

ICOIE2023

International Conference on Open and Innovative Education



PROGRAMME & ABSTRACTS OF PAPERS

4-6 July 2023

**Hong Kong Metropolitan University
Hong Kong SAR**

Organizer:



香港都會大學
公開進修學院
Hong Kong Metropolitan University
School of Open Learning

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, Hong Kong Metropolitan University



Paul LAM Kwan-sing

President

Hong Kong Metropolitan University

It gives me great pleasure to welcome you to the 2023 International Conference on Open and Innovative Education (ICOIE), organised by Hong Kong Metropolitan University (HKMU). This year marks the 10th anniversary of the conference, and I am delighted that ICOIE has grown into a vital international platform for sharing quality research, effective practices, and well-formulated views and strategies related to open and innovative education, as well as a means of facilitating networking and collaboration. As in previous years, I am confident that this year's conference will provide numerous opportunities to engage with researchers and educators from around the world and to gain insights from their knowledge and experience related to educational innovation and openness.

Advances in open and innovative education have been driving transformation in education delivery amongst higher education institutions across the globe. As a pioneer in the field, with over 30 years' experience offering high-quality and flexible education, HKMU prides itself on keeping up to date with the latest developments. Our study programmes emphasise innovative teaching and learning approaches, as well as educational technologies to improve the student learning experience and outcomes. Open and innovative education is one of the University's strategic research areas, and ICOIE is our signature event demonstrating our commitment to this area through the promotion of relevant research and advances.

ICOIE 2023 covers a range of important and timely topics related to open and innovative education. The keynote speeches will address the future development of education for all; educational technology, particularly artificial intelligence in education; and disruptive education. Running in parallel with the conference is the Symposium on Agile-Blended Learning, which focuses on this innovative pedagogical approach being developed and promoted in HKMU. There will be a panel discussion forum on pedagogy for modern adult learners, and we are honoured to welcome a number of internationally renowned scholars and experts, who will share their views on a wide range of important developments in the field. I am certain that we will gain valuable insights from these activities, which will stimulate further research, inform pedagogical practices, enhance educational outcomes, and promote student success.

Finally, I would like to express my sincere gratitude to the Hong Kong Pei Hua Education Foundation, the Sino-British Fellowship Trust, and the Wu Jieh Yee Charitable Foundation for their generous sponsorship of this conference and the delegates. I would also like to thank the Conference and Programme Organising Committees for their tireless efforts to make this conference a great success.

Thank you again for attending the conference. For the delegates participating on-site, I hope you have a rewarding and enjoyable visit to Hong Kong this summer.

Message from the Chair, Conference Organising Committee



LI Kam-cheong

Chair

Conference Organizing Committee
Dean, School of Open Learning
Director, Institute for Research in
Open and Innovative Education
Hong Kong Metropolitan University

I am thrilled to welcome you to the 10th anniversary of the International Conference on Open and Innovative Education (ICOIE). Over the past decade, we have seen significant changes in the global education landscape. For example, the pandemic has accelerated the adoption of technology-mediated pedagogical and assessment approaches, which have played a pivotal role in education. Additionally, recent advances in artificial intelligence have presented both challenges and opportunities for the education sector, making it essential for education providers to transform their delivery methods to adapt to the changing environment.

ICOIE is an ideal platform for sharing research findings and innovative pedagogical ideas. This year, through a symposium in parallel, the conference has a focus on agile-blended learning as a strategy for metropolitan areas.

With a rigorous review process, we have accepted more than 100 papers from over 20 countries/territories across the globe. The papers cover a diverse range of topics, such as extended reality applications in education, innovations in pedagogy and curriculum design, game-based learning and academic analytics. I am confident that the papers will provide valuable insights into the latest research in our fields. Moreover, the conference will recognise outstanding contributions to open and innovative education through the Best Paper and Excellent Paper Awards, as well as the Student Paper Award.

We are fortunate to have distinguished scholars, including Professor Asha Singh Kanwar, President and Chief Executive Officer of the Commonwealth of Learning, Dr Eesa Mohammed Bastaki, President of the University of Dubai, Professor Albert D. Ritzhaupt from the University of Florida, Professor Denise Whitelock from the Open University, and Professor Gwo-Jen Hwang from the Taiwan University of Science and Technology, sharing their expertise as keynote speakers. We will also have a panel discussion forum on pedagogy for modern adult learners. We are honoured to have three internationally-renowned experts, namely Professor Melinda dela Peña Bandalara, Chancellor of the University of the Philippines Open University, Professor Lily Chan, Chief Executive and Vice Chancellor of Wawasan Open University, and Professor Jiyou Jia from Peking University, sharing their views on this intriguing topic. I am confident that their insights will be invaluable.

Finally, I would like to express my gratitude to the President, Provost and Vice-Presidents of HKMU for their kind leadership and support, which have been instrumental in the success of this conference. I also appreciate the efforts, enthusiasm, and dedication of the Organising Committee, Programme Committee, and colleagues from the Office of Research Affairs and Knowledge Transfer, the Office for Advancement of Learning and Teaching, the Information Technology Office and the School of Open Learning. I sincerely hope that the conference will be a rewarding and enriching experience for you.

Committees

Organizing Committee

Chair:	K C LI	School of Open Learning, HKMU
Vice-chairs:	Eva Y M TSANG Philips F L WANG	Office for Advancement of Learning and Teaching, HKMU School of Science and Technology, HKMU
Members:	Venus W M CHAN Simon K S CHEUNG Kathleen H M CHIM Samuel P M CHOI Doris Y K CHONG Jimmy X D KANG Cindy M F LAM Queenie P S LAW Patrick C W LEE William K W TANG Billy T M WONG Manfred M F WU	School of Arts and Social Sciences, HKMU Information Technology Office, HKMU Li Ka Shing School of Professional and Continuing Education, HKMU Lee Shau Kee School of Business and Administration, HKMU School of Nursing and Health Studies, HKMU School of Science and Technology, HKMU School of Education and Languages, HKMU School of Nursing and Health Studies, HKMU School of Arts and Social Sciences, HKMU School of Education and Languages, HKMU Institute for Research in Open and Innovative Education, HKMU Institute for Research in Open and Innovative Education, HKMU

Programme Committee

Chair:	K C LI	Hong Kong Metropolitan University
Vice-chairs:	Eva Y M TSANG Philips F L WANG Simon K S CHEUNG	Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University
Members:	Ishan Sudeera ABEYWARDENA Mohamed ALLY Melinda dela Peña BANDALARIA Alan BRUCE Venus W M CHAN Simon K S CHEUNG Kathleen H M CHIM Samuel P M CHOI Doris Y K CHONG Kandarpa DAS Vanessa DENNEN Juvy Lizette GERVACIO Gwo-Jen HWANG Dirk IFENTHALER Pedro ISAIAS Jimmy X D KANG Asha KANWAR Siu Cheung KONG Cindy M F LAM Franklin S S LAM Queenie P S LAW Patrick C W LEE Mei Kuen LI Rory MCGREAL Yosuke MORIMOTO Kiyoshi NAKABAYASHI Rizwan SALEEM Jean SALUDADEZ Demetrios SAMPSON William K W TANG Anuchai THEERAROUNGCHAI SRI Norman VAUGHAN Billy T M WONG Manfred M F WU Tsuneo YAMADA Muhammad ZAHEER	University of Waterloo Athabasca University University of the Philippines Open University Universal Learning Systems Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Krishna Kanta Handiqui State Open University Florida State University University of the Philippines Open University Taiwan University of Science and Technology University of Mannheim The University of New South Wales Hong Kong Metropolitan University Commonwealth of Learning The Education University of Hong Kong Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Hong Kong Metropolitan University Athabasca University The Open University of Japan Chiba Institute of Technology Virtual University of Pakistan University of the Philippines Open University University of Piraeus Hong Kong Metropolitan University Chulalongkorn University Mount Royal University Hong Kong Metropolitan University Hong Kong Metropolitan University The Open University of Japan Virtual University of Pakistan

About the Conference

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. These changes take place virtually in all institutions (offering conventional, online and/or open courses). With this background, Hong Kong Metropolitan University (HKMU) organizes the annual conferences on open and innovative education with the following aims to:

- provide a platform for sharing quality research, effective practices and well-formulated views relevant to open and innovative education;
- facilitate networking and cross-institutional collaboration among researchers and educators in fields of educational innovation and/or openness; and
- promote studies and advancements in open and innovative education.

Themes of conference papers include the following:

1. Academic/learning analytics
2. Agile/blended/agile-blended learning
3. AI/VR/AR/MR in education
4. Educational technology
5. Engaging students and learning design
6. Gamification for learning
7. Impacts of pandemic on online learning
8. Innovations in curriculum and pedagogy
9. Open education/OERs/MOOCs
10. Pedagogical innovations
11. Social media and technology-mediated learning communities
12. Technology-enabled student advising
13. Other topics relevant to the conference

Map and Venue

Main Campus of Hong Kong Metropolitan University



Main Campus

30 Good Shepherd St, Ho Man Tin, Kowloon



Wi-Fi Internet access is available throughout the HKMU campus.

Wi-Fi Username: WIFI2023

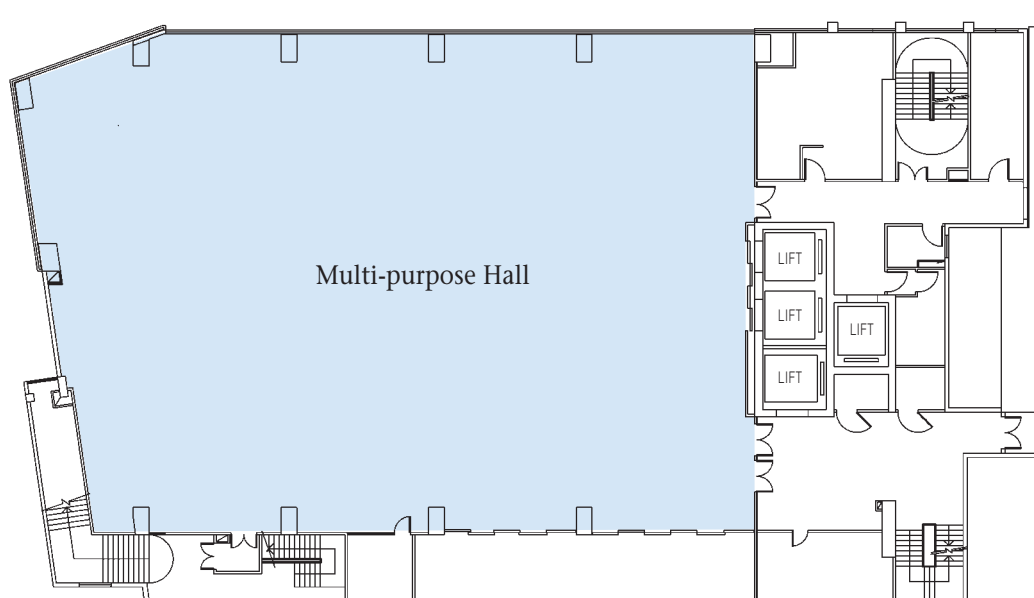
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Network: HKMU-Guest

Multi-purpose Hall (10/F)

- Opening Ceremony
- Forum
- Keynote Sessions
- Lunch and Dinner
- Coffee, Refreshments and Networking Sessions
- Closing Ceremony

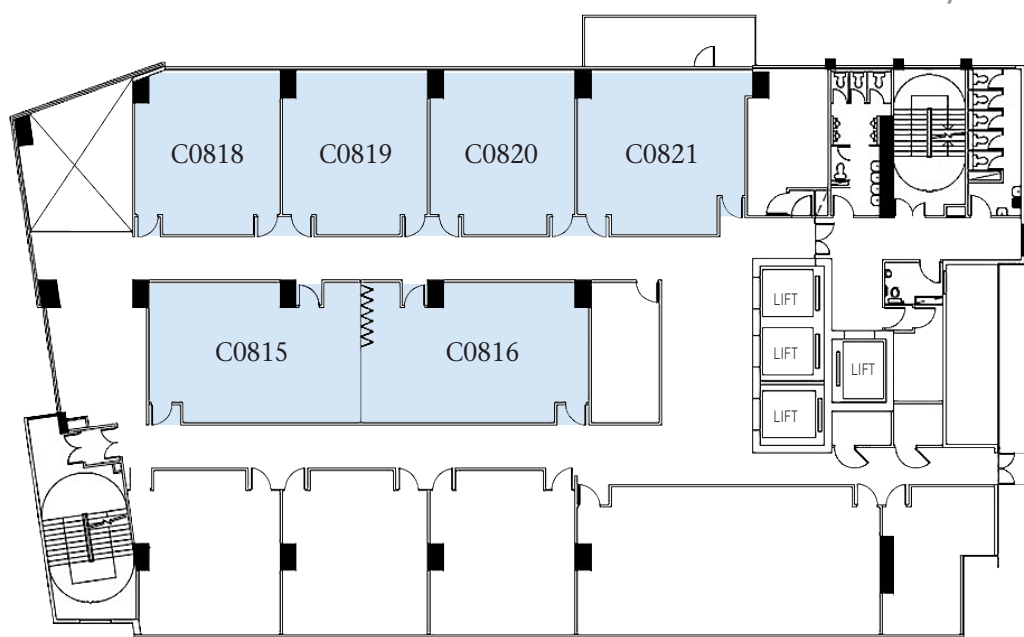
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10/F



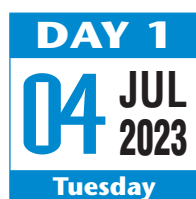
C0815, C0816, C0818, C0819, C0820 and C0821 (8/F)

- Parallel Paper Presentation Sessions
- Workshop

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8/F

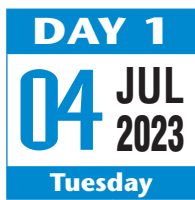


Programme



09:30–10:30	Registration	Multi-purpose Hall , 10/F
10:30–11:00	<p>Opening Ceremony</p> <p>Welcoming Remarks Paul LAM Kwan-sing President Hong Kong Metropolitan University</p> <p>Opening Address LI Kam-cheong Chair, Organizing Committee</p>	Multi-purpose Hall , 10/F
11:00–12:00	<p>Keynote Session I</p> <p>Open and Innovative Education for All</p> <p>Speaker Asha KANWAR President & CEO Commonwealth of Learning <i>Please refer to p.20 for details.</i></p>	Multi-purpose Hall , 10/F
12:00–13:30	Lunch	Multi-purpose Hall , 10/F
13:30–14:30	<p>Keynote Session II</p> <p>Exploring an Innovative Pedagogical Strategy for Metropolitans: Agile-Blended Learning</p> <p>Speaker LI Kam-cheong Dean, School of Open Learning Director, Institute for Research in Open and Innovative Education Hong Kong Metropolitan University <i>Please refer to p.21 for details.</i></p>	Multi-purpose Hall , 10/F
14:30–15:30	<p>Parallel Paper Presentation Session I <i>Please refer to p.12 for details.</i></p> <p>C0815, C0818, C0819, C0820, C0821, 8/F</p>	<p>Workshop Practicing Agile-Blended Learning: Course (Re-)Design and Implementation</p> <p>Facilitators William TANG Ko-wai Acting Head of Education and Assistant Professor School of Education and Languages Hong Kong Metropolitan University</p> <p>Billy WONG Tak-ming Deputy Director Institute for Research in Open and Innovative Education Hong Kong Metropolitan University <i>Please refer to p.30 for details.</i></p> <p>C0816, 8/F</p>
15:30–16:00	<p>Coffee and refreshments</p> <p>Networking Session <i>Please refer to p.31 for details.</i></p>	Multi-purpose Hall , 10/F

Programme



16:00–17:30

Forum

Pedagogy for Modern Adult Learners

Panelists

Melinda dela Peña BANDALARIA

Chancellor

University of the Philippines Open University

Lily CHAN

Chief Executive and Vice Chancellor

Wawasan University

JIA Jiyou

Professor and Head of the Department of Educational Technology

Peking University

Facilitator

LI Kam-cheong

Dean, School of Open Learning

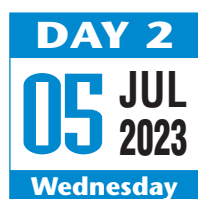
Director, Institute for Research in Open and Innovative Education

Hong Kong Metropolitan University

Please refer to p.27 for details.

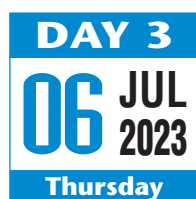
Multi-purpose
Hall , 10/F

Programme





09:00–09:30	Registration	Multi-purpose Hall , 10/F
09:30–11:00	Parallel Paper Presentation Session II <i>Please refer to p.14 for details.</i>	C0815, C0816, C0818, C0819, C0820, C0821, 8/F
11:00–11:30	Coffee and refreshments Networking Session <i>Please refer to p.31 for details.</i>	Multi-purpose Hall , 10/F
11:30–12:30	Keynote Session III The Future of Educational Technology: Integration, Intelligence, Interaction, and Imagination Speaker Albert D. RITZHAUPT Professor of Educational Technology and Computer Science Education Associate Director for Graduate Studies in the School of Teaching and Learning University of Florida <i>Please refer to p.22 for details.</i>	Multi-purpose Hall , 10/F
12:30–14:00	Lunch	Multi-purpose Hall , 10/F
14:00–15:30	Parallel Paper Presentation Session III <i>Please refer to p.16 for details.</i>	C0815, C0816, C0818, C0819, C0820, C0821, 8/F
15:30–16:30	Keynote Session IV AI and Digital Assessment: Driver or Disrupter? Speaker Denise WHITELOCK Professor of Technology Enhanced Assessment and Learning Director, Institute of Educational Technology The Open University <i>Please refer to p.23 for details.</i>	Multi-purpose Hall , 10/F
16:30–17:00	Coffee and refreshments Networking Session <i>Please refer to p.31 for details.</i>	Multi-purpose Hall , 10/F
17:00–18:00	Parallel Paper Presentation Session IV <i>Please refer to p.18 for details.</i>	C0815, C0816, C0818, C0819, C0820, C0821, 8/F
18:00–19:30	Dinner Celebration of 10th anniversary	Multi-purpose Hall , 10/F

Programme



09:00–09:30	Registration	Multi-purpose Hall , 10/F
09:30–10:30	<p>Keynote Session V</p> <p>The 21st Century Disruptive Education in a Time of Transformation</p> <p>Speaker Eesa Mohammed BASTAKI President University of Dubai <i>Please refer to p.24 for details.</i></p>	Multi-purpose Hall , 10/F
10:30–11:00	<p>Coffee and refreshments</p> <p>Networking Session <i>Please refer to p.31 for details.</i></p>	Multi-purpose Hall , 10/F
11:00–12:00	<p>Keynote Session VI</p> <p>Research Topics, Challenges and Experimental Designs of Artificial Intelligence in Education</p> <p>Speaker HWANG Gwo-Jen Chair Professor, Graduate Institute of Digital Learning and Education Taiwan University of Science and Technology <i>Please refer to p.26 for details.</i></p>	Multi-purpose Hall , 10/F
12:00–12:30	<p>Closing Ceremony</p> <p>Announcement of Paper Award Results LI Kam-cheong Chair, Organizing Committee</p> <p>Closing Remarks Reggie KWAN Ching-ping Provost Hong Kong Metropolitan University</p> <p>Closing Address Eva TSANG Yuen-mei Vice-chair, Organizing Committee</p>	Multi-purpose Hall , 10/F

Parallel Paper Presentation Session I

Room 1 (Venue: C0815)	Room 2 (Venue: C0818) (Student Paper Presentation Session)
Impacts of pandemic on online learning	Impacts of pandemic on online learning
<p>Students' Acceptance of End-of-Semester Online Listening Assessment during COVID-19 pandemic: A Case from Mainland China</p> <p>Guan Yuanyuan Gwendoline Yancheng Teachers University</p> <p></p> <p>P.82</p>	<p>Online Teaching for Young Children with Special Needs During the COVID-19 Pandemic</p> <p></p> <p>Yi Zhou Nanjing Normal University of Special Education and Woosong University</p> <p>Luis Miguel Dos Santos Woosong University</p> <p>Jiabao Wu Woosong University and Changzhou College of Information Technology</p> <p>Yongchuan Chen Woosong University and Sun Yat-Sun University</p> <p>Ping Fan, Hangfei Zhao and Xiongfei She Woosong University and Tourism College of Zhejiang</p> <p>Tao Guo Woosong University and Nanjing Xiaozhuang University</p> <p>Ho Fai Lo City University of Macau</p> <p>Ching Ting Tany Kwee The University of New South Wales</p> <p>P.76</p>
<p>Engineering Student Perspective of Digital Reading in International Education</p> <p>Sherif Welsen The University of Nottingham Ningbo China</p> <p>Dariusz Wanatowski The University of Leeds</p> <p></p> <p>P.79</p>	<p>The Self-Efficacy of Hybrid Learning of International Undergraduate Students in the Post-Pandemic Australia</p> <p></p> <p>Ching Ting Tany Kwee The University of New South Wales</p> <p>Luis Miguel Dos Santos Woosong University</p> <p>Ho Fai Lo City University of Macau</p> <p>Yongchuan Chen Woosong University and Sun Yat-Sun University</p> <p>Xiongfei She, Hangfei Zhao and Ping Fan Woosong University and Tourism College of Zhejiang</p> <p>Jiabao Wu Woosong University and Changzhou College of Information Technology</p> <p>Yi Zhou Woosong University and Nanjing Normal University of Special Education</p> <p>Tao Guo Woosong University and Nanjing Xiaozhuang University</p> <p>P.77</p>
<p>Research on the Current Situation of Online Learning Habits of University Students during the Epidemic -with H University as a Case Study</p> <p>Hanbing Zhang and Xuelian Li Shanghai International Studies University</p> <p></p> <p>P.80</p>	<p>Engaging students and learning design</p> <p>The Influence of Online Teaching Behavior on Students' Learning Engagement: Take Comprehensive English Course as an Example</p> <p></p> <p>Lihua Peng, Hui Jin, Xueyun Li, Junhong Pan and Xinyue Tian Shanghai International Studies University</p> <p>P.64</p>
<p>Students' Perceived Course Satisfaction over an Open Learning Course Delivered in Three Different Modes</p> <p>Patrick Lee Chi-Wai Hong Kong Metropolitan University</p> <p></p> <p>P.81</p>	<p>Pedagogical innovations</p> <p>The Project-Based Learning Approach in Improving Students' Understanding of Environmental Topics in Geography</p> <p></p> <p>Ruzaina Abd Jabbar and Noor Dayana Abd Halim Universiti Teknologi Malaysia</p> <p>P.101</p>



















Parallel Paper Presentation Session I

Room 3 (Venue: C0819)	Room 4 (Venue: C0820)	Room 5 (Venue: C0821)
AI/VR/AR/MR in education	Agile/blended/agile-blended learning	AI/VR/AR/MR in education
Teacher Perspectives on Micro-experiential Training Strategy in Metaverse  Jun Xiao and Qingchun Bai Shanghai Open University Tingting Zhang Shanghai Normal University P.46	Agile Blended Learning: A Promising Approach for Higher Education in the UAE  Eesa M. Al Bastaki, Sara Suleymanova, Arunprasad Purushothaman, Nasiruddeen Muhammad and Debolina Halder University of Dubai P.39	Effects of a Mind-mapping-based SCIT Approach within Virtual reality Contexts on High School Students' Presentation Performance and Engagement  Shu-Yun Chien and Gwo-Jen Hwang Taiwan University of Science and Technology P.45
Benefits of Integrating VR Game Development Project into a University Computer Science Course: A Case Study  Yoshihiro Hirata and Yoko Hirata Hokkai-Gakuen University P.48	A Blended Learning Space of Doing Capstone Research Projects among Practitioners in Professional and Vocational Education: Inter- and Intra-Learner Variations through the Phenomenographic Analysis  Percy Lai Yin Kwok, George Siu Keung Ngai, Stephen Wai Hung Wong, Charles Zhi Chao Li and Soni Pui Shan Tung The Education University of Hong Kong P.41	Edu-Metaverse: A Unified Architecture  Li Zhang and Xiaoxiao He Xi'an University of Posts & Telecommunications Ralf Schellhase University of Applied Sciences P.50
Labyrinths of Timelines in Physics Teaching with the Virtual Tours Technology  Oleg Yavoruk Independent Scholar P.44	Developing Students' Self-regulated Learning Skills for Blended Learning  Juanita Kong, Bavani D/O Santhra Sagarar, Jia-Yi Han, Peng-Cheng Wang and Eric C-P Chua Singapore Institute of Technology Fun-Man Fung National University of Singapore Joshua J Gooley Duke-NUS Graduate Medical School P.43	Application of Virtual Reality in the Construction of Gamification Teaching Resources in the Digital Age: A Case of Humanistic English in Chinese Open Education  Jing Yuan, Aiping Li and Xichun Han The Open University of Xi'an P.50
Academic/learning analytics	Teacher Perceptions of Recorded Lessons as Learning Instruments at Hong Kong Universities  Po-kan Lo The Hong Kong Polytechnic University Man-him Wong The Chinese University of Hong Kong P.39	Leveraging AI to Embed Employability in the Curriculum: Implications for Course Design and Delivery  Vlasios Sarantinos and Hilary Drew University of the West of England P.52
The Use of Grey Relational Analysis in Analytics: Enhanced Assessment Environments  Dirk Ifenthaler University of Mannheim and Curtin University Muhittin Sahin Presidency of the Republic of Turkey Human Resources Office, and University of Mannheim P.34		

Parallel Paper Presentation Session II

Room 1 (Venue: C0815) (Student Paper Presentation Session)	Room 2 (Venue: C0816)	Room 3 (Venue: C0818) [Putonghua Session]
Innovations in curriculum and pedagogy	Impacts of pandemic on online learning	Agile/blended/agile-blended learning
<p>Analysis of Online Project-Based Learning Factors Affecting the Learning Motivation of Art Design Students in a Higher Vocational College</p> <p>Jiabao Wu Woosong University and Changzhou College of Information Technology</p> <p>Luis M. Dos Santos Woosong University</p> <p>Ho Fai Lo City University of Macau</p> <p>Ching Ting Tany Kwee The University of New South Wales</p> <p>Xiongfei She, Hangfei Zhao and Ping Fan Woosong University and Tourism College of Zhejiang</p> <p>Yongchuan Chen Woosong University and Sun Yat-Sun University</p> <p>Yi Zhou Woosong University and Nanjing Normal University of Special Education</p> <p>Tao Guo Woosong University and Nanjing Xiaozhuang University</p> <p>P.86</p>	<p>Adaptations and challenges in organising extracurricular activities during the COVID-19 pandemic: a qualitative study in Hong Kong's higher education</p> <p>Yuk Ting Hester Chow, Eugene S. Tam and Pui Ling Ada Chan The Hong Kong Polytechnic University</p> <p>C. H. Li Hong Kong Metropolitan University</p> <p>P.78</p> <p>Online learning in older adult education: Teachers' transformation during the Pandemic in Taiwan</p> <p>Ya-Hui Lee Chung Cheng University</p> <p>Yi-Fen Wang Tainan Junior College of Nursing</p> <p>P.73</p>	<p>A Study on The Effectiveness of Blended Learning in Assisting the Elders to Maintain Cognitive Function in A Elderlycare Center</p> <p>Chia-Tzu Lin Chung Cheng University and Chiayi Hospital</p> <p>P.40</p>
<p>Promote In-service University Teachers' Learning Design Capacities through Learning Design Tringle and Learning Design Studio</p> <p>Kun Liu, Nancy Law and Jianhua Zhao The University of Hong Kong</p> <p>P.91</p>	<p>Open education/OERs/MOOCs</p> <p>Developing Open Educational Resources to Increase Access to Information Regarding Metacognition</p> <p>Gregory P. Thomas University of Alberta</p> <p>P.96</p>	<p>Engaging students and learning design</p> <p>Online Learning Support Design in the Context of Educational Digital Transformation: Based on the Perspective of Teachers</p> <p>Lamei Wang and Yuanyi Qi Shanghai Open University</p> <p>P.70</p>
<p>Cultivating Learners' Critical Consciousness and Empathy through Digital Storytelling as a Critical Pedagogy</p> <p>Edgar Bagasol Jr, Marvom Cajés and Hannson Namoc University of the Philippines Cebu</p> <p>P.87</p>	<p>AI/VR/AR/MR in education</p> <p>Fighting Fires with Mixed Reality: The Future of Fire Safety Training and Education</p> <p>Boon Giin Lee, Matthew Pike, Joseph Thenara and Dave Towey University of Nottingham Ningbo China</p> <p>P.47</p>	<p>AI/VR/AR/MR in education</p> <p>The Influence of Interactive Augmented Reality Picture Books on the Approaches to Learning of 5-6-year-old Preschool Children</p> <p>Xianli-Fan, Zemin-Liu, Yi-Liu, Chenchen-Lin and Xindong-Ye Wenzhou University</p> <p>P.51</p>
<p>Let's Get Ethical: Negotiating Ethical Engagement of Learners with Communities in Digital Storytelling through Process Documentation</p> <p>Hannson Namoc, Beatrice Jubilee Orbiso, Edgar Bagasol Jr and Marvin Cajés University of the Philippines Cebu</p> <p>P.92</p>	<p>Gamification for learning</p> <p>Using the Goal-Access-Feedback-Challenge-Collaboration (GAFCC) plus Endogenous Fantasy gamification model significantly improves online student cognitive engagement</p> <p>Khe Foon Hew and Gulipari Maimaiti The University of Hong Kong</p> <p>P.72</p>	<p>Innovations in curriculum and pedagogy</p> <p>Developing Science Ability Training Materials and Teaching Models for Primary School Girls</p> <p>Ming Shan Chiang DongHwa University</p> <p>Ching Ying Shen Taiwan Normal University</p> <p>Ying Ju Hsin Changhua County Yongjing Elementary School</p> <p>Michael Y. Chiang SunYat-sen University</p> <p>P.90</p>
<p>Academic/learning analytics</p> <p>The Developing Process of Assistive Technology in Elderly Care: Based on Experiential Learning</p> <p>Ya-Hui Lee and Hsien-Ta Cha Chung Cheng University</p> <p>Yi-Fen Wang Tainan Junior College of Nursing</p> <p>P.36</p>	<p>Educational technology</p> <p>Issues, Innovations, and Challenges: Simulation Technologies in Related Learning Experiences</p> <p>Ria Valerie D. Cabanes, Allysa Mae Gargarino, Jammile Delos Reyes, Rachel Anne Joyce Sales, Alaine Richelle Ramos, Bernard Paolo Secreto, Queenie Roxas-Ridulme, Rita Ramos and Ronaldo de Jesus University of the Philippines Open University</p> <p>P.59</p>	<p>Flipped Science Classroom — Integrating Creative Problem Solving and Science Inquiry Models into Science Teaching II: Establishing Cloud-based Evaluation System</p> <p>Ming Shan Chiang Dong Hwa University</p> <p>Ching Ying Shen Taiwan Normal University</p> <p>Ying Ju Hsin Changhua County Yongjing Elementary School</p> <p>Michael Y. Chiang SunYat-sen University</p> <p>P.90</p> <p>Flipped Science Classroom: Integrating Creative Problem Solving and Science Inquiry Models into Science Teaching</p> <p>Ming Shan Chiang Dong Hwa University</p> <p>Ching Ying Shen Taiwan Normal University</p> <p>Ying Ju Hsin Changhua County Yongjing Elementary School</p> <p>Michael Y. Chiang SunYat-sen University</p> <p>P.91</p>


















Parallel Paper Presentation Session II

Room 4 (Venue: C0819)	Room 5 (Venue: C0820)	Room 6 (Venue: C0821)
Impacts of pandemic on online learning	Open education/OERs/MOOCs	Academic/learning analytics
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Digital Learning and the ESL Online Classroom in Higher Education: Teachers' Perspectives  Po-kan Lo The Hong Kong Polytechnic University P.77	A Scoping Review of Measures of Students' and Teachers' Experiences in Learning Management Systems  Juming Jiang, Patricia D. Simon and Luke K. Fryer The University of Hong Kong P.97	Retesting Influence on Learning Behaviors of Online Students  Haiyan Zhu and Qunxing Ding Kent State University P.37
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Perceived Health Status and Learning Experiences during COVID-19  Tzu-Hua Ho Asia University Wufeng Sui-Hua Ho Soochow University P.83	A Study on the Digital Reading Profile of Citizens  Bing Wu Shanghai Open University P.99	Research on Smart Evaluation Method based on Group Awareness for Project-based Collaborative Learning Environment  Ji Shi, Rui Zhang and Yangcun Feng Tongji University P.36
Caring career development of school leavers with special educational needs amid the COVID-19 pandemic: Examining the effects of the Jockey Club Youth Academy on career-related outcomes  Kuen Fung Sin, Lan Yang, Fengzhan Gao and Kin Kwan So The Education University of Hong Kong P.84	Agile/blended/agile-blended learning Designing Technology-Based e-Learning for Adult Education in the Philippine Agriculture Sector: The PCAARRD Advanced Learning Management System Experience  Eriza C. Asilo, Jesselle S. Laranas and Fezoil Luz C. Decena Philippine Council for Agriculture, Forestry and Natural Resources Research and Development P.40	School Based Management Committee System, Principal Leadership Style, Effective Communication System and Public Secondary Schools Students' Academic Achievement in Oyo State  Aselebe Kamorudeen Oladapo Emmanuel Alayande College of Education P.33
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			The self-efficacy and satisfaction of students in the digital learning environment  Xiongfei She Tourism College of Zhejiang and Woosong University Yi Zhou Woosong University and Nanjing Normal University of Special Education Jiabao Wu Woosong University and Changzhou College of Information Technology Yongchuan Chen Woosong University and Sun Yat-Sun University Ching Ting Tany Kwee The University of New South Wales Luis Miguel Dos Santos Woosong University Hangfei Zhao and Ping Fan Woosong University and Tourism College of Zhejiang Ho Fai Lo City University of Macau Tao Guo Woosong University and Nanjing Xiaozhuang University P.54











Parallel Paper Presentation Session III

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	ELT through TBLT in the ESL/ EFL Classroom: Strategies to Harmonize Language Acquisition and Language Retention  Sohani Gandhioke and Chanchal Singh Shantou University P.65	Engaging students and learning design Enriching the Learning Experience of Tourism Students through a Live Broadcasting Tour  Larry K.W. Ching Hong Kong Metropolitan University Michael T.H. Lai Macau University of Science and Technology Emmy Yeung University of Chester P.65

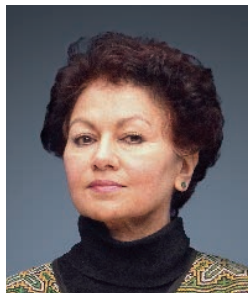
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Room 4 (Venue: C0819)	Room 5 (Venue: C0820)	Room 6 (Venue: C0821)
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Development of Immersive Virtual Reality Hospital Fire Management and Evacuation Training Program for Nursing Students in Hong Kong  Wendy Wong Wing Chi and Gary So Long Hei Hong Kong Metropolitan University P.53	Are the Eye and the Voice Related in Cognitive Processing? Rethinking Pronunciation Teaching through Eye-tracking Research  Joshua H. Chan and Winnie O.W. Chor Hong Kong Baptist University P.101	An Evaluation of an AR Educational Game in Design and Engineering Education: A Students-as-Partners Approach to Curriculum Innovation  Amarpreet Gill, Derek Irwin, Dave Towey, Yanhui Zhang, Bingze Li, Linjing Sun, Zhichao Wang, Wanling Yu, Ruiqi Zhang and Yaxin Zheng University of Nottingham Ningbo China P.71
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Harnessing Artificial Intelligence (AI) in Learning and Teaching: Using AI as Learning Partner to Facilitate Constructive Peer Learning  Yuk-Kwan Ricky Ng, Robert Wells and Kwan-keung Steven Ng The Hong Kong Academy for Performing Arts Dorothy Hon Federation for Self-financing Tertiary Education P.48	Standing on Giants' Shoulders: Embracing AI-generated Education Content for the Future of Computer Science Students  Matthew Pike and Dave Towey University of Nottingham Ningbo China P.46 Practical Immersive VR Applications in Teaching and Learning: A Classroom Arrangement Documentation Study  Chor Pan Chung, Ka Shun Hung, Yip Chun Au Yeung and Wincy Chan The University of Hong Kong P.51	On the other side of the screen: Do evaluators' evaluations match teachers' self-perceived online teaching effectiveness?  Joshua H. Chan Hong Kong Baptist University P.103

Keynote Session I



Asha KANWAR

President & CEO
Commonwealth of Learning

Professor Asha Singh Kanwar, one of the world's leading advocates of learning for sustainable development, is the President and Chief Executive Officer of the Commonwealth of Learning. Throughout a career spanning over 35 years, she has made outstanding contributions in the areas of teaching, research and international development.

Prior to joining COL, Professor Kanwar was a senior consultant in open and distance learning at UNESCO's Regional Office for Education in Africa (BRED). She has also served as Director, School of Humanities and as Pro-Vice Chancellor at the Indira Gandhi National Open University (IGNOU) in New Delhi, India. She was a Fulbright Fellow for post-doctoral research at Iowa State University in the US, where she was later invited to teach. Currently, she serves on the boards of several organizations, including the Governing Board of the UNESCO Institute for Information Technologies and Education (IITE).

Professor Kanwar won several international awards, including the International Council for Open and Distance Education (ICDE) Prize of Excellence, and the Meritorious Service Award for outstanding contributions in open and distance education from the Asian Association of Open Universities. She has been conferred nine honorary doctorates from Universities in Asia, Africa, Europe and North America.

Keynote address

Open and Innovative Education for All

The Covid-19 pandemic highlighted various gaps in the education system. Most were unprepared for the sudden transition to online learning, institutions lacked digital infrastructure, teachers and learners did not have the capacity to deliver technology-enabled learning and quality digital content was not readily available. The result was learning loss, the exacerbation of existing inequalities and high levels of social and emotional stress.

As online learning became more acceptable, there was a greater emphasis on open and innovative education and the need to build resilience for future disasters. Experts estimate that the climate crisis will be the most pressing challenge in the coming decade. What kind of research will be needed to prepare for the uncertain future that lies ahead? Can open distance and online learning reduce the carbon footprint of education? What will be the green and blue skills required to equip learners for the jobs that do not yet exist? How will technologies be harnessed to build capacity and achieve scale? How can we provide better educational opportunities for persons with disabilities and ensure that no one is left behind? What will be the role of universities in contributing to lifelong learning and sustainable development?

It is clear that the idea of openness must be revisited and that innovative solutions need to be implemented for transforming education that is relevant, equitable and affordable for all.

Keynote Session II



LI Kam-cheong

Dean, School of Open Learning
Director, Institute for Research in
Open and Innovative Education
Hong Kong Metropolitan University

KC Li is the inaugural Dean of the School of Open Learning at Hong Kong Metropolitan University (HKMU). He concurrently serves at HKMU as the Director of the Institute for Research in Open and Innovative Education and the Director of Research Affairs and Knowledge Transfer. He has also been appointed as a Visiting Professor by education and research institutions such as Middlesex University of the United Kingdom, and Hebei Academy of Social Sciences and Hebei University of Economics and Business in China. Dr Li has published about 200 refereed journal articles, book chapters, conference papers and 8 monographs/textbooks, and co-edited 12 books. He is the Editor-in-Chief of the *Asian Association of Open Universities Journal* and one of the editors of the 'Innovation and Technology in Education' section of *SN Computing Science*. He has also served as a guest editor of special issues for five renowned journals and an editorial board member for distinguished journals. Dr Li is keenly interested in research in innovative and open education and has successfully obtained funding for numerous research and development projects. He has earned three bachelor's degrees, four master's degrees and a PhD from renowned institutions, including the University of Hong Kong, Peking University, and the University of London.

Keynote address

Exploring an Innovative Pedagogical Strategy for Metropolitans: Agile-Blended Learning

In contemporary knowledge economies, urban professionals must continually update their expertise and abilities. However, due to a myriad of responsibilities, such as extended work hours and family commitments, these individuals prioritize learning efficiency and effectiveness. They seek flexible, personalized educational experiences and demonstrate a propensity for self-directed learning. With rapid technological advancements, urban learners also expect seamless integration of learning technologies throughout their educational journey.

In response to these unique learner needs, the author and his team propose a novel pedagogical approach: Agile-Blended Learning (AB learning), specifically designed for populations in modern cities. The AB learning approach emphasizes four core principles: flexibility, collaboration, learner autonomy, and technology mediation. AB learning incorporates adaptability across various aspects of the learning experience, including time, location, mode of study, pace, course structure, learning activities, and instructional materials. In addition, collaboration within the AB learning framework highlights the importance of both peer-to-peer interaction and cooperation between learners and educators throughout the learning process. Furthermore, this approach grants learners a high degree of autonomy in planning, designing, and implementing their education, encompassing factors such as time, space, content, and learning modes.

Finally, AB learning encompasses a diverse array of technologies to augment flexibility and personalization. The implementation of educational technologies not only enhances learners' experiences but also bolsters their overall learning effectiveness.

Keynote Session III



Albert D. RITZHAUPT

Professor of Educational Technology
and Computer Science Education
Associate Director for Graduate
Studies in the School of Teaching
and Learning
University of Florida

Professor Albert D. Ritzhaupt is a Professor of Educational Technology and Computer Science Education, and the Associate Director for Graduate Studies in the School of Teaching and Learning in the College of Education at the University of Florida. An award-winning researcher, Professor Ritzhaupt has published more than 100 journal articles, book chapters, technical reports, and conference proceedings; and has presented his research at numerous state, national, and international conferences. His primary research areas focus on the design, development, and evaluation of theory-inspired, technology-enhanced learning environments, computer science education, operationalizing and measuring technology integration in education, and the professional competencies of educational technology professionals. Professor Ritzhaupt has been funded by the Florida Department of Education (FLDOE), National Institutes of Health (NIH), and National Science Foundation (NSF) to support his research endeavors. His publications have appeared in multiple leading venues, including *Educational Technology Research and Development*, *Computers & Education*, and *Computers in Human Behavior*. Professor Ritzhaupt is Editor-in-Chief of the *Journal of Research on Technology in Education* (JRTE), the flagship research journal of the International Society for Technology in Education (ISTE); a consulting editor for *Educational Technology Research and Development*; a member of the scientific board of *Computers and Human Behavior*; and serves as a reviewer for several other well-respected journals.

Keynote address

The Future of Educational Technology: Integration, Intelligence, Interaction, and Imagination

Educational technology is swiftly evolving as new emerging technologies and innovative pedagogies are seamlessly integrated into the fabric of our educational enterprises. Meanwhile, the landscape in formal educational settings (e.g., primary, secondary, and higher education) is often slow to adapt to the changes in our digital ecosystems.

To ensure the successful and meaningful integration of future educational technologies in our educational systems, this presentation will describe four essential characteristics to our future educational tools and solutions: 1) Integration, the ability for tools to securely share information and processing capabilities; 2) Intelligence, the ability for tools to perform tasks that normally require human intelligence; 3) Interaction, the ability for tools to support intentional communications among educational stakeholders (e.g., student, teachers, etc.); and 4) Imagination, the ability for tools to support innovative and meaningful experiences. This presentation will elaborate on these four essential characteristics while providing examples to describe a future for equitable and robust technology-enhanced learning experiences for all learners across the globe.

The presentation will close with some observations and predictions about the future of educational technology research and practice across formal educational settings.

Keynote Session IV



Denise WHITELOCK

Professor of Technology Enhanced
Assessment and Learning
Director, Institute of Educational
Technology
The Open University

Professor Denise Whitelock is the Director for the Institute of Educational Technology at The Open University. She is a Professor of Technology Enhanced Learning and has over twenty-five years' experience in Artificial Intelligence for designing, researching and evaluating online and computer-based learning in Higher Education. She is currently leading an innovative research programme for the Skills for Prosperity project which is supporting the Kenyan government to provide at scale, quality, open and distance learning opportunities, through training 320 staff at 37 public universities.

Professor Whitelock is currently the Editor of *Open Learning: The Journal of Open, Distance & e-Learning*. Her work has received international recognition through holding visiting Chairs at the Autònoma University, Barcelona and the British University in Dubai. Professor Whitelock is currently a serving Board Member and Vice President Research for EDEN Digital Learning Europe. Denise is a Fellow of the Academy of Social Sciences and Fellow of EDEN and awarded a Commonwealth of Learning Chair in April 2023. For complete publication list see: <http://oro.open.ac.uk/view/person/dmw8.html>

Keynote address

AI and Digital Assessment: Driver or Disrupter?

Digital assessment is an evolving construct used in education to enrich, inform and complement the teaching process. Using automatic feedback however, has been under-utilised and under-valued throughout the assessment process.

This presentation provides insight into a number of projects that have automated some aspects of assessment and feedback, including a system for language learning which is an example of an early AI system. The examples selected from my own AI research have a strong conceptual underpinning, for instance Dweck's (2017) work to develop Open Comment which provided authentic feedback on a free text entry assessment system. With Open Mentor, Bales' (1950) interactive categories were used to help tutors develop effective and supportive feedback. SafeSea, on the other hand, allowed students to trial essay writing before taking the sometimes daunting step of submitting their first essay. This system was using analysis based on Pask's (1976) conversational framework.

Furthermore, the presentation will discuss some of the issues raised by teachers and students about digital assessment and will provide examples of how AI can address their concerns. The issue of disrupters will also be raised including the problems of plagiarism, especially with the launch by OpenAI of ChatGPT a language-generation model, that can write student assignments for them.

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Keynote Session V



Eesa Mohammed BASTAKI
President
University of Dubai

Dr Eesa Mohammed Bastaki is the President of the University of Dubai.

Dr Bastaki is the recipient of the highest award in the UAE, the “Emirates Excellence Award in Sciences, Literature and Arts”, in the field of Sciences. Dr Bastaki’s extensive experience in education, leadership, technology and communications led University of Dubai into its next progressive phase, which besides the building of a new campus and the addition of several programs, such as a Master of Laws degree and Doctorate degrees in Business Administration. Previously, Dr Bastaki worked as a professor at United Arab Emirates University (UAEU) specialising in Communications Engineering. He also held positions as: CEO of ICT Fund; Director of Education, Training and Research and Development for Dubai Silicon Oasis (DSO); Consultant and IT Project Manager for Al-Ain Municipality; Board member of KHDA’s UQAIB and was member of many academic boards. He is one of the founders of DSO and RIT-Dubai. He is Honorary Chair of IEEE, Chairman of Emirates Science Club, Board member of the Cultural and Scientific Association and was a Board member of Ankabut (UAE’s NREN) and many more. He is the Chair of “Drones for Good Award”, “Robotics & AI for Good Award” and “Emirates Energy Award”. He also judges the Dubai-initiated competition 10X. He is also the Vice Chairman of the Board of Trustees of Hamdan Bin Mohammed Innovation Award in Project Management. He has organised hundreds of events, conferences, forums and competitions.

During his time at UAE University, DSO and ICT Fund, Dr Bastaki chaired several technology and research boards, initiated technology incubation concepts and coined on R&BD terminology, where he brought forward the rich experience of enhancing the University of Dubai’s research drives and futuristic programs. His main goals are to enhance Research & Business Development to serve the industry and fulfill his drive towards his vision of “Made in UAE, Sold Globally”.

Dr Bastaki received his Bachelor’s and Master’s degrees from the University of California, San Diego and his PhD from University of California, Irvine, before returning to help improve the education and technology sectors in his homeland, the UAE. University of Dubai faculty, staff and students are gratified that a man of his accomplishments leads the University on its continuing path to provide the highest quality education in the region.

Keynote address

The 21st Century Disruptive Education in a Time of Transformation

Education in the 21st century is undergoing significant disruptions driven by technology and changing needs. This summary explores disruptive education, which challenges traditional models and leverages technology to provide personalized and accessible learning experiences.

Disruptive education uses innovative approaches and technology to enhance learning outcomes, accessibility, and adaptability. It breaks away from conventional methods and fosters learner-centric experience.

Digital technologies like online platforms, virtual reality, AI, and data analytics are catalysts for disruptive education. They enable remote learning, personalized instruction, and adaptive systems, making education accessible anytime, anywhere, to any student, from any instructor and by any device. This allows the student to reduce the period of graduation to less than two years.

Disruptive education expands access to education and fosters active learning. It democratizes education, engages learners through interactivity and gamification, and offers personalized experiences.

Disruptive education requires adequate infrastructure, digital literacy, and quality assurance. Educators must adapt to new roles as facilitators and mentors in the digital learning environment.

Disruptive education transforms traditional education, offering opportunities for personalized and adaptable learning. Overcoming challenges of infrastructure and educator roles is crucial for successful implementation. Embracing these changes ensures education remains relevant in the evolving 21st century landscape.

Keynote Session VI



HWANG Gwo-Jen

Chair Professor, Graduate Institute of
Digital Learning and Education
Taiwan University of Science and
Technology

Professor Gwo-Jen Hwang is currently a Chair Professor at the Taiwan University of Science and Technology. He is currently the Editor-in-Chief of *Computers & Education: Artificial Intelligence* (Scopus, Q1), *International Journal of Mobile Learning and Organisation* (Scopus, Q1; ESCI), and *Journal of Computers in Education* (Scopus, ESCI) as well as Associate Editor of *IEEE Transactions on Education* (SCI). His research interests include mobile and ubiquitous learning, flipped learning, digital game-based learning, and artificial intelligence in education. Owing to the reputation in academic research and innovative inventions in e-learning, he received the annual most Outstanding Researcher Award from the Ministry of Science and Technology of Taiwan in the years of 2007, 2010 and 2013 as well as the Excellent Teacher Award from the Ministry of Education of Taiwan in 2019. In 2022, he is reward as a Distinguished Researcher by Science and Technology Council of Taiwan.

Keynote address

Research Topics, Challenges and Experimental Designs of Artificial Intelligence in Education

While artificial intelligence (AI) has been widely adopted in various applications, it remains a challenge for researchers and school teachers to effectively apply it to educational settings. In this keynote speech, Prof. Hwang not only introduces the basic conceptions and potential applications of AI in education (AIED) but also proposes several strategies for conducting AIED research as well as applying AI in school settings and professional training. Moreover, several potential AIED research topics with concrete examples are presented, which is a good reference for those who intend to conduct research by employing AI applications in school or professional training contexts.



Pedagogy for Modern Adult Learners

Facilitator

LI Kam-cheong

Dean, School of Open Learning
Director, Institute for Research in Open and Innovative Education
Hong Kong Metropolitan University

Panelists



Melinda dela Peña BANDALARIA

Chancellor
University of the Philippines Open
University

Professor Melinda dela Peña Bandalaria is full professor at the University of the Philippines Open University (UPOU) and has been its Chancellor since 2016. She is also an Ambassador for Open Educational Resources (OERs) (2021–2024) and a member of the Executive Board (2022–2025) of the International Council for Open and Distance Education (ICDE). She was also appointed as Member of the Governing Board of the SEAMEO Regional Open Learning Centre (SEAMOLEC) for the period 2022–2025 and continues to serve as member of the Executive Committee of the Asian Association of Open Universities (AAOU). Professor Bandalaria also served as AAOU President from 2017–2019. She spearheaded the formation of the Consortium of Distance Education Providers in the Philippines (CODEPP) which provides the platform for collaboration among academic institutions involved in offering inclusive and quality learning opportunities through this mode of instruction and the development and offering of Philippine MOOCs model. Her experience in Open Flexible and Distance eLearning spans more than 25 years doing teaching, developing course packages and research in this mode of delivering instruction. She has published numerous book chapters, journal articles and is often invited to speak in international fora and conferences. Her research interests include Universal Design for Learning (UDL) in an OFDeL setting; open distance eLearning; ICT for Education and Development; and Corporate Social Responsibility Communication. Her contributions to the field of OFDeL had been recognized through the Meritorious Service Award conferred by the AAOU in 2021; and the Prize of Excellence conferred by the ICDE also in 2021.



Lily CHAN

Chief Executive and Vice Chancellor
Wawasan University

Professor Lily Chan is the Chief Executive and Vice Chancellor of Wawasan Open University (WOU) in Penang, Malaysia.

She has been the driving force behind the University's mission of providing lifelong learning opportunities to Malaysians through distance learning for professional and personal development. She aspires to reach out to youths and adult learners who had missed out on tertiary qualifications and those seeking to equip themselves with skills to keep pace with the rapidly changing work environment.

She recently set up the School of Digital Technology (DiGiT) at WOU, a faculty which offers intensive, skills-centric degree programmes in Digital Business and Software Engineering. The DiGiT School has forged agreements with industry partners for the training and placement of its students, enabling them to acquire hands-on work experience.

WOU's innovative tagline, 'Think Tomorrow', speaks of the University's commitment to produce industry-ready graduates who can compete in today's digitally-transformed workplaces. Its online learning platforms are interactive and engaging, designed to offer an enriching student learning experience.

Professor Chan was previously the CEO of NUS Enterprise, the entrepreneurial arm of the National University of Singapore until March 2019. She transformed this division into one of the most esteemed higher education entrepreneurial ecosystems that nurtured hundreds of startup companies.

Before helming NUS Enterprise, she was the Managing Director of Bio*ONE Investments, an investment arm of the Singapore Economic Development Board with a focus on expanding the growth of the biomedical science industry in Singapore.

In recognition of her talents and contribution, she was honoured with the Public Administration Medal (Silver) at the Singapore National Day Awards Ceremony in 2018.

With over 30 years of leadership experience in the triple helix sphere of academia, industry and government, she is focused on implementing digital distance learning initiatives to transform WOU into a leading educational institution in the country.



JIA Jiyou

Professor and Head of the
Department of Educational
Technology
Peking University

Professor Jia Jiyou is a full professor and the Head of the Department of Educational Technology, Graduate School of Education, Peking University, China and is also the founding director of International Research Center for Education and Information at Peking University. He was invited to work as a guest professor in 2015 by School of Education, Technical University of Munich, Germany, and Distinguished Professor at Institute for Research in Open and Innovative Education, the Open University of Hong Kong in 2017.

Professor Jia's research interests include educational technology and artificial intelligence in education, especially in TELL (Technology Enhanced Language Learning), math education with ICT, and decision making support system. He has been responsible for a dozen of national projects and international cooperation projects. His research has won a number of national and international prizes including the First Class Award of the Fifth National Award for Outstanding Achievements in Educational Research, from Ministry of Education, China, 2016, and IAAI (Innovative Application of Artificial Intelligence) Deployed Application Award by AAAI (Association of Advancement of Artificial Intelligence), USA, 2008.

Professor Jia has published more than 100 articles in internationally or nationally peer-reviewed journals and conferences including Computers and Education, Knowledge-Based Systems, etc. He has edited one book and authored another one, both written in English and published by IGI Global, USA. He is also the author of one Chinese book and one book in German. He serves as a reviewer for several international journals indexed in *SCI/SSCI*, a co-chair or PC member of more than 20 international conferences including ICTE, ICCE, ICALT and GCCCE, and an advisory expert for some scientific and governmental organisations.



William TANG Ko-wai

Acting Head of Education and
Assistant Professor
School of Education and Languages
Hong Kong Metropolitan University



Billy WONG Tak-ming

Deputy Director
Institute for Research in Open and
Innovative Education
Hong Kong Metropolitan University

Ways to Implement Agile-blended Learning

As an innovative pedagogical approach particularly suitable for metropolitans, Agile-Blended learning (AB learning) emphasizes being responsive to students' diverse needs and expectations through featuring flexibility, collaboration, learner autonomy, and technology mediation in educational delivery. This workshop aims to introduce the application of AB learning in the higher education context. It will walk through the process of course (re-)design and implementation to illustrate the key points to note, covering the areas of course activities, course materials, and technologies, as well as collection of student feedback for continuous refinement and improvement. Relevant activities and software tools which are useful before, during and after class as well as student experience in AB learning will be presented based on its implementation in Hong Kong Metropolitan University.

Networking Sessions

As part of the conference, we will be hosting two to three roundtable discussions, each facilitated by an expert in the field. These roundtables will provide an opportunity for attendees to engage in small-group discussions on several hot topics related to the conference theme. The topics to be discussed include educational technology, assessment and feedback, and blended learning. Through these roundtables, we aim to foster an open and collaborative environment where attendees can share their experiences, ideas, and insights, and build meaningful connections with peers in the field.

Topic 1: Educational Technology

Facilitators: Patrick Lee, Venus Chan

4 JUL
15:30

5 JUL
11:00,16:30

Educational Technology is the combined use of hardware, software and other IT tools to facilitate learning and teaching. With advanced technology in education, teachers and researchers can engage their learners in unique and innovative ways. Technology allows learners to study at their own pace and makes learning more fun. In this networking session, interested participants will very briefly share their ideas and practices of integrating Educational Technology into their teaching or research projects. Participants can also build strong connections for potential collaboration in their future research studies.

Topic 2: Assessment and Feedback in the AI Era

Facilitators: Doris Chong, Queenie Law

4 JUL
15:30

5 JUL
11:00,16:30

6 JUL
10:30

Assessment and feedback in the AI era refers to the need for educators to reconsider traditional practices of evaluating student performance in light of the rapid evolution of artificial intelligence in education. With the increasingly prevalent use of AI tools in the classroom, there is a growing need to develop new strategies for assessing and providing student feedback. This networking session aims to facilitate a discussion among interested participants about how assessment and feedback practices can be rethought in the AI era. The goal is to promote an in-depth dialogue that will lead to developing new assessment and feedback strategies that can better meet the needs of 21st-century students.

Topic 3: Blended Learning

Facilitators: Venus Chan, Eva Tsang

4 JUL
15:30

5 JUL
11:00

6 JUL
10:30

Whether you are new to blended learning or looking to enhance your existing practices, this session is for you. Join our networking session to learn how blended learning can provide more flexibility, personalization, and access to resources, leading to improved student engagement and learning outcomes. This session will discuss effective strategies for combining traditional classroom instructions with online activities and your blended learning technology toolbox in an agile approach. We will share best practices in course design framework, assessment, and facilitation for a successful blended learning experience.

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.

Self-defined Learning Skills and Concerns of College Students in a Digital Era

Qunxing Ding and Haiyan Zhu

Kent State University at East Liverpool

Higher education has been significantly altered by digital technology. It is crucial to understand more details about the learning behavior of current college students. This study is designed to recognize how college students assess their learning, providing helpful information for educators to design, develop, and instruct students, particularly in distance learning.

A student survey was conducted from fall 2018 to fall 2020 with a total of 289 students. The responses for the following two questions were analyzed: 1) List what you are doing that helps you to learn, and 2) List what you are doing that inhibits you from learning. The responses collected were usually in short paragraphs, and the inductive coding method was used to conduct the analysis.

The data suggest special preferences and patterns in the learning processes: many college students actively applied learning skills including metacognition, retrieval practice, and growth mindset in their learning process, and the application of these skills was significantly associated with better academic performance. The students also realized that a list of behaviors might inhibit them from learning better. In conclusion, promoting metacognitive skills in science education could be a valuable strategy to improve the engagement and performance of college students.

This study is especially unique in distance science education. The reported data provide valuable practical information about the learning skills, preferences, patterns, and concerns of current college students, offering realistic information to develop, modify or support theories of teaching and learning, and helping instructors to adjust their teaching practice accordingly.

School-based Management Committee System, Principal Leadership Style, Effective Communication System and Public Secondary Schools Students' Academic Achievement in Oyo State

Aselebe Kamorudeen Oladapo

Emmanuel Alayande College of Education

The downward trend in the academic achievement of public secondary schools students in Oyo State has been a subject of debate among stakeholders in recent times. This study investigated the school-based management committee system, principal leadership style, effective communication system and public secondary schools students' academic achievement in Oyo State.

The study adopted the descriptive survey research design. The study population consisted of all students in public secondary schools in Oyo State. Multi-stage sampling techniques were used to sample 180 respondents, the sample for the study. Two hypotheses were formulated at the 0.05 level of significance in order to achieve the objectives of the study. Data were collected using four instruments: School-based Management Committee System Questionnaire ($r = 0.76$), Principal Leadership Style Questionnaire ($r = 0.79$), Effective Communication System Questionnaire ($r = 0.81$) and Student Achievement Test. The instruments were subjected to thorough scrutiny by experts in measurement and evaluation to establish the face validity. Data were analysed using inferential statistics of multiple regression analysis at the 0.05 level of significance.

The study found that the school-based management committee system, principal leadership style and effective communication jointly and relatively influence public secondary schools students' academic achievement.

Recommendations made include that government should take cognizance of the school-based management system, principal leadership style and effective communication system as mechanisms for enhancing public secondary schools students' academic achievement in Oyo State. Also, government should provide an enabling environment or the school-based management system for achieving optimum academic achievement among public secondary school students.

The Use of Grey Relational Analysis in Analytics: Enhanced Assessment Environments

Dirk Ifenthaler

University of Mannheim and Curtin University

Muhittin Sahin

Presidency of the Republic of Turkey Human Resources Office, and University of Mannheim

Analytics-enhanced assessment environments provide opportunities to discover patterns within learning processes and to support student learning when needed. Especially in learning environments with many enrolled students, the assessment results are provided via learning analytics dashboards. The visualisation of assessment analytics results is regarded as a multiple attribute decision-making (MADM) problem, hence selecting the optimal solution from the existing alternatives by considering multiple criteria. Besides common approaches, such as simple additive weighting or analytics hierarchy process, grey relational analysis (GRA) has been used extensively in various domains. Within the scope of this design-based research, a post-hoc analysis of log data from an analytics-enhanced assessments environment was conducted to test if GRA is suitable for use in analytics-enhanced assessment environments.

A total of 125 students from a European university in the area of economic and business education participated in the study. Participants had access to the analytics-enhanced assessment environment throughout one semester, and log data in the system were obtained. Log data consisted of ten metrics: the number of logins, time spent in the system, time spent with assessment items, number of correct answers, number of incorrect answers, number of total responses, number of successful tests, number of unsuccessful tests, number of enrolled tests, number of master subjects, and number of non-master subjects. The MADM was to produce an assessment index from the obtained log data. Different approaches were computed to rank students based on their interactions with the analytics-enhanced assessment system.

The post-hoc analysis' empirical findings provide valuable insight into the different approaches. GRA can produce reliable solutions for values/metrics at different measurement levels within the analytics-enhanced assessment system. For example, a reliable ranking of students according to their interactions was realized.

In the next step of this design-based research, the GRA-based rankings of the students will be presented as a leaderboard (gamification element) as part of the learning analytics dashboard. From a learning design perspective, the gamification element will be part of the real-time analytics visualizations integrated into the analytics-enhanced assessment environment. Further, the effects of the gamification elements on the students' psycho-educational dispositions, especially motivation and emotions, will be examined in follow-up research.

Learning Analytics to Study Students' Engagement in University Science General Education

Kim-hung Lam, Chan Chun Sang, Kai-Pan Mark and Dave Gatrell

The Hong Kong Polytechnic University

Learning Analytics (LA) can be used to understand students' learning and their learning behavior and preferences. To prepare PolyU students with better lifelong learning, group and communication characteristics, we incorporate various types of blended learning activities to enhance the learning experience of our undergraduates. In this study, we would like to analyse the Learning Management System (LMS) data and online survey to investigate the learning experience and pattern of our students who studied our GE (General Education) subjects (ABCT1D09 and ABCT1D10). This study will become more interesting to investigate the study pattern of students (around 100) who are nourished with different disciplines. We would like to present our preliminary findings of using the LA approach to learn students' engagement and motivation in learning science.

We employed our designed in-class and after-class blended learning activities (Blackboard Discussion, Panopto, One-drive shared Word/PowerPoint) and topic discussion among peers and conducted this research study in the 2020–21 academic year with purely online/hybrid classes during the COVID pandemic. We employed an online survey questionnaire to collect students' feedback and we applied Interactive/Constructive/Active/Passive (ICAP) taxonomy to analyze students' perception of their engagement for various activities.

According to our preliminary findings, students' perception of their engagement for our designed activities increased in the second survey. This implies that students engaged more in active learning activities, and our course design seems to develop high-level cognitive skills for our students. In general, we got positive responses from students, with mean rating over 3.7 and up to 4.1.

The usage of the necessary online teaching and learning materials (including after-class learning activities, online videos/recordings, self-learning modules and interactive tools) seems to be higher in Semester 2 (online) than in Semester 1 (hybrid). These materials may help students' learning and maintain their performance although they encountered a sudden change of study mode.

Research on BKT-IRT Knowledge Tracing Model Combined with Response Time



Jie Luo, Rui Zhang and Tie-wen Xie

Tongji University

Item Response Theory (IRT) and Bayesian Knowledge Tracing model are two traditional knowledge tracing models widely used in knowledge tracing. A BKT-IRT blended model was given in our previous work to simulate student response in the classroom. This new model performs better than either the BKT model or the IRT model. However, our model does not include student response time, which is associated with response correctness. By combining the response time parameter with the BKT-IRT model, the fitting of the BKT-IRT model with real data might be improved.

Student's response time might be different under various circumstances even with same exam item. Therefore, by analyzing the differences in the fitting parameters of the BKT-IRT model in different exam circumstances, the exam circumstances of the dataset can be identified.

Response time included IRT model is combined with the BKT model to improve the performance of the model under different exam circumstances. The EM method is used to estimate the parameters in IRT and BKT model. The fitting of different models are compared using response data in different circumstances. The models included a two-parameters BKT-IRT blended model, three-parameters BKT-IRT model, time-dependent two-parameters BKT-IRT blended model and time-dependent three-parameters BKT-IRT blended mode.

The parameters in the two-parameters IRT model are difficulty and discrimination. The parameters in the three-parameters IRT model are difficulty and discrimination and guess coefficient respectively.

This study found that the time-dependent two-parameters BKT-IRT blended model has better performance in fitting compared with other models. And second, for high response correctness students, the fitting of time-dependent two-parameters BKT-IRT model generated less error compared with the two-parameters BKT-IRT model under supervised circumstances. This may help us to identify the circumstances of the response dataset.

This study added response time parameter in the BKT-IRT knowledge tracing model to improve the fitting of response data. The parameters in the model can be helpful in predicting student learning outcomes and constructing an early-warning model. Blended learning is now widely used in higher education.

Since supervised exam results are more reliable than are poor supervised exam results, it is important for educational researchers to identify data sets from unknown exam circumstances. The BKT-IRT model may be useful application in helping us to identify the response circumstances and improving the quality of blended learning.

Research on Smart Evaluation Method based on Group Awareness for Project-based Collaborative Learning Environment

Ji Shi, Rui Zhang and Yangcun Feng

Tongji University

Project-based learning (PBL) is an important type of collaborative learning. It helps to develop of students' collaborative skills, communication skills, analytical skills, problem-solving skills, and innovative skills. However, data generated during PBL section is difficult to record in real time, and the effectiveness of PBL is difficult to evaluate scientifically and intelligently. This study constructs a PBL environment based on group awareness, in order to achieve process recording and intelligent evaluation of collaborative learning.

This study designed and implemented a project-based learning system that collects students' task division, project progress and mutual evaluation texts in each project phase. PBL activities were conducted for 128 undergraduates taking college physics courses for a period of 2 months. Data were collected through the PBL learning system designed by the research group. Based on group awareness theory, word frequency was extracted through natural language processing, reflecting behavioral awareness, cognitive awareness and emotional awareness in the group. An evaluation scheme for collaborative groups was established through a multiple regression model.

The results show that group awareness information gained through natural language processing reflects the quality of collaboration. The most important factor affecting project-based collaborative learning is quality of group collaboration, and the inquiry ability of group members has little effect on the result. Through multiple regression analysis, the data show that students' preference in group awareness contributes mostly to collaborative learning results. Furthermore, the group leader's cognitive awareness of the collaborative group has an effect on the PBL results.

This study has developed a PBL system that can record collaborative learning data. Natural language processing was applied to the evaluation of PBL based on group awareness theory. Cognitive, behavioral and emotional awareness data are extracted in collaborative learning, helping to address the problem of excessive process data and teacher supervision workload.

The Developing Process of Assistive Technology in Elderly Care: Based on Experiential Learning

Ya-Hui Lee and Hsien-Ta CHA

Chung Cheng University

Yi-Feng Wang

Tainan Junior College of Nursing

This study aims to understand developers' dilemmas in designing elderly-care technology products, explore their design experiences through experiential learning theories in adult learning, and determine the strategies for successful design and introduction to the end user.

This study takes a qualitative research method, starting with intentional sampling, followed by snowball sampling. The researchers selected eleven R&D personnel at the managerial level for semi-structured interviews. (a) What kind of discrepancies are perceived in the R&D process? (b) What strategies were used to address the gaps? The follow-up data were analyzed through a continuous comparison method, and the results were presented in a coded format with the concept: Sequence – Gender – Years of Service.

The findings of this study are that the developers did not understand the characteristics of the elderly users, which caused conflicts between technology and care; and the developers (a) perceived the gap in technology awareness as the gap; (b) responded to the learning strategy by entering the field to observe and adopt a collaborative model; and (c) adopted the principles of co-design with users as the practice and verification after learning. (c) The principles of co-design with users are used for post-learning practice and validation. (d) There are two main reflections on the experience of the developers: first, they cannot imagine being a senior and empathizing with senior users. And second, the key to designing products is not only to understand seniors objectively but also to understand them subjectively. This result is the experience of successful R&D. If the developers can learn from their experience, they can make the product development and introduction more effective.

According to the results of this study, to maximize the benefits of R&D and product introduction, three suggestions are provided. Firstly, systematic training courses for senior citizens can be designed for developers to master the characteristics of senior citizens. Secondly, training units can offer courses at air universities, community colleges, and online, to make learning more convenient. Thirdly, developers can collaborate with senior professionals across fields to make their products more suitable for the characteristics and needs of senior citizens.

Retesting Influence on Learning Behaviors of Online Students

Haiyan Zhu and Qunxing Ding

Kent State University at East Liverpool

Retrieval practice has been proven to be effective in enhancing conceptual science learning, and one form of retrieval practice is retesting. To evaluate the effects of retesting and the student's attitude towards it, this study applied repeated testing in various settings in a junior-level online biology course.

The students were given one, two, and three attempts to take quizzes in three consequent semesters in the same course. The exams were used to measure the effects of retesting, and the students' behaviors were recorded for analysis.

Students with less-than-ideal academic performance were found to use this retrieval strategy more often than did their peers, and more students would start the testing process earlier when retesting was offered. However, an increased number of attempts in retesting did not show any association with better academic performance. Nonetheless, retesting opportunities may promote students' motivation to take quizzes on time in this study. However, not all students utilized retesting opportunities to enhance their learning.

Retrieval practice altered the learning behavior and improved the overall academic performance of the students in an online science course. Our data are the first report that describes the alteration of student learning behavior. The course structure and setting have a significant influence on the effects of retrieval practice and academic performance. This study provides unique insights into understanding student motivation and engagement in online education.

The Exploration of Interactive e-Books on Children's Perspectives and Viewing Behaviors Change in a Science Demonstration Context

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Taipei University of Education

Hsiang-Wei Chen

Taiwan Science Education Center

In recent years, technology integration into museum education has become well-established; technology is successfully used in museums to assist educators in transferring knowledge and providing good interaction with the public. Public acceptance of the use of technology in museums is also growing. However, according to the literature, research on the application of technology in science demonstration settings is relatively rare. Recent modes of science demonstration are mostly storytelling, scientific concept explanation, scientific experiment demonstration, and physical interaction with the public by educators. There are fewer opportunities to use technology to assist educators in explaining scientific phenomena or interacting with the public during demonstrations.

This study examined the effects of an interactive e-book on public perceptions of learning through science demonstrations. In addition, this study analyzed public viewing behavior to understand the behavioral differences between the public who see demonstrations with or without the use of technology. To this end, two science demonstrations were conducted in the museum, using an experimental design approach. The first session was a conventional science demonstration. The second one was a science demonstration with an interactive e-book. Ten children participated in the first demonstration, and seven participated in the second one. In this study, the children's learning engagement questionnaires and viewing behaviors were collected in the two activities, to discuss the effect of technology intervention on the science demonstration.

Based on the results of the study, it was found that there was no significant difference in children's learning participation in science demonstrations with or without the use of technology. From the viewing behaviors, it was found that the technology induced more complex viewing and interactive behaviors in children. In addition, children achieved more complex science cognitive interactions.

In summary, this study revealed that the two modes of science demonstrations had similar effects on children's science learning engagement. However, the behavioral patterns conferred on the children during the activities were different. Technology provided students with more opportunities to interact with science content and social interaction. This suggested that educators need to pay more attention to the arrangement and depth of content when incorporating technology materials into science demonstrations.

A study on Blended Learning Academic Warning Model Based on Knowledge Tracing and Learning Engagement



Zhenting Yan, Rui Zhang, Xingyue Li and Xiangyi Shi
Tongji University

As an important direction of teaching reform in colleges and universities, the blended learning mode has become a major topic in the field of higher education research. In the process of blended learning, a large amount of learning data generated by students can be deeply mined and analyzed using learning analytics technology to help teachers grasp the learning portrait of learners. This means they can accurately predict each student's learning outcome and provide effective interventions. In order to achieve more accurate academic warning results, the blended teaching assessment criteria ought to integrate multidimensional features. However, the features used for academic warning in previous studies rarely reflect the students' knowledge structure. In these circumstances, it is desirable to develop a novel method to predict each student's performance in a certain course, which takes knowledge cognitive status and learning engagement into consideration.

From the perspective of learning engagement, this paper utilizes Bayesian knowledge tracking techniques to model learners' cognitive status and uses structural equation modeling to reduce the dimension of the collected data. On the basis of the learning engagement model, this paper then determines blended teaching assessment criteria and constructs an academic warning model based on machine learning, which reflects the integration, scientificity and credibility of assessment criteria and academic warning model.

The results show that the proposed academic warning method is able to correctly identify students with abnormal learning status at midterm. The ensemble learning model based on AdaBoost and the support vector machine model perform better on our real physics education dataset in Recall and AUC values, shown in Table 1, compared to other academic warning models. The analysis of the decision tree academic warning model shows that the knowledge cognitive status is the most important criterion for academic warning.

This paper innovatively proposes the integration of knowledge tracking technology and learning engagement to build an academic warning model for the blended learning method, which provides a practical reference for the evaluation of blended teaching in colleges and universities and helps to promote the further improvement of blended teaching in colleges and universities.

Academic Warning Model	Recall	F1-score	AUC
K-nearest Neighbours	0.56	0.55	0.93
Decision Tree	0.82	0.78	0.82
Random Forest	0.79	0.77	0.95
Support Vector Machine	0.85	0.81	0.94
AdaBoost	0.83	0.80	0.95

Table 1 Recall, F1-score and AUC values of different academic warning models based on our real physics education datasets when using tenfold cross-validation.

Teacher Perceptions of Recorded Lessons as Learning Instruments at Hong Kong Universities

Po-kan Lo

The Hong Kong Polytechnic University

Man-him Wong

The Chinese University of Hong Kong

In response to the transformational changes to the landscape of higher education caused by the COVID-19 pandemic, the purpose of this study is to explore potential strategies for improving future applications of lecture recordings in the context of higher education. Focusing on the perspectives of current teachers, it aims to identify the opportunities and challenges associated with the use of lecture recordings in higher education and to critically assess teachers' perspectives regarding the efficacy and learning value of recorded lessons.

An in-depth literature review was first conducted on digital learning and classroom design strategies. Based on the review, a conceptual framework was developed to clarify the theoretical underpinnings of the study, thereby refining the areas of enquiry to seven specific questions. The second stage of the study involved the administration of interviews with 40 teaching professionals from 8 institutions that allowed for the investigation of teachers' individual experiences, personal narratives, and phenomenological observations. The results obtained from the interviews were then analysed thematically through a line-by-line identification of the major thematic elements related to each of the seven targeted interview questions.

Although the results aligned with the advantages of recorded lessons identified by existing literature, such as improved knowledge retention and the possibility of asynchronous review, they also highlighted several challenges and potential inadequacies, including additional workload, variation in student attention, and inconsistencies in the skills and practices required of teachers for the implementation of recorded lessons. Furthermore, it was discovered that there are two competing perspectives concerning recorded lessons and the virtualisation of university coursework: (1) teachers prefer face-to-face courses, and (2) teachers value the additional digital resources provided for their students. Moreover, the degree of acceptance of recorded lessons and digitalisation was predominantly influenced by a central variable in the educational process: the student. The feedback from the educators also suggested that additional training and skill development should be pursued to aid teachers in crafting highly effective and engaging multimedia presentations.

These findings will provide insights into the experiences and perspectives of teachers regarding the use of recorded lessons and their future role in Hong Kong educational institutions. These insights can inform various stakeholders, such as educators, administrators, and policymakers, about the practical concerns to consider in the implementation of recorded lessons. Ultimately, the research will contribute to a better understanding of the potential of incorporating lecture recordings into the classroom.

Agile Blended Learning: A Promising Approach for Higher Education in the UAE

Eesa M. Al Bastaki, Sara Suleymanova,

Arunprasad Purushothaman, Nasiruddeen Muhammad and Debolina Halder

University of Dubai

The COVID-19 pandemic has caused a paradigm shift in the adoption of technology in the realm of education, leading to a greater understanding of the advantages of blended learning. Higher educational institutions globally and in the United Arab Emirates (UAE) have experienced this shift and have recognized that this approach can offer the necessary opportunities and flexibility to meet the demands of future education. Blended learning is a comprehensive, flexible educational ecosystem that incorporates in-person instruction and technology-enabled learning; it complements various learning experiences and arranges them to run in parallel. Agile learning and blended learning have the common goal of strengthening learning impact and enriching the learning outcomes. Agile learning emphasizes flexibility, personalization, and collaboration in the learning process. Blended learning emphasizes integrating traditional learning with innovative technologies. This paper aims to integrate the strengths of agile learning and blended learning to explore the possibility of developing new pedagogical practices by combining them to meet the various learning requirements of learners.

The emergence of the blended learning paradigm and agile approaches to ensure flexibility and sustainability in higher education are covered in this paper. It explores theoretical and empirical literature to outline the potential benefits of blended learning, especially in the UAE, influenced by governmental development strategies, technological integration, and pedagogical innovations.

This paper proposed an integrated holistic framework, the agile blended learning environment, for fostering innovation in university teaching and learning. It presents the conceptual processes and approaches to effective communication, personalized learning processes, utility of learning outcomes, sense of community, learner-centered design, and flexible course concepts to help advance resilience towards future disruptions in higher education globally and in the UAE. Teaching principles that emphasize engagement, collaboration, and prompt feedback in a blended learning environment are outlined.

The study gives an understanding of the procedure of developing self-organized active learners, building more focus on scaffolding for faculty and students, as well as more institutional support and advanced infrastructure to support the agile blended learning process. It drives further research into flexible and learner-centered approaches across higher education.

A Study on the Effectiveness of Blended Learning in Assisting Elders to Maintain Cognitive Function in an Eldercare Center



Chia-Tzu Lin

Chung Cheng University and Chiayi Hospital, Ministry of Health and Welfare

This study has proposed a blended learning model in an eldercare center, in an effort to overcome space and time limitations in order to provide innovative services and encourage elders to utilize online learning. The purpose was to investigate the effectiveness of cognitive training programs on the maintenance of cognitive function in elders and to provide a reference for the development of cognitive learning programs for eldercare centers.

In this study, the effectiveness of blended learning for eldercare elders was assessed using a mixed research method. Using a pre- and post-test experimental design, participants in the blended program (experimental group) were compared to those in the typical class (control group). The MMSE and ICOPE functional assessment scales were utilized for the pre-testing of the elderly participants. After 10 weeks of cognitive function, the same scales were used for post-testing and interviewing the elders and their families to understand the elders' learning style and improvement of cognitive function in the program.

ICOPE quantitative evaluation: The elders in the experimental group showed improvement in cognition, depression, vision, and hearing in 72% of the cases. In the control group, 67% of the elders showed improvement. In the quantitative part of the MMSE, the experimental group's mean score increased from 13.23 to 16.06. The control group's average score increased from 13.93 to 15.87. Results of semi-structured interviews: After taking the online course, the elders said that online learning was not as difficult as they had expected and that they found it easy to take classes at home.

According to research, the implementation of blended learning programs can lead to improvements in cognition, mobility, depression, and life goals, giving elders a high degree of choice autonomy. It is anticipated that this study will provide recommendations for future diverse learning programs. In the process of preventing home care, the elders in the eldercare center can keep their cognitive and social abilities by implementing a structured blended cognitive program. The online course should serve as a resource for future non-traditional eldercare models of care.

Designing Technology-Based e-Learning for Adult Education in the Philippine Agriculture Sector: The PCAARRD Advanced Learning Management System Experience

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The pandemic has tested the resilience of organizations and consequently hastened the digital acceleration in many organizations. With the Philippine Council for Agriculture, Forestry and Natural Resources Research and Development (DOST-PCAARRD), an e-learning modality was developed meant to disseminate relevant technologies that have been generated through its various research and development programs and projects.

In developing the e-learning platform, the project used the ADDIE model of instructional design. This paper describes the process undertaken as PCAARRD transitioned from traditional classroom, face-to-face courses into an e-learning platform using the ADDIE framework of instructional design and using Moodle as a learning management system. It also outlines the challenges and lessons learned from the digitization, as well as recommendations and future directions of the program.

Following the PCAARRD experience, the ADDIE model was an effective framework to use in e-learning development primarily based on the formative and summative evaluations. The success of e-learning can be considered a factor of various elements including the learner, resource persons, the training course content, and the social interactions and ease of use of technology.

Use of e-learning as a human capital investment continues to increase and as such merits the evaluation of different organizational e-learning programs to introduce new insights or approach in the delivery of adult learning for the agriculture sector research and development.

Self-Efficacy and Achievement: The Mediation Role of Online Student Engagement

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Unlike students from traditional a campus-based university, students from an open university are mainly adults with a wide age range and a wide variety of entry levels. Due to work and family obligations, they engage less in their learning, which then may influence their academic achievement. Therefore, this study aims to investigate the mediation effect of online student engagement on the relationship between students' self-efficacy in English learning and English achievement.

Participants of this study are adult students from The Open University of China. They are non-English majors and enroll in English classes designed for non-English majors. The survey collects students' demographic information (e.g., gender, age, job, salary per month), students' self-efficacy, and online student engagement. The participation in the study is voluntary and will not affect students' grades. Data will be collected using an online survey via WIX. CN. The primary analysis will be conducted to provide the descriptive statistics for demographic information and test the SEM statistical assumptions (i.e., outliers, multivariate normality, missing data) using both SPSS and R software. Then SEM will be conducted using R software, and the bootstrap resampling procedure will be used with 1,000 resamples in the study to assess the indirect effects. According to Kline's (2016) recommendation, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR) will be used in this study.

The results of this study indicate there is an indirect effect of self-efficacy on achievement via online student engagement (i.e., student online engagement mediates the relationship between self-efficacy and achievement).

First, this study used a holistic view to define online student engagement. It helps enrich the understanding of online student engagement. Second, this study will provide implications on how to increase online student engagement via self-efficacy and thus improve student achievement. Third, suggestions on online course design will be provided to promote online student engagement.

A Blended Learning Space of Doing Capstone Research Projects among Practitioners in Professional and Vocational Education: Inter- and Intra-Learner Variations through the Phenomenographic Analysis

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The study aims to articulate the blended learning space in which practitioners (as adult learners) were led to do their final-year-(capstone) projects (FYP) in their part-time bachelor programme in professional and vocational education (PVE) in Hong Kong. The phenomenographic analysis was utilized to articulate some crucial inter- and intra-learner variations in their enacted blended learning spaces when the instructors (as researchers) kept varied parameters invariant for improving the pedagogy and instructional design of the blended learning space.

By using variations across research contexts under the same research methods and variations across research methods under the same research contexts, the programme led the adult learners in their FYP projects to contextualize research methods and transfer methodological research knowledge from decontextualized frameworks/other workplace contexts to their own workplace contexts. The instructional design of the blended learning space contained gamification, padlet discussions, and other socio-cognitive aspects. Research methods like e-surveys, semi-structured interviews, and participant observations were applied to collect relevant quantitative and qualitative data, and work out convergent data patterns through cross-data, cross-method, and cross-perspective triangulation.

The blended learning space consisted of online and face-to-face modes of mass lectures, coaching workshops, and thematic tutorials, running in synchronous and asynchronous modes. Notably, the instructors and the PVE practitioners as researchers/developers and adult learners were engaged in their blended learning spaces respectively. Knowledge transfer in the study refers to the adult learners' sharing of experiences, transfer of skills and knowledge across contexts, and the knowledge co-construction process in their FYP projects. For example, learner instructions and pedagogy could be transferred between school/teacher education and workplace education contexts. In intra-learner variation, deep/low adult learners could/could not respectively change their conceptions of research methods and ethics, identify a research schedule, devise action research plans, articulate relationships between research questions and capstone project products, and learn how to use collected data to answer research questions, and improve the project design. In inter-learner variations, their deep/low learning outcomes respectively point to the presence/absence of research gaps derived from literature review, rich/poor contextualization of viable research methods, deep/low metacognitive reflections on self-regulating research progress, good/bad mastery of data-

Interaction Analysis of Teachers and Students in A Blended Synchronous Classroom by Improved Flanders Interaction Analysis System and Lag Sequence Analysis

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(Cont'd)

driven strategies to improve/rectify the tested capstone products (such as learning and teaching package, mobile apps, assessment systems), high/low ability to suggest future research directions and identify the contributions of the projects to the academic field.

The study provides an innovative blended adult learning model in PVE in Hong Kong, which is transferrable to other educational contexts in higher education.

In order to realize “education equity”, China has been carrying out plenty of experiments and groups for Special Delivery Classroom. Special Delivery Classroom could be created the blending of rural physical classrooms and urban cyber classrooms by using various synchronous tools such as video conferencing systems, electronic whiteboards, and interactive response systems. The way to integrate two or more rural physical classrooms to support online real-time interaction among teachers and students in different locations is called Blended Synchronous Classroom (BSC) in this study. This type of blended synchronous learning and teaching has become ubiquitous. However, little research focuses on the interaction between teachers and students to improve the classroom teaching quality and behavior.

This paper investigated teacher-student interactions during an English and Science curriculum. First, four special delivery courses clips by two rural primary schools were coded by improved Flanders Interaction Analysis System (iFIAS), two clips in English class and others in science class. Then, this study used Lag Sequence Analysis (LSA) to extract sequence features based on the codes.

Results show the English and Science curriculum has a high technology utilization rate. The English curriculum has more active responses from students and a higher encouragement rate from teachers. Teachers tend to lecture and organize discussions between students and peers in a science curriculum. In addition, English two courses clips could be summarized as “Teachers lecture—Teachers ask closed-ended questions—Students response actively—Teachers accept or use ideas of students—Teachers praise or encourage”. Both school teachers should develop skills of asking open-ended questions to further stimulate students’ learning enthusiasm, and encourage students to actively think and ask questions.

Many rural schools failed to provide an adequate English and Science curriculum. As a type of blended synchronous learning, Special Delivery Classroom effectively provides high-quality education for rural children. Blended synchronous teaching has demonstrated advantages in sharing high-quality digital resources sustaining and promoting equity in education under an integrated informational technology context. Both English and science classes stimulate students’ learning enthusiasm, and the classroom is very lively and flexible. However, classroom discipline in science classes and the way English classes promote students’ deep learning still need to be improved. Science teachers need to create exploratory learning situations to encourage students to explore independently and communicate with peers.

Developing Students' Self-regulated Learning Skills for Blended Learning

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Like many others, our university is settling into blended learning as the post-pandemic norm. Informed by research evidence and institutional data that students find online learning more challenging than they do traditional face-to-face learning, we started a programme to help students develop self-regulated learning skills for blended learning. This paper presents data on the program's effectiveness.

A one-term, non-credit-bearing module called Learning to Learn Better (LTLB) is offered to undergraduates. The learning outcomes are to develop metacognitive skills to plan, implement and monitor their learning, and to learn appropriate learning strategies. Students in LTLB completed the partial MSLQ pre- and post-module, and the SRLIS mid- and post-module. FGDs were conducted post-module. In parallel, a control arm of students who did not enrol in LTLB was recruited from the general undergraduate population. SRLIS strategy use and 4 MSLQ sub-scale scores were compared across Group and Time. FGD recordings were transcribed and thematically analysed.

Seventeen students participated in LTLB, and 19 students were in the control group. A statistically significant interaction was observed for control of learning ($F = 8.7$, $p < 0.01$). Students in LTLB reported an increase in control of learning compared to a slight decrease for controls. A trend was observed for a larger increase in self-regulation in the LTLB group ($F = 4.0$, $p = 0.05$). An increase in strategy use was observed in the LTLB group, compared to a decrease in the control group. The strategies that increased in the LTLB group were seeking social assistance (peers), organising and transforming, and environmental structuring. Thematic analyses found that LTLB students appreciated the warm and safe learning environment and felt a strong connection with classmates and instructors. They found strategies on study planning, remembering content and sleep particularly useful. They also shared the positive effect of LTLB: they felt more self-aware and confident in their studies, and the skills learnt translate beyond their studies.

The data demonstrate the positive value of a tailored program to improve students' self-regulation skills and confidence for blended learning. It also suggests that to achieve good blended learning, other than faculty-facing efforts to develop good "blended teachers", it is important to engage students to develop good "blended learners".

Labyrinths of Timelines in Physics Teaching with the Virtual Tours Technology

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This research is devoted to studying the educational affordances of timeline visualizations inside Virtual Reality (VR) for physics teaching.

This approach connects physics with other disciplines: history, philosophy, and psychology. The history of physics, the biographies of scientists, and the evolution of the universe can be represented with different kinds of timelines. During the virtual part of the lesson, students/gamers take a virtual tour in stages, listen to the teacher's comments and explanations, and finish with a game quiz. It is also possible to independently wander inside the VR labyrinth of timelines. Here are suggested some fairly impressive and memorable models of VR timelines (Panoramas of Time, Time Jumps, Corridors of Time, Lifts of Time), which were previously tested in physics teaching. Teaching guidance, VR timelines software tools, and training materials were piloted by both in-person and online physics teaching, on individual and group sessions in 2021–22.

VR technologies open up many new opportunities for physics teachers. In physics classes, students are interested in issues related to the concept of timelines. The suggested set of timelines “Labyrinths of Times: Heroes of Scientific Revolutions” has been successfully applied in physics classes. The chronological timing of scientific events and arranging physics discoveries in order of occurrence in time are very important for understanding physics and scientific methodology.

The mobile VR application was created on software technology of virtual tours and enthusiastically welcomed by students. The interviewed teachers are hopeful that VR timelines (used as a basis for physics lessons) will improve the memorability of learning material, help to organize teaching materials, and integrate students' knowledge. But teachers also note some difficulties: we need more advanced VR devices and VR applications; there are some technical, medical, psychological, and religious limitations; and this is an extremely time-consuming educational technology (both in designing and in using). Nevertheless, virtual tours with incorporated timelines enhance spectacularity, attract attention, and increase interest in physics learning.

Using Augmented Reality for English Vocabulary Knowledge Recall: A Case Study of Chinese EFL Learners

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Augmented Reality (AR) technology has excellent potential and useful features in language education with its contextual visualization and learning interactivity advantages. However, AR devices and systems have yet to be maturely used in English language education due to a lack of well-developed and multi-functional software for language learning. To fill this gap, the present study produced particular AR learning materials for English vocabulary learning based on the Metaverse application. We conducted a case study to examine the learning outcomes of using AR in word knowledge study and learners' perceptions of AR technology.

The present study used quantitative and qualitative research methods to evaluate the effectiveness of AR technology in vocabulary learning for Chinese EFL learners. The participants, 40 Chinese EFL learners, were randomly assigned to the experiment group with AR support or to the control group with the traditional e-reading method. More specifically, all participants were given the same pre-test, a recall test for word knowledge of seven English vocabulary words. In the next step, the experimental group participants used the AR learning materials on their mobile phones to learn the meaning of seven English words within 30 minutes. The control group participants did self-learning with e-reading materials. Then, all participants had post-tests, the same as the pre-test, and completed a questionnaire about effectiveness, usability, and satisfaction. Finally, after one week, all participants had the delayed post-tests the same as the pre-and post-tests. Six experimental group participants had a semi-structured interview of around 15 to 20 minutes, to talk about their assessment of and critical thinking about using AR technology in vocabulary learning. For the data analysis, the quantitative data were analyzed by SPSS. TAM analyzed the qualitative data.

For the quantitative data of vocabulary tests, students who used AR learning materials performed significantly better than those who used traditional e-reading methods to learn vocabulary in both post- and delayed post-tests although the two groups' pre-test scores showed no significant differences. AR technology received higher comments in all three dimensions than did the traditional e-reading method. Participants' perceptions of usefulness and perceived ease of use had a strongly positive linear relationship with their satisfaction attitudes. Moreover, the questionnaire results proved that the three dimensions could significantly influence each other. For the qualitative data of semi-structured interviews, the factors facilitating the intention

Effects of a Mind-mapping-based SCIT Approach within Virtual reality Contexts on High School Students' Presentation Performance and Engagement

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to use AR in vocabulary learning were interesting learning experiences, presenting multi-modal digital learning resources, and interaction with the real world. The factors preventing the intention of the use of AR in vocabulary learning relied on few appropriate mobile applications, lack of self-regulated skills, network connection problems, and the price of the device.

For originality, the AR learning materials were self-developed and custom-made for vocabulary learning, based on activity theory and Nation's four strands of vocabulary teaching and learning theory. This study has significant value in using AR technology and designing AR materials for vocabulary learning. At the same time, this study expanded the technology acceptance model. Moreover, the qualitative data of Chinese EFL learners' perceptions identified the applicability and challenges of using AR technology in vocabulary learning and implicated language teachers in integrating AR into teaching practice.

Developing students as self-regulated learners has been an important educational objective in many countries. In the past decades, many teachers and scholars have tried to develop methods and strategies for conducting self-regulated learning activities in classrooms. One of the well-recognized approaches is the school-based model of self-regulated learning in Hong Kong secondary school classrooms. In this model, a formal classroom with four sessions of curriculum design—self-learning, co-learning, inter-group learning, and teacher-directed learning (SCIT)—is proposed to guide students to develop self-regulated learning skills. Moreover, virtual reality (VR) has been adopted to enable learners to experience authentic contexts. However, it remains an open issue to promote students' learning engagement and achievements in such self-regulated learning contexts. To cope with this problem, this study proposed a mind-mapping-based SCIT approach in VR contexts.

To investigate the effects of the mind-mapping-based SCIT learning approach, a quasi-experiment was conducted in an English course with a total of 50 high school students from two classes. The experimental group students used the mind-mapping-based SCIT learning approach to learn the cultures of different countries in VR contexts. The control group of students learned with the conventional SCIT learning approach.

It was found that the mind-mapping-based SCIT learning approach significantly enhanced the students' presentation performance. The interview results indicated that the students learning with this approach had a greater tendency to learn to make more accurate, organized, and relevant presentations due to the benefits of the graphical learning methods, and to express their thoughts freely. However, there was no significant difference between the engagement of the two groups.

Traditional self-regulated learning usually involves students watching videos during the self-learning session. This study attempted to introduce the use of VR during the self-learning session, so that students could immerse themselves in the learning context and relate the learning content to real-world situations. It is recommended that instructors and scholars implement VR learning materials in the self-learning session when conducting self-regulating learning. In addition, this study used a mind-mapping-based SCIT learning approach to help students organize their knowledge and enhance their learning effectiveness. Self-regulated learning is a high-level competency, so future research should consider providing sufficient scaffolding to support students, such as mind maps, concept maps, or other graphic organizers.

Teacher Perspectives on Micro-experiential Training Strategy in Metaverse

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The integration of virtual and real, online and offline characteristics of the edu-metaverse can promote learners' immersive interactive experience, greatly expand the space-time boundaries of teaching and learning, and stimulate the transformation of teaching concepts and modes. However, current domestic and foreign research on applying the metaverse platform in education mostly stays in the theoretical framework and model research. Therefore, this study propose the framework for designing micro-training based on experiential learning theory in the metaverse space to explore the impact mechanism and effectiveness of teachers' online training learning.

This study contains two parts: metaverse interaction architecture and micro-experiential teacher training. In part one, the authors built metaverse interaction architecture for micro-experiential teacher training, which contains a data layer, service layer, and an application layer. In stage two, the authors designed four learning activities of "cloud experience", "micro-reflection", "micro-discussion" and "micro-lecture" according to Kolb's experiential learning theory. Finally, 32 participants of Shanghai Open University teachers were recruited to evaluate the effectiveness and performance.

The results show that the teacher's recognition in each variable dimension exceeds the average level, and variables except information literacy were significantly correlated with behavioral intention. Step-wise hierarchical regression results showed that facilitating conditions, performance expectancy, effort expectancy, social influence, and experiential learning affect usage intention positively. Mediation test results show that facilitating conditions and efficacy expectations will influence behavioral intention via experiential learning. Furthermore, qualitative analysis of the topic and sentiment from the questionnaire show that learners' positive emotional views on the interactive experience in the metaverse space include new learning experiences brought about by resource, technical, and environmental support. In contrast, negative emotional views include challenges such as device conditions, network speed, and resource production difficulty.

This study designed the architecture and process for micro-experiential teacher training with an immersive simulation environment in the metaverse space. The research proves that the immersive simulation environment in the metaverse space can greatly improve on-line training effectiveness. It also highlights the critical factors affecting learners' satisfaction and the design frameworks for open education to improve edu-metaverse applications.

Standing on Giants' Shoulders: Embracing AI-generated Education Content for the Future of Computer Science Students

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The recent developments in language-based artificial intelligence (AI), natural language models (such as OpenAI's ChatGPT) and programming-based models (such as GitHub Copilot) have raised new ethical considerations that must be carefully considered by educators in Computer Science (CS). This paper presents a review of these emerging AI technologies and the ethical challenges they present. Additionally, we examine similar ethical issues that have been encountered in the past, drawing parallels between these issues and those presented by AI. Furthermore, this paper aims to identify opportunities for addressing these ethical concerns.

Recent CS-education-related technological advancements and their capabilities have been studied. These technologies have been explored in the context of the ethical codes of conduct established by two CS professional bodies: the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics (IEEE). The suitability of these CS codes of conduct to address the current and future ethical issues arising from these technologies are examined and discussed. The potential application of these new technologies to advance CS curricula is also explored.

Although the emergence of new technologies in the field of language-based AI presents a challenge for CS educators, and beyond, we note that the class of ethical considerations that these technologies raise is already well-understood and addressed by existing codes of conduct. However, the accessibility and convenience offered by these new technologies may increase their usage among a wider range of students, thereby exacerbating the challenge. The technologies also present an opportunity to rethink some fundamental aspects of CS curricula, potentially significantly reshaping future CS education.

Using existing ethical codes of conduct, we examine recent developments in language-based AI technologies. Through this study, we have found similarities and differences between existing ethical considerations and the new challenges these technologies present. We also provide specific recommendations for how CS educators can adapt their existing ethical education provision to address these new challenges. From a student and an educator perspective, we explore the opportunities provided by these developments, including the potential to reshape CS education and training.

Fighting Fires with Mixed Reality: The Future of Fire Safety Training and Education

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Extended reality technologies have made a significant impact in various educational domains, including medical sciences, built environment, and the humanities. Fire-extinguisher training (FET) for non-professional firefighters can expose trainees to dangerous situations, including high temperatures, fire, and smoke. In this paper, we explore the use of mixed-reality (MR) technology for FET. We incorporate sensor-based environmental information to provide a safe, immersive, firefighting scenario that simulates realistic conditions.

We report on the development of a Hololens-based FET application using the Unity3D engine and MR toolkit (MRTK) plugin. The FET has two modes: training and application. During the training mode, trainees learn how to use different fire extinguishers through an interactive holographic experience. In the application mode, they use the holographic fire extinguisher to extinguish virtual fires in the real environment. Fifty participants took part in the study. Each participant engaged with two training modalities: traditional (video-based) learning and MR-based FET (MR-FET). Participants were surveyed about different elements of their MR-FET learning experience, including their level of motivation, engagement, interest, comfort, and overall experience.

The survey results reflect a positive experience with the MR-FET, as evidenced by a mean rating of 4.32 out of 5.0. The participants rated their motivation, engagement, and attraction with the training experience at 4.59, 4.39, and 4.49, respectively. These findings suggest that the participants were highly motivated to use MR-FET, had a strong engagement with the presented material, and were significantly interested in the overall learning experience. Nevertheless, concerns were raised regarding the Hololens not being particularly comfortable (mean rating of 3.69 for comfort). Conversely, only a very low proportion of participants reported experiencing symptoms of cybersickness (6.8%), indicating that MR could be a feasible replacement for virtual reality (VR)-based FET.

This study proposes an MR-based firefighting training tool that could reduce the motion-sickness issues common to VR-based training. Furthermore, the simulated fires can be integrated with objects in real-world environments, enhancing the immersive experience, and minimizing the physical risks.

VR-based Immersive Fire Safety Training

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Provision of fire-safety training can be beset by health and safety challenges, and simple presentations lack the realism needed to truly support this training. Therefore, we were interested in exploring the potential for VR to address this situation. This study is an investigation of the effect of three educational methods on learning outcomes for fire-safety training: fully immersive virtual reality (FI-VR); non-immersive VR (NI-VR); and conventional text-based learning (CTL).

We created a VR-based firefighting system to train in the effective use of firefighting equipment. The system can simulate various fire incidents (such as in an office or warehouse) where participants are required to use different types of fire extinguisher and/or a fire hose to extinguish fires. Our study involved 24 participants engaging, sequentially, in three learning sessions: FI-VR using headset, NI-VR using desktop-based VR, and CTL with a PowerPoint presentation. Participants took a quiz after each session to assess their learning outcomes. They also completed a System Usability Scale (SUS) questionnaire to provide feedback on the user experience. To alleviate potential bias through the order of training, the learning sessions were conducted in three sequences, in loop queue form: CTL – NI-VR – FI-VR; NI-VR – FI-VR – CTL; and FI-VR – CTL – NI-VR. For instance, the first (and fourth, and so on) participant took the first order sequence of learning sessions.

The results include that the quiz mean score was highest for NI-VR (62.9%), followed by FI-VR (56.9%), and then CTL (46.3%). The SUS rating was highest for FI-VR (60.6%), followed by NI-VR (60.1%), and then CTL (59.3%). The results also showed that most users preferred FI-VR (66.7%), followed by NI-VR (20.8%), and then by CTL (12.5%). These results showed the use of VR in teaching fire-safety training has significant potential for development.

Fire is a common, but often devastating, problem, posing a major threat to public safety and social development. It is essential that fire-safety training be both accessible and effective. Current approaches to fire-safety training primarily rely on CTL, but this does not appear to properly prepare participants for real-life fire incidents, due to the lack of hands-on experience/training. Immersive VR experiences, such as the one explored in this study, represent an opportunity to bridge this gap and provide more comprehensive fire-safety training. VR provides a learner-centered learning environment that encourages independent understanding and reflection and promotes a higher level of awareness and learning ability. In addition, the immersive experience provided by VR can also be effective in capturing the attention of the learner to enhance their effectiveness.

Benefits of Integrating VR Game Development Project into a University Computer Science Course: A Case Study

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It is widely acknowledged that Virtual Reality (VR) applications are effective educational tools to help students gain more immersive and interactive experiences beyond physical limitations, and are, therefore, considered to result in greater and more varied engagement in the learning process. Although there has been a large amount of research into the use of VR in tertiary computer science courses in developing students' technical knowledge and required skills, few studies have focused on assessing student capacity to build and evaluate VR applications effectively. The aim of this study is to examine, through observational and interview techniques, what benefits and challenges students experience when building their own educational VR games, and to what extent active learning techniques help them accomplish the task successfully.

A pilot study was conducted for nine months to investigate Japanese engineering majors' experience and perceptions of developing their own VR racket game applications. The study also qualitatively explores how students, with rudimentary programming skills and graphics experience, valued enquiry-led and collaborative work on prototyping, implementing, assessing, and improving the VR games.

The findings of this small piece of research suggest that the hands-on VR game developing project is effective in creating increased student engagement by stimulating their curiosity and creativity. It has also become evident that the success of getting students to build VR games relies solely on a close connection between the gaming environments and contexts that students create, as well as their own previous real-life experiences. The study suggests that it might be feasible to integrate the VR game-building project into a computer science field or a related field, especially in programming courses, as a practical educational tool.

This qualitative study fully describes the step-by-step process of student designing, implementing, and evaluating the VR game applications as part of their graduation project in a computer science course. It closely investigates the trajectory of student engagement in the process of achieving specific goals and objectives. This study seeks to provide new understanding of how student development of VR applications might help equip the students with the knowledge and skills they are expected to learn and practice in an integrated and holistic way. Some major implications are explored, and practical suggestions to increase student motivation in the future are given.

Harnessing Artificial Intelligence (AI) in Learning and Teaching: Using AI as Learning Partner to Facilitate Constructive Peer Learning

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Recently, there has been increasing attention and discussion on Artificial Intelligence (AI) in education. Although the rapid development of AI such as ChatGPT, Bing and other software has raised debates regarding plagiarism, academic honesty, research ethics and integrity, this paper specifically looks into how to harness the overwhelming features of AI by adopting it as a learning partner to facilitate peer learning for higher-order thinking. Peer learning has been promoted and praised by academics and educators. Socio-constructivist learning approaches facilitate students with diverse backgrounds, experience and knowledge in interacting, discussing, analysing and consolidating findings in response to the questions and issues raised by teachers. Socio-constructivism also articulates interdisciplinarity to enable students to work collaboratively across a broad range of disciplines and expand their knowledge beyond a single discipline. It further promotes problem-solving skills; cognitive skills; integrative skills; collaborative and communication skill; self-confidence; self-efficacy; research skills and generates passion for learning as well as ownership of new knowledge. AI, with its interdisciplinary database, if used appropriately would be able to contribute as a learning partner, facilitating a socio-constructivist approach to learning.

This empirical study examines the usefulness of AI as a learning partner for effective socio-constructive learning. Data will be collected in class settings in two stages. In the first stage, the teacher will be the facilitator and students and AI as participants. In the second stage, the teacher and AI co-facilitate the class with students as participants. The class size will be small (6 to 10 students) for engagement of discussion and interaction. The discussion in the classes will be recorded and transcribed along with the prompts and responses of the AI for analysis.

The practice of using AI as a learning partner involves the teacher encouraging a socio-constructivist learning environment and introducing the issue(s) to be explored. Students engage with the AI, drawing upon it as a knowledgeable learning partner, that can participate in discussion and respond to prompts. Students are encouraged to consider deeply the questions they will ask, exploring those which expand their understanding the most and elicit the most illuminating responses from the AI. As students collaborate to ask question of the AI, traditional power structures about who gets to pose questions (as in Socratic approaches) are flipped. The interactions and peer collaborations between the teachers, students and the AI will lead to high-level debates, articulating higher-order

Insights from 82 ChatGPT Publications to Language Learning: A Bibliometric Exploration

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thinking and the construction of new knowledge in socio-constructivist learning environment.

Most of the current studies into AI rest on plagiarism, academy honesty, ethics and integrity issues. The results of this study articulate how the active incorporation of AI into learning environments can provide new insights into socio-constructivist approaches and the development of students' higher-order thinking skills. The use of AI as a learning partner would also broaden the concept of "community of practice" to expand and enrich the knowledge in an interdisciplinary aspect.

The profound ability of ChatGPT to comprehend natural language and provide automatic feedback poses various challenges to conventional educational models, particularly language learning and feedback provision. This study aims to explore insights from existing ChatGPT publications to inform how this tool could be used for language education.

We conducted a bibliometric analysis of 82 publications on ChatGPT (2022–23) retrieved from the Scopus database as of March 7, 2023. The search included titles, abstracts, and keywords, and R-packages were used to review and explore global trends in ChatGPT publications.

The research analyzed 82 publications on ChatGPT and found that it has an annual growth rate of 1,420%. These publications consistently reported that ChatGPT is a cutting-edge technology with potential applications in various fields, such as publishing, biotechnology, and healthcare. To optimize ChatGPT for different contexts, data mining, and benchmarking may be necessary. Social media can also be a critical platform for ChatGPT dissemination, and the healthcare industry could benefit from its use in pharmaceuticals and decision support systems. Publications also explored ChatGPT's potential in medical education by facilitating students' learning and providing instant feedback. Based on our analysis of all keywords of these publications, 30 top trend keywords emerged and could further form seven meaningful categories including Artificial Intelligence and Machine Learning; Writing, Publishing and Authorship; and Language Learning and Processing. Furthermore, we found little discussion on the application of ChatGPT in English language education. The visualized analysis results highlight the need for further research and development that explores possible ethical and practical applications of ChatGPT in language education.

The language learning and processing category identified from this study would be informative for further studies on optimizing ChatGPT for students' language learning. Although ChatGPT can offer language assessment and immediate feedback information to students, critical thinking and creativity play an essential role in human language learning when evaluating ChatGPT-based feedback information. Thus, educators should provide guidance and training to assist students in developing these critically evaluative skills. The analysis suggests the potential of ChatGPT in teaching and learning English language. However, much empirical research should be done to explore optimal and ethical ways to utilize this tool to assist language learners.

Edu-Metaverse: A Unified Architecture

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2021 is known as the first year of the “Metaverse”. Various industries have engaged in heated discussion on the Metaverse. The rise of the concept of Metaverse has built a bridge between the physical world and virtual space for various industries and provided a new imagination space for the industrial digital transformation. In 2022, China launched the National Education Digitalization Strategy Action, built a national smart education public service platform. The relevant technology of the development of intelligent education coincides with the underlying technology of the metaverse. At present, China has made certain achievements in intelligent education, which provides necessary preparations for the development of the edu-metaverse. Therefore, due to the development of technology and the digital transformation of the education industry, the educational model edu-metaverse based on virtual reality technology has gradually attracted the attention of Chinese scholars and education practitioners because of its advantages in improving education quality, improving teaching efficiency, reducing education costs, etc. However, the current development of the edu-metaverse industry is facing issues such as inconsistent platform standards and difficulties in resource sharing. There is an urgent need to establish a unified underlying architecture to enhance universality and ensure its sustainable development. This article aims to propose a referential underlying architecture for the edu-metaverse based on existing research findings.

On this basis, this article uses literature research methods to summarize the existing research on the underlying architecture of the edu-metaverse. Referring to the reference architecture provided by the Metaverse Working Committee of the China Electronics Industry Standardization Technology Association, and combining with the current research status of scholars, a three-layer architecture is proposed: the collection layer, the processing layer, and the application layer.

The collection layer is responsible for collecting and labeling data through EEG monitoring and other technologies; the processing layer responsible for data cleaning and processing analysis through cloud computing, edge computing and other technologies; and the application layer is responsible for applying the data to the actual educational scene and providing teaching evaluation.

At the same time, this article explores the methods and approaches to achieve the unity of the edu-metaverse from the perspectives of strengthening technological standardization, improving user experience, strengthening data privacy and security protection, deepening teaching theory research, and strengthening international cooperation, providing certain theoretical references for promoting the development of the edu-metaverse.

Application of Virtual Reality in the Construction of Gamification Teaching Resources in the Digital Age: A Case of Humanistic English in Chinese Open Education

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The rapid development of digital technology has injected strengths into the reform of educational structure. The integration of education and virtual reality technology has become an important field to promote the digital transformation of education. Virtual reality technology can provide a multi-modal teaching mode. This study aims to explain the construction process and try to draw up design principles and the framework in the construction of gamification teaching resources using virtual reality technology in a second language teaching and learning in Chinese open education.

Based on practical experience, this research will use the methods of literature review, questionnaire survey, and semi-structured interviews by quantitative and qualitative analysis. Taking *Humanistic English* as an example, this paper firstly explains the design process of virtual reality gamification teaching resource, secondly sorts out the design principles of VR-based educational games, and finally summarizes the key points that need to be considered in the selection of materials, scene design, game design and other aspects of VR teaching and learning resources' construction.

The preliminary application shows that the teaching resources achieved good feedback on user experience, fulfilled the preset teaching objectives, and promoted the autonomous language learning and language communication practice of “players” according to the results of unit testing, questionnaire and semi-structured interview.

Problems, such as low interest in foreign language learning and lack of learning willingness can be improved through the application of the game part employed in VR teaching and learning resources. The research has important practical significance and social values for the construction of gamification teaching resources in education and new methods for language teaching and learning in open education.

Practical Immersive VR Applications in Teaching and Learning: A Classroom Arrangement Documentation Study

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In the past few years, Virtual Reality (VR) has been widely adopted in teaching and learning (T&L). VR can be used in carrying out some learning activities which were impossible or very costly in the past. Specifically, during the pandemic, higher education embraced the use of Virtual Teaching and Learning (VTL) as a method to engage students. However, educators seldom focus on the classroom arrangement or the preparation work required in using VR applications in T&L. The purpose of this paper is to discuss the classroom arrangement needed for carrying out the immersive VR learning activity in a class of 10–12 students.

This paper examines the classroom arrangement for immersive VR teaching and learning through the work of a project team with one lecturer, two programmers, and one instructional designer in a VTL project implemented at an interdisciplinary undergraduate course in Hong Kong. A blended mode of VTL and experimental tasks were designed to engage students with the exploration of study content in real and virtual scenarios. This is a documentation study, and planning and reflection findings are shared. Using a qualitative approach, the preparation meetings of the project team were documented for thematic analysis in this study.

The classroom arrangement involved two aspects: preparation work and an operation contingency plan. In preparation work, the learning activity plan determines when the students use the VR headsets. The seating plan or location plan determines whether the students use VR on chairs, stand, or walk around in the classroom. This involves the floor level and boundary settings on the VR devices, setting stationary or drawing boundaries. In addition, the headset battery charging issues before and after the classes needed to be considered in relation to the number of headsets. The operation guidelines were explained to the teacher. Operators demonstrated usage and an initial trial on devices before the start of the session.

For an operation contingency plan, there are issues when students refuse to use headset with reasons such as feeling dizzy. In this case, a website version was prepared. When there were technical problems for the VR application or headsets, operators were ready to support the students in the class. There were also spare devices as backup.

The Influence of Interactive Augmented Reality Picture Books on the Approaches to Learning of 5-6-year-old Preschool Children

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Approaches to learning (ATL) encompass preschool children's competence motivation (CM), learning strategy (LS), and attention/persistence (AP), playing a crucial role in their school readiness and future learning behavior and adaptability. Augmented reality picture books (ARPB) offer readers 3D animation and interactive experiences, stimulating learners' interest, attention, and reflection, thereby unlocking immense learning potential. Increasing evidence suggests that ARPB may be a promising way to enhance learners' ATL. Therefore, it is necessary to test the intervention of ARPB on ATL during the preschool stage.

This study conducted a randomized controlled trial to assess the effect of an interactive experience-based augmented reality picture book intervention on three core ATL of preschool children. The trial recruited 28 preschool children aged 5–6, 14 randomly assigned to receive the ARPB intervention and the remaining 14 engaging in traditional paper picture book reading.

Significant differences were observed in the learning behavior scores of the two groups of children. Compared to the control group, preschool children in the experimental group exhibited higher scores in ability motivation (CM), learning strategies (LS), and attention patterns (AP) during the ARPB reading process. Furthermore, most children in the experimental group expressed a higher preference for and acceptance of augmented reality picture books.

Highly interactive media stimulate greater interest and attention in preschool children, resulting in higher engagement in learning. Compared to traditional paper picture books, augmented reality picture books with immersive and experiential features have a more significant effect on learning quality. Augmented reality picture books are easily accepted in kindergartens, and children enjoy them.

Leveraging AI to Embed Employability in the Curriculum: Implications for Course Design and Delivery

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One of the most topical drivers behind university education is to prepare graduates for the world of work, empowering them not just with knowledge but also both soft, hard and employability skills that will give them the edge when looking for jobs. The use of technology has long been a main thrust for debates and development of pedagogic practices to enable academic staff and learning developers to design and deliver modules and courses that will maximise knowledge transfer and skills acquisition. This paper will examine the role of Artificial Intelligence and its applications in building innovative and engaging content, with an emphasis on boosting students' employability skills.

This will be a conceptual paper, exploring the extant literature in the field and trying to synthesise existing ideas and arguments to formulate an operational model that will serve as guiding principles for further empirical work. Therefore, a systematic literature review will be conducted and used as the main methodology.

We anticipate capturing an in-depth understanding of how AI can be integrated into course design and delivery, considering various options in functionality, access, evaluation and so on. Obtaining a well-rounded understanding of the different possibilities but also challenges AI poses in relation to employability shall allow proposing a working framework that could be the basis for further research.

The project aims to bring together two very important and contemporary areas of research: the use of AI and bolstering student employability. Apart from identifying relevant gaps in the literature and creating a springboard for empirical work, the suggested guidelines could lead to the creation of a practical toolkit that academics will be able to use, facilitating the conducive use of AI into academic teaching and curriculum development.

The Differences of Working Memory and Programming Strategy Between High and Low Performers

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Recently, the ability of programming has been emphasized internationally. In the learning process, one of the difficulties beginners and low performers often meet is that what they have in mind is far from what the computer can accept. This might be related to the innate ability of working memory (WM), including phonological loop capacity, visual-spatial ability, and executive function (EF), which helps learners build strategies in the programming process. Programming strategies include top-down and bottom-up. However, there has been a lack of studies on programming performances and strategies from the cognitive perspective. Therefore, to fill the gap, the aim of this study is to investigate the influence of WM sub-skills on programming performance and discover the cognitive process and programming strategies of high and low performers.

Thirty-five participants with programming experience over a semester in Taiwan were recruited. WM capacity was collected through assessments in the first phase. In the second phase, 40 minutes of programming stage using the problem-solving-based system developed in this study evaluated the performance. The problem-solving-based system developed especially provides visualized assistance of top-down and bottom-up perspectives. The eye tracker also collected the cognitive process in the programming stage to further investigate the programming strategies from the cognitive perspective.

The results indicated that visual-spatial ability and EF are highly correlated to programming performances, but no correlation was found between phonological loop capacity and programming performances. The correlation between programming performances and the visit count of the top-down perspective was positively significant, but programming performances had negative correlations with the visit count of the bottom-up perspective. Moreover, the sequence of eye movements shows that high performers tend to program after visiting the top-down perspective. The results indicate that higher performers tend to have a higher visual-spatial ability and EF capacity and use the top-down strategy in the programming process.

This study contributes to providing empirical evidence for the influence of WM on programming performance and discovering the programming strategies of high and low performers from the cognitive perspective through the eye tracker. Accordingly, more attention should be paid to training WM capacity to strengthen programming performance. In addition, it is recommended that visualized scaffolding might assist low performers to use the top-down strategy while programming, narrowing the performance gap between low and high performers.

Development of Immersive Virtual Reality Hospital Fire Management and Evacuation Training Program for Nursing Students in Hong Kong

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Although nursing students never experience hospital fire, they should know how to evacuate the patients under their care. Fire drills in schools or hospitals cannot mimic the chaos and guide their decision making. Using Virtual Reality (VR) can offer students a unique leaning experience of this uncommon situation. The purpose of this teaching initiative is to allow students to demonstrate the evacuation of psychiatric patients during a hospital fire in an immersive virtual reality.

In planning, the idea was proposed and discussed with the vendor. An outline of the scenario, learning outcome, and a detailed algorithm for the hospital fire management and evacuation was established according to current hospital guidelines. The comments of the detailed algorithm were collected from experts, including an associate professor, a senior lecturer, and a technical officer of nursing education technology, and a nurse manager with considerable experience in hospital policy. In the developmental phrase, the vendor created assets that meet the learning goal, drew graphic designs in video elements and designed voice-over. The developer put these assets into the VR, wrote custom scripts, designed interactive games, and trial-ran the project on the VR caves with the 3D graphic, dynamic environment modeling, real-time motion capture, high-speed rendering and perceived interactions. The trial run of program was tested before implementation. A teaching plan was written. Sixty-five nursing students participated in this VR-based training program as a pre-practicum workshop, conducted by a facilitator and a technical officer. In evaluation, the participants' feedback was collected via written survey conducted by the course coordinator.

The overall satisfaction of this workshop was 4.6/5 (n=65). The highest scores were the knowledge (4.7/5), presentation and facilitation skill (4.7/5) of the facilitator. Half of the students rated excellent for the design, content and facilities of this workshop. In the narrative comment, some students were satisfied with authentic 3D environment at the VR cave. Also, the students appreciated the chance to act as wards in charge during evacuation.

This is the first immersive VR training program for hospital fire management. The experience in program development and teaching can inform the subsequent application and operation of education technology to equip the nursing students and learners of health care disciplines.

The Self-efficacy and Satisfaction of Students in the Digital Learning Environment

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The rapid development of science and technology has given students access to a wide range of digitized learning tools that can greatly enhance their knowledge acquisition in the digital learning environment. As a result of both subjective experiences and objective factors, many teaching activities are now conducted with the support of educational technologies, particularly online teaching technologies. Consequently, students must be aware of the differences between traditional classroom learning and digitized online learning and adapt to the changes in the learning environment to overcome any potential difficulties. Based on the self-efficacy theory, three research questions guided the study: 1) How do online teaching technologies affect students' learning activities? 2) How do students characterize their self-efficacy and satisfaction levels in digital learning environments? 3) How do students perceive and adapt to digital learning environments?

Based on the general inductive approach, the researchers recruited seven participants from a higher education institution in mainland China for the investigation and understanding of the self-efficacy and satisfaction of students in the ever-developing digital learning environment which is different from the previous environments in which they used to study. Purposive and snowball sampling strategies were applied for the recruitment of targeted participants in this study. As this is a research-in-progress, the semi-structured interview tool was used. In the grounded theory approach with the open-coding and axial-coding techniques, the researcher merged three first-level themes.

Though the level of digitization of each participant's learning environments as well as their backgrounds varied markedly, similarities could be seen in their stories. According to the sharing of participants, the researchers

found that the following three themes were closely related to their self-efficacy and satisfaction in the digital learning environment: 1) learning surroundings, 2) individuals, and 3) emotional state.

Most current studies focus on the implementation of educational technologies and objective outcomes. Only a few are paying sufficient attention to the subjective experiences of participants in teaching and learning activities. Even fewer center on students' self-efficacy and satisfaction in the digital learning environment resulting from positive and negative external factors like technological advancements as well as the pandemic. By exploring the life experiences, self-efficacy, and satisfaction of the above-mentioned group of students, this study offers some good suggestions for the enhancement of teaching and learning practice and provides reliable references for future studies on related groups of people.

The Use of Paper-based Writing Portfolios and e-Portfolios in EFL Writing: Investigating Learners' Writing Proficiency and Emotions

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In English as Foreign Language (EFL) teaching, writing has long been considered the most difficult English language skill to learn. Educators in recent years have been looking into the use of e-learning methods in improving the teaching and learning of English writing. Additionally, the COVID-19 pandemic and the recent technological advancement with Web 2.0 interactive technology have sped up the use of e-learning methods, and the interest in using e-learning tools in English writing is at its highest level. This study investigated the use of e-Portfolios (AKA electronic portfolios) with reference to the portfolio pedagogy in EFL writing, focusing on the effects on learners' writing proficiency and emotions towards English writing. A total of 19 sixth graders from one Direct-subsidised Scheme (DSS) primary school in Hong Kong participated in the study.

The study was designed with the mixed-method research (MMR) approach. Both quantitative and qualitative data are included. Multiple sources of data were collected, including a paper-based writing portfolio and an e-portfolio, a questionnaire about learners' emotions adopted from the Foreign Language Enjoyment Scale (FLES) and the Foreign Language Learning Boredom Scale (FLLBS), and group interviews.

The findings show that EFL learners generally have improved writing proficiency identified from the learners' writing portfolios, more enjoyment and less boredom in English writing lessons, and better experience in learning English writing.

This study opens a new path to a larger-scale study of 162 participants, which will be conducted in 2023. This paper presents the outcomes of the study and discusses the factors that facilitated the changes identified, and contributes new knowledge to the field by showing the changes in learners' writing proficiency and emotions with the use of e-portfolios in EFL writing. It hopes to provide useful tips for other educators who are interested in such e-learning pedagogies and offer meaningful insights for other front-line teachers and school administrators to implement this English writing pedagogical method in similar contexts to bring improvement to EFL writing.

A Study on the Effect of Intelligent Tutoring System on Student Athletes' Academic Performance

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Concerns over the academic and personal development of student athletes have surfaced over the past decade. More studies have found that high-level student athletes in general show less academic success than their non-athlete counterparts, due to the lack of suitable tutoring and short learning time. Intelligent tutoring systems (ITS) have been proven to be as effective as human teachers, but few studies focus on the effect on student athletes. The purpose of this study is to determine the effect of an ITS, Lexue 100, used by student athletes on their academic performance, and make suggestions for more student athletes-friendly designs of ITSs.

This study used a mixed method by combining quantitative and qualitative methods. For the quantitative part, the study collected pre-test, post-test grades data and exercise answer records from an ITS used by 29 student-athletes for nine weeks. After tutoring, Student Athletes' Motivation toward Sports and Academics Questionnaire (SAMSAQ) was designed to measure the students' academic and athletic motivation changes. For the qualitative part, the study interviewed typical students who had either the best or the worst academic performance after tutoring, and interviewed teachers and coaches of the student athletes.

The quantitative data analysis shows that the ITS significantly improved grades among most student athletes. Most of them feel more confident in their academic study and have higher academic motivation, and there is no significant difference in their athletic motivation before and after tutoring. Teachers and coaches also felt the students' enthusiasm in their daily study and training. But some students said that the tutoring process was not enjoyable and made them abandon the use of the system.

This study indicates that ITSs with personalized services can be effective in helping students with dual identities such as student athletes, and in improving their academic performance and motivation. The designs of future ITS should pay more attention to enhancing students' interests.

Promoting Effective Interaction in Junior High School Mathematics Classrooms: An Analysis and Teaching Improvement Study

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Middle school is a critical stage in students' academic development, and the differences between elementary and middle school mathematics in difficulty and thinking make it necessary to explore strategies for promoting effective teaching and learning through classroom interaction. This study uses the Improved Flanders Interaction Analysis System (iFIAS) to analyze a video of a lesson on "Addition and Subtraction of Fractions with Different Denominators" and identify patterns of quality classroom interactive behavior. The study focuses on classroom structure, teacher's teaching style, students' interactive behavior, and classroom atmosphere. The findings suggest that quality classroom interactions have vertical, horizontal, and inward structures, and technology can be used to engage students' senses and make mathematics interesting.

The study provides teaching improvements for "prospective teachers" and novice teachers who are relatively inexperienced in teaching. The study used a combination of quantitative and qualitative analysis and symbolic interaction theory, embodied cognition theory, and constructivist learning theory to create an Excel coding log sheet for classroom behavior coding using the iFIAS coding program.

According to embodied cognitive theory, students are always embodied in quality classroom interactions. In effective classroom interactions, physical participation drives students' emotions, leading to a more positive and focused attitude towards learning. Quality classroom interactions, whether in teacher-led or student-led settings, have vertical, horizontal, and inward teaching structures. Technology's role in the classroom is not limited to providing presentation tools but also extends to mobilizing students' senses. By engaging many senses, technology can make mathematics more interesting and classroom activities more efficient.

To enhance the importance of student questions and responses in the classroom, teachers should carefully consider the timing and nature of their own questions as well as the expected performance of students. By asking thoughtful questions that encourage critical thinking, teachers can facilitate more engaging and interactive classroom discussions. Moreover, effective use of technology can play a vital role in engaging students in the learning process. Teachers must ensure that technology is used at the right time and in the right way to complement and enhance classroom instruction. By emphasizing the importance of these factors, teachers can create a dynamic and effective learning environment that inspires and motivates students to achieve their full potential.

An Assessment of Moodle use Across Different Faculties in a Hong Kong University: Perspectives from Teachers and Students

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Higher education institutions' reliance on learning management systems (LMS) substantially increased during the COVID-19 pandemic. LMS are web-based software applications that manage learning and the delivery of course content. Despite LMS being a standard component of higher education prior to the global health crisis, they previously tended to be under-utilized. Reasons given by faculty for under-utilization include system glitches, design problems, lack of training, and complex LMS interface. An important question is whether users' perceptions and attitudes toward LMS and educational technology tools in general have changed as a result of the pandemic. The present study aimed to gather the perspectives of both teachers and students regarding their use of Moodle (an open source LMS).

Structured interviews with strategic and purposive sampling of undergraduate students and teachers from all academic faculties at a public university in Hong Kong were conducted. Questions were based on an integration of the Technological Pedagogical Content Knowledge Framework (TPACK; Mishra & Koehler, 2006) and the Technology Acceptance Model (TAM; Davis, 1989). In total, 82 interviews were conducted online and recorded via Zoom. A systematic approach was followed in analyzing the transcripts, using a combination of quantitative descriptive analysis on quantifiable answers and a qualitative exploration of common themes.

Moodle transitioned from being a supplementary tool to being a key information dissemination tool during the pandemic. Some teachers reverted to previous practices after shifting back to face-to-face learning. Moodle is primarily viewed by students and teachers as a "one-stop shop" and as a centralized platform for organizing and accessing course materials. Despite the availability of collaboration tools and tools for providing feedback, the majority of interactions occur in alternative communication channels. Consistent with the TPACK framework, content and pedagogy influence the way LMS is integrated into teaching, the frequency and manner of Moodle use varying between faculties and departments. Findings point to students' and teachers' need for familiarity, training, sufficient technical support, and a visually and functionally improved interface to enhance their experience in LMS.

The value and relevance of LMS as a learning tool is heavily dependent on the course content and on the way teachers design the activities and lessons in the platform. Given this, tailor-made information and support for each faculty are needed to maximize the use of Moodle in classes. Recommendations for what would make LMS such as Moodle a more effective tool for teaching and learning are discussed.

Evaluation of Canvas Learning Management System: Remote Learning Experiences of Students During the Pandemic

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In response to the COVID-19 pandemic, the University of the Philippines Los Baños (UPLB) has shifted from traditional face-to-face learning environments to remote learning. To effectively facilitate learning amidst the challenges of the pandemic, the University adopted the use of Canvas Learning Management System (LMS) as a means to advance transformative learning experience in the University. This LMS has enabled teachers to effectively and efficiently develop online courses, deliver instruction, design authentic assessment activities, and foster student collaboration. This study aims to document the experiences of students and evaluate the use of Canvas LMS in its first year of implementation in the University.

An online survey was administered among UPLB students enrolled in the first semester of the academic year 2021–22. The survey was divided into four sections: 1) socio-demographic information, 2) experiences in using Canvas LMS, 3) evaluation of different instructional activities implemented in Canvas LMS, and 4) overall satisfaction rating of LMS. Findings were analyzed using descriptive statistics such as frequency counts, percentages, and weighted means. A total of 1,292 students participated in the survey.

Results show that the students spent 1–2 hours accessing course content in Canvas LMS (41.33%), used their laptops (76.70%), participated in lecture classes delivered in Canvas (96.28%), and completed 1–2 courses in the first semester, 2021–22 (76.64%). More than half of the students who were first-time users of LMS were generally satisfied with how their classes were facilitated via LMS (57.81%). When students experience problems with LMS, they first look for solutions online through Google or YouTube (57.74%), ask their classmates (48.84%), or use the Canvas Help and Canvas Guides available online. When asked to rate their experience in navigating the LMS, the students rated 16 out of 20 tasks to be easy or very easy to accomplish. These included viewing uploaded files, submitting assignments, reading and viewing course content, checking due dates, updating personal account settings, and checking grades, among others. The four activities that students found to be difficult or very difficult to do include participation in synchronous sessions via the conferencing tool, using integrated apps such as Turnitin, using Canvas chat, and facilitating groupwork. With regard to their attitude towards Canvas LMS, the majority of the students expressed a high level of satisfaction as indicated by their positive responses. Most believe that Canvas LMS has enriched their remote learning experience, helped them control and facilitate their own learning, efficiently use and manage their time, and helped them track their progress

throughout the semester. However, there were students who also mentioned that LMS did not have any effect in improving their grades, and it did not improve their ability to communicate or collaborate with co-learners. Perhaps the primary reason is that teachers use other applications such as Zoom, Facebook Group, and Discord to facilitate these types of activities. As first-time users of LMS, there were many issues and challenges experienced by the students such as delayed notifications, reliability of internet connection at home which affects their experience in navigating LMS, volume of content shared by teachers in Canvas which can sometimes result in lag or difficulty in accessing the LMS, timed quizzes, receiving feedback from teachers, and confusing interface, among others. These problems have been addressed by the LMS administrator via a series of webinar orientations, tutorials, distribution of guides and others learning resources, and online consultations.

The findings of this study documented the experiences of students in the first year of implementation of Canvas LMS at the University. The findings served as bases for teachers in designing and developing course content, instructional methods and approaches, and assessment activities implemented in Canvas LMS. In addition, the findings could help the LMS administrator in creating programs and activities which can help students effectively and efficiently navigate their courses in the LMS.

Assessing Elementary Students' Computational Thinking in Programming and Non-Programming Contexts: Test Development and Pilot

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Computational thinking (CT) has been increasingly introduced to elementary schools recently. Reliable and valid assessments are essential to understand students' skill levels and evaluate the effectiveness of new educational practices. The debates on the nature of CT and its diverse definitions make it challenging to assess CT. Holding different perspectives, CT has been measured in both programming and general problem-solving contexts. However, existing CT assessments rarely combined both contexts to measure CT. In addition, constructs measured in the two contexts usually were not the same, making it difficult to compare the performance of CT in different contexts. The aim of the study is to develop a CT test measuring common CT constructs including algorithmic thinking, generalization, abstraction, and decomposition in both programming and non-programming tasks for upper elementary school students. This study presents the test development process and pilot testing.

The test development process primarily contains three phases: 1) specifying the focal skills for each construct based on domain analysis; 2) selecting, adapting, and developing appropriate items based on existing instruments; 3) expert review and cognitive interviews with students to refine the items. In pilot testing, 32 items were administered to 96 fifth- and sixth-grade students from one school in Hong Kong. Classical test theory was used to evaluate internal reliability and item quality by item difficulty, item discrimination, and distractor efficiency. Gender and grade differences of the students on CT performance, programming and non-programming performance were analyzed through independent t-test.

Preliminary results suggest good reliability and appropriate difficulty and discrimination of the test items for upper primary school students. Gender difference exists in CT performance in the programming context. Grade difference in CT performance is significant in the non-programming context.

The significance of this study is to emphasize the need to assess students' CT in different contexts and enrich the CT assessment tools by presenting a new instrument for elementary students to measure the same CT constructs in both non-programming and programming contexts. This makes it possible to explore students' CT performance in different contexts.

Exploring the Potential of ChatGPT in Secondary Mathematics Education: A Scoping Review

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This review aims to explore the literature on ChatGPT by conducting a scoping review of publications documented in Scopus. The study aimed to generate a general picture of the key findings of 47 publications on discussing the implications of ChatGPT for various contexts.

The review process required obtaining all ChatGPT publications from the Web of Science (WoS) and Scopus and screening them to identify the ones that were most pertinent to education. The "ChatGPT" keyword was searched throughout the contents and included all of the publications that qualified and were released on or before March 7, 2023. The publications discussing ChatGPT but not related to education provided resources for our further exploration and analysis. The key findings of the 47 publications were summarized to provide sources for discussing the implications of ChatGPT-based feedback for mathematics education.

ChatGPT has been explored in diverse fields such as medical education, biotechnology, and journalism. The potential benefits and drawbacks of ChatGPT have been consistently discussed, including its ability to generate content and replace human jobs in certain fields. Researchers have also showed ethical concerns about the use of ChatGPT, among which the transparency issues and appropriate use in academic publishing have been raised by many researchers, highlighting the need for further research and careful consideration of the implications of ChatGPT in education across different school subjects.

ChatGPT has implications to assist students in the high-level thinking and abstract reasoning required for secondary mathematics instruction. With the aid of ChatGPT's solutions, students would become more capable of mastering difficult concepts (e.g., NAND gates, a set as a collection of distinct elements), which are essential for practicing abstract thinking in mathematics, as well as critical reflection and pattern recognition. The ability of ChatGPT to summarize and cluster information into key points could also be useful for helping students form concept maps or comparison analyses and could aid them in the spiraling of knowledge acquisition. It is also important to note when using ChatGPT in assisting secondary mathematics teaching and learning, ethical issues like academic dishonesty and its effects on students' learning outcomes must be properly taken into account. In future research directions, the review highlights the need for more empirical studies to evaluate the effectiveness of ChatGPT-based feedback in mathematics education through a critical lens of feedback orientation.

Development of a Filipinized Learning Management System

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One of the many benefits of utilizing learning management systems is enriched learning material that caters to audio-visual resources to facilitate an engaging environment for students (Nichols, 2016). The problem of internet connectivity in the Philippines has added a heavy burden to the online learning environment and the use of learning management systems by the nursing educational sector. Thus, the researchers developed the Filipinized Learning Management System (FLMS) that addresses the problem of unstable internet connection, is freely accessible and is responsive to the teaching and learning needs of Filipino nursing faculty and students.

The development of FLMS followed Allen and Site's Successive Approximation Model (SAM). SAM is a rapid design and development model that uses shortened agile steps to create holistic and flexible projects (Herrholtz, 2020). The research team started conducting a needs assessment and situational analysis study on the target audience using a mixed-methods approach that became the basis of the unique and specific features of the prototype FLMS. A collection of open-source tools such as HTML, CSS, JavaScript, Kotlin, Java, MySQL Database and PHP Programming Script were utilized.

FLMS is composed of a web-based teacher's portal and a student's portal desktop application. Further, FLMS's design features include target user appropriateness, lower and lesser system operating and maintenance requirements, offline features, and multi-modal means of content presentation and communication. Such features addressed the problems identified in the needs analysis that involved a lack of a user-centered design, high system maintenance requirements, instability of internet connectivity and difficulty in creating learning materials.

The results of the study prove that developing a learning management system entails a process of assessing and understanding the intended users to effectively maximize its potential. It is challenging yet possible. Moreover, this approach may help users to accept new technologies that will enhance their online learning experiences. The study hopes to contribute to the discourse of creating technological advancements in the field of education

Issues, Innovations, and Challenges: Simulation Technologies in Related Learning Experiences

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As the number of COVID-19 deaths rise, the Philippines has extended its March 10–14 class suspension indefinitely. The Commission on Higher Education (CHED) Memorandum Order No. 4 series of 2020 establishes flexible learning guidelines for public and private higher education institutions (HEIs). This is not an isolated case; the pandemic has had an effect on educational systems all over the world. The authors are also working on a Web-based Related Learning Activity project for nurses and other courses that require on-site training, and would like to learn more about the issues, innovations and challenges worldwide to improve the project's services.

The authors conducted a systematic review, gathering data from EBSCO, Google Scholar, PubMed Central (PMC), BioMed Central (BMC), Scopus, National Center for Biotechnology Information (NCBI), Springer Link, JSTOR, Elsevier, Philippine E-Journal, Sage Journal, Taylor and Francis Online, Web of Science, Wiley Online Library and ScienceDirect. Studies published since 2020, use of MeSH keywords patient simulation/s, simulation training/s, educational technology/ies, augmented reality/ies, computer-assisted instruction, and computer simulation/s were read. The study is registered in OSF (DOI 10.17605/OSF.IO/Q4EBT).

Out of 603 articles from 2020 to March 2023, 95 were found to qualify for inclusion in this study. Most of the reasons why people came up with simulation technology had to do with students' lack of clinical experience, knowledge, and skills, ensuring that graduates can give safe healthcare, reducing student anxiety and building their confidence, and following health protocols. AI, VR, AR, MR, and Gamification have been identified by the authors as the most common simulation technologies used to solve COVID-19 problems. Challenges were found in the planning, development, implementation, and acceptance phases. Four of the 95 studies said that it was hard for them to get institutional support. Challenges were further broken down into four groups: limited participation and access, limited knowledge and experience, high costs, and technological barriers.

The study focuses on the different innovations made to address the educational gap that occurred during pandemic. Many authors have tried to make learning more engaging and interactive despite lockdowns; understanding global issues, concerns, and innovations can help develop or improve existing educational technologies. Furthermore, it helps give advantage to future developers to create high-quality educational tools that address educational inequality and the digital divide. The research provides policymakers and funders with academic literature to support educational technology.

An Intelligence Tutoring System For Programming Education Based on Informative Tutoring Feedback: System Development, Algorithm Design, and Empirical Study

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The purpose of this study is to develop an intelligent tutor system (ITS) for programming learning based on informative tutoring feedback (ITF) to provide real-time guidance and feedback to self-directed learners during programming problem solving, and to conduct an experimental study to test the feasibility and effectiveness of this ITS in improving students' computational thinking.

In this study, an ITS acting on computational thinking development was constructed based on learning analysis and cognitive diagnostic techniques by analyzing the mechanisms underlying the role of ITF and computational thinking development. A ITF strategy acting on the whole process of programming problem solving was also developed to realize the evaluation of programming problem solving ideas based on program logic. A lexical and syntactic analysis of the programming problem solutions input by the learners is performed and presented with a tree-like structure. By comparing multiple algorithms, it is implemented to compare the programming problem solutions entered by the learners with the answers and analyze the gaps to give them back to the learners in order to promote the improvement of their computational thinking.

This study clarifies the mechanism of the role of ITF-based ITS in the computational thinking development process, which includes personalized topic supply before the problem solving process, step-by-step prompting during the problem-solving process, result diagnosis after the process problem solving, strategic feedback and emotional support. The system is also verified through quasi-experimental studies that it can effectively improve learners' creativity, algorithmic thinking, critical thinking and cooperativity in computational thinking, and solve the problem that feedback does not have a significant effect on low-level learners. In addition, it can help learners reduce cognitive load and increase interest in learning.

This study developed an ITS based on ITF to address the problem of learners' difficulty in obtaining real-time guidance in the current programming problem-solving-based computational thinking development, and verified through the practical application of the system that the system not only prevents learners from getting confused for a long time in independent learning, but also effectively improves learners' computational thinking and learning interest, providing a good aid for college students' independent programming learning and a new way of thinking for the cultivation of computational thinking.

Using Design Thinking to Drive Curriculum Innovation: An Autoethnographic Account from a Foundation Year in a British University in China

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The success of the foundation years is in large part predicated on the ability of students to align their curricula with the subsequent levels of study the students will enroll in. Creating this sort of alignment may prove a challenge because for professional and organizational reasons. The purpose of this paper is to tell the story of an experience that is a design thinking exercise to enhance alignment between foundation year curricula and the next levels of study within the context of an integrated foundation year delivered in a transnational British university in China.

The paper will offer an autoethnographic account of the development and execution of a design thinking workshop that saw the participation of representatives from a foundation year and from three faculties to discuss the learning needs of their students. The account will tap into the outputs of the workshop (mind maps, minutes, and brainstorming sessions) and their subsequent use within the management of a foundation year. The paper takes an autoethnographic approach within a narrative inquiry paradigm, with the goal to offer a thick description of an event (the workshop) and its implications in the author's professional practice.

The account will show how a design thinking approach can offer the basis for enhancing a foundation year curriculum and driving change, bringing together academic stakeholders in a positive and creative environment. The case will also show the practical challenges to move beyond the design thinking and implement the intended innovations in practice from the point of view of a curriculum leader.

Thanks to rich self-reflection spanning organizational and pedagogical issues, this paper offers a template for a change in management methodology that has the potential to be used to drive curriculum change in other contexts. The paper does not offer simple recipes to replicate but a critical reflection that can be conducive to adopting and transforming the methodology within new contexts. Some of the conclusions of the paper also contribute to the scholarship of organizational creativity by offering concrete examples of the challenges to drive innovation at the individual and institutional levels.

A Systematic Review on Evaluation Standards of Blended Learning and Teaching: Trends, Gaps and Future Directions

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Woosong University and The University of New South Wales

Blended Learning is one of contemporary teaching modes in higher education to promote equity and high-quality education for all, especially during the COVID-19 pandemic. Although BL has existed for over a decade, the evaluation of BL has still not been fully explored with reference to the present studies. Based on the CIPP (context, input, process and product) evaluation model, the study was guided by the following research questions.

- RQ1. What are the trends of blended learning and teaching evaluation research in: publication year, geographic region and publication venue?
- RQ2. What are the covered subject areas in BL and teaching evaluation research?
- RQ3. How is the CIPP evaluation model applied in the present BL and teaching research?
- RQ4. What are the efficient evaluation aspects of BL and teaching, as well as the associated challenges?

An extensive search for research articles was undertaken in the most common and highly valued electronic databases—Web of Science, Scopus, and Google Scholar—using the search strings. In the initial phase, the search strings referred to blended learning, blended teaching, and CIPP evaluation. With some strict exclusion standards, the full texts of the remaining papers were fully screened. In addition, this study was restricted to papers published in journals, to ensure high-quality papers. Finally, 50 eligible research studies remained for inclusion in the systematic review.

This paper divided the evaluation dimensions into four parts adapted from the CIPP evaluation framework. The obtained findings highlight that BL and teaching evaluation was mostly investigated in higher education and targeted students from medical majors initially. Additionally, most

Back to the Future: Applications for Analogue Learning in an Increasingly Digital L2 Landscape

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of the BL research is coming from developed countries, calling for cross-collaboration to facilitate BL adoption in developing countries in particular. Different evaluation methods were employed in line with the corresponding teaching approaches and subjects. Some crucial evaluation aspects are worth noting in the BL and teaching. Furthermore, a lack of ICT skills and infrastructure in the context dimension is the most frequently encountered challenge in this field to achieve equity of education across the globe.

Although the evaluation of the blended teaching method is not a new topic in higher education, only a few earlier studies focused on this point before the pandemic. Scholars are emphasizing the current challenges encountered in the teaching and learning process in recent years. The findings of this study offer more enlightenment and suggestions on the design, evaluation, and implementation of BL and a measuring guide for teaching competition judges. Also, the results outline the future trends and developments for university leaders and department heads and for facilitating the adoption of BL and teaching.

The past decade has seen an increase in the amount of interest in how analogue approaches to learning and working affect outcomes. Educators, philosophers, psychologists, and business professionals are all investigating differences between digital and analogue processes and results. This interest gained further traction during the COVID-19 pandemic, when many businesses and schools were forced to operate from home rather than campuses or workplaces. This paper documents the evolution of an approach to analogue learning over four years, from before the pandemic to the time classes resumed in person. “Analogue Hour” is a 60-minute homework task that asks second language (L2) students to annotate a piece of text, to create a mind map or other illustration based on the annotation, and then prepare discussion questions for the next class meeting. These steps are completed using only analogue tools, such as pencils and notebooks, and conducted without any digital distractions including smartphones or computers.

First, to assess whether the task was working as intended, student work ($n=80$; all English majors at a private university in Japan) undertaken during the past four years was reviewed. Based on this review, a 3-item open-ended survey was distributed to one intact class of 10 English majors, who were experienced in the Analogue Hour method of study. The items asked participants to explain their reactions to the most recent iteration in contrast to an earlier incarnation, as well as give their general comments.

The review of the work of the 80 students suggested overall improvements in creativity, and facility with the L2. As for the surveys, 9 out of 10 participants preferred the most recent version of Analogue Hour, which required more focused effort than did earlier approaches. Additionally, students claimed that Analogue Hour had four main benefits: L2 gains, improved study habits, increased creativity, and future usefulness.

For experienced instructors, there is little new in using analogue tools. However, for many current students, doing so provides a respite from screens and learning-management systems, and an opportunity to develop their creative side. Further, the Analogue Hour method suits a variety of student levels and interests, and appears to boost their engagement.

Felicitas Communication Model: An Engagement Process that Brings Hope and Wellness through Artificial Intelligence-Enabled Communication Platforms

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Interactions between people offline and online have effects on their personal wellness. With that in mind, the author illustrates the concept of communicating with and through Artificial Intelligence (AI)-enabled channels and platforms to achieve relief. Communicating through AI-enabled channels and platforms offers myriad emotional environments for wellness. This research aims to present the exceptional benefit of capitalizing on AI for wellness.

This study was conducted to gauge the respondents' perception of the use of platforms through convenience random sampling, as to which channels they participate in, why they participate or what behavior contexts are involved in the communication, what made them communicate especially during times of uncertainty, and what made them feel good about engaging through a platform or channel to reach out to other people. The highlighted stressors were taken during economic downturns in the Philippines. Furthermore, the study gained input from a population mostly from the millennials (born between 1981 and 1995 according to Caylor Solutions data) and generation Z population (born between 1996 and 2012 according to Caylor Solutions).

The study shows that Filipino entrepreneurs of the creative industry click Artificial Intelligence (AI)-enabled channels or platforms to communicate in the hope of obtaining immediate relief. The paper presented the author's Felicitas Communication Model to illustrate how the surveyed respondents communicate to experience positive emotions during times of uncertainty. The author used the term "felicitas", a Latin term meaning "happy." People reach out to others for many reasons. The study reveals that new communication emerges when people communicate through AI-enabled channels or platforms. The results that came from the three data mining approaches proposed a communication model. The felicitas communication model illustrated the communication process between humans with new media technology and other creative activities through an investigation of human interaction with technology and objects that ignite positive emotions as coping mechanisms in crises.

The value of the study is that it achieves a sensitive communication space for learners and the public. The author would like to call it "wellness" communication as an emerging field combining AI, communication, education, and the arts. The study hopes to contribute to a safe and stress-free space for the mind and body to engage with the world by incorporating the 7Cs of Human-Machine communication of the Felicitas Communication Model.

Motivated by the need for mental, emotional, and financial wellness, the desire to marry innovative paradigms in communication and technology produced admirable results from its pilot study and anticipates the potential to offer crucial insights into the fields of AI, social impact, and education within the research community and the learning public.

The Influence of Online Teaching Behavior on Students' Learning Engagement: Comprehensive English Course as an Example

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The COVID-19 epidemic has had a significant and far-reaching effect on higher education. In order to reduce the teaching losses caused by the epidemic, teachers actively carry out online teaching activities by online platforms. During online teaching, learners' online engagement is considered an important factor to improve academic performance, and teachers' behavior has an effect on learners' learning engagement.

Based on the online teaching situation, this study took the Comprehensive English course of a foreign language university as an example and selected 27 first-year undergraduate students as the research subjects. These students participated in the whole course. In the teaching practice, we used classroom observation to record students' learning engagement. Classroom observation mainly records students' camera opening, chat area interaction, open mic and speech, and roll call to speech times in online courses. Some other data such as unit test and ability test scores. Interviews were conducted at different stages during the teaching practice to explore the influence of teachers' behaviors on students' learning engagement. Representative students with different learning levels were selected for the interviews, to guarantee the research results to a certain extent. Using learning engagement theory and community of inquiry theory, and using the verification of the relationship between the elements of the secondary dimensions of online teaching behavior and learning engagement, we constructed the theoretical framework of the relationship between online teaching behavior and learning engagement.

Through the analysis of the data collected from the classroom observation of Comprehensive English in one semester, we found that learners' behavioral engagement can positively influence their cognitive engagement and emotional engagement.

Teachers' creation of instructional existence, cognitive existence and social existence can effectively promote learners' study engagement. At the same time, learning engagement as an intermediary factor can have a positive effect on academic performance based on teaching behavior; that is to say, students with high learning engagement have better learning performance.

English Learning Motivation of Chinese Students during Their Undergraduate Studies

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English has been a compulsory school subject in China since its reform and opening up. The country has hundreds of millions of English learners with high demands, which constitutes the largest English learning group in the world. Hence, investigating their learning motivation is essential to help them to better achieve their learning goals. However, few studies have systematically investigated the motivational levels and types of undergraduate English learners in the Chinese Mainland. Therefore, this study employed Dornyei's (2005) L2 Motivational Self System (L2MSS) theory to investigate undergraduates' English learning motivational levels and types in various learning contexts, and the correlations with their performance in English standardized tests. Compared to traditional models, which categorize motivational patterns only by a simple dichotomy, L2MSS provides a more realistic picture of motivational patterns from multiple perspectives.

An anonymous bilingual questionnaire in English and Chinese was devised for data collection. The first section was based on L2MSS. Participants were asked to rate 38 statements about the Ideal L2 Self, Ought-to L2 Self, L2 Learning Experience, Career Influence, Family Influence, Cultural Interest, and Prevention, using a six-point Likert scale ranging from "strongly disagree" to "strongly agree". The second section comprised 10 items to collect respondents' personal information. The questionnaire was distributed to 408 participants from seven universities in Guangdong province by convenience sampling via an online survey platform Wenjuanxing.

Of the seven factors, EMI students' motivation to learn English comes mainly from Ideal L2 Self. The motivation of students at national key universities comes mainly from their self-confidence in using English and from family factors. By contrast, that of students in ordinary public universities comes mainly from their learning experience. Findings show new motivational patterns manifested by different student groups in different learning contexts. Also, motivation levels vary significantly according to year of study. Higher levels of Ought-to L2 Self appear among students at more senior years of study, and higher levels of L2 Learning Experience appear among students at more junior years of study. Generally, students' scores in standardized tests had no significant correlation with their types and levels of motivation.

Current findings highlight the importance of learning contexts and study years in shaping Chinese university students' motivation to learn English. This study may provide insights for curriculum planners to offer courses that are tailored to the needs of different student groups, and for teachers to adapt the content and delivery of classes to better suit the type of motivation of students.

Enriching the Learning Experience of Tourism Students through a Live Broadcasting Tour

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The purpose of this research is to investigate the effectiveness of a student-led live broadcasting tour (LBT) and how it affects the learning outcome and satisfaction with the support of the Input-Process-Output framework.

The sample was students who are currently studying a tourism program in Macau and Hong Kong. The research procedure contained two stages. In the first stage, students in Macau were invited to watch a live broadcast tourism tour conducted by a group of Hong Kong students. After the completion of the tour, they were asked to fill out a questionnaire concerning their learning experience with the live broadcast tour. In a similar vein, the second stage required a group of Macau students to conduct a live broadcast tour for Hong Kong students. The same questionnaire was distributed to participants by the course lecturer after the tour. The data were gathered through the questionnaire survey from December 2022 to March 2023.

The students perceived the experience positively the LBT in Input dimensions (intrinsic motivation, and resources support), process dimension (learning climate) and output dimension (learning outcomes and satisfaction). Interaction has a positive effect on learning outcomes and satisfaction.

This study has implications for educators on how intercultural exchange / tourism destination learning can be designed and implemented under the recent constraints of public health concerns. The utilization of technology combined with overseas school collaborations offer the possibility for educators to enrich the learning experience of tourism students in a more affordable and effective way.

ELT through TBLT in the ESL/EFL Classroom: Strategies to Harmonize Language Acquisition and Language Retention

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The research examines the application of Task Based Language Teaching (TBLT) in an English as a Foreign Language (EFL) or English as a Second Language (ESL) classroom. The focus of this research was language acquisition and retention through tasks that aim to develop autonomous learners in an intrinsically connected world. The research also explores the inventiveness of TBLT for the potential development of interest in language acquisition, accent perfection, intercultural communication attitudes and cross-cultural understanding, and its ultimate influence on the communication process.

The strategic methodology used through TBLT applied in the classroom explicitly focussed on gauging the preparedness of the learners to successfully function in an internationalized society. The 112 participants for the research were learners at the English Language Centre of a university in southern China. The students who participated in this research had varied levels of English language skills and accent proficiencies. Creative and innovative methods for TBLT, such as dramas, artworks, speeches, and presentations were selected as the instruments to measure the learning outcomes of the subjects chosen for this study.

During the research, through careful observations made by the researchers and on examining the video- and audio-recordings of the participants, it was noticed that the learners demonstrated an obvious curiosity for exploring their capacities for self-expression through generation of their verbal skills, and sensitivity towards the use of the English language. The assessment was based on collaborative responsiveness, peer evaluation, self-monitoring, and language attentiveness. The test results showed that in addition, other co-related aspects existed; for instance, an individual's self-image, attitude towards the learning process and willingness to connect with others through the application of the newly acquired language. Participants clearly demonstrated higher levels of the ability to retain and reuse the language during language production tasks assigned during the study.

The high scoring participants showed significantly increased levels of curiosity to learn the language, noted as an essential feature for language acquisition. The results demonstrated the participants' intense eagerness to achieve excellence in the target language, English.

Promoting STEM Education in Hong Kong with an Innovative Wireless Charging Workshop

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This paper describes an innovative wireless charging workshop designed as a part of the secondary school outreach programmes supported by the Faculty of Engineering and the Tam Wing Fan Innovation Wing (TWF InnoWing) in the University of Hong Kong (HKU) for promoting STEM education, and more importantly inspiring the general interests to explore science and/or the latest technologies among adolescents in Hong Kong. This may help to fuel the passions of the next-generation entrepreneurs, engineers, scientists or researchers to tap off the unbounded opportunities arising from the new developments of the Greater Bay Area, our nation and the whole world. In addition, the valuable experiences gained through organizing such a workshop reveals the importance of adaptability and sufficient preparations for arranging relevant promotional extracurricular activities during and after the COVID-19 pandemic period in Hong Kong.

The key methodology vigorously adopted in this study involves the design approaches of “workshop under design” (WUD) and “iterative refinement” with the careful consideration of the students’ educational background, potential interests, etc. Almost one year before the workshop, all the involved Design and Technologies teachers were invited to attend meetings for organizing this innovative workshop on wireless charging. The training materials and workshop format were critically revised to cater for the underlying secondary students. More importantly, the potential participants were invited for several information sharing sessions via online or physical meetings before attending the workshop. Preliminary and encouraging feedback was collected from concerned teachers and students for which concrete plans were laid down to gather both formal and informal feedback for detailed analyses on the effectiveness of our workshop in the coming years.

Our findings clearly reveal that our innovative workshop has successfully imparted curiosity, creativity and new experiences through the hands-on practical work on wireless charging as conducted by different groups of the secondary students during the workshop held inside the TWF InnoWing One in HKU.

First, the organization of an innovative wireless charging workshop targeted for secondary students is relatively new. In particular, the specific experiences gained through organizing such innovative workshops during and after the pandemic may provide unique and valuable insights into this project. Of all the important lessons learned, it is critical to emphasize the flexibility of “modular designs” through

the component-based approach and the “adaptability” of the involved concepts and training materials for student engagement in various potential applications.

Participation in the Chemistry Laboratory Skills Bridge Program 2022: Assessing Selected UPLB Students' Goal Orientations and Perceived Benefits

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This paper discusses the outcome of the Chemistry Laboratory Skills Bridge Program (CLSBP), a bridge program conducted by the Institute of Chemistry and the Learning Resource Center to (re)orient and train select UPLB students about essential on-site chemistry laboratory skills after more than two years of remote learning. Specifically, this study aims to assess the effectiveness of CLSBP by comparing the participants' pre-test and post-test scores and by synthesizing their self-assessment of their laboratory skills after finishing the program. It also aims to identify their goal orientations for joining the CLSBP and determine their perceived and actual benefits of participating in it. A total of 26 students and fresh graduates participated in CLSBP.

The participants' pre-test and post-test scores were analyzed using paired *t*-test. To determine their self-assessment, an online survey was administered towards the end of CLSBP. The survey includes questions about their goal orientations inspired by the Patterns on Adaptive Learning Scales (PALS), their perceived benefits of the bridge program, and their overall evaluation of the CLSBP. Another survey was administered to the same set of participants after almost one year, to determine the actual benefits of CLSBP in their academic performance or in reviewing for or taking the board examination.

Results showed that although remote learning was able to introduce them to basic and theoretical concepts, it was ineffective in teaching them essential skills in laboratory experiments. Most of the students' goals in participating in CLSBP were oriented to mastery goal, which means their motivation was to extend their mastery and understanding of the laboratory skills. They also believed that participating in CLSBP allowed them to acquire learning and social benefits, which have helped them adjust to the demands of higher chemistry courses or to the challenges they faced after graduation. After the program, most participants expressed high confidence in performing laboratory experiments.

CLSBP is the first program in the university that aimed to help students adjust from remote learning modality to F2F learning in line with the campus's gradual reopening since the start of the COVID-19 pandemic. This study provides a learner-focused assessment of CLSBP which can inform and improve strategies of future similar activities as students continue to adjust to the demands and challenges of post-pandemic paradigms in teaching and learning.

Enhancing Student-centered Learning: The Case of Using Online Peer Assessment Activities in Two Undergraduate Courses

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Student-centered learning (SCL), which highlights the importance of learning environments over direct instruction for collaborative and interactive learning, has enjoyed growing popularity in English-medium instruction (EMI) classrooms. To enhance SCL engagement, students may need to be empowered with autonomy, scaffolding and authentic audience (Lee & Hannafin, 2016). However, little research has been conducted to examine SCL effectiveness in EMI contexts. This study investigated how well online peer assessment (OPA) activities, in the form of Moodle workshops, would promote SCL in two undergraduate courses for English majors ($N = 66$) in an EMI university in China. Compared to traditional instruction, OPA activities enabled students to be exposed to examples of language in use that were provided by peers.

Effects of OPA activities (in autonomous learning, audience awareness in student writing, and feedback focus on particular disciplinary issues) were evaluated by administering pre- and post-intervention questionnaire surveys, and analysing student submissions and peer feedback. Autonomous learning was measured by a 12-item scale (AL Scale), which was adapted from previous literature, in the pre- and post-intervention questionnaires. Audience awareness in writing was quantified as the amount of writing addressing specifically the selected sub-task requirements in student submissions. Feedback focus was quantified as the number of problem comments and solution comments to the selected aspects of assessment in peer feedback. Paired-samples *t*-tests were used to compare (1) the mean item scores for the AL Scale between the pre- and the post-intervention surveys, (2) the word counts of writing that addressed specifically the sub-task requirements between the former and the latter OPA activities, and (3) the word counts of problem comments and solution comments that addressed the selected aspects of assessment between the former and the latter OPA activities.

Findings suggest the enhancement of students' autonomous learning and audience awareness in writing after participating in OPA activities. The feedback focus provided by assessors to those assessed was found to be similar between two sets of OPA activities. Nevertheless, whole-class peer-review training or individualized instructor-modeling on giving feedback is recommended in order to equip students with the skills to provide effective feedback focus.

Findings have implications for the important role of learning environments in shaping students' SCL experiences. Careful planning and implementation are needed for activities to foster more active and authentic learning of disciplinary knowledge by EMI learners.

Characteristics of Gen Z: Aligning with Gen Z's Teaching and Learning Styles in a Creative Arts Degree

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In Hong Kong, the mode of teaching and learning is primarily conducted in a teacher-centred environment where teachers deliver lectures while students listen quietly. This predominantly one-way method may be suitable for teaching a large class, but many educators are challenged to motivate students, struggling to connect with them. This research focuses on understanding and connecting to the next generation of postsecondary students while aligning with their learning styles. Combining personalised learning, digital storytelling, and modernised teaching can enable students to create ideas while developing an appreciation for classes. Hence, students can step into the role of planning and creating with a sense of self-encouragement, where these elements are fundamental to promoting their comprehension in higher education.

This was an empirical study on students' behavioural characteristics to explore the generational differences that have led to disconnection and deficient learning outcomes between educators and Gen Z's learning styles. To comprehend, construct, and implement an appropriate student-centred strategy, instructors can familiarise themselves with this new generation of students' peculiarities, encouraging better communication and teaching. Thus, this paper analyses Gen Z in four areas to maximise academic opportunities for tertiary school instructors: (1) characteristics of Gen Z, (2) adjustments of class exercises and assignments, (3) suggestions for the teaching-learning environment, (4) student engagement, and (5) discussion and considerations.

This empirical study provides a critical review of the benefits of implementing a student-centred teaching and learning environment and aims to make academics aware of the differences in generational learning modes for students, highlighting the importance of understanding this new generation of students.

Personalising and adjusting to this younger generation's teaching and learning style can allow instructors to motivate and stimulate the learning environment by adopting a new teaching model that implements the "learn in order to teach" approach. This study also provides suggestions for teaching students in postsecondary education, particularly students of the creative arts.

Student Engagement in Online Discussions: A Teacher's Perspective

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The use of online learning tools has increased over the last few years and is now an integral feature in higher education. The online discussion forum, with its ancillary technical functions, is an effective platform for collaborative learning. However, what effectively engages students in online discussion goes beyond the convenience afforded by technology. This paper reflects on factors that engage students in online forum discussions in the context of an argumentative essay writing module offered to first-year undergraduates in the Faculty of Arts and Social Sciences. The paper aims to analyze what does or does not work, and ways to improve engagement in the collaborative learning process (Cleveland-Innes & Walton, 2018).

A content analyses of 237 online posts contributed by 66 students in four forum discussions were carried out to study student cognitive engagement as reflected in students' interaction and their level of critical thinking (Garrison, Anderson & Archer, 2000; Williams & Lahman, 2011) when influenced by organization of discussion, task demand and teacher facilitation. The items chosen for analysis were selected based on existing frameworks in the literature. A 30% sampling was carried out for each of the four sets of forum discussions. Items that were found to be irrelevant to our research context were then removed. In this way, the final framework of analysis could be fine-tuned to suit the present investigation. The unit of analysis was the meaning group. The conclusions drawn from the statistical analysis are then corroborated with end-of-semester student evaluation, which generally covered students' feedback about online learning. Together with the results of the survey, the content analysis paints a picture of students' behavioral, cognitive and emotional engagement (Bowyer & Chambers, 2017) in collaborative learning.

The survey findings reveal that with growing experience and ease in online learning, and the convenience afforded by f-site learning, more and more students increasingly favor online learning. Given the appropriate scaffolding and teacher intervention, the postings displayed sufficient depth and critical thinking. However, student interaction patterns showed a lack of spontaneity. It may be suggested that social presence was weak. Also, students were likely to be transactionally (rather than intrinsically) motivated in the discussions, and this may have affected the process of collaboratively developing ideas.

The level of student engagement rests on the tripod of teaching, cognitive and social presence, the last of which influences and drives the learning mood. It is therefore not to be neglected. The weak social presence could be addressed with more pre-task gradated digital socialization activities (Salmon, 2011) to build a sense of community.

Collaborative Learning in a Welding Resource Pack through Action Project: Reflections on Learning-oriented Assessment (LOA)



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The under-researched study aims to rectify the current learning and teaching welding resource pack through an action project in Hong Kong. The study itself is a final-year-(capstone) project (FYP) in the first author's part-time bachelor programme in professional and vocational education (PVE) in Hong Kong under the second author's supervision. It sheds new light on the good balance among students as self-evaluators, paradigm shifts in teaching, and assessment-oriented learning activities in PVE.

Based on student evaluation surveys, interviews, and participant observation, the study aimed to discover any new changes in PVE students' learning motivation, analytical power, and team-building capacity in the welding course taught by one instructor. The first author as an action researcher endeavors to transform the current traditional apprenticeship model into a collaborative learning model through ceaseless cycles of action project reflections to align student-centered assessment with learning activities. The action researcher (the first author) and the research consultant (the second author) worked out convergent data patterns through cross-data sources, cross-method, and cross-perspective triangulation.

In student perceptions, high-ability students working with middle-ability ones opted for collaborative learning due to its enhancement of their teamwork spirits and multiple perspectives for evaluating the learning process. Middle-ability ones working with low-ability ones preferred to use the traditional apprenticeship model as the foundation on which collaborative learning would be constructively built afterward. And high-ability students working with low-ability ones did not find any fruitful return to their learning, but the latter found high learning effectiveness. The action researcher finally made adjustments to the collaborative learning pack by adding key elements of traditional apprenticeship into the assessment-oriented learning activities joined by a total of 13 students in PVE and making a good balance between traditional apprenticeship and new collaborative models, and between learner-centered assessment and learning activities, based on students' learning abilities.

The study provides an innovative collaborative learning model focusing on learning-oriented assessment (OLA) in PVE in Hong Kong, which is transferrable to other workplace education contexts in higher education.

Infusing Life into EAP: Developing Criticality and Encouraging Engagement through Real-life Themes and Scaffolded Tasks

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In view of the challenges in engaging Hong Kong university students to develop fundamental EAP reading and writing skills in an increasingly technologically influenced post-COVID tertiary educational context, this paper aims to examine how EAP course design can potentially promote criticality while simultaneously encouraging engagement, as well as developing the necessary academic reading and writing skill sets. It is believed that this multifunctionality may indeed serve as a requisite and emblematic feature of future EAP courses.

The potential feasibility of a tentative model for EAP course design which fuses interrelated elements of resonant reality-based themes, criticality, and granular scaffolding is explored in the context of a Hong Kong university EAP course targeting year one students from diverse learning backgrounds. Examples of tasks which promote criticality and encourage student engagement, the task design principles, and students' feedback on the course materials will be presented. Additionally, impending course revisions in assessment selection and design as informed by student feedback will be discussed and further potential long-term directions for the course explored.

Students perceived the up-to-date and controversial topics covered within the course materials along with the academic writing skills acquired as the most valuable/interesting aspects of the course, whereas teachers generally commented that the theme-based content was interesting and the scaffolded tasks encouraged students to think critically about logical argumentation. It should be noted, however, that some controversy was observed among teacher views regarding the level of difficulty of the chosen reading texts and videos.

Although the principles of criticality, as well as employing scaffolding, and adopting relevant themes have been long recognized in the literature and in practice, there has yet to be a model which fuses such elements within a unified and coherent framework. It is expected that the model will provide a theoretical foundation for EAP course design which promotes criticality and engagement.

Online Learning Support Design in the Context of Educational Digital Transformation: Based on the Perspective of Teachers



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In recent years, educational digital transformation has become the trend of educational reform and development. With the development of technologies such as generative artificial intelligence and big data, the role of teachers is also constantly changing. Especially in the context of technology-enabled online learning, the way teachers can support students' learning has become a research focus. This study focuses on the learning characteristics of adult students in open distance education and explores the way teachers can provide online learning support to help students achieve maximum learning outcomes.

This study starts from students' needs for teacher support services and takes students of Shanghai Open University as the research object. Firstly, data on students' needs for teacher support services are collected through questionnaires, and the key factors of teachers' support for students' learning are determined from the dimensions of course design, process guidance, learning interaction and learning feedback by combining literature analysis. The model of online support service design for teachers in online learning scenarios is constructed by combining four aspects: instrumental support, intellectual support, emotional support and social support. Secondly, an online course was selected for course design from the perspective of teacher online support services. Finally, relevant data are collected through survey questionnaires and online learning platforms to analyze the effect of teacher online support services on students' academic performance and learning satisfaction.

Through the study, it has been found that effective online learning support services from teachers have a positive promoting effect on students' academic completion. Teacher support services can increase students' engagement in online learning. Instrumental, knowledge-based, emotional, and social support have a significant effect on students' learning satisfaction, which can improve their learning satisfaction. Finally, based on the experimental results, corresponding suggestions are proposed for teachers on how to support online learning.

This study proposes a service design model of teacher-based online learning support in the online learning context, which enriches the theoretical system of online learning support service research. It also proposes strategies and methods to improve students' learning satisfaction from the perspective of teacher support for online learning, expanding the path of teacher support for students' online learning.

Gamifying Adult Learning: A Bibliometric Analysis

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Gamification is primarily built upon the psychological theory of self-determination, which posits that human psychological needs (autonomy, competence, and relatedness) are necessary for optimal human functioning. When support for these needs is available, people will be intrinsically motivated to undertake tasks for their own sake because the tasks are meaningful, relevant, enjoyable, and inherently rewarding. In contrast, adult learners who continue their studies commonly lose interest and motivation due to heavy work commitments, family obligations, and financial pressure. Hence, the drop-out rates for adult learning have been crucially high when compared to those of conventional university students. Adult learners are worth looking at in the scope of this study to determine the immersive gamified learning environments that engage them for optimal learning. Adult learners have received less attention in research, comparatively. The purpose of the study is to use bibliographic analysis to examine the publication trends by country, explore collaboration patterns, identify research gaps, and stimulate future research.

This study included publications related to gamification and adult learning from 2014 to 2022, obtained from Dimensions. A total of 79,864 publications were retrieved initially, and 3,469 publications were ultimately selected for final analysis after the refinement of the keyword search. VOSviewer was used for bibliographic coupling, keyword co-occurrence, clustering, and co-citation analysis of countries.

Valuable insights are offered regarding the influence of publications from different countries and frequently occurring keywords over the years. The number of publications related to gamification in adult learning has decreased since its peak in 2020. The saturation is mainly concentrated in the United States, the United Kingdom, and China, with similar levels of national income and technology advancement skills. However, gamification in adult learning remains a popular and growing research area in developing countries like Malaysia, which has huge potential due to government investments in education, technology, and lifelong learning. There is also a noticeable research gap on gamification, adult learning, and personality traits, which have not been covered in previous studies.

Prior researchers mostly focused on systematic literature reviews, but the use of bibliometric analysis generally seems to be a missing link in this research domain. This paper unveils the evolution of publications on this topic over time by scientifically analysing the huge numbers of publications and rigorously identifying the research gaps, contributing to future research avenues.

An Evaluation of an AR Educational Game in Design and Engineering Education: A Students-as-Partners Approach to Curriculum Innovation

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University of Nottingham Ningbo China (UNNC) has been exploring the potential of an augmented-reality (AR) educational game to help teach Design for Manufacturing and Assembly (DfMA) concepts within design and engineering education. Guided by the principles of universal design for learning (UDL), which emphasises the use of engaging and diversified learning tools to support heterogeneous learners, this paper reports on the ongoing development of the AR game by an interdisciplinary team of UNNC students and staff.

This study's target users are undergraduate Industrial Design and Mechanical Engineering students from all year groups. The instrumentation includes a demographic questionnaire, Likert-scale surveys, and student reflections. The study aims to understand the students' individual differences, experiences, and perceptions of UDL in the AR game.

We expect that the findings will: provide insights into the student experience; identify (complementary) strengths across traditional and digital instruction, especially in relation to UDL principles which promote the creation of varied, accessible, and engaging educational experiences for all students; and help better understand attitudes towards the use of digital experiences in education. These findings will help guide policy on the use and implementation of technology in the classroom and on instructional design of AR learning experiences, particularly from the perspective of student involvement in the process. This paper will be of interest to teachers, practitioners, and educational institutions.

Mastery of DfMA is very important for design and engineering education: it enables students to design products that can be manufactured, improves material optimisation, reduces production times, and improves overall quality. However, student feedback and published research suggest that the topic is often complex, undervalued, and mundane. Our new design integrates physical objects, AR guidance, group work and independent reviews. The use of diversified learning components and AR is relatively novel in this context and can revitalize the subject by providing each student an enhanced learning experience that is engaging, visually rich, and mentally stimulating. This study aims to provide insight into the challenges faced when developing AR educational content and the learning benefits of the UDL-guided technology. Our research thus encourages educators and educational institutions to embrace technology and modern teaching methods, such as gamification and AR technology, to produce diversified learning experiences that resonate with and inspire modern learners.

Effects of Adaptive Difficulty Adjustment-based Gamification on Young Children's Cognitive Development and Enjoyment Experience

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Early childhood is an important stage of cognitive development. With the development of artificial intelligence technology, researchers have started to use artificial intelligence technology to provide learning platforms for young children. In particular, touch-screen devices are heavily used to enhance young children's cognitive abilities. However, traditional touch-screen devices may also fail to ensure high interaction and engagement in early childhood education due to inadequate instructional design or lack of instructional strategies. To solve this problem, gamification is the main form of arousing children's interest.

Furthermore, in order to conform to the cognitive development of young children, this study implements the adaptive difficulty adjustment in the gamification approach and applies it to early childhood education. A quasi-experimental study (13 children in the experimental group and 12 children in the control group) was conducted to investigate the effectiveness of the method.

The results showed that the adaptive difficulty adjustment-based gamification approach significantly improved children's cognitive skills but failed to increase enjoyment of the experience. In addition, interviews were conducted to explore teachers' and parents' perceptions and experiences of the different learning approaches.

Using the Goal-Access-Feedback-Challenge-Collaboration (GAFCC) plus Endogenous Fantasy Gamification Model Significantly Improves Online Student Cognitive Engagement

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Although the use of fully online learning has grown significantly over the last three years due to the pandemic, it is still viewed as a weaker option than face-to-face in-person learning. Specifically, the lack of student engagement in fully online learning courses remains a persistent problem to many educators. In this study, we developed a fully online course based on a theory-driven gamification model (Goal-Access-Feedback-Challenge-Collaboration-Fantasy) or GAFCC + *endogenous fantasy* model for short. We then assessed the effect of this fully online course on student cognitive engagement.

We adopted a quasi-experimental research design with 25 higher education participants as the treatment group and 20 higher education participants as the control group. Both groups of participants were enrolled in the same fully online course conducted over Zoom by the same professor over a 10-week period. The online course in the treatment group was created according to the components in the GAFCC + *endogenous fantasy* gamification model. We compared this fully online course with the same online course *without* the use of the GAFCC + *endogenous fantasy* model (control group) in its effect on student cognitive engagement as measured by an end-of-course questionnaire. Student self-report is a particularly useful instrument to assess participants' cognitive engagement which is not directly observable, as opposed to just collecting objective data on indicators such as homework completion rates. Student perceptions of the gamification elements were also explored using individual interviews.

The results showed that the GAFCC + *endogenous fantasy* model significantly increased student cognitive engagement. Participants in the treatment group also reported positive perceptions toward the gamification elements.

This study offers a new contribution to the research on fully online learning by empirically assessing the effect of a theory-based GAFCC + *endogenous fantasy* gamification model on student cognitive engagement. Educators focusing on fully online courses can consider using the GAFCC + *endogenous fantasy* model to increase student engagement.

Online Learning in Older Adult Education: Teachers' Transformation during the Pandemic in Taiwan

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The global aging population is increasing rapidly. Encouraging older people to learn to cope with the problems caused by aging is important. In order to promote active aging among older people, the government of Taiwan has been promoting older adult education since 2006 and has established active aging learning centers in every township. The world was affected by the pandemic in 2020, as was older adult learning in Taiwan. Although older adult education is not a part of formal education, there are adult teachers who have transformed from in-person teaching to online teaching during the epidemic, in order to allow older adults to continue learning. The objective of this study was to explore the teaching transformation from the in-person to online teaching of adult teachers, including reasons, difficulties encountered, coping strategies, and the subsequent influence.

This study adopted a qualitative research method to understand the teaching transformation during the pandemic. Researchers conducted semi-structured one-to-one in-depth interviews with 10 teachers who had more than two years of teaching experience of older adults.

The findings are the following. 1) The reason for adult teachers to transform to online teaching was that learners desire to continue to participate in learning and the termination of learning caused physical and psychological decline. 2) Adult teachers encountered difficulties in transforming to online teaching. Older learners did not have relevant equipment or a stable internet network. They were not familiar with operating mobile phones to attend online course, so they dropped out of learning activities. They were inexperienced in operating equipment and this interfered with the course. 3) The adult teachers spent more time preparing for teaching and used several teaching methods to enhance interactions of online learning. 4) The transformation of adult teachers has a positive effect on the active aging learning centers, and on adult teachers and older learners.

We found that the teaching transformation from in-person to online teaching of adult teachers has a positive effect on the adult teachers and older learners. These findings enrich the promotion of education for older adults and can be used to improve the design of instructional strategies for adult teachers.

The Motivations and Reasons why Research-Based Students Pursued their Online PhD during the COVID-19 Pandemic: The Future Trends of Online Postgraduate Research Education Beyond Travelling Restrictions

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Since early 2020, due to the COVID-19 pandemic, many international students could not go to the host country for various reasons. However, since March 2022, almost all South Korean colleges and universities have offered face-to-face courses, as the South Korean government relaxed social distancing restrictions in school environments. As face-to-face and peer-to-peer interactions are some key points for postgraduate education, it is important to understand why some students decided to give up their chances for networking and interaction. The purpose of this study is to understand and investigate the motivations, reasons, and decision-making processes of a group of postgraduate students who decided to complete a part of their degree curriculum, such as coursework requirements, via the online teaching and learning platform after the South Korean government relaxed social distancing restrictions (March 2022). Based on the Social Cognitive Career Theory and Social Cognitive Career and Motivation Theory, the study was guided by two research questions: 1) Why did postgraduate students decide to pursue their postgraduate degree programme via online teaching and learning platforms after the South Korean government relaxed social distancing restrictions in March 2022? 2) How do postgraduate students describe their experiences and sense-making processes for their postgraduate degree programme via online teaching and learning platforms after the South Korean government relaxed social distancing restrictions in March 2022?

The general inductive approach was employed to recruit 30 participants, particularly PhD students who are currently enrolled at a South Korean university. Three data collection tools were used: 1) focus group activity, 2) remarkable item sharing, and 3) member-checking interview. The grounded theory approach of data analysis was also used. Based on the open-coding and axial-coding techniques, the researchers merged three themes.

The researchers found the following themes: 1) employment engagement: the sudden change could not match my employment; 2) learning flexibilities: online learning has the same results; and 3) financial consideration: the COVID-19 pandemic affected my financial plan. These are three of the main themes which highly affected their motivations, experiences, and sense-making processes.

Although online teaching and learning is not new in the educational system, many postgraduate students decided to return to school for their postgraduate degree (both full-time and part-time). The results of this study offer some good suggestions and outline the future trends and developments for university leaders and department heads for online-based PhD education, particularly after the COVID-19 pandemic.

Why Should Doctoral Learners Decide Not To Come Back to On-Campus Study After the Government Re-opened the Border: A Qualitative Inquiry of Mainland Chinese Learners in Macau



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During the twenty-first century, online and distance learning have become the future trends of post-secondary education, particularly during disasters and the COVID-19 pandemic. Traditionally, research-based doctoral degree learning may involve peer-to-peer interactions and apprenticeship from supervisors. Unlike taught master's degree learners, research-based doctoral degree learners tend to receive hands-on training and apprenticeship from their supervisors, who are not significantly focused on the taught degree stage. Although many research-based doctoral degree learners are well trained from their master's degree stage and programmes, face-to-face and on-campus learning also play significant roles in theoretical and comprehensive development and upgrading, particularly during their doctoral degree stage. As the COVID-19 pandemic offers opportunities for many universities to develop and establish temporarily blended and online doctoral degree programmes, it is important to investigate the understanding, perspectives and opinions of doctoral degree learners, particularly those who are expected to receive face-to-face apprenticeships from their supervisors on campus. Due to the travel restrictions from the Chinese government, many research-based doctoral degree learners may complete their coursework requirement via on-campus or online learning platforms due to the COVID-19 pandemic. This is particularly true for mainland Chinese learners who cannot come to the on-campus classroom instruction due to visa restrictions. In mid-2022, the government of Macau re-opened the border for student visa holders who wanted to enjoy on-campus education and classroom interactions with classmates. However, some doctoral degree learners continue to complete their coursework requirements via the online platform. As many local and overseas learners have already returned to campus, the motivations and reasons for these groups of mainland Chinese doctoral degree learners

(Cont'd)

remain unclear. Therefore, based on the social cognitive career theory and the social cognitive career and motivation theory, two research questions were established: 1) As many research doctoral degree learners, including local and overseas learners, may come on-campus for face-to-face instruction, why do some doctoral degree learners continue to complete the coursework requirement via the online learning platforms, particularly mainland Chinese learners who may come to Macau for their coursework requirement? 2) How do the doctoral degree learners describe their decision-making processes, particularly mainland Chinese learners who decided not to come to the on-campus classroom instructions after the government re-opened the border for student visa holders?

The general inductive approach and purposive sampling strategy were used to recruit 12 research-based doctorate in applied psychology learners who decided not to come to the on-campus classroom instruction at a university in Macau, particularly mainland Chinese learners who had received their student visas and could come to Macau for their education after the government re-opened the border. As this is research-in-progress, semi-structured and private interview tools were used to capture qualitative data from the participants. The online-based interview arrangement was used because many participants were not located in the city. The grounded theory approach with open-coding, axial-coding, and selective-coding techniques was used to narrow the massive data to meaningful themes and subthemes. As a result, three themes and two subthemes were yielded.

Although the participants received their student visas in order to study in Macau, various motivations and reasons prohibited their decisions and affected their decision-making processes. Based on the findings: 1) personal considerations: belief in online and home learning; 2) financial considerations: living standard differences, and 3) external considerations: the Chinese governmental policy played significant roles in their decisions and decision-making processes, particularly in the decisions between on-campus and face-to-face instructions and online learning platforms.

Although the COVID-19 pandemic may be over and universities may return to face-to-face and on-campus instruction soon, online teaching and learning have become international trends in education and higher education, particularly for doctoral degree learners. The results of this study may fill the research gaps in the motivations, reasons, and decision-making processes of doctoral degree learners'

understanding, perspectives and opinions, particularly for mainland Chinese learners who decided to complete their coursework requirements online.

Online Teaching for Young Children with Special Needs During the COVID-19 Pandemic

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During the COVID-19 pandemic, preschools and kindergartens often reluctantly switched to online teaching in order to prevent large-scale infection. However, distance learning is difficult for young children. Online learning requires more mental effort and a higher concentration level for an individual to attend to what is being taught on screen. Young children, as a group of individuals with shorter attention spans than adults, face great challenges during online lessons. This situation is even more dire for young children with special needs. Based on this situation during the COVID-19 pandemic, this research aims to study means for online teaching for young children with special needs, from an educator's perspective.

A literature search was conducted using Google Scholar, employing the key phrases "online education instructional strategies for young children" and "online teaching in early childhood special education" to identify articles published between 2013 and 2023. The study incorporated articles with a focus on adult learning and grades 1 through 12, excluding those that explored the perspectives of students or caregivers. From the retrieved articles, themes were subsequently derived through a comprehensive analysis of the relevant literature.

Three themes occurred after reviewing. (1) Employing a comprehensive approach to instructional strategies, such as Universal Design for Learning (UDL) principles and assistive technologies, is crucial for optimizing online teaching for children with special needs. (2) Technological tools and accessibility are integral to the success of online teaching for children with special needs. By utilizing various digital tools and prioritizing accessibility in the design of course materials, educators can foster an equitable and supportive learning environment for these students. (3) Synchronous and asynchronous learning opportunities,

coupled with effective communication and collaboration among educators, parents, and support professionals, further contribute to a successful and inclusive online learning environment.

The majority of research concentrates on the stress levels or learning outcomes of children without special needs, significantly focusing on student engagement and satisfaction. Nevertheless, educators responsible for planning and implementing online lessons also encounter considerable challenges, particularly when instructing children with special needs. Given the increased difficulty in engaging these students, it is essential to examine lesson planning and teaching methodologies employed in distance learning, to facilitate the development of quality online courses.

Digital Learning and the ESL Online Classroom in Higher Education: Teachers' Perspectives

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This paper examines the experiences, attitudes and perspectives of English as a Second Language (ESL) teachers to the shift to online education as brought about by the COVID-19 pandemic. This research topic contributes both to a longstanding debate on the ways in which digital technologies can enhance education and language learning and to the emerging body of literature examining how teachers and students have responded to the implementation of digital learning in online classrooms during the COVID-19 pandemic. This study utilises primary qualitative research consisting of interviews with six ESL teachers from higher-education institutes in Hong Kong, in order to gauge their experiences, attitudes and perspectives on the shift to online learning with a view to exploring the efficacy and sustainability of online learning

The Self-Efficacy of Hybrid Learning of International Undergraduate Students in Post-Pandemic Australia

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While the current literature concerns the effect of online learning during the COVID-19 pandemic period, there is a paucity of studies investigating the students' self-efficacy in blended learning in this post-pandemic era. Since self-efficacy is an important predictor of learners' motivation, confidence and persistence, such a research gap leads to inadequate understanding in developing support for international undergraduate students. Attracting the enrolment of international students in universities in Western countries is a priority. However, this study examines international undergraduates' self-efficacy in blended learning during the post-pandemic period, to close the research gap and address such pressing needs.

The Self-Efficacy Theory was used to understand how an individual's beliefs develop into motivations, actions and accomplishments. The phenomenological approach was used to investigate the development of self-efficacy within lived experiences. Two semi-structured interviews and one focus group activity (five participants in each group) were conducted with each of the 45 first-year undergraduates from Australia. During the data analysis, by examining the sources of self-efficacy, the researchers identified the personal and environmental factors contributing to the success of blended learning among undergraduate students. Therefore, two themes and three subthemes were generated after the open and axial coding.

The findings show that verbal persuasion and encouragement from the lecturers and instructors, the mastery of experiences on both online and face-to-face tutorial discussions, alongside familiarity with campus locations and online learning tools are the factors contributing to an increase in the international undergraduates' self-efficacy in blended learning. Thanks to such an increase in self-efficacy, these students were able to:

Adaptations and Challenges in Organising Extracurricular Activities during the COVID-19 Pandemic: A Qualitative Study in Hong Kong's Higher Education

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first, overcome the anxiety and uncertainty in adapting to learning and living in a new country; second, attain their short-term and long-term academic goals in their pursuit of studies; and third, increase in confidence and resilience in continuing their studies in the post-pandemic era as an international student.

With the opening of the international border in the post-pandemic period comes another wave of challenges with long-term international student enrolment and sustainable development of the institutes. However, previous studies have indicated the unsatisfactory learning experiences and challenges they were facing during hybrid learning. Because international undergraduate students are important stakeholders in this higher education community, this study offers significant insights to enhance the learning and teaching in higher education institutions, to ensure the successful and fruitful academic pursuits of this cohort of students.

Extracurricular activities in higher education improve students' education attainment, social engagement, and non-cognitive life skills. These essential student development activities have been highly affected by the COVID-19 pandemic and its related lockdown and social distancing restrictions. Students and institutions alike have experienced changes from the pandemic's peak to the present eased restrictions. Studies have provided insights into the effects of the pandemic on students' academic studies, but there is a paucity of research covering their experiences with extracurricular activities. This paper explores the transformation of these activities through the pandemic and the future directions.

This qualitative study investigates the adaptations and challenges in both student-led and institution-based extracurricular activities. Therefore, the research participants cover career officers, academics, and student leaders. The data collected from the participants include semi-structured interviews and asynchronous written online communications, based on preferences and restrictions of the research participants. Documentation was also taken as data cross-referencing the participants' accounts. It is thematically analysed with an interpretive approach, and the interview data were recorded and transcribed. The extracurricular activities were compared based on the different groups of organisers, challenges encountered, and adjustments and precaution measures used. After open and axial coding, the participants' enthusiasm in organising student activities and their observations in the learning outcomes were also explored.

The results reveal the effect the COVID-19 pandemic has on different types of extracurricular activities, including guest talks, connection events, student competitions, outbound trips, and community services, and the adaptations that were made. Maintaining quality in student learning experiences has been found to be mostly affected by the constraints on face-to-face events, technicalities and policies from the governmental and institutional levels, and the lowered motivations of organisers of activities.

Further from students' academic studies, this study contributes by expanding the understanding of students' holistic learning experiences through the COVID-19 pandemic. The findings also provide insights, especially scaffolded upon challenges and benefits from the adaptations through the pandemic, to higher education management and academics alike in devising effective strategies to nurture students' holistic development.

Taiwan Elementary School Students' Challenges, Parents' Support, and Teachers' Support in Emergency Remote Teaching during COVID-19

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Contextualized in the time of the COVID-19 pandemic, the purpose of the present study was to investigate Taiwan elementary students' learning challenges during emergency remote teaching (ERT) that were perceived by students, parents, and teachers. It also aimed to examine the common strategies which parents and teachers used to support students with their learning difficulties. By synthesizing and comparing the response from the three groups of participants, the study also aimed to provide implications on how teachers and parents should assist students to overcome their online learning challenges.

Data were collected following a qualitative research design. Twenty-three in-depth and semi-structured interviews were conducted with nine students, eight parents, and six teachers. The recruiting of the participants was done by convenience sampling. The teachers were recruited from two elementary schools in north Taiwan, and the parents and students were from an elementary school and a learning center. The obtained interview data were then analyzed using a thematic analysis approach.

The results of this study showed that hardware issues, homework submission, inability to stay focused, and unfamiliarity with APPs were among the most recognized challenges students faced during online learning. However, students, parents, and teachers had different interpretations about why students could not stay focused and why they had difficulty submitting assignments. It was also revealed that parents provided support to students' learning by monitoring students' behavior in the lesson and helping them with homework submission. In addition, it was discovered that teachers supported students by demonstrating how to use APPs and encouraging students to finish assignments.

The inconsistency between students', parents', and teachers' interpretation of what caused the learning difficulties suggests the necessity to improve the communication between the three groups. The research also indicated that parents and teachers rarely provide emotional support, but some students may consider it paramount and need it very much. Thus, we suggest parents and teachers pay more attention to emotional support.

Engineering Student Perspective of Digital Reading in International Education

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Due to the COVID-19 epidemic, online education has undergone exponential expansion in recent years. Digital reading has become an integral component of e-learning and remote education, as well as a need for both.

This study expands on previous studies conducted at the University of Nottingham Ningbo China regarding the first COVID-19 outbreak in China. Using Microsoft Forms, a survey of Likert questions and open-ended questions was created. The survey was distributed to all levels of science and engineering students at Leeds Combined School, Southwest Jiaotong University (SWJTU) in China. Students from Civil Engineering, Electronic and Electrical Engineering, Mechanical Engineering, and Computer Science were included. The survey was accessible for one month for students to complete. Participants were guaranteed that their anonymity would be maintained.

In contrast to recently published studies conducted during or after the pandemic, the results indicate that engineering students' reading techniques have evolved, and their reading has become increasingly e-centric.

According to the authors, the distinguishing feature is that it focuses on engineering students and has a large sample size. The study will yield a number of insights for policymakers and teaching and learning authorities in engineering higher education. In addition, the study presents a number of suggestions concerning the attitudes of engineering students to digital reading and how to implement it in the future of engineering education.

Teaching in Cyberspace: Teachers' Experiences in Using a Learning Management Systems (LMS) as a Teaching and Learning Tool during the Covid-19 Pandemic in a Philippine State University

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The COVID-19 pandemic has brought extraordinary challenges and massive disruption in the educational sector around the world. It has shaken up the landscape of higher education worldwide and in the way traditional higher education institutions deliver their courses. In the new educational set-up, the use of Learning Management System (LMS) has been adopted by HEIs for promoting accessible and effective pedagogical practices. This study was conducted to determine the experiences of teachers in using CANVAS as a teaching and learning tool in a Philippine state university during the COVID-19 pandemic.

Using the qualitative method and guided by the Theory of Constructivism, the study determined the teachers' experiences in using CANVAS, the challenges they encountered and explored how they created knowledge and made meanings of LMS as a teaching and learning tool based on their experiences. Online interviews were administered among the participants categorized as junior and senior faculty members based on their number of years of teaching, rank and designation coming from the most number of faculty members using CANVAS.

With regards to experiences of using LMS, two major themes emerged highlighting the adjustments made to overcome challenges and the transition that brought better ways of managing remote learning. Further, it brought better ways as supported by better accessibility, easier way of administering of e-courses, increased opportunities to communicate and collaborate with students and allowing flexibility and creativity in assessment. Overall, from shared experiences, the participants constructed their own knowledge and realities on CANVAS as a great assistance in providing better ways of enhancing the delivery of courses and viewed LMS to bridge in the gap for continuous teaching and learning during COVID-19.

CANVAS provided the participants continuous opportunities and allowed students to remain connected and engaged with the content while working from home, brought by physical separation.

Research on the Current Situation of Online Learning Habits of University Students during the Epidemic -with H University as a Case Study

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During the epidemic, online learning was widely used in universities, and the effectiveness of online learning became the focus of widespread attention. Excellent learning habits are one of the keys to improve the effectiveness of online learning. In the present study, the current situation and influencing factors of online learning habits were researched. It also analyzes the causes of the problems and puts forward targeted suggestions.

Questionnaires and interviews were used in the study. The sample consists of 156 students from H university.

It has been discovered that the level of online learning habits of students during the epidemic was low, and there was room for improvement. Gender, nationality, family location and major had no significant influence on online learning habits, but grade had a significant influence on it. The analysis revealed that students' online learning habits during the epidemic were characterized by a low level of learning engagement. There was a lack of awareness of independent learning, a lack of awareness of online peer collaboration, a lack of students' ability to transfer knowledge and solve problems, and significant differences in the level of online learning habits in different grades. Based on the analysis of the influencing factors, the objective and subjective reasons for the above problems were identified. The objective reasons included insufficient teacher-student interaction and communication, lack of supervision of students' online learning and inadequate functions of the online learning platform. The subjective reasons included poor attitude towards online learning, poor self-control of students' online learning and students' own lack of attention to their grades.

For the problems and causes of online learning habits, we can put forward the following suggestions from teachers, students, platforms, family education and teaching and research departments: 1. Improve teachers' cognition of online teaching. 2. Increase interaction and communication, and enhance online learning engagement. 3. Actively carrying out accurate guidance in teaching activities. 4. Correct students' online learning attitude. 5. Focus on improving the information literacy of teachers and students. 6. Strengthen home-school cooperation and student-student cooperation. 7. Optimize the function of online the teaching platform. These suggestions have important theoretical and practical value for improving the online learning efficiency and online learning habits, thus improving the quality of online education.

Students' Perceived Course Satisfaction of an Open Learning Course Delivered in Three Different Modes

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This exploratory study aims to study, under three delivery modes of post-pandemic: a) face to face (FTF) and during-pandemic; b) Zoom; and c) hybrid in three consecutive academic terms, distant learning students' course evaluation results for the same course, English Writing, offered in Spring 2022, Autumn 2022 and Spring 2023 by a university in Hong Kong.

The data collection method was course evaluation survey with quantitative and qualitative open-ended questions. The number of surveyed students for FTF, Zoom and Hybrid modes was 29, 20 and 30. In this study, the target aspects of course evaluation included: 1) Course Related: "The course was well-organized and ran smoothly"; 2) Learning Outcome: "The course met the stated learning outcomes"; 3) Learning Resources: "The online learning support systems were helpful to me in my study"; and 4) Overall Satisfaction: "I am satisfied with the course".

The qualitative results reveal that students of three delivery modes explicitly stated that Zoom or virtual learning mode, not FTF, should be arranged for a distant learning course. Second, when communicating with course teachers, the use of today's recent social apps such as WhatsApp, rather than conventional telephone enquiries, should be employed. Students using the Zoom mode showed the lowest degree of agreement on three aspects of a) overall course satisfaction, b) running the course smoothly, and c) meeting the stated learning outcomes, when compared to FTF and Hybrid. In addition, students using the hybrid mode reveal the highest degree on the aspect of online learning resources. The qualitative results seem not to be aligned with the quantitative results.

Admittedly, the sample size was small in this exploratory study, but the above preliminary findings also shed light on better understanding of students' perceived course satisfaction over a distant learning course with the same content materials but delivered in FTF, Zoom and Hybrid modes.

Towards an Adaptive DevCom Education: BSDC Students' Experiences and Perspectives on DevCom Learning during the Pandemic

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The study sought to document the experiences and perspectives of Bachelor of Science in Development Communication (BSDC) students in development communication (DevCom) learning during the COVID-19 pandemic. It aimed to: determine the students' academic profile; describe their gadget and internet access for remote learning; discuss the challenges they experienced in participating in the DevCom courses' learning activities; analyze how they responded to challenges; identify the support they received; and determine their perceptions of the adjustments in the DevCom course content, course delivery, educational technology use, school policies, and fieldwork.

The study was descriptive research that used survey as the design. A total of 54 BSDC students from 19 universities offering the BSDC program in the Philippines completed the questionnaires administered through Google Forms. Data were analyzed through frequency counts, percentages, and thematic analysis.

Results showed that more than half of the respondents were seniors, and a large majority were full-time students and were enrolled in 18 units or more. They mainly used their smartphones in classes, where they mostly attended synchronously in their homes through fiber optic Wi-Fi. Almost three-fourths of the DevCom courses were offered in a combination of synchronous and asynchronous activities mainly using Google Classroom, Facebook, and Zoom.

Some of the challenges that students encountered in participating in DevCom courses' learning activities included family-related concerns, mental health-related concerns, lack of experience in conducting fieldwork due to pandemic restrictions, lack of proper time management, and lack of conducive environment for learning. These problems were mainly addressed through self-care activities, seeking help from support groups, determination and focus, and time management, among others. A large majority also received academic support from their universities.

A large proportion of the respondents gave satisfactory to very satisfactory ratings for educational technology use, course content, and course delivery of DevCom courses, including their school's academic policies. However, only a little more than half of the respondents gave the same ratings for their learning experience in DevCom fieldwork. Solutions identified to address fieldwork-related issues were maximizing the use of technologies for virtual meetings; using webinars as an alternative experience; viewing of videos on some field activities; students working

Students' Acceptance of End-of-semester Online Listening Assessment during the COVID-19 pandemic: A Case from Mainland China

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independently within their immediate communities; and adopting university guidelines to work on campus.

The study aimed to document the students' experiences and perspectives to develop more adaptive approaches and strategies in DevCom teaching and learning.

Many schools and institutions resorted to online assessment as an alternative to the traditional face-to-face tests during the COVID-19 pandemic. However, to what extent the students regard it as a reliable and effective way to assess their learning outcomes remains under-explored. This study aims to investigate mainland Chinese students' experience and acceptance of completing an end-of-semester assessment online against the backdrop of the pandemic.

An online survey of 40 statements adapted from the TAM model was conducted in Mandarin Chinese through WenJuanXing to explore students' attitudes to an end-of-semester online listening assessment on a 4-point Likert scale measuring six variables of perceived usefulness, perceive ease of use, attitude, behavioural intention, anxiety and web confidence. Two focus groups were conducted afterwards. Three hundred forty Year 1 and Year 2 English majors in a normal university in Jiangsu province participated in the survey and the focus groups respectively. Primary data analyses were conducted on SPSS 24 to explore the descriptive statistics, reliability and validity of the survey. The focus groups were transcribed and analysed on NVivo 12.

The findings show that, overall, the survey was highly reliable at 0.96, its sub-scale reliability ranging from 0.88 to 0.97. The respondents were slightly positive (mean=2.80) about the online assessment mode (mean range: 2.06–3.28, SD range: 0.55–0.98). They tended to agree that the online mode was useful for the listening test, especially in its facility to provide clear audio input through individual headsets compared with the traditional loudspeaker. Moreover, it was comparatively easier to click a button for paper submission on the web than to hand in the papers personally. Although they were convinced of the merits of the web 2.0+ technology, they were somehow anxious when taking the listening test via the web because there might be more contextual factors that were beyond their control compared with paper-based tests.

The findings of this study deepen our understanding of mainland Chinese students' perceptions of taking online assessment of listening comprehension in the context of COVID-19 pandemic and provide insights into the design and administration of listening assessment on the web in post-pandemic times.

Needs Assessment and Situational Analysis of Remote Learning in the Philippines

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The sudden closure of schools due to the COVID-19 virus affected around 28 million Filipino students (UNESCO, 2020), and higher education institutions in the Philippines quickly switched to remote blended learning. This rapid adoption of distance and blended learning has created new challenges for nursing educators, students, and academic institutions. In this study, researchers analyzed the current distance learning situation in the Philippines as part of a four-phase project to create a Filipinized Learning Management System for nursing students and educators.

The research team used a mixed-methods approach by conducting 17 online focus group discussions among selected nursing universities from Luzon, Visayas, and Mindanao and disseminated an online survey with a sample size of 80 nursing educators and student participants.

Results revealed that both nursing students and educators faced barriers in their online learning and teaching experiences and in using learning management systems. Based on the thematic analysis, educators showed how slow internet connections and power outages, lack of training with the use of technology and LMS, lack of technology resources, and lower student engagement hampered the delivery of learning. Students also shared problems with instability of internet connection, teacher-student and student-student communication, and learning environment. These were also reflected in the online survey wherein unstable internet connection garnered the highest percentages from educators and students, 85% and 72.5% respectively. Both teachers and students also recognized time efficiency, cost-effectiveness, and the accessibility of learning materials and flexibility in learning as benefits of online learning. Teachers revealed that online learning paved the way for the evaluation of teaching style and proved advantageous in accommodating more students without regard to physical space and location.

The results of the study will provide an in-depth understanding of the current situation of Filipino nursing students and educators in the Philippines that may be used in developing the Filipinized Learning Management System. Moreover, the study will serve as a basis for building educational policies and programs for online learning in the Philippines.

Perceived Health Status and Learning Experiences during COVID-19

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Since 2020, the COVID-19 pandemic has had a severe impact on higher education when universities closed their campus immediately in response to lockdown measures from their government. In order to continue providing education for university students, higher education institutions quickly replaced face-to-face teaching approaches with remote teaching. Generally, remote teaching can be synchronous or asynchronous. However, COVID-19 might influence students' health status, and health problems could also cause negative influences on their learning. Therefore, this research aims at investigating the effect of health status and perception on university students' learning experiences during the COVID-19 pandemic.

In the course of Early Intervention Services with mixed teaching approaches, this research used anonymous questionnaires to collect 20 students' self-reported health status, including mental and physiological health, during COVID-19. All students received three teaching approaches in the course and had to complete the questionnaire to report their experiences of the teaching approaches. The students were also asked to use a five-point Likert scale to answer questions about their learning motivation, learning attitudes, and learning experiences based on conventional face-to-face lectures, the synchronous remote teaching method, and the asynchronous remote teaching method. The Kolmogorov-Smirnov test showed that the normality assumption was met for the models to predict synchronous and asynchronous remote teaching methods. Therefore, the regression analysis was conducted to explore the effect of different remote teaching approaches on these students' learning experiences.

The finding showed that students' self-reported health status significantly predicted their learning experiences in synchronous ($t = 4.182$, $p < 0.001$) and asynchronous ($t = 4.094$, $p < 0.001$) remote teaching. Learning motivation also played a significant role in synchronous remote teaching ($t = 2.193$, $p = 0.042$). However, students' learning motivation did not show significant effects on their satisfaction of learning while obtaining asynchronous learning experiences.

Even with the sample size limitations and exploratory nature of this pilot study, the finding has already demonstrated a potential effect of subjective health status on learning experiences for higher education during COVID-19. It is also worth mentioning that students' learning motivation influences their satisfaction with learning while obtaining synchronous learning experiences. The finding of this research can benefit future educators in providing remote online teaching approaches. Future research can be conducted to further investigate the influential causes of different health problems on students' learning experiences and effects.

Caring Career Development of School Leavers with Special Educational Needs Amid the COVID-19 Pandemic: Examining the Effects of the Jockey Club Youth Academy on Career-related Outcomes

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The career development of students with special educational needs (SEN) has been a challenging issue faced by various stakeholders of inclusive education. The COVID-19 pandemic, unexpectedly, has posed tremendous uncertainties and challenges for the career development school leavers with SEN, leading to a compelling need to find optimal ways to cater to their career development. We aimed to evaluate the effect of the Jockey Club Youth Academy for Special Educational Needs (YASEN Academy) courses on enhancing students' career adaptability and career development self-efficacy.

YASEN Academy, as part of the EdUHK's initiatives to advance inclusive education, offers SEN school leavers an on-campus training program with a range of useful training courses to promote career development and life skills for the twenty-first century. At the beginning and end of the 2020–21 school year for training the first cohort of SEN students, we administered questionnaires on career adjustment ability and career development self-efficacy. Pre- and post-tests data were collected from 20 school leavers with SEN. We also tested their evaluation of the YASEN Academy program.

Some positive effects were identified on key facets of career adaptability (e.g., career control) and career self-efficacy (e.g., career planning, career goal setting) produced by the program though p values came close to .08. Post-test results of SEN students' evaluation to the YASEN training program indicated high satisfaction, over 96% believing the courses helped them understand their abilities and interests better; 89% felt the courses helped them make better choices of education and career, and over 77% felt they gained useful job interview skills and could set clearer career goals. Around 70% also felt they developed better strategies to achieve their career goals.

Despite YASEN being for SEN school leavers, this study suggests that early intervention and sustained support are essential for SEN students' career success given the various barriers and challenges SEN students may encounter, compared to their peers without SEN. The findings suggest SEN school leavers benefit from a collaborative and supportive environment that provides comprehensive support and positive development chances for nurturing their career adaptability and self-efficacy. Integrating stakeholders' expertise, including academics, specialists, teachers, parents and employers, has a great potential to enable SEN school leavers' optimal career outcomes. Improved career adaptability and career development self-efficacy collectively play a salient role in facilitating further education or employment among school leavers with

SEN. However, more targeted enhancement programs are needed to train these students in open employment for social inclusion. It takes career educational initiatives and company incentives to create various opportunities for SEN students to gain work experience and develop their abilities for employment.

Hong Kong University Students' Experiences with Online Learning: A Phenomenological Study on Perceived Impacts, Preferences and Success Factors

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This study explored students' experiences, perceived impacts and preferences for online learning, identified key factors for success, and suggested key action strategies to enhance online learning.

Five 1.5-hour online focus group interviews were conducted with 28 university students in Hong Kong from 21 July to 28 July 2021. Different strategies were used to ensure the credibility, dependability, confirmability, and transferability of the study.

Of the 28 respondents, 11 (39%) and 13 (47%) reported that online learning affected their learning and personal and interpersonal development negatively (scores 0 to 4) and positively (scores 6 to 10), respectively. The remaining 4 (14) reported neutral effects (score 5). The mean perceived impact score was 5.4 out of 10.

The flexibility of online learning allowed respondents to master the learning pace, improve their study and revision plan, and increase their class attendance. They also reported more confidence in raising questions and ideas in online classes. However, some respondents disliked online learning because the reduced face-to-face interaction with peers and teachers might lead to loneliness (especially in first-year students). The variations in teaching quality, technical difficulties and unfavourable home environments were the unfavourable factors for online learning. Twenty-seven (96%) respondents successfully adapted to online learning and preferred it for lectures, reserving face-to-face instruction for practical components.

Individual learning style, self-discipline, learning motivation and self-efficacy, support in digital technology use, time management, written communication skills, and home environment setting were identified as key factors for the success in online learning.

To provide better learning experiences, universities must adapt to the changing educational landscape instead of simply going back to only face-to-face learning before the pandemic. Universities should study students' learning needs and demands and offer professional development opportunities and guidelines for online teaching for academic staff to meet the new challenges.

An Investigation on Teachers' Professional Self-concept in Diagnostics and their Diagnostic Knowledge Competence in a Turkish Tertiary Level

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Diagnostic competences are essential for instructors because they help them identify and understand their students' problems, allowing them to develop strategies and provide student feedback accordingly. Since professional self-concept can influence a teacher's professional role, professional behavior and performance, and their self-confidence in the diagnostic process, it is regarded as significant in the diagnostic process. It is also thought that one factor that may influence diagnostic competence is knowledge. In order to ascertain whether there is any symmetry between these two factors, this study primarily examines the diagnostic competence of instructors in Turkish tertiary education based on two aspects: professional self-concept and pedagogical knowledge.

This study used both quantitative (questionnaire and quiz) and qualitative (focus group discussion) research methodologies. Twenty tertiary educators from the School of Foreign Languages of a Turkish state university participated in this study. A professional self-concept questionnaire was used to gauge teachers' perceptions and beliefs about their diagnostic ability, and a diagnostics knowledge quiz was utilized to assess teachers' fundamental knowledge based on their diagnostic competence. In order to determine whether there was any correlation between the two variables, a Pearson Bivariate Correlation was also conducted. Afterwards, in order to understand teachers' behavioral processes for identifying and diagnosing a student's learning difficulty, a focus group discussion was held for the qualitative data.

The results of the professional self-concept questionnaire showed that tertiary educators had positive perceptions about their diagnostic abilities. The results of the diagnostics knowledge quiz indicated the participants' unexpected knowledge gap in diagnostic pedagogical knowledge. Additionally, a negative correlation between the two variables mentioned above was identified. During the focus group discussion, three crucial variables—social, affective, and personal—were noted as having a substantial influence on learning problems in students.

The findings of this study are expected to enhance both the literature and understanding on this topic, which will contribute to teaching enhancement. Teachers' diagnostic knowledge competence is an under-researched field in both the Turkish context and in tertiary education settings. This study provides an insight into the diagnostic behaviours, judgment, accuracy, and expertise of teachers. The results of this study could also assist school administrators and teachers in developing their competence to diagnose students' learning needs in the future.

Analysis of Online Project-Based Learning Factors Affecting the Learning Motivation of Art Design Students in a Higher Vocational College

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Due to the COVID-19 pandemic, IT-based online teaching has become the norm. In the case of art design majors in higher vocational colleges, project-based learning emphasizes the initiative and openness of students' learning. The essence of online teaching is that students learn independently and openly under the guidance of teachers, and there is a coincidental symbiosis between the two. Due to the special nature of art design courses, many students will experience psychological and emotional changes in the face of online teaching, epidemic risks, and domestic isolation, which affect their learning motivation. Based on stress theory and self-efficacy theory, this study is guided by three research questions. 1) As art design students in a higher vocational college, how do they understand project-based learning in the online learning process? 2) What advantages and disadvantages do art design students in a higher vocational college face in the online project-based learning process? 3) How does project-based learning in the learning experience of online courses change and influence their perspectives?

The study employed stress theory as the theoretical framework to investigate and understand a group of art design students currently enrolled in a higher vocational college, exploring their experiences and feelings about online project-based learning and practice. The general inductive approach was employed to recruit six participants to share their experiences. As this is a research-in-progress, only two data collection tools were employed: 1) participant observation, and 2) focus group activities. The grounded theory approach of data analysis was employed. Based on the open-coding and axial-coding techniques, the researchers merged three themes potentially.

The results indicate that online project-based learning with information technology brings more open, collaborative,

Cultivating Learners' Critical Consciousness and Empathy through Digital Storytelling as a Critical Pedagogy

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(Cont'd)

and diverse inquiry and cognitive processes to students' online learning but also generates the problem of learning burnout. Based on qualitative data and participants' sharing, the researchers found the following themes: 1) perceived drivers of student stress, 2) learning situation, and 3) coping strategies. These three main themes had a significant effect on their motivation, feelings, and future career perceptions.

This study discusses the pedagogy of online project-based learning, where classroom activities are studied in an authentic art design course. Students can use their classroom project practice and art design theory as a means to facilitate the art design acquisition process. Information technology in the context of the internet empowers and enhances the implementation of online project-based learning, such as the use of online course platforms and interactive collaboration software to promote project-based learning and enhance students' job competencies and future career adaptability. Teachers become facilitators to help students meet their learning challenges and provide a research basis for educational management strategies to promote teaching quality.

Due to intensified disinformation that essentially drives democratic backsliding, innovative pedagogies in learning spaces are more crucial than ever to cultivate critical consciousness among learners and better engage them in civic discourses. Digital storytelling (DST), for instance, presents an array of opportunities for learners to better understand concepts and phenomena taught in classrooms by immersing themselves in pressing social issues and co-creating media with affected communities. This paper synthesizes the reflections of communication students at the University of the Philippines Cebu on DST as a critical pedagogy.

By thematically analyzing the 13 digital stories the students have co-created with their partner communities, complemented by the findings of their process documentation, this synthesis both challenges current DST practice and gives recommendations on its application in formal education.

Themes analyzed highlight the importance of the storyteller's emotional resonance and in-depth understanding of the issue at hand. Having such themes can drive stronger motivation to pursue the digital story and increase truth-telling confidence as the students overcome fear of platforming unheard perspectives. During the production process, co-creating the digital stories with community partners was not only significant in shaping the narrative but also in promoting a greater sense of ownership among the storytellers. This then facilitated easier mobilization of resources, efficient fact- and story finding, and greater amplification of the digital stories produced. Likewise, ethical engagement of all people involved in the production process was better ensured. Students' reflections also revealed that DST can best happen in a safe and non-competitive learning environment. "Safe" for students means having an emphatic orientation of the DST process, facilitating honest but constructive conversations, doing reflective and collaborative exercises, and maintaining a reaffirming learning environment. Establishing a feeling of safety was also deemed essential in building and sustaining trust and relationship with community partners.

Critical consciousness and social empathy are two important values that can be cultivated through DST—values that are especially vital in countering disinformation and in strengthening the foundations of truth-telling. However, effectively cultivating these values requires a critical orientation of the DST process and a learning environment that enables reflexive exploration of social issues. This is, therefore, a challenge for educators to rethink their pedagogy on DST and explore more pragmatic ways on how students can co-create digital stories. We also recommend continued documentation of learning processes and collaborative critiquing as ways to strengthen this emerging pedagogy.

A Three-Dimensional Analysis of Teacher Information Literacy Policies in China Since the New Century

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Since the beginning of the twenty-first century, the world is in the information age in a comprehensive way, and information literacy has become a necessary ability and vital quality for all social citizens. Education plays a pivotal role in cultivating information literacy talents to meet the development needs of the times. As the core subject of the educational field, the information literacy of teaching staff is associated with talent training and educational informationalization. Also, the enhancement of teacher information literacy is greatly dependent on the guidance and drive of national macro policies to a large extent. In this context, this research attempts to study the relevant policies of Chinese teacher information literacy in the past two decades from the perspective of instrument application, goal orientation, and developing path.

This research proposes a new framework of teacher information literacy comprising five aspects and twenty elements, and constructs an analytical model of three dimensions (policy instrument, policy objective, policy change) based on the policy instrument theory to realize a systematic study of the relevant policies.

This research analyzes teacher information literacy policies based on three development stages (information technology acquisition from 2000 to 2009, information technology application from 2010 to 2017, and information literacy development from 2018 to the present). This research finds that the significant characteristics of relevant policies include the lack of balance in application of policy instruments, the relative limitations in policy goals, and policy changes closely following the development process of educational informationalization. In the future, the policy instrument structure should be improved, the policy coverage should be constantly expanded, the policy requirements should be fully refined, and the connotation of teacher information literacy should be continuously enriched based on the new requirements of the digital age, to support the comprehensive improvement of teacher information literacy.

Few scholars have studied issues related to teacher information literacy from a perspective of policy. This research is expected to widely share the Chinese governance experience in this field and accelerate the future improvement of educational informationalization.

From a Novel Final-semester Clinical Law Course to a Fused, Longitudinal Legal Skills Curriculum

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This paper explains the author's experience of designing and running a compulsory final-semester clinical law course for students in a law school emphasising applied learning for working adults transitioning to a career as a criminal defence or family lawyer. The experience of running six iterations of the course over three years culminates in the design and adoption by the school of a longitudinal, interleaved and spiral approach to the development of practitioner values, attitudes, competencies and skills (VACS) in students.

The inclusion of the Legal Clerkship Programme (LCP) as a compulsory "capstone" clinical course in the law school was a bold innovation for Singapore law schools. Most students being working adults meant the course had to be designed so that it did not require students to quit their jobs or to take leave for a full semester. The solution was to have every student complete three distinct modules. Only their first module would be a compulsory full-time, on-site attachment, generally with either the State Courts or the Family Justice Courts. Students would then finish the other two modules attached to lawyers as interns or externs, as their individual circumstances permitted.

Industry partners' feedback frequently highlighted students' lack of familiarity and confidence with research, writing, oral presentation and advocacy, as well as ethical issues and the "culture" within the legal industry. Students consistently rated the LCP as one of their most memorable and meaningful courses in law school but lamented the insufficiency of training and preparation for the real-world tasks. Despite increasing the number of pre-course workshops and just-in-time seminars, it was clear (from both student performance and their own feedback) that a systematic, longitudinal curriculum to help students develop certain key VACS principles was needed and, to be feasible, it would have to not just shadow but be fused or interwoven with the main curriculum.

The challenges, lessons and responses examined in this paper should serve as a useful springboard for discussions into bolder and creative approaches to higher education in the twenty-first century, with a shift from the accumulation of knowledge to the development of suitable VACS principles to meet the needs of modern commerce and social life.

Future-Oriented Pedagogical Practices: What does the Current Literature tell?

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Due to certain difficulties and challenges, previous research found that the shift from traditional pedagogical practices to future-oriented pedagogical practices is rather slow. This literature review then aims to explore what pedagogical practices are present in the current literature and to examine whether those pedagogical practices align with, or differ from, future-oriented pedagogical practices (FOPPs), which prioritize skill development, critical thinking, and adaptability to prepare students for the uncertainties of the future.

This literature review employs Cooper's (1988) method for integrating literature to analyze the alignment between pedagogical practices and future-oriented pedagogical practices (FOPPs), which emphasize skill development, critical thinking, and adaptability. Data collection involved searching for English-language articles on pedagogical practices from 2018 to 2022 in peer-reviewed journals. Sixty articles were found, and content analysis (Strauss, 1987) was performed on 47 relevant articles using Nvivo qualitative data analysis software.

Upon reviewing the studies and categorizing them into major topical categories, the following seven major categories were identified. These categories represent 64 coded extracts, which include a variety of techniques, tactics, and methods utilized by educators. The review identified pedagogical practices that align with FOPPs and highlights the importance of incorporating them in teaching and learning approaches.

The findings of this review can benefit educators in selecting appropriate pedagogical practices for their specific context, as well as researchers interested in future-oriented pedagogical practices. By considering the issues raised in this review, researchers can better situate their work in the context of existing literature and potentially address any research gaps.

Innovative Pedagogical Design and Effectiveness Evaluation of a College Life Design Course: Differences in Self-Directed Learning Abilities

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Self-directed learning (SDL) has been identified as a crucial core competency in the current century to equip individuals with the initiative to learn and adapt to rapid and unpredictable changes in the world. Given its significance, enhancing SDL abilities has become increasingly important for college students. The present study investigated the effect of course attendance in the Life Design course on participants' SDL ability. An action research method was used to assess the difference in self-directedness before and after the semester, using a self-directedness scale.

The study used a self-directed learning scale that comprised 25 competency indicators distributed across five dimensions: needs assessment, planning, implementation, self-evaluation, and interpersonal interaction. The research sample consisted of 145 college students, both freshmen and seniors from the Department of Adult Education. The participants, aged between 18 and 24, were enrolled in an 18-week course and attended one-hour weekly sessions.

Results revealed a significant enhancement in self-directedness, as evidenced by the elevated mean score on a 5-point Likert scale from "sometimes" ($M = 3.33$, $SD = .47$) in the pre-test to "often" ($M = 3.63$, $SD = .52$) in the post-test. Notably, the planning dimension exhibited the highest improvement (+0.32), followed by interpersonal interaction (+0.31) and implementation (+0.30).

Further analysis of self-assessment results revealed significant differences in self-directedness across different levels of college students. Freshmen exhibited the highest rate of self-directed learning ability in the pre-test ($M = 3.46$), followed by seniors ($M = 3.41$), juniors ($M = 3.23$), and sophomores ($M = 3.20$). However, in the post-test, sophomores exhibited the highest rate ($M = 3.68$) with the most significant improvement (+0.48) after attending the course, followed by juniors ($M = 3.64$, +0.41 improvement), seniors ($M = 3.56$, +0.15), and freshmen ($M = 3.53$, +0.07). Given that the sophomore to junior years are critical periods for career orientation, the Life Design Course may offer a promising approach to enhancing SDL ability in this target group.

This study suggests that we should continue to monitor the changes in SDL ability among university students while executing interviews with students with significant differences in performance, cross-analyzing the relationship between SDL ability and overall academic performance, and exploring the factors that affect students' SDL ability. Planning an SDL training program for university students was expected. This study has provided great insight into university curriculum design and counselling policies.

Developing Science Ability Training Materials and Teaching Models for Primary School Girls



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The purposes of this study are to develop an integrated teaching model that combines creative problem solving (CPS) and the scientific inquiry teaching model, to design thematic teaching modules suitable for training important scientific inquiry skills and scientific creativity for primary school girls, and to conduct a teaching experiment to understand the effectiveness of the model.

This study uses the action research method, through a cycle of “planning → action → observation → reflection → correction” three times. The research team, considering the interests and preferences of female students, designed the “Teaching Modules on Scientific Inquiry Competence of CPS for Primary School Girls” with eight themes in two categories: kitchen science and art science. Each teaching module includes a teaching activity plan, teaching materials and assessment tools. The teaching experiment used the “unequal group before and after test design”, 25 students in the experimental group and 23 in the control group. Participants were recruited from gifted girls in grades 4 and 5 of primary school by convenience sampling. Before and after the experiment, data were collected from Torrance Tests of Creative Thinking (TTCT) Graphic version, Scientific Inquiry Abilities Test and Self-compiled Perception of Science Scale for Primary School Students. In addition, qualitative data such as interviews with students and experts, learning sheets of children’s curriculum activities, photos of children’s scientific work, feedback from students, course videos, and observation records were also used.

The main findings are as follows: 1. The teaching model that integrates the scientific inquiry model and the creative problem-solving model is proposed and named “CPS Scientific Inquiry Ability Teaching Model”, and eight thematic teaching modules were designed. 2. The girls in the experimental group scored significantly better than did the girls in the control group on TTCT, Scientific Inquiry Abilities Test, and Perception of Science Scale. 3. Qualitative data also revealed that the girls in the experimental group have improved in scientific inquiry ability, scientific creativity and interest in science, and they like the arrangement of the course activities.

Flipped Science Classroom—Integrating Creative Problem Solving and Science Inquiry Models into Science Teaching II: Establishing a Cloud-based Evaluation System



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To extend our previous flipped science classroom project in reforming teaching and assessment system to the regular (non-gifted) class, we propose to incorporate our teaching module for science inquiry ability into the current textbook for fifth graders and establish a cloud-based evaluation system. This system can integrate lectures and assessment content with easily available media tools with an instant feedback feature and effectively analyze the different performances in science learning between boys and girls.

We used a quasi-experimental method using unequal group pre- and post-test design. In practice we applied the previously developed creative problem solving (CPS) teaching modules and the newly established cloud-based assessment system to the science class of regular classes. We collected data through observation, interview, questionnaire, and archiving. The sampling style was intentional. With the consent of a chosen elementary school, the following members were included in this project: the teachers team (the principle investigator and five science teachers), two computer experts, the experimental group (fifth graders, five boys and fifteen girls), and the control group (fifth graders, eleven boys and fourteen girls).

The major findings of the study are: (1) The cloud-based evaluation system summarized student performance instantly. This enables the teachers to respond accordingly in real time. The instant feedback feature has greatly improved students’ learning motivation. (2) In science creativity test, the boys in the experimental group did perform better than the control group did, but the girls showed no difference. In the Torrance graphic test of creative thinking, the experimental group performed better only in the originality test but not in the other tests. In the science attitude test, the experimental group only excelled in scientific cognition but not the other areas. (3) Questionnaire and interview results indicate both the module and cloud-based evaluation system were well received by the students and teachers. Improvements in both learning and teaching were appreciated. (4) Based on observation and interview, girls pay more attention to details and perform better in observation, measurement, team work, oral presentation and recording than boys do. Boys are more keen to have hands-on operations.

The originality and value of the study is the creation of the cloud-based evaluation system and application of the CPS teaching module to a regular class for the first time. Our success proved such a unique combination can be extended to all elementary schools in Taiwan with a promising future.

Flipped Science Classroom: Integrating Creative Problem Solving and Science Inquiry Models into Science Teaching



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The purpose of this study is to use the previously developed creative problem solving (CPS) teaching modules combined with the computer-aid flipped classroom technique to improve natural science teaching in ordinary elementary schools in Taiwan. The effect of the new modules and new technique is studied. The performance in science classes between two genders is also studied.

This research used the quasi-experimental pre- and post-test research method. Subject studied includes fourteen fifth graders and their science teacher. Twenty-four fifth graders from another school and their science teacher were assigned as the control group. Four CPS teaching modules and flipped classroom methods were applied to the test subjects for forty-two hours of the teaching experiment in seventeen weeks. Unaltered teaching was applied in the control group. The data collection method includes interviews, questionnaire surveys, observations, document collection, etc.

We found that (1) in the scientific inquiry ability test, our new method made the experimental group a significantly better performer than the control group was. In the creativity test, boys were better at choosing variables and fine-tuned procedures, whereas girls excelled in logic. For the Torrance Tests of Creative Thinking (TTCT), boys obviously performed better than girls. No overall difference was observed between boys and girls in other test including "attitude toward science". (2) The new teaching modules were highly appreciated by at least 85.8% of the students tested. They acknowledged significant improvement in their scientific research ability such as forming questions, carrying out observation, and experimental design. (3) Problems encountered during executing the project were teachers' lack of scientific knowledge, fragmented class hours, lack of human resources, problematic statements in the textbook, and inefficient after-hours learning.

In Taiwan, many experimental research findings on science teaching failed to be applied to ordinary schools. This study made the change possible. Our approach of using the flipped classroom technique and the teaching modules has proven to be applicable to the current textbook in Taiwan with significantly enhanced cultivation of scientific ability for students in ordinary schools.

Promoting In-service University Teachers' Learning Design Capacities through Learning Design Tringle and Learning Design Studio

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The growing trend in higher education towards technology-enhanced learning and student-centered approaches to empower learners requires deep changes in teachers' practices, skills, and beliefs about learning. Learning design (LD) aims to address this by helping teachers redefine their role as "designers for learning" and create effective learning environments aligned with pedagogical approaches and learning objectives (Mor, Craft & Maina, 2015). This study aims to propose and investigate the effectiveness of a model in promoting university teachers' design capacities.

This study is part of a design-based project. The first phase involves gaining an understanding of authentic design practices, which serves as a basis for the second phase, in which the effect of a model including the Learning Design Triangle (Law & Liang, 2020) and a supporting technology platform, Learning Design Studio (Law et al., 2017) will be investigated. The study was conducted at a mainland China university, and in-service teachers interested in and with experience redesigning courses were purposively recruited. Participants engaged in a collective learning process guided by a set of design principles aimed at creating authentic and ongoing learning opportunities, including monthly workshops, co-planning meetings, and lesson observations that spanned one semester. Two teachers were closely followed, and data, including audio recordings of workshops, co-planning and debriefing meetings, and design artifacts for each of the sessions, were collected and analyzed.

The study uncovered important findings about the effect of the model on teachers' understanding and practice of learning design. Both teachers shifted their focus from content delivery to designing learning experiences that centered on the learners' needs, challenges, and thinking processes. Secondly, both teachers' design processes shifted from instinct to a more systematic design process, modifying core-steps, sequences, and considerations at each stage all along. Finally, the study found that these changes resulted in more student-centered design outputs, tailored to individual needs and challenges, highlighting the transformative potential of the LDT framework on understanding of learning design and practice.

This paper presents valuable contributions to the literature on promoting pedagogical innovation among university teachers by presenting a model and evaluating its effect on teachers' understanding of learning design and design practice. The study identified challenges that teachers face and factors that

Let's Get Ethical: Negotiating Ethical Engagement of Learners with Communities in Digital Storytelling through Process Documentation

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facilitate their understanding of LD and implementation of pedagogical innovation, which provide valuable insights into effective Teacher Professional Development (TPD) models that support the use of innovative teaching practices in higher education.

Digital storytelling (DST) has emerged as an increasingly significant critical pedagogy, helping learners to understand intersectional social issues and providing them a potent tool to participate in discourse and advocacy with affected communities. Ethical community engagement is a critical area within the DST process. Gubrium et al. (2014) list ethical challenges in DST, which cover fuzzy boundaries, recruitment and consent to participate, power of shaping, representation and harm, confidentiality, and release of materials. Inability to mitigate and manage these challenges can compromise narratives, diminish quality of learning, and cause harm both to the students and community partners. This study explores the process documentation conducted by communication students at the University of the Philippines Cebu to analyze ethical challenges in DST and formulate recommendations to ensure meaningful and ethical engagement of learners with partner communities.

Learners' process documentation details challenges, best practices, learnings, and their personal reflections throughout the creation process. Recurring themes were analyzed and triangulated with Gubrium et al.'s list of ethical challenges. Some challenges were regrouped, and new categories were created for issues that did not fit into the list. For each challenge, recommendations were likewise formulated.

Analysis surfaced seven (7) ethical challenges. Learners highlight risks present in community locations, including issue confidentiality and harassment perpetuated by community members (*safety concerns*). Perceived harm and fear of misrepresentation in stories that tackled sensitive topics like HIV and mental health contributed to community's hesitancy to participate (*participation hesitancy*). Moreover, internal conflict in personal stories has emerged as a harmful challenge both for students and communities, as some were forced to compromise conditions and compelled to disclose sensitive information and relive personal trauma without professional guidance (*personal story conflict*). Ethical concerns also surface when digital stories are shared in social media platforms, where communities become vulnerable to criticism, and have no opportunity to defend themselves (*dissemination and feedback management*). Other ethical challenges include resource sharing, narrative shaping and representation, and insight saturation.

In sum, results underscore the need to ensure the welfare of the learners and community partners in DST. The importance of establishing transparent and documented coordination, building capacity for risk assessment

Applying VARK Learning Styles and Traits to Enhance the Learning Effectiveness of Adolescent Girls in Beauty Training Courses: Reflections from the Teaching Package



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and harm mitigation, and strengthening participatory engagement and accountability—all these can be used as guides by educators in teaching digital storytelling. Ethics in digital storytelling must be understood as an ongoing dialogue with whoever is involved. Extensive documentation of the DST process is therefore integral.

The under-explored study aims to measure some female (aged 14–21) adolescents' learning goals, articulate four learning styles, and identify their distinctive studying traits using the VARK (visual, auditory, reading, kinesthetic) learning style (version 7.0) scale, and thereby adjust teaching and finally optimize their learning process in some beauty care courses. Based on the results, the action researcher (the first author) under the supervision of the second author and the academic guidance of the third author enriched the old teaching kits by incorporating some key elements of different learning styles to stimulate the interests of the participating students in learning, thereby achieving high learning outcomes.

Based on the anatomy and physiology course unit studied in the course, the researcher compared the learning effectiveness of the original teaching package with the new one when carried out using the two sets of resources at different times through evaluation survey, interview, and participant observation. The VARK learning style (version 7.0) scale was used as a basis to measure the type of learning styles of the participating students. The statistical results of the course evaluation survey and the pre-class background information are summarized in a table to list the relevant key points by incorporating elements of different learning styles into the new teaching kits.

The participating students did not find enough remedial support in the original teaching package, and the problems of the existing coursework lacked in-depth explorations in experiential learning. The strength of the students could not be demonstrated. The new teaching kits based on students' learning needs using the VARK scale were more popular and enhanced individuals' sense of achievement and ownership with rich contextualized illustrations and explanations from the instructor.

The study provides an innovative VARK model to frame participating students' learning styles and traits and develop a new student-centered teaching pack in some beauty training courses in Hong Kong. Such a model in professional and vocational education (PVE) is transferrable to other workplace education contexts in higher education.

Teaching Global Cross-functional Integration in the MBA Program

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In today's global competition, companies need to simultaneously conduct different business activities in an integrated manner and adapt them to different country conditions. Hence, business education, particularly at the graduate level, needs to help students cultivate global cross-functional mindset and skills. An advanced MBA course (Strategic Integration) was designed and implemented to meet this need in 2019.

Offered as part of the required coursework for an MBA program at a private northeastern university in the US, this integrative capstone course teaches MBA students how to use strategic management to integrate different business functions. The course also offers reviews of the key concepts and tools in other disciplines (e.g., marketing, accounting, finance, production and supply chain, and human resource management) and shows students critical cross-functional coordination, such as the close connections between sales forecasts in marketing and income statements in finance and those between financial ratio analysis in accounting and SWOT analysis in strategic management. For the main assignment (global business plan) of the course, students working in teams practice developing different functional plans (strategic, marketing, production and supply chain and HR plans) in a coherent manner for a multinational personal care company to enter a foreign country such as China, India, Brazil or Mexico. For example, students learn how to coordinate an entry strategy (e.g., wholly owned subsidiary) with the production strategy regarding where to produce. They also learn how to make marketing plans (e.g., the target customers and unique product features) consistent with their competitive strategies (e.g., focus differentiation). Furthermore, the development of a global business plan requires students to adapt different functional practices to the different political, cultural, economic and technological environments of different countries. Common functional adaptations include choosing different social media (e.g., WeChat in China) and product features in marketing, using forward contracts to hedge against exchange rate fluctuations, and customizing recruitment, performance appraisal and training for different national cultures.

The course evaluation data covering 12 sections of this course in the past four years were used to evaluate the efficacy of the course. Two questions in the course evaluations asked the students to indicate the extent to which they agreed or disagreed with the following statements on a Likert scale of 1 to 5, 5 representing "strongly agree" and 1 representing "strongly disagree":

1. Overall, this course improved my understanding of the subject matter.
2. This course improved my ability to think across business disciplines.

Of the 268 students who took the course between 2019 and 2022, 135 students filled out the course evaluation and answered the above two questions, representing a response rate of about 50%. The average scores for the questions were 4.17 and 4.43 respectively. These results provide some evidence for the value of the course from the student perspective.

This course offers a unique experience for MBA students to learn and practice cross-functional integration in the global environment. Such an experience enriches the MBA curriculum that has traditionally focused on covering functional knowledge in silos and paid less attention to competencies in global cross-functional integration that managers need to deal with today's complex business environment and challenges. Based on student feedback, it appears that this kind of training and development can increase understanding and skills in global cross-functional integration and thus warrants close attention by both practitioners and business educators.

The Data-Driven Pedagogical Design of Chinese Language MOOCs

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Massive Open Online Courses (MOOCs) have shown to be a revolutionary innovation, allowing anyone who has access to the internet access to education anytime, anywhere. As a result, a successful course generates enrollment that is one hundred times larger than that of conventional classroom-based courses. Learners voluntarily self-study the provided materials, participate in discussion forums, and complete course assignments. However, challenges remain concerning how to keep a large number of online learners engaged. This presentation features *MITx: Chinese Language in Culture*, the first novice-level Chinese language MOOC offered on edX by a North American university. Since its launch in August 2020, this course has experienced high demand, having an enrollment of over 160 countries across the globe, the US, India, the UK, Canada, and Brazil being the top five. The median age of the learners was 28, and about 70% had college or advanced degrees. Through data analysis of over 20,000 participating learners, this presentation introduces its pedagogical design with foci on: (1) the implementation of FACT and ACT in the print, audio, video, and digital materials; and (2) the principle of “presentation–practice–assessment” in students’ learning cycle. With these, the presenter aims to answer three questions: (1) How effective is online language learning as opposed to in-class instruction? (2) How much time and to what extent do learners work with videos and audio files? (3) How does learners’ engagement in exercises translate into their performance in massive online language learning? The presenter suggests that “audio and video quality,” “social engagement” and “rapid feedback” play a critical role in professional language MOOCs. Although language MOOCs have taken learning opportunities far beyond the traditional limitations of classrooms, the next frontier of innovations in language MOOCs lies in data-driven curriculum design by incorporating immediate feedback and social engagement, enabling transformation of students into “real learners.”

This study uses both the Naïve Bayesian model and the Tree-based model.

The findings are: (1) Understanding learners’ expectations of audios, videos and instructions in quality, duration and interaction. (2) Building online teacher-student and student-student rapport by social engagement and immediate feedback.

The implications are identifying the behavioral patterns of successful language MOOC learners, from interactions with materials to participation and performance at live events.

Need for Smart Learning Resource Management Systems for Supporting Open Online Learning and Lifelong Learning

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The development of technology has made online self-learning a new option for learners to pursue self-education from learning resource management systems. However, the existing learning resource management systems still have limitations in the update of the content, the need to pay for access, and the reliability of the information. The users of the system require a system that helps analyze their learning needs and recommend reliable learning sources to cover their needs. Therefore, learners can choose to learn according to their interests and meet learning outcomes. This paper presents the results of the analysis of the problems and the need for smart learning resource management systems to be a learning source from large information sources on computer networks that are consistent with lifelong learning that enables learners to learn according to their interests and meets their needs in various dimensions to respond to the rapidly changing context.

This paper analyzes the problems and needs for smart learning resource management systems for supporting open online learning and lifelong learning. A total of 37 instructors, system administrators, students, and experts from universities in Thailand were interviewed using a structured interview form. The interviewing questions were about existing learning resources and problems and needs for learning resource management systems. Data analysis in this study used content analysis. The results were used to develop a learning resource management system.

The findings are the following. First is the problem of a large number of learning resources. Users must screen and select data sources themselves. Some sources have outdated information and some require payment to access complete information. Some sources have policies that require permission to access, causing obstacles in accessing information. Second is the need for a learning resource management system. The system should be open and free of charge and have unlimited data access rights. It should be easy to use and support various devices. Information should be from reliable sources and always current. The search system should be quick. There should be a system to automatically recommend information that is interesting to users. The content classification should be clear. In addition, the system should be able to store the knowledge in the form of a personal file that can be easily retrieved, respecting the privacy of the user’s personal information. Users should be able to share information with others and set permission to access the information.

This research presents information for further development

Developing Open Educational Resources to Increase Access to Information Regarding Metacognition

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(Cont'd)

by using big data and the potential of artificial intelligence technology to support learning by using adaptive technology to help develop a resource management system that can analyze and recommend information sources that will allow users to access information sources more quickly, accurately and according to their needs.

The purpose of this research was to engage in reflexive self-study regarding the metacognition of the researcher who was involved in the development of low-cost or free of charge Open Educational Resources (OERs) that were aimed to enhance global access to literature and resources related to metacognition.

The author, a researcher in the field of metacognition, has become increasingly concerned with the lack of penetration of scholarship in metacognition into teacher pedagogy and government(s) educational policies and curriculum documents. Metacognition is defined in this paper as one's knowledge, control, and awareness of one's thinking and learning processes. To try to address this concern, he developed an intertwined collection of OERs that involved the 'ground up' development of a website and a podcast, and the use of existing social media platforms and his university's open-access depository. A predominantly qualitative, interpretivist stance was used for this study. The S-STEP methodology (Self-Study of Teacher Education Practices) was employed, as it focuses on the personal analysis of one's educational practice with the goal of improving the learning and practices of others. Data sources are journal entries and statistics from digital sites spanning up to a 30-month period. The findings were derived from thematic analysis of the whole corpus of data.

Several findings are presented. The researcher's metacognition regarding his learning strategies and his decision-making, planning, and execution processes regarding the OERs are made visible for others to consider. Artifacts presented from the study include: (a) a schema that systematizes the researcher's metacognition regarding his learning processes, decision-making, planning, execution and other relevant cognitive strategies; developed by him through multiple sequences of data analysis and reflection; (b) a detailed model describing the connections and synergies between the various OERs; and (c) analytic data regarding the nature and extent of others' engagement/s with the OERs since their development and publication.

This paper provides a framework that others might engage and/or modify regarding the use of multiple, intertwined OERs to provide free or low-cost access to educational ideas that they wish to promote outside traditional academic publishing outlets such as journals and books. The analytic data suggest that the OERs provide increased global access to information on metacognition.

A Scoping Review of Measures of Students' and Teachers' Experiences in Learning Management Systems

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Learning management systems (LMSs) enables distance learning and asynchronous education, increasing accessibility of courses beyond the four walls of the traditional classroom. Although the use of LMSs had only been an option for some institutions previously, they have now become indispensable to ensure the continuity of education even in the post-pandemic era. Studies abound on the use of LMSs in higher education institutions, but reviews of scales that measure experiences of LMS users are limited. This scoping review aimed to 1) scope literature for available scales used to measure students' and teachers' experiences in LMSs and 2) to identify an adequate measurement tool that can be used to assess students' and teachers' experiences in LMSs across universities and university faculties and make recommendations for improvement.

A systematic search was performed in the databases of Scopus, Web of Science, EBSCOhost (Education Full Text), ScienceDirect, and Academic Search Complete. Based on our criteria, 64 out of 5,536 peer-reviewed articles were included in the final review. Data were charted to answer following research questions: 1) What are the essential features of the included studies? 2) What are the methodological characteristics of the included studies? 3) What are the characteristics of the LMSs experience measurements? 4) What types of LMSs have been discussed in the studies?

Results showed that out of 64 articles, 42 investigated the students' experience in learning with LMS, 17 focused on teachers, and 4 included the perspectives from both teachers and students. Despite 34 articles not mentioning which course the LMS was used in, 16 studies gathered the data from several courses, and 13 studies gathered data from a single course. The majority of the articles used Technology Acceptance Model (TAM) as their guidance. Of the different LMSs, Moodle is the most used one.

The majority of the studies focused on the factors that affect students' and teachers' motivation to use LMSs or their actual use of LMSs but failed to measure whether the learning outcomes (e.g., academic achievement, learning motivation, and self-efficacy of the learning content) have been achieved through the use of LMSs. More evidence that can help us to better understand the unique features of LMSs that can influence students' learning is necessary.

Development of Open Educational Resources for Master's Degree Programs in Adult Education: Investigation from a Course of Lifelong Education Introduction

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To better implement the Master of Education programs in adult education and to improve the construction of high-quality open education course resources, the Open University of China developed the "lifelong education introduction"(LEI) for a two-month period of pilot teaching.

The course developed an innovative teaching pedagogy of guided learning with different modular content. It was implemented via a hybrid teaching mode of recorded and live teaching on the online platform of the university. Teachers have recorded 35 micro lessons for a total 500 minutes. The micro lessons and transcripts will be uploaded to the teaching and learning platform for students' self-directed learning. The interaction between teaching and learning is through the platform with WeChat. The live course will be provided in every two weeks for 120 minutes. Survey questionnaires were administered to the participants (N = 273) who enrolled in the course. In addition, group discussions were conducted. About 94% were trained as teachers and came from open universities in China. Most obtained a bachelor's or master's degree in education. To investigate the course effect, a mixed methods approach was carried out from four perspectives: (1) course design, (2) online teaching, (3) course effectiveness, and (4) learner feedback. Both quantitative and qualitative analyses were used for scaffolding the practical insights for LEI.

Results showed that participants considered the course practical and useful. They generally agreed that the concept, history, idea, and application of lifelong education could be effectively obtained through course learning, which further enhanced their understanding of the purpose of adult education. Students also strongly agreed that the course is useful for future career advancement. In addition, they raised suggestions for such LEI, which further contributed to the development of the course in the future.

This study laid the foundation for future improvement in implementing LEI for master's degree programs in adult education. More specifically, it provided insights into the design of open educational resources, such as pedagogy content, implementation approach, and course assessment for school leaders who want to integrate lifelong learning into their education systems.

Analysis of the Construction of Labor Education Platform in China

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Labor education can enable students to establish the correct view of labor and labor attitude, and develop the habit of loving labor, which is one of the main contents of the all-round development of moral, intellectual, physical, aesthetics and labor education. Since ancient times, China has had a fine tradition of cultivating children's working ability. In recent years, our country has attached great importance to labor education, promulgated a series of relevant regulations, and established many education platforms. This paper takes "Smart Education of China" as an example, explores the construction and development of China's labor education platform, analyzes the practical significance of the platform construction, and provides some suggestions for the development of labor education.

By integrating and analyzing the learning content related to labor education on the Smart Education of China, and combining it with national policies, this paper researches the results of labor education in various schools and analyzes the results and influence of the labor education resources of the platform on the cultivation of students' labor ability.

In March 2022, Smart Education of China was officially launched. This platform integrates four sub-platforms, which can provide rich curriculum resources and educational services and realize the sharing of educational resources. Taking Chengdu Petrochemical Academy as an example, the school provides a car service reception courses, a kindergarten theme wall design and production courses for junior high school students and above, and courses about making colored clay and brewing oolong tea for grades 5 and 6 students. The platform drives the development of offline labor education with high-quality online resources, guides students to personally participate in labor practice. It not only facilitates students' independent learning, but also provides new programs for teachers to improve classroom teaching. In addition, since the platform was piloted, it received positive feedback. Users generally reflected that the platform is easy to use and has excellent teaching effects.

At present, labor education courses are widely available in primary and secondary schools in China, but not in the form of a regular curriculum, and teachers, parents and students often do not value this curriculum. This situation needs urgent improvement. In recent years, due to the growing emphasis of our country on labor education, labor education resources have been greatly enriched. The emergence of this platform enables students to learn from high-quality labor education resources from other regions and improve their labor skills, which is of great significance to the training of a new generation of talents in China.

Evaluation of a UPOU MOOC in Selected Metrics from the BIGGS' 3P Model: Product Variable Result

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Massive Open Online Courses (MOOCs) have been offered by the University of the Philippines Open University (UPOU) since 2012 in compliance with its mission of increasing access to quality education and in support of Republic Act 10650—Open Distance Learning Law. To make sure that students are receiving high-quality education, ongoing review of MOOCs is necessary. This study makes reference to the MOOC Quality Guidelines, which were developed by the Commonwealth of Learning, and uses Biggs' 3P Model to evaluate MOOC quality.

This research assessed the August 2022 MOOC "Artificial Intelligence for Quality Assurance in Education" for quality assurance. The MOOC was evaluated according to selected metrics from the Biggs' 3P Model: learners; learning process; and completion/retention and certification rates and enjoyment and self-satisfaction. This paper presents the results of evaluating the **completion/retention and certification rates** together with **enjoyment and self-satisfaction** as a *product variable*.

The completion rates were recorded using LMS analytics and are based on the submission of the final output and the conduct of peer assessment by the learner. Learner participation in the activities offered by the course is also taken into account for the retention rate to be compared with the completion and certification rate. The enjoyment and self-satisfaction rates are evaluated from the Qualtrics survey given to the students at the end of the course, focusing on the questions targeting said attributes.

Out of the 200 participants, 58 were able to complete and receive a certificate for the MOOC, resulting in 29% of the participants completing the course successfully. This is higher than the completion rate for UPOU MOOCs from 2015 to 2018, which is 10.18% based on the data from 76 courses offered within those years. The satisfaction survey recorded a total of 85 learners' satisfaction rates, and more than half (63.53%) of the participants being very satisfied. The others (29.41%) were satisfied, and a few (7.06%) opted to remain neutral. Together with results from the presage and process variables, these numbers indicate that the MOOC offered was of quality.

The evaluation of the MOOC will help provide best practices in offering MOOCs. The tool used with presage and process variables integrated can also be further developed to evaluate MOOC quality in a more holistic manner.

Effectiveness of MOOCs to Improving Students' Efficacy and Performance Relevant to the BPO Industry

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With the goal to create an opportunity for the marginalized sectors in this digital age, a collaboration of the Ugnayan ng Pahinungód UP Open University and Concentrix Philippines resulted in the development of the Introductory Course on Contact Center Services (ICCS). This Massive Open Online Course (MOOC) focuses on developing effective online communication skills that will provide learners with competitive skills and knowledge for ICT-enabled and contact center services-related jobs. This course was offered to Grade 12 students for four weeks as part of their Work Immersion Program and as an innovative approach in equipping students taking the ICT Strand under the Technical-Vocational Livelihood Track with competencies that are relevant to the Business Process Outsourcing (BPO) industry.

Foundational knowledge of the English language and BPO-related skill development practices were integrated in the course modules and are offered in asynchronous mode. Given this setup, the effectiveness of this approach was assessed through self-efficacy assessments, and learners' performances in the course activities and requirements. This study used a quasi-experimental design. This method is particularly useful in identifying the causal relationship between an intervention and its outcome.

Pre-implementation and post-implementation assessments of self-efficacy of learners showed a general increase in confidence and mastery. A similar observation on increase was also recorded in course activities requiring basic grammar and language knowledge. Lastly, submission of course requirements that covered the course module application of skills was accomplished by the majority of the enrolled learners. These observations showed a general effectiveness of this specific approach: offering of MOOC as part of an immersion program.

Having the aforementioned results mean an opportunity to further look into MOOCs as tools for equipping learners with knowledge and skills. This is in consideration that existing assessment tools will remain and be further improved. Aside from that, the course can open doors for learners to take a closer look at pre-employment conversations and build initial rapport should they want to pursue the BPO industry.

A Study on the Digital Reading Profile of Citizens

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With the development of information technology, reading has entered a stage of intelligence, digitalisation and personalisation. New trends have emerged in the reading scene and reading styles of citizens. At the same time, society is facing a "deep reading crisis", and promoting deep reading has become a core task in the promotion of reading for all. User profiling technology can effectively describe the preferences of users. With the help of user profiling, we hope to discover the preferences of citizens in digital reading, including the frequency, persistence and depth of reading. We hope that user profiling will provide a more personalised service to readers, as well as a more informed supply decision for resource providers.

In order to obtain a reading profile of citizens, characteristics of citizens' reading need to be constructed, which are mainly based on users' behavior, such as the amount of reading and the persistence of reading. However, reading depth characteristics cannot be constructed directly by reading behavior. Traditional methods of measuring reading depth require readers to be measured after they have read. These methods are not widely available in an open reading environment. This paper therefore proposes a reading depth model based on the analysis of reading comments. The model uses data mining TF-IDF and Doc2Vec algorithms to learn representations of user reading comments and uses these representations to model the reading depth characteristics of citizens. We tested the model using reading review data from the platform, and the results showed that the model can evaluate the depth of reading of users.

We investigated the Shanghai Learning platform (www.shlll.net), which was built by the Shanghai government and aims to meet the learning demands of Shanghai citizens. Learning log data are taken from this platform, and then data cleansing and preprocessing are used for those datasets. We adopt the dataset to test our model.

1. We can analyse users' reading comments to obtain information on the representation of citizens' reading depth.
 2. We can obtain a profile of citizens' reading behavior by means of cluster analysis.
 3. There are significant differences in citizens' reading behavior in gender and age, and such differences show different reading needs.
1. The differences in reading behavior between citizens are linked to their gender and age. This link is reflected in the needs of citizens at different stages of their lives.

(Cont'd)

2. By organizing reading festivals and recommending new books, we can help the public discover more new reading objects, thus enriching their reading choices and guiding more people to participate in reading.
3. The findings will help stakeholders such as administrators, platform operators to understand real reading demand and interests of the citizens. The government can adjust investment of reading sources for the citizens. Platform Operators can use recommendation technology to make it easier for users to discover what they need.

The Project-Based Learning Approach in Improving Students' Understanding of Environmental Topics in Geography

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Project-based learning (PBL) is pedagogical technique that actively utilizes a twenty-first-century learning strategy. PBL improves students' problem-solving abilities and prepares them to handle difficulties in real life. It also teaches students to think computationally. The goal of the PBL strategy is to teach students how to manage their learning preferences more responsibly. The Gold Standard PBL paradigm, which consists of 7 components, was used by researchers to execute PBL in this study. Students will use all 7 of these components in their coursework to better comprehend environmental concerns. Each component of this approach embodies twenty-first-century learning qualities and serves as a guide for implementing PBL in the classroom. The 7 PBL components—significant content, a need to know, a driving question, student voice and choice, twenty-first-century skills, creativity, and reflection—that are used in this Gold Standard PBL model are based on the literature review. To complete the assigned assignment, students will use these 7 elements as a guide.

A one-group pretest-posttest design with 100 students ($n=100$) from form 3 (9th grade) was employed for this study. The students were chosen from a remote school on Malaysia's Penang Island. The exam results were used to determine the difficulties that students had in learning about the environment as part of the geography course.

Students previously had little idea what environmental concerns were about. They are happy with their understanding of environmental concerns following the completion of this research. Nearly 50% of students performed better on the post-test than they did on the pre-test, according to the findings. It revealed that the students' comprehension of the concept of the environment had grown from 15% to 20%.

In comparison to other teaching approaches like the traditional teaching style, which is teacher-centered learning, the PBL approach can increase students' performance, motivation, teachers' and students' engagement, and students' active learning during the teaching and learning process. Therefore, it is hoped that this research will benefit educators by helping them better understand how to correct students' misconceptions about environmental issues, as well as helping them understand each component of PBL and how to use PBL to make education more meaningful for students.

Are the Eye and the Voice Related in Cognitive Processing? Rethinking Pronunciation Teaching through Eye-tracking Research

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English language teachers have usually separated the teaching of reading from the teaching of speaking. By decoupling the two skills, we may have overlooked their potential synergy in affecting intonation. Visual reading involves turning words into sounds, whereas reading aloud involves scanning written words visually. This presentation aims to encourage the audience to reconsider this close relationship and think of how language tasks utilize the eye-voice coordination, if it exists.

This study compared the motion-by-moment eye-movement data collected from an EyeLink Portable Duo eye-tracker with the same participants' intonation changes. Ninety-six participants of different proficiency levels participated: 50 university students (high English proficiency) and 46 secondary school students (low English proficiency). All participants read aloud stimulus materials from a screen in a soundproof phonology lab. Using five sentence patterns (e.g., emotionally charged sentences and contrastive sentences), the researchers were able to assess the way in which syntax and meaning affect eye-and-voice (eye-or-voice) coordination.

(a) A series of correlation analyses and *t*-tests revealed that syntactic patterns affected the eye-voice coordination in different ways. (b) Different eye-movement data (e.g., fixation counts and duration) revealed different results. Overall, the eye and the voice were evidently involved in the reading aloud of certain sentence types but not others. The study will conclude with a note on how analysis can be further deepened.

The main problem in today's English language education is that teachers do not have tangible clues to indicate why poor speakers lack good intonation and why good speakers produce melodic speech. The phenomena of eye movements and intonation have been studied separately, but they have rarely been studied together. This study considers a simple yet intuitively sound hypothesis: how the eye and the voice may work together to produce effective intonation, and what that means for teaching.

Innovative Instruction to Motivate Students' Online Learning at Open University: The Example of a Child Psychology Course

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Due to the rapid digital transformation of education, open online programs at Open Universities have attracted more students to achieve sustainable educational development goals. However, different from traditional classrooms, online learning is largely limited by the online and distant learning environment; thus, how to engage and motivate students in online learning is critical. Based on Self-determination Theory, this case study aims to explore how online instruction motivates students and meets their learning needs. The example is a child psychology course at Open University of China.

This study used a qualitative methodological approach. Semi-structured interviews were conducted with 16 students who are taking child psychology course in the 2023 spring semester (87.5%, female). The age range of the participants was 20 to 50 years old. Students were asked which kind(s) of instruction met their learning needs and motivated them the most and why. Instructional strategies applied in the course by several instructors include design-based learning, creative problem solving, research-based learning, problem-based learning, and project-based learning. We used MaxQDA to categorize, code, and analyze the interview transcriptions. From the conceptual framework of self-determination theory, response transcriptions were examined by means of thematic analysis and coded with respect to needs for autonomy, competence, and relatedness.

The findings demonstrate that the students rate the innovative instruction as pedagogically effective. Generally, they think the innovative teaching creates an environment conducive to their learning and adapts to their learning needs. The results show that students are motivated in competence and relatedness psychological needs, but autonomy is less often mentioned by the participants. Further, the majority of the participants think problem-based learning and project-based learning are the most effective instructional strategies that motivate their online learning because the instructions give them a chance to transcend their existing educational practice into the project or problem and interact with their peers and instructors. We also found that collaboration among different instructors as a teaching group motivates students' online engagement because of different teaching styles.

This study, which explored innovative instructions that promote students' online learning motivation and meet students' psychological needs, contributes to theory and practice by expanding the understanding of online learning for adult students at Open University from an educational psychology perspective. Implications for online teaching

include providing more problem-based or project-based course design and reinforcing an online community of practice for students' sense of relatedness to the online learning environment.

On the Other Side of the Screen: Do Evaluators' Evaluations Match Teachers' Self-perceived Online Teaching Effectiveness?

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The synchronous online teaching environment is a common practice, but what counts as effective online teaching? Specifically, an online teaching environment creates an ambivalent state for evaluating online teaching effectiveness: teachers may feel confident about their teaching, but evaluators may not. This presentation raises the question of a virtual–real world divide: whether what is perceived as real matches other people's opinions on the other side of the screen.

This presentation discusses the research methods used in a systematically organized mobile-assisted language learning study that involved 14 pre-service English teachers over the course of a six-week teaching period, yielding 84 lessons for observations. Data-collection instruments included: (a) a TPACK-based questionnaire, (b) a TPACK-based observation scheme, and (c) evaluators' comments. Specifically, pre-service teachers used an online poetry app to teach English poems. The TPACK-based questionnaire was used to assess their self-perception. On the other side of the screen, external reviewers evaluated the teachers' online teaching based on the TPACK framework: the Technology, Pedagogy, and Content aspects of a lesson. To ensure fair judgement, two evaluators observed each lesson twice.

Although the 14 pre-service teachers thought they were competent at technology use, multiple regression analysis showed that pedagogy and technology both predict effective online teaching. Evaluators' written comments, coded using MAXQDA 2022, were primarily directed towards pedagogy and technology, with more emphasis on pedagogy than technology use. Despite this app being a content-driven app, many teachers reported feeling unsure how to teach English poems. Evaluators agreed that they did not sufficiently focus on content.

What is real does not always match with what is *perceived* as real, the “virtual-world divide” as suggested by this study: (a) Teachers may perceive themselves as having superior technological skills, but external evaluators in fact look beyond that when evaluating a lesson. This prompts us to think about how to define an effective online lesson based on these factors. (b) A lesson's content may be overlooked as the least important aspect when it is compared with “technology use” and “pedagogy”. Therefore, to evaluate effective online teaching, a balanced lesson observation scheme should be designed.

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