raspberry Pi Wing-Kwong Wong National Yunlin University of Science & Technology Douliu, Taiwan</p> <p style="text-align: right;">p.34</p>
<p>Clustering Short Answers for Efficient and Scalable Grading: Acceptable Heterogeneity in a Cluster Andrew K.F. Lui, Calvin Yiu-Chuen Tsui, Mang-Kwan Cheng and Ka-Wai Lai The Open University of Hong Kong Hong Kong SAR, China</p> <p style="text-align: right;">p.29</p>	<p>Technologies Used in Online Cooperative Learning for Database Students Mari Anjeli B.Lubrica University of the Philippines Open University Los Baños, the Philippines</p> <p style="text-align: right;">p.34</p>
<p>Analysing the Role of an Online System in Reducing Learners' Transactional Time in an Open and Distance E-learning (ODEL) Environment: A Landscape Connectivity Perspective Alvie Simonette Q. Alip, Ricardo T. Bagarinao, Percia V. Secretro and Rhodora L. Pamulaklakin University of the Philippines Open University Los Baños, the Philippines</p> <p style="text-align: right;">p.30</p>	<p>Evaluation of Nursing Students' Learning Feedback on the Implementation of 3D-based Learning in Anatomy and Physiology in Hong Kong Gary Long Hei So, Simon Wing Lung Yau, Amanda Wan Yee Chan, Karen Ka Man Cheung, Isobel Hoi Ki Yeung, Victor Ming Ho Lau and Ka Fai Wong The Open University of Hong Kong Hong Kong SAR, China</p> <p style="text-align: right;">p.35</p>
<p>Visual Space: A Virtual Reality Application for Visual Art Education Lot-Hymn Cheung, Wing-Hong Lam, Sze-Wai Wong, S.C. Ng and Andrew Lui The Open University of Hong Kong Hong Kong SAR, China</p> <p style="text-align: right;">p.30</p>	<p>Reshaping the Way We Learn and Teach: an OUHK Mobile Learning Initiative Eva Y. M. Tsang and Henry M. F. Choi The Open University of Hong Kong Hong Kong SAR, China</p> <p style="text-align: right;">p.35</p>
<p>How Creative Use of Web-based Applications Enriches Students' Classroom Learning Experience: A Case Study of a University English Writing Course Dennis Fong The Hong Kong Polytechnic University Hong Kong SAR, China</p> <p style="text-align: right;">p.31</p>	<p>The Use of E-learning and Flipped Classroom Components for Science Teaching Ka-chai Siu, Alex Wong, Hiu-dan Cheung, Ming Yin Chan, Wynants Ho and Kim-hung Lam Hong Kong Polytechnic University Hong Kong SAR, China</p> <p>Chung-hin Chui Hong Kong Baptist University Hong Kong SAR, China</p> <p style="text-align: right;">p.36</p>
<p>Applied Research on a Peer Assessment System in a Flipped Class Ruijun Ding and Helan Wu Tongji University Shanghai, China</p> <p style="text-align: right;">p.31</p>	

Parallel Paper Presentation Session II

D0711	D0718	D0719
Innovations in curriculum development	Open education	Engaging students and learning design
<p>A Course Design Investigation and Trial on Self-regulated Learning Using Video Content and Online Report Submission Kiyoshi Nakabayashi Chiba Institute of Technology Chiba, Japan</p> <p style="text-align: right;">p.41</p>	<p>Pedagogical Agent-based Cognitive Architecture for an Intelligent Virtual Laboratory Cloud-based HCI E-learning Environment Saima Munawar and Muhammad Hamid Virtual University of Pakistan Lahore, Pakistan Saba Khalil Toor Lahore Garrison University Lahore, Pakistan Muhammad Aslam University of Engineering Technology Lahore, Pakistan A.M. Martinez Enriquez CINVESTAV-IPN, Mexico</p> <p style="text-align: right;">p.46</p>	<p>Facilitating Adults' Engagement and Collaboration with the LDA Scheme in an Online Wiki Learning Project Shu-chiu Hung Mingchuan University Taipei City, Taiwan Xiangyang Zhang Open University of Jiangsu Nanjing, China</p> <p style="text-align: right;">p.38</p>
<p>Enhancing the Learning Environment of Undergraduate Physics Laboratories to Stimulate Students' Scientific Inquiry Processes Gregory P. Thomas and Al Meldrum The University of Alberta Edmonton, Canada</p> <p style="text-align: right;">p.41</p>	<p>Curriculum Transformation in Action: Designing an Open Learning Environment Unit on Student Leadership Rebecca Johnke The University of Sydney Sydney, Australia</p> <p style="text-align: right;">p.46</p>	<p>Reaching the Unreached through Online Delivery: Issues and Challenges Prakash V. Arumugam Wawasan Open University Pulau Pinang, Malaysia</p> <p style="text-align: right;">p.38</p>
<p>Engaging students and learning design</p>	<p>The Shortest Learning Sequence Using Item Response Theory</p>	<p>A Preliminary Analysis of the Perceptions of Learning Experiences in the Student Population from Linguistically and Culturally Diverse Backgrounds: A Case Study on a Post-secondary College in Hong Kong</p>
<p>An Online Community-Based Flipped Classroom Approach to Improving EFL Students' English Speaking Performances Using Mobile Technologies Chi-Jen Lin and Gwo-Jen Hwang National Taiwan University of Science and Technology Taipei, Taiwan</p> <p style="text-align: right;">p.36</p>	<p>Amy Lyn M. Maddalora and Melvin A. Ballera AMA University Metro Manila, the Philippines</p> <p style="text-align: right;">p.47</p>	<p>John C.T. Chow, David W. K. Chu and Jette C. H. Tsoi Caritas Institute of Higher Education Hong Kong SAR, China</p> <p style="text-align: right;">p.39</p>
<p>Harnessing Technology through a Flipped Classroom in Learning Science Fazzlijan Mohamed Adnan Khan Southesat Asian Ministers of Education, Regional Centre for Education in Science and Mathematics (SEAMEO, RECSAM) Penang, Malaysia</p> <p style="text-align: right;">p.37</p>	<p>The Development of Intercultural Competences in Online Environments Inés Gil-Jaurena Universidad Nacional de Educación a Distancia (UNED) Spanish Distance Education University Madrid, Spain</p> <p style="text-align: right;">p.47</p>	<p>Maximizing Feedback in Extra-curricular Learning Charles J. Anderson, Etsuko Kakimoto, Peter Carter, Lucas Rodriguez Luis, Nicholas Bovee and Kaori Miura Kyushu Sangyo University Fukuoka, Japan</p> <p style="text-align: right;">p.39</p>
<p>Validating Student Satisfaction with a Blended Learning Scheme in Universitas Terbuka Maximus Gorky Sembiring Universitas Terbuka Tangerang Selatan, Indonesia</p> <p style="text-align: right;">p.37</p>	<p>Preferences of Learning Styles and Approaches of English Language Teachers Enrolled in an Open University by Gender Nasreen Hussain Institute of Business Management Karachi, Pakistan</p> <p style="text-align: right;">p.48</p>	<p>Implementing Game-making across the School Curriculum: a UK Perspective H. Boulton, T. Hughes-Roberts, D. Brown, J. Tinney, N. Shopland and A. Burton Nottingham Trent University Nottingham, the United Kingdom D. Martinovs and R. Barrett Nottingham Video Arcade Nottingham, the United Kingdom</p> <p style="text-align: right;">p.40</p>
<p>Innovative approaches to higher education management</p>		
<p>Flipped Classroom as an Effective Pedagogy for Supporting Continuing Professional Development for Academics in Higher Education Linda Yin-king Lee The Open University of Hong Kong Hong Kong SAR, China</p> <p style="text-align: right;">p.53</p>		<p>'Expert' Teachers Facilitating Trainee Teachers: Developing Technological Capability Helen Boulton Nottingham Trent University Nottingham, the United Kingdom</p> <p style="text-align: right;">p.40</p>

Parallel Paper Presentation Session III

D0718	D0719
Other topics relevant to the conference	Open educational resources and MOOCs
<p>Awareness and Implications of Colour Vision Deficiency (CVD) in Online Teaching and Learning Eleanor Payawal-Manipol University of the Philippines Open University Los Baños, the Philippines</p> <p style="text-align: right;">p.49</p>	<p>Corporate MOOC Analysis and Application Mode Qihui Chen and Weihang Liu Tongji University Shanghai, China</p> <p style="text-align: right;">p.51</p>
<p>A Study of Learning Recovery-oriented Care through the Internet of Undergraduate Mental Health Nursing Students Hemio C. Y. Lam and Alan Y. K. Tsang The Open University of Hong Kong Hong Kong SAR, China Eric S. H. Yip Community Psychiatric Nurse Service, Kowloon Hospital Hong Kong SAR, China</p> <p style="text-align: right;">p.49</p>	<p>Higher Education Learning Designs Incorporating New Technologies Bob Fox and Mark King The University of New South Wales Sydney, Australia</p> <p style="text-align: right;">p.51</p>
<p>The Coming of Digital Technologies and the Innovative Practice of Qualitative Research Ping-chuan Peng, Kuei-ming Lee and Jieru Nhitam Central University Taoyuan City, Taiwan</p> <p style="text-align: right;">p.50</p>	<p>Pedagogical and Economical Effects of an Education Platform Integrating an Authoring Tool, LMS and Mobile Applications Hiroshi Kawahara Cyber University Fukuoka, Japan</p> <p style="text-align: right;">p.52</p>
<p>Gender Differences in Perceptions of Augmented Reality Among Students of Advanced Computer Systems in the UP Open University Reinald Adrian Pugoy and Rachel Bautista University of the Philippines Open University Los Baños, the Philippines</p> <p style="text-align: right;">p.50</p>	<p>Design and Development of the Interactive M-Learning Resources Based on HTML5 Yanhui Wan, Tiangang Wu and Rui Zhang Tongji University Shanghai, China</p> <p style="text-align: right;">p.52</p>

Parallel Paper Presentation Session IV

D0711	D0718	D0719
Innovations in curriculum development	Innovations in educational technology	Innovations in curriculum development
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<p>Engaging the 'Invisible' Students: Using Multiple Forms of Collaboration in Distance Learning Mihiri Jansz The Open University of Sri Lanka Nugegoda, Sri Lanka Brooke Schreiber City University of New York New York, USA</p> <p style="text-align: right;">p.59</p>	<p>A Review of Mobile Learning Practices in Health-related Disciplines Caroline Y.C. Charm The Open University of Hong Kong Hong Kong SAR, China Gwo-Jen Hwang National Taiwan University of Science and Technology Taipei City, Taiwan</p> <p style="text-align: right;">p.62</p>

Keynote Session I



Prof. Siu Cheung Kong

Professor of the Department of
Mathematics and
Information Technology

Director of Centre for Learning,
Teaching and Technology
The Education University of Hong Kong

Prof. Kong Siu Cheung is Professor of Department of Mathematics and Information Technology, and Director of Centre for Learning, Teaching and Technology at The Education University of Hong Kong. His research interests cover pedagogy in digital classroom; computational thinking education; information literacy education; policy on technology-transformed education; professional development of teacher for learner-centered learning; IT in mathematics education; and IT in science and inquiry-based learning. Prof. Kong has produced 100 academic publications and completed/conducted 71 research projects. Prof. Kong is serving as the Past-President of the Asia-Pacific Society for Computers in Education (APSCE), following his capacities as the President-Elect (2012-2013) and the President (2014-2015) in APSCE. He currently is also the Editor-in-Chief of the international journal *Research and Practice in Technology Enhanced Learning (RPTEL)* and *Journal of Computers in Education (JCE)*. Prof. Kong was also the Convener of “Theory and Practice of Pedagogical Design for Learning in Digital Classrooms”, International Research Network (IRN) under World Educational Research Association (WERA) from December 2012 to December 2015. He is now member of the Assessment and Monitoring Subcommittee of the Quality Education Fund (QEF) of the HKSAR.

Keynote address

Development of a MOOC for Teacher Professional Development in Mathematics Education

Massive Open Online Course (MOOC) is a new trend in higher education and one of the key initiatives on implementing e-Learning. Many universities are offering their top caliber courses through online open-source platforms. The speech shares an experience of developing a MOOC for teacher professional development in mathematics education. The MOOC “E-pedagogy in Mathematics Learning and Teaching” is developed for pre-service and in-service mathematics teachers in school education to prepare them to realize learner-centered learning and cater learner diversity through e-pedagogy in mathematics learning and teaching. The speech shares the practical issues and pedagogical concerns in the planning, development and implementation stages of this MOOC. It first introduces the features of the MOOC for scheduling module structure of the course, sharing courseware and videos of the modules, managing learning assignments and discussions, and tracking learning process by users. It then introduces the design and organization of e-pedagogy course packs in the MOOC, which include topics on five dimensions in primary mathematics and four dimensions in secondary mathematics, for facilitating learners to explore and develop mathematical concepts and computational skills using e-Learning resources and social learning platforms. It finally discusses the implementation of the MOOC with the purpose of offering open enrollment, supporting blended learning and enriching teaching ePortfolio. Recommendations based on this experience will also be discussed for advancing the practice and research on MOOCs for open and innovative learning in higher education.

Keynote Session II



Prof. Mike Sharples
Chair and Professor in
Educational Technology
Institute of Educational Technology
The Open University

Prof. Mike Sharples is Professor of Educational Technology in the Institute of Educational Technology at The Open University, UK. He leads the Minerva project to transform the University's process of course development. He also has a post as Academic Lead for the FutureLearn company. His research involves human-centred design of new technologies and environments for learning. He inaugurated the mLearn conference series and was Founding President of the International Association for Mobile Learning. He is Associate Editor in Chief of IEEE Transactions on Learning Technologies. He is author of over 300 papers in the areas of educational technology, science education, human-centred design of personal technologies, artificial intelligence and cognitive science.

Keynote address

Social Learning at Massive Scale

More than 5 million people have registered to learn for free on the FutureLearn platform. In June 2015, a single course, 'Understanding IELTS' (for people taking the IELTS language exam) offered by the British Council attracted 441,000 registrations, with 271,000 people starting the course. This is the largest-ever gathering of people for an online learning event. Participants on FutureLearn courses report a high degree of satisfaction and on average 30% of participants engage in discussions (compared to about 12% on other MOOC platforms). Why has learning on FutureLearn been so effective and how can this be extended to other online platforms? The FutureLearn platform has been designed on a pedagogy of 'social learning at massive scale'. The aim has been to develop a new form of online learning that improves with scale. Some type of teaching, such as sports coaching, get worse as more people take part. Some types of teaching, such as lecturing, give much the same experience at any scale. Lecturing at a distance is the foundation for MOOC platforms such as Coursera and edX. The 'social learning' pedagogy of FutureLearn is based on conversations among learners. Each piece of content (e.g., video, article) is linked to a simple conversation which learners can read and then add their comment or reply. Other parts of the course have guided discussions. For assignments, learners are asked to provide a constructive peer review. Thus, learners converse with each other, sharing perspectives and offering comments based on their experience and knowledge. Educators facilitate these discussions by responding to learner comments and asking questions to provoke replies. This method of linking a flow of learner conversations to content has been surprisingly effective. Just one video on the British Council course attracted 65,000 learner comments. Designers of the FutureLearn platform were then faced with the challenge of how to manage this large scale of conversation, so that learners would not feel overwhelmed. They added elements of social networking, including 'liking' comments, 'following' other learners and educators, and filtering comments by 'most liked' and 'following'. In the talk I shall describe the pedagogy of the FutureLearn platform and show how pedagogy-informed design can produce effective learning at massive scale.

Keynote Session III



Prof. Nancy Law

Professor
Division of Information and
Technology Studies
Faculty of Education
The University of Hong Kong

Prof. Nancy Law is a Professor in the Information and Technology Studies Division of the Faculty of Education at the University of Hong Kong. She is the corresponding co-convener for the Science of Learning at the University, and founding honorary director for the Centre for Information Technology in Education (CITE). Her research interests include international comparative studies of technology-enabled learning innovations, models of ICT integration in schools and change leadership, computer supported collaborative learning and the use of expressive and exploratory computer-based learning environments. She has served on a number of policy advisory boards/working groups related to ICT in education for the University of Hong Kong, the Hong Kong government and other community groups. She has also been contributing as expert/consultancy to the European Commission, UNESCO and OECD on various aspects of technology-enhanced learning.

Keynote address

Bridging Learning Analytics to Learning Design through a Pattern Language Based Learning Design Studio

Learning analytics has been attracting much attention as one of the key technology development areas in education. However, much of the literature in this area has been focused on participation and behavior analytics as surrogates for “learning engagement”, without reference to the intended learning outcome goals or the pedagogical design considerations of the teacher. There is a disconnect between those who design learning analytics and visualization tools and the teaching and instructional design communities, which would not be easily bridged without an appropriate platform that can link both activities together. More importantly, there is a lack of a comprehensive learning design language that can adequately capture the design goals to the multiple levels of design from decisions about pedagogical approaches, to activities, social organization and interactions, assessment and feedback, to the design of individual learning resources. In this talk, I will describe ongoing work in a multi-disciplinary and multi-institutional Project involving HKU, HKUST and MIT in the development of *An Open Learning Design, Data Analytics and Visualization Framework for E-learning*. The talk will focus on the open learning design platform being developed in this project, the *Learning Design Studio (LDS)*. LDS is underpinned by a learning design pattern language developed by the team, which encompasses three levels of hierarchically embedded granularity: course, learning unit and learning activity. The use of LDS and the pedagogical design pattern language to capture the design of MOOCs will be illustrated.

Plenary Sessions I & II



Prof. Pedro Isaias
Associate Professor
Institute for Teaching and
Learning Innovation
The University of Queensland

Prof. Pedro Isaias is an Associate Professor at the Institute for Teaching and Learning Innovation (ITaLI), The University of Queensland, Australia. He teaches topics in Management Information Systems (MIS). He has a background in MIS, having obtained a Doctorate in Information Management (Information and Decision Systems speciality) in 2002.

Previously he was Associate Professor at the Universidade Aberta (Portuguese Open University) in Lisbon, Portugal, responsible for several courses and director of the master degree program in Management / MBA. In the past he was director of master degree program in Electronic Commerce and Internet for 10 years. He has also been invited associate professor at ISEG - Lisbon School of Economics and Management in Portugal. He has taught postgraduate and undergraduate courses in Decision Support Systems, Data Mining, Business Intelligence, E-Marketing, E-Business, CRM and ERPs, Applied Project [MIS], Strategy in the Digital Context, and Research Methods in Business. He has supervised successfully to master and PhD completion more than 60 students in MIS and related areas. At the moment he conducts research activity related to E-Commerce and E-Business, Learning Technologies, Information Systems in general, and WWW related areas.

Plenary Session I

Devising and Implementing a Student Dashboard at a Renowned University

Universities usually conduct teaching and learning activities in a traditional way for several hundred years. At The University of Queensland, Brisbane, Australia, the student experience is considered as a key driver of the University's direction and innovation. One of the key aspects of the enhancement of the student experience is building a Student Dashboard.

Planning and developing a Student Dashboard comprises key aspects, challenges and concerns. This workshop will detail the key aspects to be considered. It will address several strategies to respond to the challenges and concerns (i.e. having students as partners for the dashboard development, adopting a staged approach). Finally, this workshop intends to foster a discussion on how the mentioned aspects should be considered for a university to be successful in this particular aspect.

Using a Risk Management Model for Curriculum and Program Quality Enhancement

The use of institutional analytics, with a risk management approach, provides university executives, teaching and administrative staff with relevant and actionable information to make evidence-based decisions in setting strategic priorities and driving performance results. This workshop will discuss how The University of Queensland is using an analytics-driven risk management model to facilitate data-driven decision making. This model is called the CTQRA (Curriculum and Teaching Quality and Risk Appraisal). Alongside with the risk management model, a series of dashboards and reports have also been developed. This is an attempt to provide comprehensive, relevant, and actionable information to key stakeholders to encourage the use of evidence-based practices. The implementation of an online response system acts as an effective means to close the loop of the risk management process and ensure proposed actions are undertaken to drive performance results. The ultimate goal of this risk management approach in curriculum and program quality assurance is to enhance and enrich student learning experience at universities.

Conference Workshops

Conference Workshop I

Innovating Pedagogy

Prof. Mike Sharples

Chair and Professor in Educational Technology
Institute of Educational Technology
The Open University

For the past five years, The Open University has produced annual 'Innovating Pedagogy' reports. These reports highlight trends and innovations in teaching, learning and assessment for a digital age. For the workshop I will highlight some of the new pedagogies, such as 'teachback', 'productive failure', 'formative analytics', 'dynamic assessment', crossover learning', 'embodied learning' and 'bricolage'. Then participants will have an opportunity to explore some pedagogies in more depth and to discuss how they might be applied in their own contexts. The workshop will offer a framework to explore innovations in pedagogy and we will discuss which pedagogies may have a major influence on education over the next ten years.

Conference Workshop II

Mobilizing Your Class: Pedagogical Strategies for Integrating Mobile Technology in Teaching and Learning

Dr Eva Tsang

Director, Educational Technology and Publishing
The Open University of Hong Kong

Mobile learning is widely regarded as the next milestone in educational development. The widespread use of iPads/tablets in education calls for a paradigm shift in pedagogical approaches. It has become a necessity for teaching professionals to be well-equipped with suitable pedagogical strategies for adopting mobile teaching and learning both inside and outside the classroom.

Through examples, this workshop will demonstrate a broad variety of practices for integrating mobile learning in conventional teaching and learning environments. A set of relevant theoretical perspectives (covering active learning, blended learning, authentic learning, collaborative learning and flipped classroom) will also be presented together with strategies for the effective design and integration of mobile teaching and learning content.

In this workshop, we will provide mobile device (e.g. iPads/tablets) for participants to experience first-hand the various pedagogical strategies presented.

Critical Dimensions for Maximizing Impact of Learning Analytics

Prof. Dragan Gašević

Chair in Learning Analytics and Informatics
Moray House School of Education and School of Informatics
University of Edinburgh

Prof. Dragan Gašević is a Professor and the Chair in Learning Analytics and Informatics in the Moray House School of Education and the School of Informatics at the University of Edinburgh. He served as the president (2015-2017) of the Society for Learning Analytics Research (SoLAR) and holds several honorary adjunct appointments in Australia, Canada, Hong Kong, and USA. A computer scientist by training and skills, Dragan considers himself a learning analyst who develops computational methods that can shape next-generation learning technologies and advance our understanding of self-regulated and social learning. Funded by granting agencies and industry in Canada, Australia, Europe, and USA, Dragan is a recipient of several best paper awards at the major international conferences in learning and software technology. Committed to the development of international research community, Dragan had the pleasure to serve as a founding program co-chair of the International Conference on Learning Analytics & Knowledge (LAK) in 2011 and 2012 and the Learning Analytics Summer Institute in 2013 and 2014, general chair of LAK'16, and a founding editor of the Journal of Learning Analytics (2012-2017). Dragan is a (co-)author of numerous research papers and books and a frequent keynote speaker.

Abstract

The field of learning analytics was founded with the goal to harness vast amounts of data about learning collected by the extensive use of technology. After the early formation, the field has now entered the next phase of maturation with a growing community who has an evident impact on research, practice, policy, and decision-making. Although learning analytics is a bricolage field borrowing from many related other disciplines, there is still no systematized model that shows how these different disciplines are pieced together. Existing models and frameworks of learning analytics are valuable in identifying elements and processes of learning analytics, but they insufficiently elaborate on the links with foundational disciplines. This talk will describe a consolidated model of the field of research and practice that is composed of three mutually connected dimensions – theory, design, and data science. The talk will define why and how each of the three dimensions along with their mutual relations is critical for research and practice of learning analytics. Finally, the talk will highlight the importance of multi-perspective approaches to learning analytics based on its three core dimensions for a healthy development of the field and a sustainable impact on research and practice.

Distinguished Professor Lecture II

E-learning and Innovative Education – Strategies of Adding Innovations and Values to Educational Research

Prof. Gwo-Jen Hwang

Chair Professor
Graduate Institute of Digital Learning and Education
Dean, College of Liberal Arts and Social Sciences
National Taiwan University of Science and Technology

Prof. Gwo-Jen Hwang is Chair Professor of Graduate Institute of Digital Learning and Education and Dean, College of Liberal Arts and Social Sciences in National Taiwan University of Science and Technology.

He serves as an editorial board member and a reviewer for more than 30 academic journals of educational technology and e-learning. Currently, he is the associate editor of IEEE Transactions on Learning Technology (SSCI), the editor-in-chief of International Journal of Mobile Learning and Organisation (Scopus), and the editor-in-chief of Journal of Computers in Education. Prof. Hwang has published more than 550 academic papers, including 250 journal papers. Owing to his reputation in academic research and innovative inventions in e-learning, he received the annual most Outstanding Researcher Award from the National Science Council of Taiwan in the years 2007, 2010 and 2013. Moreover, based on the statistics of the publications from 2011–2015, the Times World University Ranking has announced that Prof. Hwang is the most prolific and most cited researchers in the field of social sciences in the world.

Abstract

The advancement of computing and communication technologies has significantly changed the conception of teaching and learning in the past decades. Such a paradigm shift has attracted the attention of researchers from both the fields of computer science and education technology, who have tried to conduct various experimental e-learning studies to improve students' learning performance. However, finding a valuable and innovative research topic is a challenging task for most researchers. Many papers submitted to well recognized journals are rejected owing to the lack of innovation in the studies. In this talk, Prof. Hwang is going to present the strategies for finding innovative e-learning research topics as well as the criteria for publishing a quality paper. In addition, authentic examples will be given to demonstrate how the value of an e-learning study can be promoted.

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* These events are substantially supported by a grant from the Research Grants Council of the Hong Kong Special Administrative Region, China (UGC/IDS16/15).

Innovative Practices Award Competition

Submission I

Adopting flexible learning to support learning in participants with diverse backgrounds: An experience from a training programme for health volunteers

Linda Lee Yin King, Moon Wong Yuet Ying, Cheryl Yeung Chi Yan, Andy Chong Chun Yin, Jessie Chung Yuk Seng, Hemio Lam Chung Yan, Alex So Ka Wai, Anna Wong On Na and Zoe Chan Sze Long

The Open University of Hong Kong
Hong Kong

Submission III

Transform Learning of Acid and Alkali through a Technology-enhanced Flipped Classroom Approach

Fazzlijan Mohamed Adnan Khan

SEAMEO RECSAM
Malaysia

Submission II

Participatory Writing in the Digital Mode

Frances Di Lauro, Rebecca Johninke and Jennifer Dowling

The University of Sydney
Australia

Submission IV

A Mobile Learning App for Nursing Students — Health Assessment of the Cardiovascular System

Eva YM Tsang, Alan YK Tsang, SL Wong and Carol PS Kwok

The Open University of Hong Kong
Hong Kong

Abstracts of Papers

An effort has been made to classify the abstracts under the conference sub-themes to which they primarily relate, although in some cases they obviously span more than one sub-theme.

The Use of a Web-based Project Management Tool in Implementing an Education Development Programme

Emely M. Amoloza

University of the Philippines Open University
Los Baños, the Philippines

For the past four years, the University of the Philippines Open University (UPOU) has partnered with the Philippine Long Distance Telephone Company (PLDT) and other government and non-government agencies to implement the PLDT Infoteach Outreach Programme. This programme's initial goal is to enable the participants to acquire the digital skills for 21st century teaching, learning and working. Now in its fourth phase, the programme aims to broaden its reach and make the training curriculum responsive to the external dynamics that have an impact on education and capitalize on the digital skills of the participants.

Since this programme is a collaboration among various agencies and is conducted in different areas which are geographically apart from one another, the use of a web-based project management tool is an advantage. For this reason, the use of Basecamp was considered, which is a project management tool that provides a place to share things within a team for a specific project.

This study aims to share how Basecamp was used in implementing the PLDT Infoteach Project by enumerating the features and advantages of using this tool. It adopted a participant observation method, and the results showed that the use of Basecamp had made the project implementation uncomplicated and more efficient.

Clustering Short Answers for Efficient and Scalable Grading: Acceptable Heterogeneity in a Cluster

Andrew K.F. Lui, Calvin Yiu-Chuen Tsui, Mang-Kwan Cheng and Ka-Wai Lai

The Open University of Hong Kong
Hong Kong SAR, China

Short-answer questions are popular among educators due to their ease of design, remarkable versatility, and insulation from guessing. These questions challenge students to recall factual knowledge and compose a specific, precise, and concise response in natural language. However, building a reliable computer grader for short-answers is difficult, due mainly to the complexity and ambiguity of natural languages. Clustering-based grading is an alternative approach for grading computer-assisted short answers. This grading approach considers grading as a three-stage procedure. First, the students' answers are partitioned so that each cluster contains semantically equivalent answers. Second, human graders are engaged to grade every cluster. Finally, all the answers in the same cluster receive the same grade. The main advantage of this approach is that human intelligence is engaged at the most effective moment. This paper investigates methods for producing good quality clusters for more reliable grading outcomes. A number of cluster quality indices were evaluated for their accuracy in estimating the goodness of clusters. The results were found to be promising, which supports the further development of this approach.

Analysing the Role of an Online System in Reducing Learners' Transactional Time in an Open and Distance E-learning (ODEL) Environment: A Landscape Connectivity Perspective

Alvie Simonette Q. Alip, Ricardo T. Bagarinao,
Percia V. Secreto and Rhodora L. Pamulaklakin
University of the Philippines Open University
Los Baños, Laguna, the Philippines

Geographical distance between the learners and the institution characterizes the distance education (DE) mode of learning; and transactional time increases with distance. The rapid advances in Internet technology help to reduce transactional time by allowing the development of online systems. Online systems, such as the online request for document system (ORDS), helps to facilitate students' requests for and receipt of their academic records. However, there is a paucity of information on how such systems facilitate students' requests and how students respond to the availability of such online systems. This information is vital for developing student support for DE learners because they are faced with a wide range of tasks, and time is an important element for their success.

Using the landscape connectivity theory, this study was conceptualized to (a) evaluate whether or not ORDS reduces the transactional time of students in requesting and receiving documents, and (b) analyse students' satisfaction level in using the system in terms of three usability criteria, namely usefulness, ease of use, and efficiency. Data were collected through an online survey and the retrieval of artefacts such as logbooks, emails, and reports. The results indicated that transactional time was reduced from 12 days with a manual request system to 3.35 days with the online system. All the criteria of usability received a 'satisfactory' to 'very satisfactory' evaluation from the respondents, with usefulness receiving the highest score among the three criteria. The findings implied that online systems can enhance student connectivity in DE institutions. Enhanced connectivity allows greater access to the institutions' resources and services that can support students' learning and persistence.

Visual Space: A Virtual Reality Application for Visual Art Education

Lot-Hymn Cheung, Wing-Hong Lam, Sze-Wai Wong,
S.C. Ng and Andrew Lui
The Open University of Hong Kong
Hong Kong SAR, China

Visual arts education in Hong Kong not only focuses on painting, but also emphasizes analysing, interpreting and evaluating artwork, which is a part of the assessment in public examinations such as the HKDSE. However, most students feel bored when they analyse, interpret and evaluate artwork; and, when they are not interested in the subject, they will not be motivated in their learning.

In this paper, we present a mobile application with the use of Virtual Reality (VR) technology to enhance Hong Kong secondary school students' interest in and appreciation of Western artwork. The application is called 'Visual Space', which brings education and entertainment together. It is divided into three parts, viz. Artwork Tutorial, Art Gallery and Gameplay. In this application, some famous Western artworks are used in designing the games and videos for students' self-learning. There is also a Q&A section in which users can test what they have learned from the selected artworks, and their interest in Western artwork should be aroused after use. Viewing and playing artwork-related games can deepen their impressions of those artworks; and users can broaden their horizons by viewing different styles of Western artwork, and can enrich their knowledge of the elements that are applied.

A questionnaire survey and face-to-face interviews were conducted with students in two different EMI secondary schools in late April, including 20 Form 3 students, and Form 5 Visual Art students participated in our designed evaluation and tried using our application. Most participants agreed that this new application can increase their interest in learning Visual Arts and help them to recall the Western artworks. The evaluation showed that Visual Space can enhance Hong Kong students' interest in Western artwork appreciation and help them to deepen their impressions and memories of Western artworks. From our findings, the use of a Virtual Reality application with education and entertainment can help students to get a deeper understanding of artworks.

How Creative Use of Web-based Applications Enriches Students' Classroom Learning Experience: A Case Study of a University English Writing Course

Dennis Foung

The Hong Kong Polytechnic University
Hong Kong SAR, China

With the prevalence of cloud-based technology, in recent years higher education institutions have started to provide web-based applications to users. These cloud-based applications (e.g. Microsoft Word) provide a range of features. However, teachers may not know how these applications can be used creatively in classroom teaching and may only use them for file storage. This paper presents how these applications can be effectively employed for classroom teaching with a holistic model. Some of the proposed activities have been implemented in an English for Academic Purposes classroom of a Hong Kong university and were evaluated in a mixed-method cross-sectional study. In general, students enjoyed using web-based applications for classroom activities and found numerous advantages in using them in class despite minor technical problems. Most important, teachers at any skill level can easily implement these activities and reduce the use of paper. Using the experience of students and teachers, this paper encourages teachers to make effective use of such applications.

Applied Research on a Peer Assessment System in a Flipped Class

Ruijun Ding and Helan Wu

Tongji University
Shanghai, China

In the student-centred teaching model, most of the students' learning methods involve collaborative learning. Therefore, the way in which the teachers evaluate students can't fully reflect the overall performance of the students in the learning process — but, instead, peer assessment can fulfil this role. This study, based on an empirical research method, explores the application effect of an existing peer assessment system, and aims to develop a clear understanding of its advantages and disadvantages. Firstly, in order to verify whether the design principle of the peer assessment system can promote student' participation in evaluation, the researchers compared the completion rate of peer assessment in this system and Chinese University MOOC. The result showed that the system can effectively promote student participation in and completion of the peer assessment. Secondly, using the peer assessment data in the system, the application effect, and advantages and disadvantages, are analysed. Finally, in view of the problems arising from the application process, the paper puts forward some suggestions for improvement.

A Road Map for E-textbook Functionality

Samuel P. M. Choi and S. S. Lam
The Open University of Hong Kong
Hong Kong SAR, China

The functionality of e-textbooks plays a crucial role in their adoption. This paper aims to draft a road map for developing essential e-textbook functionality and provide insights for the e-textbook designers. We propose five hierarchical functional layers in the development process for e-textbooks to empower more efficient and effective learning from digital textbooks. Each layer extends the functionality of the underlying layers to unveil new features for supporting the learning processes. The required technologies for each layer will also be discussed.

The Development of Techniques for Multi-Solution Student Data Clustering: Issues of Optimality and Coherency

Andrew Kwok-Fai Lui, Sin-Chun Ng and Hiu-Hin Tam
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Although advances in digital instruction have led many people to believe in a *teacher-less* future, expert teachers are still irreplaceable for giving creative and well-balanced instruction. Current teaching and learning technologies have demonstrated the capacity for providing scalable and effective education while keeping the cost down. In a context such as a Massive Open Online Course (MOOC), offering personalized treatment to thousands of students is infeasible without technological support. However, if students could be divided into groups that shared the same learning problems, then the amount of work would be significantly reduced as there are just a few groups to handle. Expert teachers would be able to identify the learning issues of each group and devise tailored remedial instruction accordingly. In this situation, every student would find his or her learning needs satisfied, and the intelligence of human teachers could be exploited in a cost-effective manner.

Student data clustering is an enabling educational data mining (EDM) technique for providing targeted group instruction. This technique divides students into groups according to their similarities in performance, learning styles, or background. Every group should consist of highly similar members and therefore could receive the same treatment. There should also be significant differences between groups so that another treatment is warranted. A clustering algorithm is the core of student data clustering which also includes other processing stages such as data collection and data cleansing. It finds a solution that optimizes a measurement based on the desired qualities of clusters. There exist a number of cluster quality measurements and they are mostly related to within cluster homogeneity and between cluster heterogeneity (Rendón et al. 2011).

The proposed paper will present a novel clustering algorithm that produces multiple solutions instead of a single solution. A solution of a clustering algorithm can be regarded as a particular partitioning of data items. Making multiple solutions available allows a human to intervene in the partitioning and apply educational considerations. This feature will be useful only if the solutions satisfy the following requirements. First, the range of solutions should be of different cluster numbers so that there are coarser and finer partitionings for selection. Second, each solution should be optimal according to a cluster quality

measurement so that there are few acceptable solutions available. Third, there should be a degree of coherency in the membership of clusters between solutions. Most clusters of two similar solutions, especially those with consecutive cluster numbers, should maintain a stable membership of data items. With the new algorithm, teachers will be able to browse good solutions and select one according to the task at hand — for example, one that can differentiate the weakest topics among the group of students with poor performance.

The new clustering algorithm is built on the Multi-Objective Evolutionary Algorithms (MOEA), which is a popular approach for finding solutions that optimize more than one objective function. Each solution is regarded as non-dominated, meaning that no objective function can be improved without degrading one other objective function, and it is in a way optimized. The paper will describe a general baseline design for the new clustering algorithm, and also how to work towards the three requirements listed above, namely cluster number variation, optimality, and coherency. The paper will illustrate the working of the algorithm with a real dataset collected from quiz scores of a large class. The dataset includes the raw scores as well as the coded attainment in topics and level of learning. Experimental results show that the new algorithm can achieve a satisfactory performance level in all the three requirements.

A Maker Approach to Teaching Operating Systems with Raspberry Pi

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A traditional approach to teaching a course on operating systems (OS) is to follow a textbook and have the students do exercises and system programming. However, recent teaching experience indicates that students might be more interested in hands-on labs involving circuits, electronic components, and mechanical parts. The Maker Movement also suggests that students should show what they learn in college by making tangible products. This study proposes a maker's approach to teaching an OS course in which students apply knowledge of OS to make products by focusing on input/outputs, hardware devices and system programming. This article reports the results of this approach in an OS course in a department of electronic engineering.

Technologies Used in Online Cooperative Learning for Database Students

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Cooperative learning has been widely used as a tool for enhancing learning in classrooms. In this approach, students work on activities in small groups to receive rewards based on their group's performance. Group reporting can be considered as such and is often employed in face-to-face settings. However, there is only limited literature on how group reporting can be done online.

A course on computer databases offered by the University of the Philippines Open University (UPOU) made use of group reporting to add to the students' learning experience. The course CMSC 206 is taken by students whose knowledge and involvement in databases range widely. Less experienced students can benefit, and add to the knowledge, from the more experienced ones. Group meetings, along with regular online lectures, were carried out during the first half of the semester. The output group reports were then presented during the second half.

This study focuses on the technologies used to (1) create the group reports, and (2) facilitate the group meetings conducted by the students to prepare for those reports. An online survey was administered to the CMSC 206 students from the first semester of the academic year 2016–17. The students identified which technologies they used as well as their reasons for doing so. They were also asked to evaluate the usability of the technologies they employed using the Systems Usability Scale.

Evaluation of Nursing Students' Learning Feedback on the Implementation of 3D-based Learning in Anatomy and Physiology in Hong Kong

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With the advances in educational technology and increase in international communication, a large variety of learning opportunities and experience can be incorporated into students' learning. In 2015, the Division of Nursing and Health Studies pioneered the use of a 3D model and animation in teaching anatomy and physiology. The Division is the first nurse training institution in Hong Kong to apply 3D-based learning. As we need further fine-tuning to optimize the hardware setting, the students' learning feedback is essential for further improvement in implementing the 3D-based teaching and learning in the future.

A simple evaluation study approach was adopted. A questionnaire, with 13 statements, on a four-point Likert scale was applied. After the 3D-based learning lecture, Year 1 nursing students were invited to fill in the questionnaire to evaluate their 3D-based learning experience in the areas of content, attractiveness, and clarity of the materials. The purpose of the study was explained to all the students and they fully understood that their participation would not affect their academic results. The findings were analysed using descriptive statistics.

Two hundred and thirty questionnaires were eventually collected. Most of the students (~75%) were satisfied with the overall standard of the 3D-based learning materials. Also, more than half of them agreed that 3D-based learning enhanced their understanding of the course content and helped them to achieve the learning outcomes. In conclusion, the findings offer fruitful pointers for us to further develop the utilization of educational technology.

Reshaping the Way We Learn and Teach: an OUHK Mobile Learning Initiative

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With the rapid development of technologies, new tools for learning and teaching have been evolving over the past few decades. Online learning is becoming more and more popular not only in distance learning programmes, but also in conventional campuses. While desktops or laptops are now essential tools for teaching and learning, various mobile devices have become much more fashionable. In the Open University of Hong Kong (OUHK), an online learning platform as a supportive teaching and learning channel was introduced almost two decades ago, while mobile learning devices were used only in selected courses. In order to better utilize the flexibility of learning, and promote the learners' engagement in the learning process, the OUHK decided to launch its in-house developed mobile app, iBookcase, for students in both full-time and part-time programmes. The mobile app is not only a new platform for course materials delivery, but a tool to better engage students in teaching and learning. The iBookcase initiative is divided into three phases — design, implementation and evaluation. In the final stage of design, an online survey was conducted to investigate OUHK students' perceptions and expectations of, and readiness for, mobile learning, the results of which would provide useful information before the actual implementation of the new initiative.

The present work is the first of a series of studies on the new mobile learning initiative. The first part of the current paper introduces the background and design of iBookcase, and its features for effective teaching and learning are also outlined. The second part focuses on the online survey, which provides useful information for further enhancement of the features of the mobile app and facilitated the later implementation of this new project. Current full-time and part-time students in the OUHK were invited to complete a short questionnaire via the online learning platform. The results indicated that both the full-time and part-time students in the University responded quite favourably and were ready to adopt mobile learning. Their expectations and suggestions on the iBookcase also provided useful insights for further enhancing the mobile app.

The Use of E-learning and Flipped Classroom Components for Science Teaching

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This paper deals with the introduction of e-learning and flipped classroom components for teaching two subjects: ABCT1D09 Green House Gases and Life (a foundation subject with a class size of 100) and ABCT4414 Food Processing Technology Laboratory (a programme-specific subject with a class size of 53). The laboratory experiments are designed for these two science subjects and the students are required to work in groups for their laboratory experiments. In this project, we tried to use e-learning apps and group laboratory work to engage students in participating in active learning and enhance their deep understanding.

Before this project, the authors tried using other developed e-learning apps (such as the AR apps and remote laboratory tool) from PolyU colleagues working in other departments to help our students to understand the subject context (such as the use of 'Image J' to perform the bacteria count and remote laboratory observation in ABCT1D09) and to learn rather boring content (e.g. the generic skills in first-year student seminars). However, the students gave negative comments (e.g. 'rubbish apps', 'waste of smart phone memory', 'difficult operation') which discouraged us greatly. In fact, our students are important shareholders and it is very important for us to learn about their needs before designing the materials. After this painful experience, we solicited the students' needs before the preparation of our materials and our students are now happy with the use of e-learning apps in this project.

With the use of the flipped classroom operation on the foundation subject (ABCT1D09), we found that on average 79% to 84% of the students considered it to be 'satisfactory' and 'very satisfactory' in: (a) the arrangement of the teaching and learning; (b) the usefulness and applicability of the learning materials; and (c) facilitator skills. Further study is required on the effectiveness of the introduction of a flipped classroom for science subject teaching.

An Online Community-Based Flipped Classroom Approach to Improving EFL Students' English Speaking Performances Using Mobile Technologies

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This case study aims to integrate flipped teaching into an oral-aural drills in English classroom using an online community-based flipped learning strategy to promote students' speaking performance. The participants were students who took an English speaking course in the language centre at a university in northern Taiwan during the first semester of 2016. An 18-week research design was developed in an online community-based flipped classroom on Facebook to describe and analyse the students' oral proficiency. Based on a detailed analysis of students' speaking performance on Facebook, the experimental results showed more positive effects of the online community-based flipped instruction than the conventional video-based approach — that is, the flipped instruction using mobile devices can enhance students' English speaking performance. As a consequence, the online community-based flipped learning approach using mobile technologies offered a rich, informal and ubiquitous learning environment in which it would be a potential instructional approach in ELT (English Language Teaching) and improve the language proficiency.

Harnessing Technology through a Flipped Classroom in Learning Science

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This study discusses the implementation of a technology-enhanced learning lesson which applies a flipped classroom approach for enhancing the learning of science. With flipped classrooms, traditional classroom teaching is transformed to active learning where students are exposed to the content materials outside class and class time is used to engage them in concept exploration and meaning-making. This approach also aims to encourage students to become self-directed learners, taking responsibility for their own learning. Leveraging on the Internet, the content of the classes can now be provided typically on an online learning platform and students are expected to study the materials prior to coming to the classroom. The classroom can now be transformed into a dynamic, interactive learning environment where the teacher facilitates and guides students as they explore and apply concepts, and engage creatively in the subject matter.

In this study, the design and development of a lesson plan for the topic of Acid Alkali was explained based on the use of a holistic flipped classroom model. The three parts of the lesson content — namely, pre-lesson, main lesson and post-lesson — were implemented successfully with 30 Grade 8 students. The effectiveness of the lesson was examined by using a pre-test and post-test experimental design. A paired-samples t-test was conducted to evaluate the impact of the intervention on students' scores on an Acid Alkali achievement test. The findings showed that there was a statistically significant increase in the post-test scores compared with the pre-test scores. This study revealed that flipped learning using technology-based activity is a comprehensive, reliable and worthy instructional approach. Based on this experiences, interactive group activity during the main lesson was one of the vital factors in enhancing the students' understanding of the topic presented.

Validating Student Satisfaction with a Blended Learning Scheme in Universitas Terbuka

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This study explores a blended learning scheme provided by Universitas Terbuka. It aimed at validating how, and in what ways, the factors involved are interrelated, as viewed by students in a scholarship scheme, and have an impact on their academic performance. The study was completed using a mixed method exploratory design. First, it was established qualitatively that the blended learning satisfaction scheme was reflected by: instruction (X_1); interactivity (X_2); instructor (X_3); management (X_4); technology (X_5); and OER-wise (X_6). Moreover, satisfaction (S) might lead to students: learning (Y_1); competence (Y_2); motivation (Y_3); retention (Y_4); and value (Y_5). Quantitatively, it was hypothesized that satisfaction (moderating variable) was predominantly influenced by the six independent factors (X_1 – X_6) and had a corollary to the five dependent (Y_1 – Y_5) variables. This configuration was completed by first conducting a related literature review and focus group discussions prior to performing the survey. In 2017, 5,500 students enrolled through 40 regional offices; and 550 questionnaires were distributed, of which 302 were completed. Important performance analysis (IPA) and a customer satisfaction index (CSI) were simultaneously utilized to measure satisfaction and the degree of their importance. Eleven hypotheses (H_{1-11}) were assessed using the structural equation model (SEM) to capture the significance level and the power of interrelations on the variables and dimensions engaged. Nine hypotheses were statistically validated by the analysis. Management ($X_4=0.36$) was the most influential factor for satisfaction, followed by interactivity ($X_2=0.25$), instructor ($X_3=0.22$), and instruction ($X_1=0.21$). OER-wise (X_6) and technology (X_5) were excluded (since the H value ≤ 1.96 for $\alpha=0.05$). Also, students' retention ($Y_4=0.65$) was mainly influenced by satisfaction, followed by: enhance learning ($Y_1=0.56$), value ($Y_5=0.49$), motivation ($Y_3=0.43$) and competence ($Y_2=0.42$). The IPA-CSI chart also confirmed that three critical aspects should be noticed cautiously for a better blended learning scheme: management consistency, multi-way interaction and quick responses to complaints, for students found these aspects to be crucial but they were unsatisfied.

Facilitating Adults' Engagement and Collaboration with the LDA Scheme in an Online Wiki Learning Project

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Today's world is changing dramatically due to the penetration of the Internet into human society. Many traditional distance teaching institutions have transferred their courses onto Moodle learning systems. Struggling to keep up with the fast-moving pace or staying put with the tradition approach remains a considerable challenge for the educators and learners in lifelong learning. Wiki — a powerful tool with its unique characteristics of connection, collaboration, co-construction and literacy — aims to engage the learners in online learning. In practice, Wiki can be an effective and efficient tool to link learners anytime and anywhere to participate actively in learning activities.

In this paper, we focus on studying the Learning, Doing and Assessment (LDA) scheme adopted in the implementation of the wiki module in the course 'Media Supported English Teaching'. We consider to what degree the wiki activities can facilitate and improve the learning engagement with online collaboration by adult learners who were trained in traditional rote learning at a fully online learning institution. We used the hybrid research method, mixing qualitative and quantitative approaches to collect the data from the learning activities and Moodle statistics. Twenty-nine learners participated in learning the module. Through using the traditional questionnaire survey and the module reports in the Moodle platform, we found the learning outcomes in terms of engagement, collaboration, interaction, effectiveness and efficiency were positive and satisfactory. We concluded that well-designed wiki activities can serve as an effective and efficient facilitator in encouraging busy adult learners to engage in online learning, thus maintaining sustainability in open distance e-learning.

Reaching the Unreached through Online Delivery: Issues and Challenges

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Delivering an online course comes with its own set of issues and challenges. These include the development of the course prior to going online; teaching the course once it is live; quality control of the online course; efficient time utilization by the faculty and students when online; encouraging interaction among the students and faculty online; and methods and procedures for teaching an online course. The issues and challenges in this study are viewed from the perspective of the institution, instructors and learners. Institutional challenges include infrastructure and space allocation, faculty training, faculty workload, student preparedness, academic honesty, and copyright. A paradigm shift is needed to move instructors from the typical open distance learning approach to the online delivery mechanism as people are resistant to change; and students face the challenge of accepting a learning methodology they may not be comfortable with.

This paper is a preliminary assessment of the readiness of Wawasan Open University to go online and is based on a case study approach supported by surveys of both the instructors (tutors) and the learners. Two postgraduate courses (Economic Environment of Business and Management in Organisations) were used to study the demands faced by the instructors and learners. These courses were selected from two different semesters in which the issues faced in the first course were rectified in the second course for improved effectiveness. Solutions including moving to a different learning management system, appointing experts in educational technology, and creating original courseware have been carried out. However, aspects such as the technical readiness of learners, bandwidth availability and the overall acceptance level by instructors still persist.

A Preliminary Analysis of the Perceptions of Learning Experiences in the Student Population from Linguistically and Culturally Diverse Backgrounds: A Case Study on a Post-secondary College in Hong Kong

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This research aims at exploring how students from diverse linguistic and cultural backgrounds perceive their academic studies from the perspective of their learning experience in the environment of a post-secondary institute in Hong Kong. The participants in the case study are drawn from students coming from East Asia (mainland China and Japan) and South Asia. A qualitative approach using interviews was conducted in order to explore the extent to which they had enjoyed their studies, and also the challenges they had faced in their academic lives. The kinds of challenges are then compared and contrasted with regard to their distinct backgrounds in language and culture, in addition to the reasons and contributing factors lying behind them. The comparison and contrast could also be based on the distance between their mother tongues and the official educational language in Hong Kong — that is, English. Finally, this research may to a certain degree serve as a catalyst for designing a more sophisticated programme which can cater for the needs of students coming from other Asian countries in the future.

Maximizing Feedback in Extra-curricular Learning

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Extra-curricular activities are an essential feature of the tertiary landscape, and are necessary for programmes with ambitious students. Successful participation in opportunities for extra-curricular learning is known to lead to a richer college experience for students and better post-graduation outcomes. To a large extent, extracting the maximal benefit from extra-curricular opportunities is contingent on the quality of the feedback participants receive. Feedback should not be an afterthought in extra-curricular learning — it is better positioned at the forefront of activity design.

The purpose of this presentation is to detail methods by which instructors in a second language programme have sought to create extra-curricular activities that have a strong focus on producing salient, actionable feedback for all the participants. The activities include field trips, boot camps for presentation skills, and pre-internship training programmes. We first discuss a range of extra-curricular learning opportunities suitable for second language development, and show the feedback frameworks devised for each. Then we provide authentic examples of these frameworks in use, and conclude by highlighting a system whereby each participant in one of our extra-curricular activities receives feedback at three levels: from peers, from invited guests, and from regular instructors.

Implementing Game-making across the School Curriculum: a UK Perspective

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Computer games as part of education is a well-established topic for research, suggesting that playing games is linked to a range of cognitive and behavioural outcomes (Connelly et al. 2012). It is suggested that playful learning through computer games could stimulate students' intrinsic motivation (Garris, Ahlers and Driskell 2002) and that knowledge creation can emerge through the construction of artefacts in a playful learning environment via the co-creation of games (Kangas 2009).

However, there is little research on the process of game-making — that is learners creating games — as an everyday teaching tool in the school classroom. Such an activity is increasingly possible due to the prevalence of visual programming languages popular in the the United Kingdom (UK), such as Scratch (Resnick et al. 2009) and Pocket Code. The research presented in this paper is from a feasibility pilot study examining the impact of game-making in traditional primary and secondary school classrooms (pupils aged 5–18 years) in the UK. The research, funded by Horizon 2020, is part of a wider European project. This study presents the initial findings from a feasibility trial examining the impact of game-making in traditional classroom teaching to develop computational thinking skills. Resources were created, teachers trained, and game-making implemented in primary and secondary schools in the UK. Pre- and post-testing of teachers and students took place; and lessons were observed using an observation tool created for this project. The initial results suggest that game-making has the potential to increase engagement with classroom learning and lead to increased learner satisfaction within sessions. The barriers identified include teacher familiarity with programming as a means to teach subject knowledge; a potential to decrease knowledge acquisition during the familiarization process with the teaching tool; and a need for software developers to consider design for children with special educational needs.

'Expert' Teachers Facilitating Trainee Teachers: Developing Technological Capability

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This paper reports the key findings from a research project in five secondary schools (pupils aged 11–18 years) in the United Kingdom (UK). The project set out to identify whether Web 2.0 collaborative technologies can help to develop the literacy skills of learners with special educational needs and disabilities (SEND), and engage disaffected learners. It involved trainee teachers at Nottingham Trent University (NTU) working with 'expert' teachers in schools. The project was intended to enhance trainee teachers' experience of successful technology-based practice within core subjects (English, maths and science), while exposing them to excellent teaching, and encouraging reflective and collaborative practice.

This research was mainly qualitative in data collection, reflecting a small-scale case study with a view to improving practice using a mixed methods approach. The methods of data collection included:

- interviews with trainee teachers, using both open and closed questions;
- observations of the project in progress in each school;
- interview with students, using both open and closed questions; and
- analysis of data held by schools on literacy levels for pupils prior to and immediately after the project intervention to measure progression and achievement.

The data indicate that the trainee teachers benefited in a number of ways through engagement with this project, and the key findings will be reported in this paper. The evidence showed that the trainee teachers were able to develop capability and new pedagogies in using Web 2.0 technologies to support learning and progression. Additional benefits included the evolving role of trainee teacher as researchers and the impact on their developing professional identity.

A Course Design Investigation and Trial on Self-regulated Learning Using Video Content and Online Report Submission

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This paper describes an investigation and trial of course design to promote learners' intentional use of the concept and strategy of Self-Regulated Learning (SRL). With the aim of making learners comprehend SRL, the course was designed to exploit TV documentaries and online essay submission. The documentary deals with the story of a junior high school student who is struggling to achieve good results and a Shogi player learning to reflect on defeats. After a lecture on SRL theory, the learners were instructed to write essays about the documentary from the perspective of SRL theory as well as their own learning experiences related to SRL. To deepen their thinking, all the essays submitted were distributed to the learners to give them a chance to compare their own ideas with those in essays written by other learners. The course was conducted with first-year university students. The questionnaire results indicated that the learners could associate their own experience with the SRL theory and deepen their understanding of SRL.

Enhancing the Learning Environment of Undergraduate Physics Laboratories to Stimulate Students' Scientific Inquiry Processes

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There is ongoing concern in higher education regarding the lack of students' inquiry processes in undergraduate science laboratories. Innovative reforms to the activities that students are asked to engage in and to instructional pedagogies are both necessary. In this research, the authors sought to stimulate students' scientific inquiry processes by initiating innovative changes to the learning environment of two large enrolment (~500 to 1000 students per course), first-year undergraduate physics laboratory courses at their university. They did this by (a) redesigning the activities students engaged in to reflect a guided inquiry approach, and to acknowledge contemporary advances in science and technology; and (b) providing enhanced guidance for laboratory instructors on the nature of scientific inquiry and how to shape students' experiences during their laboratory investigations.

A mixed methodology was employed to ascertain students' perceptions of the impact of the changes in the learning environment and their thinking processes. Quantitative data were collected using the Undergraduate Physics Laboratory Learning Environment Scale (UPLLES). These data were analysed using independent samples t-tests. Effect sizes were also calculated. Qualitative data were collected using interpretive interviews, and the interview transcripts were deductively coded in relation to the study's themes and foci. Analyses of both the quantitative and qualitative data strongly suggested that students responded positively to the changes in line with the aims of the study. Effect sizes of between 0.70 and 1.20 were calculated for the five dimensions of the UPLLES, which suggested significant positive shifts in students' perceptions of their laboratory learning environments. In the interviews, students articulated that they had engaged in the cognitive processes of scientific inquiry, and indicated that both modifications (a) and (b) above had stimulated such cognition. This study provides a template for innovation and evaluation that can be replicated in other higher education settings, within and beyond physics education.

Perceptions of College-Level Writing Among Professors in an American Community College

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What is college-level writing? Thaiss and Zawacki (2006), in their often-cited study of the perceptions of professors at George Mason University in Virginia, posited three hypotheses: college-level writing demonstrates awareness of the writer for disciplined study, for emotional control in writing, and for responding to the needs of a rational reader. However, the perceptions of faculty members who teach at other academic institutions remain to be explored in order to understand better the concept of college-level writing.

This study applied transcendental phenomenology to explore the perceptions of six community college professors from varied disciplines about the essence of college-level writing and how it needs to be taught. The six professors were interviewed, the interviews were recorded, the recordings were transcribed, and the transcripts were analysed using transcendental phenomenology. The resulting composite structural description of college-level writing suggests that perceptions of college-level writing and how it needs to be taught vary widely among professors of different academic disciplines. This study posits a fourth hypothesis: college-level writing demonstrates masterful, flexible application of printed words, symbols, or images to communicate abstract ideas for an expert audience. The implications suggest that teachers of writing need to focus less on the goal of teaching an ideal form of college-level writing and focus much more on communicating with colleagues of different academic disciplines in preparing writing students to be flexible enough to communicate effectively in a wide variety of rhetorical situations. Adjustments may need to be made in selection of writing textbooks, development of writing assignments, and assessment of college-level writing skills.

Innovative Inquiry in the Classroom: LessonNote

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Observation is a normal way to examine qualitative research. We are used to entering our research field, and writing the important key points. When we use pen-and-paper to record something, we usually want to match this with the timing, and explain the situation. LessonNote is an innovative tool for registering many things which are happening in the classroom, such as someone talking to another persons or doing something. You can connect the people interacting and record the interaction. In particular, the records follow the time flow, so you can know at what time something special happened. After you finish the records, you can upload your notes to LessonNote Pro in the Internet, and then you can edit and revise them, and have a full record after your classroom observations. The researcher has used this tool many times in class, and looks forward to collecting more data, use these data for processing analysis, and then analyse these materials in the classroom by actor network theory, conceptualizing the assembly and entanglements in the field.

Pilot Evaluation of the Use of Pre-lecture Videos to Supplement a Foundation Functional Anatomy Module for Undergraduate Sport and Recreation Student

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The purpose of this study is to investigate the student usage rate in viewing pre-lecture videos and their perceptions of how these videos facilitate their learning experience.

In the first semester of the academic year 2016–17, pre-lecture videos were recorded by the lecturer and uploaded to a learning platform as supplementary materials for the foundation module on functional anatomy.

A student feedback questionnaire showed that junior sport and recreation students faced significant difficulties in learning functional anatomy. Most of them found language to be a problem as they had to learn muscle terminology with a Latin origin. Pre-lecture videos with the lecturer pointing at an anatomical skeletal model with clear muscles and bones were therefore produced with the aim of giving students more ideas before the lectures.

An exploratory descriptive research method was used, with student participants being invited to complete a survey by the end of the semester. The survey contained both close-ended and open-ended questions. The close-ended questions assessed the viewing rate of the pre-lecture videos and their effectiveness in facilitating students' learning; and the open-ended question elicited qualitative feedback on the barriers and benefits of having pre-lecture video as a supplement for the module.

A total of 41 student participants responded, representing 80% of the enrolment. 7% (n=29) of the class had viewed the supplementary videos; and 60.9% (n=25) agreed or strongly agreed that the pre-class videos facilitated their learning. The qualitative data suggested that a 'lack of time' to view the extra material was the major barrier; and 'enhanced preparation' and 'enhanced revision' were the key themes identified as benefits.

Quality Assurance in Interactive Study Guides

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Study guides are part of the learning resources for students who study at SIM University (UniSIM). In each course, students are given a study guide which provides them with the course syllabus, the learning outcomes, the course contents and learning activities. Through digitization, a study guide is now available in PDF format, but this format lacks interactive elements such as videos and quizzes that have been developed for each course. In order to deliver these elements, an enhanced version of the study guide was produced in EPUB format. Known as 'the interactive study guide' or iSG, students are able to access it interactively via smartphones, laptops and desktops. In order to measure the quality of the iSGs, a metric was developed. This paper explains the background of the iSG Metric, the methodology used in its development and the results obtained from an evaluation of 60 iSGs. While the majority (93.3%) of the iSGs measured were of a good standard, the remaining (6.7%) were found to have low quality. The issues learned from this evaluation exercise are also discussed in this paper.

A Case Study of the Potentials of SGC-based Curricula

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This paper examines, through a case study, how the Specification of Generic (Foundation) Competencies – English (SGC-Eng) provides clear and objective standards for developing language curricula. A suite of 30 in-service English certificate programmes using 18 Units of Competency (UoCs) were launched for various industry sectors in the Vocational English Enhancement Programme¹ (VEEP) from 2012 to 2015. It offers a unique experience and the best opportunity to study the value of the SGC-Eng in organizing and delivering vocational English modules.

Descriptive accounts and documentation on the VEEP were analysed to shed light on the potentials and inadequacies of the SGC-Eng. They revealed very significant strengths in customizing programmes to suit different target learners; allowing multiple articulation pathways to higher levels or across different skills and UoCs; compartmentalizing learning to bite sizes; and offering a model of common currency for language learning courses across the territory. They also pointed out certain inadequacies of the programme which could be attributed to some inherent characteristics of the SGC-Eng.

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1 The programme was funded by the Language Fund of the Standing Committee on Language Education and Research (SCOLAR), Hong Kong SAR.

A Case Study of a Design Thinking Approach for Designing, Developing and Delivering a Curriculum Based on Authentic Learning

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To be ready for a job in a global market, students must be comfortable with the complexities of ill-defined real-world problems. According to Lombardi (2007), the greater the exposure of students to authentic disciplinary communities, the better prepared they will be to deal with ambiguity and put into practice the high-order analysis and complex communication required of them as professionals. Educational institutions have increasingly used technology-enriched authentic learning practices to provide student learning experiences that focus on real-world, complex problems and their solutions through learning-by-doing, which is generally accepted as an effective way of learning. This paper is a case study of how an educational institution adopted design thinking in curriculum design to infuse authentic learning practices into the delivery of the curriculum. It discusses how design thinking tools — such as personas, stakeholder maps, customer journey maps, ideation and prototyping — are used to design, develop and deliver a curriculum based on authentic learning. It also shows how authentic learning is practised through learning activities in a multidisciplinary learning environment with authentic learning facilities and collaboration with stakeholders.

Connectivity of Transdisciplinary Education on Climate Change and Global Public Health through an Innovative Curriculum Platform

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This paper deals with the evolving trends of innovative-driven curriculum platforms arising from the conceptual paradigm shift reconciling effectiveness and affectivity with a new principle of relativity. It involves transdisciplinarity for contemporary values transformed as connected universally and oriented towards the unity of knowledge-sharing in this era of globalized learning; and it aims to foster 'four pillars of a new kind of education' and a global agenda on 'education for sustainable development'. This paradigm shift in format and methodology is defined as 'education innovation' through ideas of transformed transdisciplinarity in education by optimizing resource usage and reconceptualizing the renewed 'knowledge capital' for a changing society towards sustainable ways of living for our global interdependence as 'the ordered overall movement'. The proposed connectivity of transdisciplinary education on climate change and global public health with curriculum development has acted as a change process for cultivating these mentalities with multiple supportive platforms intellectually, educationally and technologically.

Analysis of the Application Effect of Moso Teach in a Course on Cost Accounting¹

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With the advent of the information age, the teaching mode based on 'teaching' is changing to 'learning'. In recent years, higher education has been reformed, and various teaching modes have been developed, such as the flipped classroom, mixed teaching and action learning. At the same time, students playing with mobile phones in the classroom has become an 'international problem'. Faced with this situation, in order to give full play to the role of mobile phones to carry out mobile information teaching, Moso Teach came into being. As a mobile teaching app, the Moso Teach system combines information and classroom teaching in teaching practice, which provides a good platform for the reform of teaching methods in colleges and universities. This paper uses the questionnaire and replay method, mainly to analyse the application effect of Moso Teach in the teaching of Cost Accounting. It concludes that the mobile information teaching method based on Moso Teach should be applied in colleges and universities.

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1 This paper is the reform project of Shaanxi province: the research and practice of the multi-dimensional training model of international accounting talents is based on 'internet plus' (15 by 79), Xi'an University of Posts and Telecommunications major curriculum construction project.

Pedagogical Agent-based Cognitive Architecture for an Intelligent Virtual Laboratory Cloud-based HCI E-learning Environment

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In developing countries, a physical laboratory is one of the most challenging aspects when imparting practical education. This study is based on experimentation in the distance/blended education system on a large scale, but the lack of instruments in science laboratories, insufficient time, geographical needs, financial concerns, and maintaining laboratory equipment are major issues for many institutions.

This paper presents Pedagogical Agent-based Cognitive Architecture (PACA) for the development of an Intelligent Virtual Laboratory (IVL). Use of an IVL for education technologies enhances the degree of excellence of online laboratory needs for all education sectors, through which students can efficiently perform practical tasks at home during such courses using cloud Web services. The intelligent laboratory companion (ILC) agents have been designed based on a proposed PACA for monitoring and guiding the use of text and audio formats. The ILC monitors and guides as a laboratory assistant based on the cognitive ability of students through CA abilities in all the steps in performing practical tasks for enhancing virtual human computer interaction (VHCI). The results showed that IVL has significance as a model for student learning enhancement.

Curriculum Transformation in Action: Designing an Open Learning Environment Unit on Student Leadership

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This paper reports on an open learning innovation pilot that is part of a major curriculum transformation project. The team working on this project is in the process of devising an Open Learning Environment (OLE) on student leadership. OLEs are designed to be pedagogically innovative, delivering material that has a broad appeal, promote graduate qualities, and excite students about the learning process. They can be taken at any time of the year, with no formal prerequisites, and the 'taster' units are free of charge. The OLEs will be available in multiple modules from zero to six credit points and in a flexible mode combining online and classroom-learning environments. The student leadership OLE will bring together existing transition, retention and leadership programmes (e.g. those available in student mentoring and representative positions) and offer students the opportunity to substantiate their volunteering experience and have it recognized on their transcripts. Currently, leadership as a topic is gathering momentum as a key curriculum area, but effective leaders and managers of the future need to be nurtured and supported by the organizations in which they study (McKimm and Swanwick 2011). The project will have key performance indicators (for both development and, later, delivery) of the OLE based on a four term (three month) working timescale. Evaluation activities will include: online resources pilot-tested by students; workshops where actions will be devised to meet KPIs and be built into the next term's work plan; feedback from project team members, reference group and student advisory group; a discussion board as an LMS eCommunity to present ideas and evaluate the effectiveness of current strategies; the collection of student feedback data via unit surveys and qualitative means; and feedback from colleagues on sustainability and workload. These data will both inform the design of the OLE and our approach, and measure the project's impact.

The Shortest Learning Sequence Using Item Response Theory

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The application of technology has dramatically changed the delivery of education through the use of e-learning systems. Many higher education institutions in the Philippines now accept that a blended approach offers countless advantages in most areas of learning. However, learners' ability has been neglected as a significant factor in their success. Thus, various techniques have been developed, such as personalization to improve the learning process and accommodate the diversity of learners. This study introduces a learning model that recommends the Shortest Learning Sequence (SLS), using Item Response Theory (IRT) to help students with learning difficulties. This learning model was implemented in an e-learning environment, and assessments were given during the learning process. IRT probabilistically estimates students' proficiency in the topics, taking into consideration the difficulty of the test items. SLS is a list of lessons recommended to students, which are ranked accordingly. The lessons are reduced until the proficiency level of the student is reached. The one parameter (1PL) model was used to evaluate the test score and the item information was employed to rank the lessons. The results showed that the learning model is capable of recommending the shortest learning sequences and so reduces the time spent in studying. The students' proficiency level also increased through the implementation of this learning model.

The Development of Intercultural Competences in Online Environments

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Intercultural competences, as skills for interacting in diverse environments, are relevant for any lifelong learner. This paper defines intercultural competences and their components, and provides a set of methodological guidelines, resources and technological tools that can be used for their development, specifically in online educational environments. These proposals are exemplified with different practical cases from undergraduate and master's degree courses delivered in an e-learning mode at the Spanish Distance Education University (UNED). These same contents have been used in two teacher education experiences at UNED (an online internal course and a MOOC). The paper ends by identifying some challenges for future work.

Preferences of Learning Styles and Approaches of English Language Teachers Enrolled in an Open University by Gender

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This paper explores the learning styles and approaches of English language teachers enrolled in a master's programme at an Open University (OU) in Pakistan. Since distance learners are generally older than conventional university students, they have very clear and specific reasons for enrolling in such programmes. They are generally highly motivated and task-oriented and experience considerable anxiety about learning as they fear failure due to the multiple personal tasks they have to handle. Such students, therefore, adopt different learning styles and approaches and research has shown that these styles and approaches differ by gender.

The participants in this study came from a background where rote memorization is the norm and ready-made notes and answer keys are readily available. Bearing in mind the purpose of this research, an exploratory study using a case study approach was preferred. Entwistle's three distinct approaches to learning — deep, surface, and strategic approaches — were used as the basis for developing a Likert scale survey questionnaire to investigate and measure the participants' perceptions and opinions regarding their learning styles as distance learners. The tool was validated by five teachers who had graduated through the same OU and their feedback was incorporated into it. The participants were identified through stratified sampling and were at the last stage of writing their master's dissertation. Postal questionnaires were sent to 90 teachers spread throughout the country and 78 (86.66%) forms were duly filled in and returned by 43 male and 35 female participants. The results indicated that there was not sufficient evidence to conclude that the use of learning approaches in distance programmes differed by gender depending on age, experience, circumstances and availability of time — they had set goals and aspirations, and therefore came with intrinsic motivation. The results also showed that 75% of the participants used surface as well as strategic approaches, whereas 25% preferred deep approaches, and so the application of all three types of style is justified. Academics teaching in distance universities could benefit from these research findings and consider them when developing materials for their learners. The results can also raise awareness among distance learners about the learning styles and approaches that are mostly used by them.

Awareness and Implications of Colour Vision Deficiency (CVD) in Online Teaching and Learning

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This study assesses colour vision deficiency (CVD) in online teaching and learning. Educational technologies are widely used in institutions for teaching and learning from primary to tertiary levels. The educational materials being produced are becoming more vibrant and colour-enhanced. This trend, however, has a significant impact on students with colour vision deficiency (CVD) because of the vast range of colours that can be projected. This research aims to determine the level and importance of awareness of CVD among teachers and support staff in an open and distance e-learning (ODEL) institution. The knowledge and awareness, attitudes and practices of faculty and support staff with regard to CVD were surveyed. The result of the study showed that, although the importance of CVD awareness is recognized by the faculty and support staff, there is still a need for more information on CVD to make instructional and informational materials more accessible to CVD students. Providing accessible materials and platforms is the responsibility of educators and institutions. This study recommends guidelines for preparing information and instructional materials which satisfy the needs of students with CVD.

A Study of Learning Recovery-oriented Care through the Internet of Undergraduate Mental Health Nursing Students

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In past decade, mental health hospitals have advocated a recovery approach to rehabilitate hospitalized patients to reduce the risk of relapse and re-hospitalization after the patients are discharged. Psychiatric nurses adopt and apply the recovery model to deliver care to their patients. Apart from learning the recovery model in course lectures and applying it during clinical practicums, undergraduate mental health nursing students also search on the Internet to obtain further information about this model.

Six final year undergraduate mental health nursing students were recruited by convenience sampling and attended face-to-face semi-structured interviews. The interviews were audio-recorded, transcribed verbatim, coded and analysed to generate the themes.

This was the first descriptive qualitative study to explore how undergraduate mental health nursing students learn the recovery model of care on the Internet. The findings helped in understanding the learning style of nursing students and contributed to adopting teaching strategies to facilitate their learning.

Two themes evolved from the preliminary findings: (1) quick and convenient access to learning; and (2) ease of mastering the application of the recovery model through videos. The participants considered that there was no time restriction on their learning and a variety of learning means were available on the Internet. The findings showed that the traditional approach for learning nursing knowledge could be complemented through Internet-based learning.

The Coming of Digital Technologies and the Innovative Practice of Qualitative Research

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Qualitative research has been considered an art of handwork for a long time. But, as the digital technologies advanced, hardware and software were developed for researchers to collect, analyse, and represent qualitative data. In this paper, the authors share their experience of collecting qualitative data with the help of emerging technologies, particularly the visual and mobile.

The authors are conducting two research projects — the culture of using textbooks in language teaching and developing a STEM curriculum for Grades 7 to 12 students — sponsored by the Ministry of Science and Technology in Taiwan. As ethnographers, both projects involve classroom participatory observation, as well as interviews with individuals or in groups. In addition to picking up our pens and notepads as our predecessors did, we employ hardware, including digital cameras and iPads, and software, such as LessonNote and OneNote, to enhance and experiment with our work on data collection. This article first addresses our experiences of using the devices in both projects. How can these new technologies be useful in innovative research practice? What are the emerging challenges — ethical, technical, as well as methodological — as these technologies are being introduced into contemporary ethnographic studies? And, finally, what are the expected advances for the further application of digital technologies, especially for educational studies?

This paper is the outcome, and a sharing, of the authors' methodological narrative inquiry. The application of emerging technologies is an irreversible trend in educational studies. It is hoped that this paper will demonstrate our experiences, and show our enthusiasm for innovation.

Gender Differences in Perceptions of Augmented Reality Among Students of Advanced Computer Systems in the UP Open University

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Technology reflects the people who develop it, and currently most technologies are designed by men. Interestingly, the majority of the key people in the field of Augmented Reality are also men. Augmented Reality (AR) is a recent technological advance that supplements the real world with virtual objects such as audios, videos, and graphics. Considered a novelty in the literature, combining AR and learning produces new digital media for innovating teaching. It improves how a learner perceives of and interacts with the real world.

This study aims to compare, contrast, and analyse the perceptions of male and female learners towards AR. The principle of usability — the extent to which an application or system can be used with effectiveness, efficiency, and satisfaction — is used as the differentiating factor. Also, a relevant prototype (AR-enhanced learning material) will be developed for students of IS 215, a course on Advanced Computer Systems, in the UP Open University. Afterward, an equal number of male and female students will be randomly selected for surveys based on the System Usability Scale (SUS) and the Technology Acceptance Model (TAM). An independent-samples t-test will then be performed on the obtained usability scores of male and female learners.

Corporate MOOC Analysis and Application Mode

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In recent years, due to the low completion rate on MOOC, the lack of a mature mode of operation and other issues, MOOC in the higher education field has gradually faded. More and more scholars believe that the future of MOOC does not lie in campuses but in enterprises. From the demand perspective, some enterprises at home and abroad have taken the initiative to introduce MOOC for corporate training, but more companies are hesitating. In summary, the analysis of cases of domestic and foreign enterprises using MOOC shows that they fall into three types: the direct use of university MOOC as an enterprise MOOC; independent developing enterprises MOOC; and using a third-party platform to build enterprise MOOC. SWOT was used as the method for analysing these three types of corporate MOOC. Through a literature review, the attitudes of different sizes and fields of corporate MOOC, and corporate preferences, tendencies, concerns and problems were analysed. This study aims to provide a preliminary analysis of the problems and advantages of corporate MOOC and lay the foundation for its future broader and better promotion.

Higher Education Learning Designs Incorporating New Technologies

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The University of New South Wales (UNSW) developed a small number of MOOCs in the form of 'controlled experiments'. The purpose was to see what could be learned from offering micro components of our accredited courses around the world and to trial various new pedagogical practices with large numbers of students, taking advantage of the big data afforded, and to use what was learned to improve mainstream courses and practices. One of these experiments was to test the effectiveness of the design of the RASE model — Resources-Activity-Support-Evaluation (Churchill, Fox and King 2016) — in developing and deploying the University's MOOCs. An online auditing system was put in place to monitor the structure of each MOOC; how students worked through the MOOC courses; and the extent to which they followed the RASE structure to support their learning. Data were collected from the MOOCs and initial indicators suggested that the balance between RASE components played a part in student satisfaction and successful completion of the courses. Central to RASE is an emphasis on the design of activities where students engage in using resources that demonstrate learning.

Student engagement has long been recognized as a serious challenge to learning and teaching in higher education. A growing body of evidence has shown that interactivity is the key to human learning and intelligence. This paper examines learning design and student engagement. It explores a practical, evidenced-based learning design model with applications of technology to improve student learning outcomes and satisfaction.

Evaluation, based on the data collected from the MOOCs, was used to identify the need for changes in capacity-building programmes for staff.

This research found that teachers need a flexible learning design model to assist their educational design and development.

Pedagogical and Economical Effects of an Education Platform Integrating an Authoring Tool, LMS and Mobile Applications

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The implementation of rich educational media such as videos on YouTube, along with relevant quiz problem sets, has become a standard features of e-learning platforms. However, the production and maintenance costs for such rich content is becoming a financial issue. Even the production costs of MOOC are becoming alarmingly high, and only selective institutions can produce and deliver video courses.

To cope with the issue of content production costs, Cyber University developed a web-based authoring tool in 2012, and made it available not only to the faculty members, but also to all the students and staff. The layout of the content consists of two windows displaying time-synchronized video and slides. The tool can be operated from any major browser of Windows PC, Mac or Chromeboo which is equipped with a Web camera and microphone. The content can be easily produced by live recording video or by uploading recorded video, and combined with the slides. Upon the completion of the production, the content is automatically published to the predefined course chapter in the LMS, and immediately becomes available for viewing. While all course contents are made available on the web-based LMS, the same course materials are also published in the Cyber University's iOS and Android mobile learning applications.

The university-wide implementation of the web-based authoring tool has not only improved the institution's content production capabilities, but also, more importantly, has shortened the production cycles and increased the update frequencies of the course content. Many of the video content titles can be self-produced by the faculty members in their own offices or off-campus. The media quality could be an issue, but pedagogical values override the media values. The same argument applies to the students' initiative of delivering their own content online. The results led to an interactive learning experience by means of online debates.

Design and Development of the Interactive M-Learning Resources Based on HTML5

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With the rapid development and wide popularization of mobile Internet technology and mobile devices, M-Learning has become a new way of learning. However, different mobile devices and development platforms are incompatible with each other, limiting the sharing of M-Learning resources. Even worse, boring M-Learning resources have hindered the development of M-Learning. On the basis of summarizing the general principles of the design of M-Learning resources, this paper analyses the importance of, and necessity for, developing interactive and cross-platform learning resources from the perspective of learners, using HTML5 to design and develop the physical model on a magnetic field of circular current. The results indicated that the application of HTML5 not only provides a new idea for the design and development of M-Learning resources, but also enriches their learner-centredness and interactivity — and it does not depend on the platform. Learners can get the resources only through the browser. Overall, it is adapted to the trend of ubiquitous learning.

Flipped Classroom as an Effective Pedagogy for Supporting Continuing Professional Development for Academics in Higher Education

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A flipped classroom is a pedagogy which reverses the traditional educational arrangement by delivering learning content outside the classroom, followed by arranging knowledge construction activities in the classroom. It contributes to deeper learning among students and has great potential to support continuing professional development (CPD) for academics. By adopting the flipped classroom approach, a CPD programme was developed to enhance the teaching skills of academics in higher education. The evaluation of its effectiveness followed Kirkpatrick's model and addressed the reactions, learning, behaviour, and results of the academics. Thirty-four academics who had attended the CPD programme answered a questionnaire and six of them attended a semi-structured interview. The findings revealed that the flipped classroom effectively supported CPD for academics. The outcome reached Level 3 of Kirkpatrick's model, indicating that the academics applied their acquired knowledge and skills in their teaching practice. To ascertain the sustainability of changes, a longitudinal evaluation is indicated.

Introducing Innovative Management Strategies at Open University Malaysia

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Since its establishment in August 2000, Open University Malaysia (OUM) has operated as a relatively conventional open university that champions open and distance learning (ODL) as a viable alternative pathway to higher education. OUM is unique in that it is a private institution owned by a consortium of Malaysia's first 11 public universities. While not dependent on Government funding, OUM must abide by national higher education regulations and is accountable to the consortium that owns it. The University has catered primarily for the educational needs of working adults, who benefit from an accessible, affordable and flexible approach that leverages on e-learning, self-managed learning and face-to-face tutorials. These characteristics define OUM as the premier ODL institution in Malaysia, and provide the context for its management approaches. In the more than 15 years it has been operating, OUM has weathered various internal and external disruptions and pressures that have brought into view opportunities to improve management strategies in order to enhance efficiency, productivity and quality across the University. Recently, OUM has embarked on initiatives to introduce new practices in its management strategies, including a more user-friendly open-sourced learning management system; setting up infrastructures and approaches towards fully-online delivery; revamping assessment structures; and utilizing fully-digital learning materials. While only recently implemented, these initiatives represent an institution-wide attempt to introduce an innovative outlook that aims to derive effective solutions to issues and challenges faced by the University. This paper will share OUM's management approaches and how these new innovative strategies hope to bring positive change to the University, its stakeholders and learners at large.

Honouring Students' Voices When Implementing ePortfolios in Higher Education

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Using ePortfolios with students in higher education should not be seen as something strange or foreign. Documenting life experiences through photos and videos, and sharing them online, are part of the daily activities of our digital learners — think about Facebook, Instagram and Twitter. Thus, the use of ePortfolios as a new way to share evidence of their learning in university should be an easy transition and a positive experience. Although an increasing number of researchers are focusing on instructors' perceptions of the implementation of ePortfolios in higher education, there is little research available on students' perceptions of ePortfolios and, more specifically, on the implementation process in undergraduate courses.

The purpose of this research during the pilot project is to explore students' perceptions regarding the implementation of ePortfolios (using the online platform Mahara) in undergraduate courses in a teacher-preparation programme. The study adopted a mixed method approach. The quantitative data were gathered through an online survey at the end of both the autumn and winter semesters with two different groups of students enrolled in an introductory course in teacher education. The qualitative data were obtained by semi-structured interviews and focus groups with students.

The findings will include students' previous experiences of using an ePortfolio; experiences in their teacher-preparation course; the challenges they have identified with Mahara as an ePortfolio platform; advice for other students about the creation of an ePortfolio; the current and future value of ePortfolios for their learning; the need for additional training to develop their skills and competencies; and their beliefs about the role and value of their ePortfolio in developing competencies for future employment.

A Strategic Approach to Supporting Academics with Technology Enhanced Learning: An Australian University Case Study

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Mirroring the increasingly diverse spectrum of students, university staff are also on an increasingly varied continuum. As learning technologies and related pedagogies accelerate in appearance and integration, many of the old-school academic staff are being left behind. This case study looks at some methods and approaches adopted at Bond University to help increase digital competencies and the uptake of new learning technologies by teaching staff at the lower end of the tech-savvy spectrum.

Modern students have new and different expectations. Increasing the uptake of new teaching methods, especially those using technology, is therefore critical for meeting students' needs and enhancing their learning. Targeting inexperienced and resistant academics will help to strengthen the weakest link in providing an effective modern education.

This paper outlines a case study approach to supporting low-end academics to leverage technology better to enhance student learning. It focuses on specific tools, methods and principles selected specifically for those struggling with or resistant to technology adoption in their classes.

The methodology follows a qualitative approach, where a thematic analysis of observations, comments (from both instructors and support staff), focus group data, and interviews was conducted using NVivo.

In general, the results indicated an overall positive experience. The training methods and tools utilized were seen as ability-appropriate and effective. However, generalizability of the results is limited as this was a case study. Follow-up observations are provided, both positives and negative, such as (i) ways to best engage hesitant academics; (ii) the strengths and weaknesses of each method; and (iii) advice from staff members involved.

Use of Learning Analytics to Predict the Academic Performance of Learners

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Learning analytics involves the measurement, collection and analysis of data for the purpose of enhancing the learning experience of learners. The use of learning management systems (LMS) is very popular with many local and overseas higher education institutions. In addition to LMS-based data, other student-based data — such as class attendance, assignment marks, and test and final examination scores for courses offered in an academic programme — are typical data that are used to assess the learning experience of students. This paper aims to establish factors that could be used to identify in a timely fashion those students who are not performing well in a programme. In this study, both LMS-based and student-based data related to a local part-time diploma programme are collected and analysed to study their effect on students' academic performance using the multiple linear regression technique. It was found that coursework has a significant effect on the students' final examination performance.

Applying Learning Analytics to Examine the Relationships Between Learners' Perceptions of Online Learning, Engagement, and Performance

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The main purpose of this research was to examine the relationships between learners' perceptions of online learning, their actual engagement, and academic performance in their studies, in the context of an online short refresher course on radiation protection and safety for professional practitioners organized by the Open University of Hong Kong (OUHK) during 2014–16. The course participants consisted of doctors, clinical nurses, and other health-related or industrial personnel who might have contact with radiation in their working environments. The online learning behaviour of these part-time learners has seldom been explored in the literature.

In this research, the engagement in various online learning activities of more than 4,000 participants was recorded by a number of tracking variables in the OUHK's learning management system (LMS), including login duration, level of participation in the discussion forum, and level of completion of the multimedia components and online activities. Learners' perceptions of online learning were collected by a summative scale in the end-of-course evaluation survey. Lastly, learners' performance in the course was represented by their results on an online objective test. Correlation analyses were conducted to explore the relationships between the variables. The findings indicated that the learners' perception of online learning was statistically significant in relation to their actual engagement in the online course as well as their performance in the test. This study has implications for course developers and instructional designers who design similar refresher courses for professional practitioners.

A Review of Learning Analytics Practices in Higher Education Institutions

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This study reviews and identifies the major patterns and trends of learning analytics practices in higher education institutions. The relevant literature published in 2010–2016 which reported on learning analytics practices was collected from Scopus and Google Scholar; and it covered a total of 43 institutions and categorized information about these institutions and practices. The results showed that most of the institutions involved were public ones in the US and the UK, of various sizes and offering different levels of study. The learning analytics practices were mainly institution-wide, apart from a small portion focusing on selected courses. The purposes of the practices were mostly to enhance the effectiveness of learning support and administration, followed by facilitating students' learning progress. The most common types of data collected for the practices were students' academic behaviours and their background information. Positive outcomes were reported for a majority of the practices, the most frequent ones being the increase in cost-effectiveness and understanding of students' learning behaviours. Other outcomes included the improvement of student retention; timely feedback and intervention; support for informed decision-making; and the provision of personalized assistance for students. The results provide an overview of the use of learning analytics in the higher education sector, on the basis of which the potential for future studies is discussed.

How Rasch Analysis Enriches Academic Analytics: A Case Study of a University English Course

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As an emerging field of interest, academic analytics aims to explore different means to advance knowledge in the field, and one of the ways is to make use of the Rasch model. Even though some scholars in the area have included Rasch in their research agenda — such as Strother and Sowers (2014) and Milligan, Bailey, Zhang and Rubinstein (2016) — empirical investigations adopting the Rasch model seem scarce.

This presentation will report the findings of a study on student progression in academic writing skills, applying two approaches: a traditional analytics approach and a Rasch-enabled analytics approach. The objective of this progression study was to find out how students' academic writing skills improve from their first university English course to their second one, and the data used were the course grades of over 4,500 students retrieved from a Hong Kong university. First, Rasch analysis was used to convert the raw scores in courses to equal interval unit logits. Next, the logit scores derived (for the Rasch-enabled study) and the raw scores of students (for the traditional study) were subjected separately to a series of analyses to see whether students showed improvement in their academic writing skills. The results obtained from these two subsets of data were then compared and analysed.

The preliminary results showed that, by taking item-difficulty into consideration, the Rasch-enabled study provided more information on how students improved between the two university courses. The Rasch dataset can also provide practitioners with a different perspective for understanding the performance of students. The findings suggest that Rasch analysis can be incorporated into part of traditional analytics. Other than discussing the results obtained, the presentation will conclude with some methodological recommendations for researchers' consideration.

Innovations in Responsible Management Education: A Review of Success Stories Towards a Proposed Theoretical Framework

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The Principles of Responsible Management Education (PRME) are a United Nations- led initiative, the main purpose of which is to ‘develop the capabilities of students to be future generators of sustainable value for business and society at large and to work for an inclusive and sustainable global economy’. Principle Two aims to incorporate into academic activities and curricula the values of global social responsibility as portrayed in international initiatives. The purpose of this paper is to propose a theoretical framework for improving teacher quality in management education by incorporating and being aligned with the UN PRME.

A cursory look at the literature covering responsible management education tells us that the following are urgent and important elements: integrated education, interdisciplinary collaboration, research and community, and industry engagement. Through these, responsible management education can become firmly established within the existing value structure of business schools. In addition, the following seem quite helpful: training for shareholder and stakeholder engagement; pedagogical innovations for leadership development and, in particular, lifelong learning, diversity and entrepreneurship; and the development of an institutional ethos in administration faculties and business schools that is consistent with the responsibility discourse, which should be able to provide high-quality technical and moral training. Sustainability-driven innovations and building innovation into the provision of education and social services seem to be the key aspects for signatories to the UN PRME.

This paper involves an exploratory inductive study by reviewing and scanning the literature for successful actual applications in business schools, as well as innovations in the implementation of the UN principles of responsible management education (UN PRME). It presents a preliminary theoretical frame of the elements necessary for efficacious curricula and successful training programmes for responsible management and leadership. Recommendations along the lines of pedagogical content and strategies are highlighted.

MOOCs? No, SPOCs! That’s Our Way to the Sustainability of a Dynamic ODeL University

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The Internet has become part of everyday life and has penetrated every aspect of modern society. It has changed the profiles of the traditional universities and the traditional open universities which offer distance education to working adults. Online teaching and learning is expanding the educational landscape beyond the traditional on-campus experience. Open and Distance E-learning (ODEL), together with MOOCs, appears to be an integral and crucial part of higher education. Small Private Online Courses (SPOCs), a variant of MOOCs, support hybrid learning in education by integrating online resources, technologies, and learners’ and faculty’s engagement online or in flipped classrooms.

In this paper, we address the dynamic and ambitious scheme of the Open University of Jiangsu, a traditional distance teaching institution, for restructuring and converting itself into an online teaching and learning university with the provision of SPOCs. We first discuss the initiative to adopt the SPOCs’ format, not the MOOCs’ format, in restructuring the courses for the university and then detail the implementation of web-delivered, multimodality with the supporting SPOCs and hybrid, flipped courses with their unique learner support networking. The internal qualitative and quantitative evaluation conducted three years later demonstrated hopeful signs for the ongoing project. Finally, we conclude that SPOCs might be an appropriate approach for sustainability for the traditional distance teaching institution, especially in the discourse of learning cultures with accreditation.

Pedagogical Tiers in an ESP Course for Early Childhood Education Students: A Qualitative Case Study

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One of the salient features of the pedagogy for English for Specific Purposes (ESP) is the preparation of L2 learners for effective verbal and written communication in their future discourse community. In Asian contexts, with the wide spectrum of research investigating ESP teaching and learning, there is, however, a paucity of literature on the development of academic literacy among students of early childhood education.

Grounded in the context of Hong Kong, this ongoing project examines the instructional practices in an undergraduate ESP course for early childhood education students, with the focus on how their disciplinary literacy is constructed within this 12-week course. The data in this qualitative study were collected through classroom observations, a narrative-based interview with the instructor, and a focus-group interview with purposefully sampled students, as well as other course-related artefacts. The initial findings suggest that the dynamics of this course are manifested through the prism of three underlying yet interdependent tiers: interdisciplinary learning, teacher expertise and reflective enquiry. This study is expected to provide substantial insights into sustaining a robust ESP curriculum for students in the education-related discipline.

Exploring a New Learning Methodology Using a Pheromones Model

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The use of e-learning in higher education institutions in the Philippines has slowly been gaining popularity in colleges and universities. With this development, pedagogies have changed to accommodate the use of various technologies for teaching and learning activities. Previous research has found that the introduction of a learning methodology is beneficial for students and educators alike, and that practice testing and distributed learning present the highest utility among the different learning techniques. It has also been shown that peer-mentoring is an effective way to help at-risk student to increase their grades.

This study aims to explore a learning methodology which makes use of an e-learning platform implementing an algorithm mimicked from nature — the pheromones model. A web-based assessment module was used as a prototype for the system. The questions used for assessments varied and accounted for different level of learning from Bloom's Taxonomy Ladder. An algorithm derived from how pheromones work in nature was captured and implemented in the prototype. Students took assessments using the prototype and, from their scores, model students (pheromones) were identified and paired with at-risk students. The algorithm made use of a mathematical representation of the attraction present when pheromones are excreted. The model students, paired with the at-risk students, 'tutored' the latter to help increase their test scores. The tutoring is embedded in the prototype. The results support the claim in earlier studies that reinforcement has a lot of promise when it comes to personalizing the learning process of a student. At-risk students scored higher in succeeding attempts after reinforcements were introduced through the prototype.

Bringing Online into the Classroom: A Preliminary Investigation of the Effectiveness of In-class Social and Formative Assessments

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It has been argued that formative feedback arising from formative assessment is ‘the single most useful thing teachers can do for students’ (Irons 2007). In a flipped classroom setting, formative assessment, with accompanying feedback, can be used to assess the state of students’ learning at the start of a face-to-face session, identifying areas of strength and weakness in their learning and indicating topic areas that require attention from the instructor. To investigate the effectiveness of this approach, the author conducted a preliminary six-week trial of an interactive assessment and engagement app in an introductory Human Resource Management class. Each week, students began their three-hour seminar with an anonymous, instructor-led, multiple-choice quiz that assessed their knowledge of the content areas covered in that week’s materials. The results indicated a trend towards enhanced learning over time, with student scores demonstrating a 58% improvement between week 1 and week 6. Informal feedback indicated that students valued the formative assessments, and requested that they continue throughout the course. The quizzes also enhanced class participation dramatically, with 100% of the students attending engaging with the class materials and contributing to collective learning. In conclusion, web-enabled formative assessment tools appear to be effective in-class activities, providing students with valuable feedback, while also improving their engagement.

Engaging the ‘Invisible’ Students: Using Multiple Forms of Collaboration in Distance Learning

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A consistent problem in distance learning is that students may become disconnected from the class community, given the lack of synchronous interaction (McBrien et al. 2009), and this may lead to them seeming ‘invisible’ to teachers who are accustomed to judging student engagement by face-to-face participation in conventional classrooms. One potential solution for this issue is the use of discussion forums, which can provide a platform for students to participate in alternative ways, and to build a sense of community and a space for critical thinking (Andresen 2009; Garrison 2006). However, discussion forums do have some limitations, including the effectiveness of group work when team members rarely or never meet (Kear 2004). Thus, a second solution involves building face-to-face group presentations into course designs, as a way to strengthen connections between students and create memorable learning experiences.

This paper examines an internationally collaborative learning project in a sociolinguistics course in a postgraduate TESL programme, and how two aspects of this project created alternative forms of student participation, encouraging the repositioning of these students from ‘invisible’ to active and engaged. Drawing on analysis of the students’ writing in the discussion forum posts, observations of students’ poster presentations, and data from student and teacher reflections, this paper suggests that the combination of online and face-to-face collaboration, as well as international and local collaboration, can provide important spaces for engagement and visibility within a distance learning context. The paper concludes by considering how to manage the practical challenges of organizing, facilitating, and assessing group work, and the ripple effect such projects can have throughout and beyond the teaching institution.

A Survey on the Learner Characteristics and Learning Effects of a Physics Experiment Micro-course

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The learning effects of a micro-course depend not only on the content and interface, but also on the learning characteristics of the learner. The purpose of this paper is to conduct an investigation on students who are studying a micro-course and figure out their characteristics and learning effects, and the correlation between them, which can provide advice and positive guidance for micro-course learners. The investigation uses the example of a physics experiment course in Tongji University, which is teaching with a mobile learning platform in a physics experiment micro-course. In order to establish the characteristics of students and the effects of physics learning, 280 students were investigated by a random sampling method, and 276 valid questionnaires were analysed by SPSS. The study makes a systematic analysis of the learner characteristics and learning effects on the basis of the previous theoretical research and practical applications on micro-courses, and explores the characteristics and skills of learners which can promote the learning effects in the micro-course learning system. The survey showed that differences in students' learning background, and their thinking, attitude and acceptance of using mobile devices for learning, affect the learning effects during the micro-course learning process. The results of the study can guide the learners to adjust their learning habits based on the use of the micro-course system, so as to help them to improve the learning effects during the learning process.

The Effectiveness of a Blended Learning Approach for Part-time Teacher Training

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Part-time teachers make a great contribution to the development of vocational and professional education and training (VPET), not only because they provide flexibility by increasing the workforce, but also bring up-to-date knowledge and skills in industries to the classroom. While part-time teachers are professionals in the industries they engage in, teaching could be a novel experience which challenges them when they start. Despite the recognised value of a part-time teacher training programme, some part-time teachers are unable to take or complete it, as most of them are committed to full-time work as well and they can hardly afford much time and effort for their studies. In view of this, the timing and mode of the part-time teacher training programme could be critical factors for its success. Could the implementation of blended learning in the part-time teacher programme be a solution which address this issue?

This paper presents a case study conducted at a vocational education institution in Hong Kong with a focus on the effectiveness of implementing blended learning practices in a part-time teacher induction programme. A questionnaire survey of the participants was conducted, programme facilitators were interviewed, and data on the part-time teacher induction programme were examined. Based on this information, the case study explored (1) the training needs and preference of part-time teachers, and how blended learning could enhance their motivation to complete the programme; and (2) the impact of blended learning on learning and teaching effectiveness. The findings revealed a slight increase in the programme completion rate after the implementation of blended learning; the mode of blended learning was preferred to face-to-face only and on-line self-paced learning only; and blended learning had a positive impact on the learning and teaching effectiveness.

The Conversion of Facebook's Function in Open Education Resources, with the Facebook English Fan Page of Rayduenglish as an Example

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This study uses the videos uploaded on the English Fan Page of Rayduenglish on Facebook from January 2016 to December 2016 to conduct a content analysis. It studies the behaviours of Web learners by collecting the 'Like', 'Comment', and 'Share' entries to understand which topics are more attractive to the fans. The research applies Social Media Marketing, Brand Identification, the Theory of Second Language Acquisition, and the Uses and Gratifications Theory to research the reasons behind the success of Rayduenglish. The research revealed that the 41 videos of the English learning method type, accounting for 36% of the total 115 videos, was the most popular type being shared. Each video of its type also outnumbered other types as regards sharing. Also what about the sharing of the videos on 'British or American'? 'British Slang vs American Slang' reached as high as 915, which illustrates the willingness to post this type of videos by the FB friends on their own FB Timelines after viewing them. The number of 'Likes' for the 'Entertainment' type of videos was the highest, with Jay Chou's 'Love Song Suite' reaching 8,500, which shows the attractiveness of the entertainment type to the fans while they are learning English. Therefore, it is suggested that for the long-term operation of the FB Fan Page, the owners should emphasize entertainment type videos while running the English teaching clubs, and interact with the fans in an animated way to prevent them from feeling bored.

A Mobile Educational Application for Acupuncture Point Learning with Augmented Reality

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This paper presents a mobile educational application for nursing students who are studying Chinese Medicine and Acupuncture in order to enhance their effectiveness in learning acupuncture points (acupoints). Acupoints are reaction points on the human body from the perspective of Traditional Chinese Medicine. Learning acupoints is not a straightforward task due to the difficulty in locating them, as well as the challenge of memorizing a huge amount of information, including the name, location and functions of each acupoint.

This application provides a virtual 3D hand model that immerses into the physical world with a front and back view to visualize the location of the acupoints and shows their details with the click of a button. This application also provides an AR function in order to help deep memorization of the acupoints, as the AR experience enhances learning motivation and is more likely to be stored in episodic memory, which is a part of the long-term memory and is responsible for storing personal events and experiences. An Acupoint Quiz function is also provided for revising users' knowledge of the acupoints and helping to strengthen their memory of them through repetitive practice. Lastly, there is an Acupoint Application function which shows examples of acupoint application in daily life, which enables the users to have a deeper understand of the acupoints.

We invited both the nursing students and students from other majors who were interested in this topic to fill out a questionnaire after using our application. Generally, the feedback received was positive, with most respondents agreeing that this application helped them to learn about acupoints in an effective way.

In conclusion, users will be familiar with the acupoints of a hand with their names, locations and usages after using our mobile application. The use of AR technology provides a new paradigm of interactions that can improve the degree of entertainment as well as learning efficiency.

Augmented Reality: A Mobile Learning Assistant in a College Physics Experiment Course

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A questionnaire about physics experiments conducted in our School recently indicated that college students face serious difficulties in launching experimental exploration alone due to the lack of complete online tutoring resources, and the established teaching effect is also reduced. Recent advances in mobile technologies make Augmented Reality (AR) applications available for the public at large, and many studies have reported their positive impact. However, very little has been done in terms of AR applications in physics experiments and their impact on physics education. By making Augmented Reality work in mobile environments, this paper introduces a mobile AR application with an example from an 'Integrated Hall sensor experiment' segment of a university physics experiment course. The programme frame design and flow chart for implementing the software are also presented. Finally, we designed and conducted a test to measure the effect of AR, and the analysis of the results showed that the application of AR had a significant supplemental learning effect as a mobile-assisted learning tool.

A Review of Mobile Learning Practices in Health-related Disciplines

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This study reviews and identifies the major patterns and trends of mobile learning practices in health-related disciplines. It addresses the disciplinary specialities of the use of mobile devices in this area, which is classified as a soft-applied discipline focusing on the acquisition of both knowledge and skills, as well as their application in professional practices. A total of 76 relevant studies from 2002 to 2016 which reported mobile learning practices in the higher education context were collected from Scopus for the review. The results showed that the practices were mainly in the nursing discipline. Most studies were experimental in nature rather than based on existing practices as an integral part of education programmes. Personal digital assistants and tablets were the devices most commonly used, while smartphones were not as popular as in related studies. The most frequent use of the devices was for access to reference materials, followed by facilitation of group learning, learning reflection and teacher-student interaction. Comparing the practices reported between 2002–2009 and 2010–2016, there was a clear trend for them to become more diversified in terms of disciplines, choices and uses of mobile devices, and introduce new technologies. The results reflect how mobile devices were used to cater for the characteristics of health-related education, such as the diversity of learning environments and the specific skill sets learners need to master for professional practices. The potential for future studies is discussed in the paper.

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