Contents

Message from the President

Professor CHEUNG Yan Leung Stephen
President, The Education University of Hong Kong

Welcome to the third International Conference on Learning and Teaching for Future Readiness (ICLT 2023). The theme of the Conference is "Learning and Teaching in the Eve of Metaverse".

As the largest provider of future educators and social leaders, we remain steadfast to our unique mission in teacher education, through ongoing enhancements to the quality of learning and teaching .

In 2015, our Centre for Learning, Teaching and Technology organised a conference on learning and teaching for colleagues and members of local universities to share their best teaching practices. In view of the positive feedback received, the Center decided to do the Conference annually. In an effort to engage more faculty members, researchers, practitioners and professionals in the higher education sector and to further promote exchange of innovative learning and teaching approaches, the Center expanded the Conference scale and organised the first International Conference on Learning and Teaching in 2020, which was a good start as it attracted around 700 local and overseas participants. The International Conference has now become a useful platform for local and overseas participants to share their insights and experiences, and students to learn from experts.

I am delighted that this year we are able to welcome participants in person and online.   We have invited four renowned experts as our keynote speakers, namely Dr Edd PITT of University of Kent, Professor Pierre DILLENBOURG of Swiss Federal Institute of Technology Lausanne, Professor Maiga CHANG of Athabasca University, and Dr Thomas DENEUX of CNRS & Paris-Saclay University.

Lastly, I would like to express my heartfelt thanks to the keynote speakers and the participants for their unfailing support, and wish you fruitful discussions and all the best. Thank you.

Message from the Vice President (Academic) and Provost

Professor LEE Chi-Kin John
Co-Chair, International Conference on Learning and Teaching for Future Readiness 2023
Vice President (Academic) and Provost, UNESCO Chair in Regional Education Development and Lifelong Learning
The Education University of Hong Kong

Thank you all for joining the International Conference on Learning and Teaching for Future Readiness 2023 both virtually and physically on 17-19 May 2023.

After almost three years in the pandemic, we can finally welcome students to return to the campus and have face-to-face lessons.   With the rapid changes in these years, educators are adapted to teaching in different modes and are ready for various challenges of the digital world, such as the emerging of Chat-GPT and other artificial intelligence-enabled generative tools.   The theme of the Conference this year, "Learning and Teaching in the Eve of Metaverse", allows scholars to consolidate and reflect on the lessons learned, as well as to find the way forward.   The Conference focuses on (i) Virtual Teaching and Learning, (ii) Metaverse Education, (iii) STEM Education, (iv) AI Education, (v) Gaming in Education, and (vi) Other Topics Related to Learning and Teaching. This year, we have received over 130 abstracts and papers in the said areas with focuses from early childhood education to higher education.   I look forward to hearing your presentations, sharing, ideas, insights, and hopefully we can work together in the near future.

We are honoured to have four experts to share with us the latest progress and insights. Apart from Dr Edd PITT and Dr Thomas DENEUX, who are joining us in person, we have Professor Pierre DILLENBOURG of Swiss Federal Institute of Technology Lausanne and Professor Maiga CHANG of Athabasca University. They will share with us on designing peer assessment, orchestrating a physical classroom, using ChatGPT in education, and teaching Artificial Intelligence to students.

Finally, I would like to express my appreciation to the guests, colleagues and students supporting ICLT 2023. My heartfelt gratitude goes to the Organising Committee, led by the Centre for Learning, Teaching and Technology (LTTC), Faculty of Education and Human Development (FEHD), Faculty of Humanities (FHM), Faculty of Liberal Arts and Social Sciences (FLASS), and Graduate School (GS), which make ICLT 2023 a success.   I hope you find the Conference fruitful and inspiring.   Thank you.

Vote of Thanks by the Co-Chair of ICLT 2023

Professor KONG Siu-Cheung
Co-Chair, International Conference on Learning and Teaching for Future Readiness 2023
Research Chair Professor, Department of Mathematics and Information Technology
Director, Centre for Learning, Teaching and Technology
The Education University of Hong Kong

The International Conference on Learning and Teaching for Future Readiness 2023 (ICLT 2023) will be launched with the theme "Learning and Teaching in the Eve of Metaverse" on 17-19 May 2023. This is the third International Conference, and with the continuous support of the Senior Management, Faculties, Departments, Graduate School, and Academic Support Units and all participants, the Conference has attracted presenters and participants from different regions. I would like to thank them for their contribution and unfailing support.

I am grateful for the participation of Dr Edd PITT, Professor Pierre DILLENBOURG, Professor Maiga CHANG, and Dr Thomas DENEUX as our keynote speakers to share their insights on future trends in their respective expertise areas. I would also like to express our deepest gratitude to the Programme Committee Co-chairs of ICLT 2023 – Dr Sidney CHENG, Professor Michelle GU, Dr Sammy HUI, Professor SI Chung Mou, Professor Sylvia TANG, Mr Roger WONG and Dr Bill YEUNG – and members of the Local Organising Committee – Mr CHING Chi Cheung, the principal of Chinese Y.M.C.A. Primary School, Mr CHU Tsz Wing, the chief headmaster of St. Hilary's Kindergarten and Primary Section, Mr Stanley KAM, the principal of HKSKH Bishop Hall Secondary School and the vice-chairman of The Hong Kong Association for Computer Education, and Mr Albert WONG, IT manager and teacher of Ying Wa College and the chairman of Association of IT Leaders in Education.

Furthermore, a round of applause should be given to the strand coordinators, Dr Eric CHENG, Dr CHIU Mei Choi, Dr CHOI Tat Shing, Dr Corey HUANG, Dr Raymond KONG, Dr Suria KONG, Dr R'BOUL Hamza, Professor SIN Kuen Fung, Dr SONG Yanjie, Dr SUN Daner, Dr Elson SZETO, Dr YIP Tak Ping and Dr Daisy ZOU, who have reviewed over 130 abstracts and full papers received for ICLT 2023. Special thanks also go to our colleagues from the Centre for Learning, Teaching and Technology (LTTC) for their tremendous efforts to organise such a smooth and informative Conference.

I wish you all a fruitful experience at ICLT 2023. Thank you.

Organising Committee

International Conference on Learning and Teaching 2023 Organising Committee

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Programme

Introduction

The International Conference on Learning and Teaching 2023 to be held from 17 to 19 May 2023 features four keynote speeches by Dr Edd PITT, University of Kent in the United Kingdom, Professor Pierre DILLENBOURG, Swiss Federal Institute of Technology Lausanne in Switzerland, Professor Maiga CHANG, Athabasca University in Canada, and Dr Thomas DENEUX, CNRS & Paris-Saclay University in France. Please visit our Conference website for more information: https://www.eduhk.hk/iclt2023/.

17 May 2023 (Wednesday) // 09:30 – 17:00 // Hybrid

Time	Programme			
Morning Session				
09:00 – 09:30	Registration			
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09:45 – 10:45	Keynote Speech 1 – Dr Edd PITT			
10:45 – 11:15	Break			
	Room 1	**Room 2**	**Room 3**	**Room 4**
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11:30 – 11:45	Session 1.2	Session 2.2	Session 3.2	Session 4.2
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12:00 – 12:15	Session 1.4	Session 2.4	Session 3.4	
12:15 – 13:30	Lunch			
Afternoon Session				
	Room 1	**Room 2**	**Room 3**	**Room 4**
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13:45 – 14:00	Session 5.2	Session 6.2	Session 7.2	Session 8.2
14:00 – 14:15	Session 5.3	Session 6.3	Session 7.3	Session 8.3
14:15 – 14:30		Session 6.4		
	Room 1	**Room 2**	**Room 3**	**Room 4**
14:30 – 14:45	Session 9.1	Session 10.1	Session 11.1	Session 12.1 (14:30-14:50)
14:45 – 15:00	Session 9.2	Session 10.2	Session 11.2	Session 12.2 (14:50-15:10)
15:00 – 15:15	Session 9.3	Session 10.3	Session 11.3	
15:15 – 15:30	Session 9.4			
15:30 – 16:00	Break			
16:00 – 17:00	Keynote Speech 2 – Professor Pierre DILLENBOURG			

18 May 2023 (Thursday) // 09:30 – 17:10 // Hybrid

Time	Programme		
Morning Session			
09:00 – 09:30	Registration		
	Room 1	**Room 2**	**Room 3**
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09:45 – 10:00	Session 13.2	Session 14.2	Session 15.2
10:00 – 10:15	Session 13.3	Session 14.3	Session 15.3
10:15 – 10:30	Session 13.4	Session 14.4	Session 15.4
10:30 – 11:00	Break		
11:00 – 12:00	Keynote Speech 3 – Professor Maiga CHANG		
	Room 1	**Room 2**	**Room 3**
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12:30 – 12:45		Session 16.3	Session 17.3
12:45 – 13:00		Session 16.4	Session 17.4
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Afternoon Session			
	Room 1	**Room 2**	**Room 3**
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14:30 – 14:50	Session 18.3 (14:30-14:45)	Session 19.3	Session 20.3 (14:20-14:35)
	Room 1	**Room 2**	**Room 3**
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15:20 – 15:35	Session 21.3 (15:30-15:50)	Session 22.3	Session 23.3
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Evening	Networking Dinner		

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19 May 2023 (Friday) // 09:30 – 13:00 // Hybrid

Time	Programme		
Morning Session			
09:00 – 09:30	Registration		
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09:45 – 10:00	Session 24.2	Session 25.2	Session 26.2
10:00 – 10:15	Session 24.3	Session 25.3	Session 26.3
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	Room 1	**Room 2**	**Room 3**
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11:00 – 11:15	Session 27.3	Session 28.3	Session 29.3
11:15 – 11:30		Session 28.4	
11:30 – 11:50	Break		
11:50 – 12:50	Keynote Speech 4 – Dr Thomas DENEUX		
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Timetable - Keynote Speech, Symposium and Parallel Session

17 May 2023 (Wednesday) // 09:30 – 17:00 // Hybrid

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1.2	**11:30-11:45**	Jack TSAO Vincent SIU	Student-as-Partners in Game Design for Teaching Citizenship in Higher Education	P 49
1.3	**11:45-12:00**	Lu HUANG	Increasing Students' Moodle Engagement Through Gamification and Storytelling	P 48
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6.3	**14:00-14:15**	Stephanie YOUNG	Is It Procrastination or Something Else? Exploring Cost-Value Perception in Undergraduates' Avoidance of Sustaining Feedback-Seeking	P 59
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7.1	**13:30-13:45**	Shuet Yan Vivienne LEUNG	Comparing the Effectiveness of Hybrid Versus Traditional Teaching and Learning in a Campaign Planning Course	P 23
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18 May 2023 (Thursday) // 09:30 – 17:10 // Hybrid

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19.1	**13:50-14:10**	Siu Wai WU	The Impact of the Epidemic on the Study and Growth of Primary School Students in Hong Kong
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21.2	**15:10-15:30**	Jiayang HUANG	Metaverse Enhanced Project-based Learning: Experiences from An Interdisciplinary University
21.3	**15:30-15:50**	Luyue ZHAI Rong WANG	Exploring In-service K-12 Teachers' Behavioral Intention of Utilizing Digital Games in the Classroom in China
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19 May 2023 (Friday) // 09:30 – 13:00 // Hybrid

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28.2	**10:45-11:00**	Linlin LIU	How EFL Learners' Enjoyment and Anxiety Would Affect Their Well-being in a Virtual Classroom: Adopting an Idiodynamic Approach	P 26
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Detailed Information of Keynote Speakers

Exploring the Potential for Technology Enabled Peer Assessment, Peer Feedback and Self-assessment

17 May 2023   I   09:45 – 10:45

Dr Edd PITT
Reader and Director PGCHE
Centre for the Study of Higher Education
University of Kent, UK

Abstract

How we design assessments and opportunities for feedback enactment are critical aspects of teaching practice. We know that assessment design offers a key point of leverage for enhancing education, as many students strategically focus on it. The challenge is how we create motivating, stimulating and challenging assessments which offer integrated and meaningful feedback. Feedback can be one of the most powerful ways of enhancing students' learning if students are given opportunities to seek out or use all available sources of feedback to improve. Designing opportunities into curricula for students to receive, interpret, and act on feedback can act as a bridge between the assessments students are completing and the teaching environment. With increasing workload pressures and conflicting agendas what if academics do not always have to be the source of this feedback or the ones making assessment judgements? In this keynote I will explore how peers can be active sources of feedback generation alongside making assessment judgments aligned to student performance and how this all can be usefully enabled by recent advancements in technology.

Biography

Edd is a Reader in Higher Education and Academic Practice and the Programme Director for the Post Graduate Certificate in Higher Education, in the centre for the study of higher education at the University of Kent, UK. Edd has recently been collaborating with Academics in the UK, Ireland, Hong Kong and Australia. His principal research field is Assessment and Feedback with a particular focus upon student's use of feedback. His current research agenda explores signature feedback practices, curriculum design principles aligned to assessment and feedback and the development of both teacher and student feedback literacy. His most recent publication was a systematic literature review of Assessment and Feedback research articles between 2016 – 2021, commissioned by Advance HE.

Orchestrating a Physical Classroom as a Digital System

17 May 2023   I   16:00 – 17:00

Professor Pierre DILLENBOURG
Associate Vice President for Education
École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

Abstract

Is a physical classroom so different from a space in the metaverse? Not completely! A classroom does constitute some kind of large digital system within a physical populated by bodies and objects. The input devices of this system are not a keyboard and mouse, but an entire classroom equipped with sensors. The output device of this system is not a screen but a set of digital elements distributed in the class. Input data are processed by multiple operators that aggregate, compare and visualize data. The resulting dashboards are used for monitoring the learners' progress in order to decide when and to whom to intervene. They are also used to compile data from the constructivist activities for supporting the debriefing phase, as well as to predict the completion time of an activity. Monitoring, debriefing and timing are central processes in classroom orchestration.

Biography

A former teacher in elementary school, Pierre Dillenbourg graduated in educational science (University of Mons, Belgium). He started his research on learning technologies in 1984. In 1986, he has been of the first in the world to apply machine learning to develop a self-improving teaching system. He obtained a PhD in computer science from the University of Lancaster (UK), in the domain of artificial intelligence applications for education. He joined EPFL in 2002. He has been the director of Center for Research and Support on Learning and its Technologies, then academic director of Center for Digital Education. He is full professor in learning technologies in the School of Computer & Communication Sciences, where he is the head of the CHILI Lab: "Computer-Human Interaction for Learning & Instruction". He is the director of the leading house DUAL-T, which develops technologies for dual vocational education systems. With EPFL colleagues, he launched in 2017 the Swiss EdTech Collider, an incubator with 80 start-ups in learning technologies. In 2018, he co-founded LEARN, the EPFL Center of Learning Sciences that brings together the local initiatives in educational innovation. He is a fellow of the International Society for Learning Sciences. He currently is the Associate Vice-President for Education at EPFL.

What You Want to Know About GPT: Basics, Experiences, and Opportunities

18 May 2023　I　11:00 – 12:00

Professor Maiga CHANG
Full Professor, School of Computing and Information Systems
Athabasca University, Canada

Abstract

Since OpenAI launched ChatGPT last November, it grabs everyone's attention. ChatGPT is built on GPT which stands for Generative Pre-trained Transformer. This talk will explain what is GPT with the basics and also share some experiences we have seen on the use of GPT/ChatGPT. At the end, the potential of using GPT/ChatGPT in education will be discussed.

Biography

Dr. Maiga Chang is a Full Professor in the School of Computing and Information Systems at Athabasca University, Canada. He is IEEE Senior Member. Dr. Chang has been appointed as an IEEE Computer Society Distinguished Visitor for 2023 to 2025 and also received Distinguished Researcher Award from Asia Pacific Society on Computers in Education (APSCE) in 2022. Dr. Chang is now Chair (2018~2023) of IEEE Technical Community of Learning Technology (TCLT), Executive Committee member of Asia-Pacific Society for Computers in Education (2017~2024, APSCE) and Global Chinese Society for Computing in Education (2016~2025, GCSCE), and Vice President (2022~) of International Association of Smart Learning Environments (IASLE). He is also editors-in-chief (2019~) of Journal of Educational Technology & Society (Open Access SSCI) and has given more than 135 talks and published more than 250 conference papers, journal papers, and book chapters.

Teaching How a Robot Learns: At the Crossroad Between AI Education and Metacognition

19 May 2023 I 11:50 – 12:50

Dr Thomas DENEUX
Research Engineer
Paris-Saclay Institute of Neuroscience
CNRS & Paris-Saclay University, France

Abstract

Artificial Intelligence and Machine Learning education are entering the classrooms. But what should be taught exactly about AI to primary and secondary school students? Rather than just manipulating a black box, we advocate that pupils should also open this black box, and understand how does AI work.

To this intention I will present the "AlphAI" resource to teach AI through the manipulation of a learning robot and through the detailed visualization of artificial neural networks and other AI algorithms. I will then present the result of experimentations led with primary school students (aged 8-11) where we taught AI also in order to questions the similarities and differences between AI and human, and help the pupils question their own learning strategies.

Biography

Thomas Deneux did his PhD in Artificial Intelligence at Paris' Ecole Normale Supérieure. He then led his postdoctoral research in Neurobiology, at the Weizmann Institute of Science in Israel and at the French Center for National Scientific Research (CNRS). This research was driven by the question of to what extent can brain activity be modelled and simulated.

Thomas now leads the Data Analysis team at the CNRS Paris-Saclay Institute of Neuroscience. There he conceived a learning robot to teach how Artificial Intelligence works and he has founded the Learning Robots company which commercializes this solution. He also new research in Science Education to question the benefits of teaching AI even from a young age.

Detailed Information of Symposium

ChatGPT: The Way to Pursue Boundless Knowledge?

18 May 2023 I 16:10 – 17:10

Mr CHU Tsz Wing
Chief Headmaster of St. Hilary's Kindergarten and Primary Section
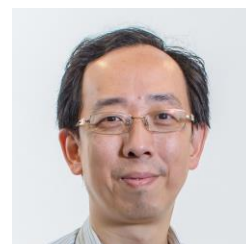
Mr Stanley KAM Wai Ming
Principal of HKSKH Bishop Hall Secondary School
Vice-Chairman of The Hong Kong Association for Computer Education

Mr Albert WONG Kin Wai
IT Manager & Teacher of Ying Wa College
Chairman of Association of IT Leaders in Education

Abstract

The recently released ChatGPT chatbot may offer a novel way to pursue knowledge in an open-domain, unrestricted manner. ChatGPT's ability to understand natural language queries and respond with coherent answers provides users with a conversational knowledge exploration experience. How can we use ChatGPT for education in the primary and secondary sector? Is this really a good way to pursue boundless knowledge?

Detailed Information of Parallel Sessions

Virtual Teaching and Learning

Adopting the Situated Cognition Theory to Develop Virtual Research Training Materials for the Enhancement of Postgraduate Students' Research Skills

19 May 2023 | 10:30-10:45

Kwai-sang LEE
The Education University of Hong Kong

Yanmin ZHAO
The Education University of Hong Kong

Sing-kai LO
The Education University of Hong Kong

Abstract
While most lessons shifted to synchronous online learning during the COVID-19 pandemic, the use of asynchronous online learning materials is becoming essential to supplement regular classes. To improve teaching effectiveness through virtual teaching and learning, this study is determined to develop a new set of self-paced online learning materials that focus on developing postgraduate students' essential generic research skills. It is hoped that the online materials can provide flexibility for research postgraduate students to direct their learning. Guided by situated cognition theory, the virtual materials are designed in a way to immerse learners in eLearning activities with content that mimics real-world situations. Interactive elements in each module, such as open-ended quiz questions, references to other online academic materials, and useful web materials, are integrated into the teaching packages. By clicking the H5P link, students will be diverted to Padlet, where they can start to post or review and respond to what others have posted. Academic staff and postgraduate students conducted pilot tests and provided valuable feedback to further enhance the training materials. The completed online modules have incorporated many interactive elements, including but not limited to videos, multiple-choice questions, audio notes, and audio tracks, which proved that these highly interactive materials stimulated students' learning motivation. Qualitative focus group interviews will be carried out after the completion of all modules.

Keywords: Postgraduate Students, Research Skills, Situated Cognition Theory, Virtual Teaching and Learning

Assessment of Creativity by Student-generated Virtual Reality World and Its Influence on Interactive Media Design Performance of Sub-degree Students

19 May 2023 | 09:30-09:45

Ho Lam LAU
UOW College Hong Kong

Ching Ching LAU
UOW College Hong Kong

Abstract
In the context of the increasing trend of applying virtual reality (VR) to education, current studies particularly focus mainly on the pedagogy aspect. In this study, A preliminary study was conducted to investigate the effectiveness of using a student-generated virtual VR world as the assessment of creativity and its effect on later interactive media design performance of sub-degree students. This study adopted a quasi-experimental design with pre-test and post-test groups across two cohorts of students in 2020-2021. A teaching experiment was conducted with 104 associate degree students majoring in creative media from a community college in Hong Kong who was required to develop VR worlds as an assessment task in a creative thinking course. The VR worlds were assessed based on the world complexity, characters involved, theme delivered, and interactivity between users and the world's characters. The VR worlds grade was correlated to the self-assessment of the learning outcomes (Creativity) of the programme and the student's performance in other interactive media design assignments later on. The primary conclusions reached were as follows: 1. Student-generated VR worlds have a moderately positive influence on the self-assessment of the learning outcomes (Creativity) of the programme. 2.The VR generation experience has a moderately positive influence on other interactive media design performance of students. As VR is a technical challenge to students, the experience of learning and applying VR enhanced their capability in tackling technological challenges, and thus enhanced their interactive media design skills and performance in later stages of their study.

Keywords: Case Study, Creativity Assessment, Interactive Media Design, Virtual Reality

Collective Efficacy Predicts Goal Achievement in Interprofessional Education: The Mediating Role of Online Team Satisfaction

19 May 2023 I 09:45-10:00

Fraide GANOTICE
The University of Hong Kong

John Ian Wilzon DIZON
The University of Hong Kong

Xiaoai SHEN
The University of Hong Kong

Qing HE
The University of Hong Kong

George TIPOE
The University of Hong Kong

Abstract
Collective efficacy has been linked with goal achievement in collaborative educational settings. However, little is known about the mechanisms establishing the relationship between collective efficacy and goal achievements, especially in interprofessional education (IPE) context where a high level of collective effort is important to achieve IPE goals. Further, given the paradigm shift in the delivery of education, understanding how the relationship between collective efficacy and IPE goal achievement online is crucial to enhance learning and collaboration in such a context. Drawing from the social cognitive theory and the Input Mediator Output framework, we examined how online team satisfaction could mediate the relationship between collective efficacy and IPE goal achievement. We used survey data collected from 230 Hong Kong undergraduate students belonging to different disciplines (e.g., Medicine, Pharmacy, Chinese Medicine, Nursing, Social Work, etc.) who were enrolled in IPE. Results show that collective efficacy, IPE goal achievement, and online team satisfaction are significantly correlated. Mediation analysis results through linear regression show a significant direct effect of collective efficacy on IPE goal attainment. Further, the indirect effect of collective efficacy on IPE goal attainment via online team satisfaction was also significant. Lastly, our results suggest that online team satisfaction fully mediates the link between collective efficacy and IPE goal achievement. Our findings highlight that online team satisfaction drives the relationship between collective efficacy and the achievement of IPE goals.

Keywords: Collaborative Education, Collective Efficacy, Interprofessional Education, Mediation Analysis, Online Team Satisfaction

Comparing the Effectiveness of Hybrid Versus Traditional Teaching and Learning in a Campaign Planning Course

17 May 2023 I 13:30-13:45

Shuet Yan Vivienne LEUNG
Hong Kong Baptist University

Abstract
The ongoing COVID-19 pandemic puts substantial parts of the traditional lecture to be replaced with online/hybrid formats to maintain social distancing. This study compares the effectiveness and efficacy of traditional versus hybrid teaching in a campaign planning course with the service-learning component. Collaborating with a real client of a social enterprise, who focuses on the well-being of young-old in the Hong Kong community, this study compares student work and assessments of learning experience in a campaign planning course from both hybrid and traditional sections by the same instructor at the undergraduate level. In both sections, students were asked to provide engaging content and activities to improve quality of life and well-being of the young-old group. They were required to interview the community users and hold workshops/seminars for them, allowing the community users to learn new skills such as video editing on mobile phone, online payment using mobile/online apps and what not. Results showed that students' work as measured by creativity, problem solving and communication skills, and grades is independent of the mode of instruction. The quality of work and participation may be increased in a hybrid mode of teaching. Students also reflected that they enjoyed the service-learning project, in which they were able to empower young-old to live a healthy, happy, and meaningful retirement life.

Keywords:
Campaign Planning, Effectiveness, Hybrid, Teaching and Learning, Traditional

A Design-Based Research on the Technology Adoption in Media Production Education

17 May 2023 | 11:45-12:00

Tobby KAN
Lingnan University

Abstract
Since 2019, the pandemic has been spreading around the globe. For media production (MP) subjects, it would be undesirable for tertiary education student to join the industry without substantial practical training at school. Funded by UGC, an inhouse 3D software called Cinesim is developed to provide a platform for users to practise MP-related skills and showcase their creativity. The concept behind comes from social constructivism theory of learning by Vygotsky. He explained that learners should take an active role in constructing their own meaning and understandings of the subject they take part in. As a design-based research, Cinesim will be used to assess how computer software can be embedded into MP education. Around 40 students enrolled in an undergraduate module called "storytelling and storyboarding" will be invited to use Cinesim to finish their final project, which is a storyboard. Authentic data from mixed method will be collected quantitatively and qualitatively and the research can evaluate how Cinesim can contribute to their learning, such as usefulness of the software and artifact comparison with the previous conventional storyboard drawing. Meanwhile, this research is going to understand students' acceptance in using technology in education with Technology Acceptance Model (TAM). It provides a theoretical framework to systematically evaluate users' willingness to accept the software, and thus further initiate can take reference to and understand how the technology can be designed to attract students to use.

Keywords: Design-based research (DBR), Media Education, Social Constructivism Theory of Learning, TAM, VTL

The Effectiveness of Online Complementary Programmes: A Case Study of Non-credit Bearing Courses in Hong Kong

19 May 2023 | 10:00-10:15

Joseph C H SO
The Hong Kong Polytechnic University

Noble LO
The Hong Kong Polytechnic University

Karly CHAN
The Hong Kong Polytechnic University

Wilson KWAN
The Hong Kong Polytechnic University

Abstract
This paper examines the supplementary courses offered in a Hong Kong higher educational context, focusing on the discernible impacts of a shift to digitally-mediated learning in the context of the Covid-19 pandemic. The specific context is the Complementary Studies Programme within a local university offering a wide range of degree and sub-degree programmes. The study interrogates several successive academic years (from year 2017 to year 2022) of quantitative data and gathered 228 courses (118 face-to-face and 110 online courses), relating to student enrolment, student attendance, and student satisfaction. Key questions informing the analysis engage with learner preferences about online or face-to-face learning in the case study learning context, to the nature and extent of relationships between mode of study and reported student experiences, with a view to considering how student needs might best be met on this module in the post-pandemic digital future. The research finds broad parity between offline and online study experiences and preferences, while noting that there is a need to foster student engagement, not least with university quality processes. Recommendations are made to bolster the provision: these include the development of ongoing formative assessment points built into the online course presentation, and also for a reconsideration of the importance of capturing students' qualitative feedback about the courses and their contextual experiences parallel to this. This is of especial relevance when transitioning in terms of mode of study.

Keywords: Higher Education, Hong Kong, Non-credit-bearing Course, Online Learning, Pandemic Response

Enhancing Student Learning Experience Through a Blended Learning Platform in Textile and Fashion Design

17 May 2023   I   14:00-14:15

Sheng QIU
The Hong Kong Polytechnic University

Shouxiang JIANG
The Hong Kong Polytechnic University

Abstract
The advancement of information and convenience of the Internet have promoted the growth of online-based teaching, interactive functions and resources. Participants can participant in interaction, learning, discussion and access anytime and anywhere without being limited by time and space. It not only time-saving and cost-saving, but also improves students' interest in learning. The traditional teaching mode needs to be gradually replaced by more diverse modes. The project aims to use interactive pedagogies such as a blended learning platform in the teaching and learning activities of textile and fashion design creation to enrich undergraduate students learning experience and develop generic skills. The proposed the "three-stage asynchronous" mode of blended flipped classroom. It makes full use of innovative technical platform such as hybrid learning app of Internet to fulfil the design of various integrated instructional activities so as to realize the blended flip of instructional and learning activities. Learning outcome assessment and survey on blended learning have evaluated the effectiveness of the outcome and the impact on students' learning experience and outcomes. The result shows that after full participation in and successful completion of the subject, students could be able to improve self-study ability, demonstrate the professional skills and knowledge, broaden students' horizons and gain the knowledge, as well as master the skills and technologies of textile and fashion design.

Keywords:
Blended Learning Platform, Interactive Pedagogies, Textile and Fashion Design Learning

Evaluating the Learning Analytics Tool (Behaviour Analytics) for a RPg Course

18 May 2023   I   12:30-12:45

Kendall YAN
Hong Kong Baptist University

William CHEUNG
The Education University of Hong Kong

Lisa LAW
Hong Kong Baptist University

Abstract
This pilot study aims to evaluate a Moodle plugin named "Behavior Analytics" through an investigation of the learning patterns of two Research Postgraduate (RPg) classes i.e. one class with n = 40 and the other one with n = 90 respectively for a mandatory course of Teaching University Students in AY2022/23. This course is designed to prepare RPg students to take up undergraduate teaching assignments. This study investigates the differences of the learning pattern between a small and a larger class size with the same teaching resources uploaded in the Learning Management System (LMS). With the collaboration of two universities in Hong Kong, the said Moodle plugin was installed and instructors can access the learning analytics of their students on Moodle with easy-to-understand visualization. The analytics inform instructors on (i) how resources are being used by students; (ii) the learning behaviour of individual students (anonymously or named) and in groups; (iii) comparing the learning progress among students at predefined levels; (iv) the relationship among different items in the course (v) identifying inactive students. The hypothesis made for this study is that students from a larger class size tended to use Moodle teaching resources more often for preparing their assignments when compared with those from the smaller class size as indicated from the weak student relationships found in the learning analytics. This tool of "Behavior Analytics" helps to examine this hypothesis. The functionality in the "Behaviour Analytics" plugin will also be reviewed for further improvement.

Keywords: Behaviour Analytics, Data Visualisation, Learning Management System, Moodle, Student Clustering

Future Readiness, Expanded Media and Value-Added

18 May 2023   I   14:30-14:45

Charlie REIS
Xi'an Jiaotong-Liverpool University

Yu WANG
Xi'an Jiaotong-Liverpool University

Abstract
This paper will discuss how we have enhanced continuing professional development of staff at a transnational university in China to highlight the value of assessments on an accredited programme for staff development, a PGCert resulting in a Postgraduate Certificate and Fellowship in the Higher Education Academy in UK. The enhancement of professional development comes through a multi-media approach to leveraging assessments for pedagogical publication under the philosophy of non-disposable assessments (NDAs) as a model of teaching and assessment for engagement and student-centered learning. A focus on re-use of assessment content adds value and enhances employability as they are using assessment content for professional purposes for the students on the programme. The paper will cover the professional development context at the University, specific digital and non-digital outputs for both educational development unit (EDU) and staff including an EDU-hosted podcast and multimedia dissemination of teaching stories, online and onsite support for staff in amplifying their teaching reflections on PGCert assessments, including design for web 2.0 for professional learning specific to pedagogical publishing for academics in a variety of disciplines through the University's virtual learning environment, as well as staff feedback, initiative results, some of which will be digitally distributed to participants and our own future readiness. Implications of this paper will be presented for educational developers, higher education administrators, senior managers, and academics.

Keywords: Blended Learning, Digital Learning, Non-disposable Assessment, Student Engagement, Teacher Professional Development

How EFL Learners' Enjoyment and Anxiety Would Affect Their Well-being in a Virtual Classroom: Adopting an Idiodynamic Approach

19 May 2023   I   10:45-11:00

Linlin LIU
The Education University of Hong Kong

Ju Seong LEE
The Education University of Hong Kong

Abstract
Although there has been research into the dynamic nature of second language (L2) enjoyment and anxiety in the classroom, little is known about how these two L2 emotions interact in an online class. The objective of this research is to investigate dynamic changes in L2 enjoyment and anxiety in an online EFL (English as a Foreign Language) classroom by employing an idiodynamic method. Seven Chinese EFL university students participated in four 20-minute online class sessions. When each session ended, they rated their L2 enjoyment and L2 anxiety on a minute-by-minute basis while watching their performance on video. Their self-rated ratings throughout four sessions were calculated and analyzed to examine the variability in the relationship between L2 enjoyment and L2 anxiety. Stimulated recalls and semi-structured interviews were also used to identify the factors that influence the fluctuations of both emotions. The results show that in at least one online session, six out of seven online participants (85%) demonstrate a significant correlation between L2 enjoyment and L2 anxiety. However, most students' levels of L2 enjoyment and anxiety are highly intricate as a result of a complex influencing factors including learner-internal factors (e.g., L2 confidence and topic familiarity) and learner-external factors (e.g., teacher/peer support and classroom environment). These findings demonstrate that EFL students are experiencing an emotional roller coaster in their online classroom environment and that sufficient instrumental and pedagogical support is required.

Keywords: Anxiety, Enjoyment, Idiodynamic, Online Learning, Second Language Learning

Instructional Design of Virtual Internship

17 May 2023 I 15:00-15:15

Qian WANG
Xi'an Jiaotong-Liverpool University

Jian CHEN
Xi'an Jiaotong-Liverpool University

Juming SHEN
Xi'an Jiaotong-Liverpool University

Jin ZHAO
Xi'an Jiaotong-Liverpool University

Abstract
Can learning that requires real-world experience be delivered virtually? During COVID, a course leader applied self-directed learning principles and the action learning framework to design a mandatory virtual internship at a transnational university in China. The instructional design focused on facilitating virtual communities of inquiry and learners' self-reliance and autonomy. This study used a mixed-method research design to investigate the effect of the instructional design. A cohort of 85 postgraduate students completed a survey questionnaire and permitted the study to examine their written reflective reports—the large portion of their summative course assessment. The survey data illustrated the effects of self-directed learning abilities with technology on the multidimensional virtual community of inquiry. The study also conducted semi-structured interviews with eighteen students to identify narratives illustrating how self-directed learning with technology interacted with social, cognitive, and teaching activities. Lastly, an equal number of high-performing and low-performing students' reflective reports were selected and reviewed to understand students' achievements (or lack of it) on learning outcomes. Our findings contribute to understanding students' virtual internship experiences and their performances. It offers insights into the challenges and opportunities of supporting virtual internships. One implication for educators is to consider the implementation of a student-instructor learning community in the virtual learning space and foster instructor-industry collaboration to create a joint assessment.

Keywords: A Community of Inquiry, Action Learning, Self-directed Learning, Virtual Internship

Investigating Student Teacher Self-Regulated Learning During Reflective Video Incorporated Professional Development

17 May 2023 I 11:30-11:45

Xiaojing WENG
The Chinese University of Hong Kong

Oi-Lam NG
The Chinese University of Hong Kong

Abstract
Virtual teaching and learning practices are becoming the new normal in higher education, including programs for student teachers. To become successful in an online learning environment, learners need to enhance their self-regulated learning (SRL) competence. Based on social cognitive model, SRL can be organized into three phases: forethought, performance, and self-reflection. Videos used for reflective learning have been proven to be effective at developing student teachers' various professional competencies regarding content knowledge, pedagogical knowledge, and affective-motivational characteristics. Although SRL is a crucial generic competence that could contribute to the development of student teachers' professional competencies, few studies have examined how SRL progress interacts with video incorporated learning environments. To fill the research gap, we conducted a case study of a video incorporated professional development program with 22 year-four mathematics student teachers in the education institution. The program lesson plans, student teachers' teaching videos, self- and peer written reflections, and interviews were collected to triangulate data. Content analysis was adopted as the data analysis method. We identified the SRL development of student teachers in the designed program in the phases of program forethought, performance, and self-reflection. Our study suggested that reflective video integrated professional development programs can help cultivate mathematic student teachers' SRL in certain ways.

Keywords: Reflective Learning, Self-regulated Learning, Student Teachers, Videos, Virtual Teaching and Learning

Learning Offline, Online and in Mixed Mode: A Case Study Exploring Student Perceptions of an Event Management Course

18 May 2023   I   15:20-15:35

Kimmy CHENG
Hong Kong Baptist University

Abstract
Students worldwide became online learners by necessity. From face-to-face to screen-to-screen and mixed mode, many institutions saw this sudden transition as a watershed moment for the development of virtual learning and teaching environments. However, insufficient attention has been paid to the experience offered to the end users. The objective of this study is to qualitatively analyze student perceptions about their learning journey. For this exploratory study, qualitative analysis of students' reflective writing and results of course feedback questionnaires over the past four years were used. A total of 123 students participated. The study adopted a thematic analytical approach to analyze the data. Results demonstrate the importance of balancing the online and offline elements in students' learning. Real-time and real-life learning environments should be encouraged to improve the interaction between students and instructors. However, the number of e-learning tools used in a course should be minimized. Novelty plays a significant role in students' learning as it was shown to have unleashed students' creativity in the work they submitted. In addition, personalized learning should be emphasized, particularly by encouraging students to revisit and review the content at their own pace and in their preferred learning space. Students are the major stakeholders in the learning journey. The instructor should acknowledge, validate, and respond to the perceptions of students and redesign the online and offline elements of the class to create the best student learning experience. This study showed that online and offline learning should go hand in hand to become real blended learning.

Keywords: Blended Learning, E-learning, Hybrid learning, Mixed-mode, Student Perceptions

Promotion of Neuroanatomy Education in Nursing Curriculum with a Mobile App

18 May 2023   I   15:05-15:20

Ming-Wai HUNG
The University of Hong Kong

Hang-Mee YEUNG
The Chinese University of Hong Kong

Abstract
In the nursing curriculum, students need to understand the cranial nerve functions such as eyeball rolling and the consequence of the nerve damage such as facial paralysis. However, it is always a challenging part when they are learning all the cranial nerve functions and related disorders due to the complexity of their organizations inside a human brain. To facilitate their learning, we have developed user-friendly and accessible mobile app namely 'CART (Cranial AR Teaching)' to enhance the understanding in the organizations and functions of human cranial nerves under augmented reality (AR). With the use of AR app, various cranial nerve dysfunctions have been discussed in the laboratory sessions. Two short quizzes have been distributed to students before and after the use of the AR app. Using the paired t-test, the results of the quizzes have demonstrated the app have strengthened the knowledge on cranial nerves. Moreover, compared with the previous cohort using t-test, the mid-term exam and final exam results have demonstrated that the knowledge on cranial nerves have improved with the use of the app. After the use of the app, a questionnaire has been distributed to students. According to the results of the questionnaire, students agreed that the AR app have aroused their learning interests. The use of AR app has been beneficial to the students by promoting the student-centered learning. The laboratory sessions with the use of the app also enabled the students to build up their knowledge through constructivist approach.

Keywords: Augment Reality, Cranial Nerve, Mobile App, Neuroanatomy, Student-centered Learning

Re-designing Higher Education: Teacher Perceptions of Recorded Lessons in the Post-COVID Era

19 May 2023 | 11:15-11:30

Noble LO
The Hong Kong Polytechnic University

Alan WONG
The Chinese University of Hong Kong

Abstract
For educators in Hong Kong's higher education systems, the post-Covid-19 transformation from in-person to hybridised classroom environments has dramatically altered the nature of teacher responsibilities. From face-to-face lectures and tutorials to a combined on and offline solution, the role of recorded lessons in supporting student learning outcomes is increasingly important to meeting various needs and learner goals. This study has critically explored the challenges and opportunities affecting teacher inclusion of recorded lectures in English language learning experiences. Through a conceptual review of prior literature, key advantages such as knowledge reinforcement, student engagement, and asynchronous reviewing were identified as positive contributions from recorded lessons. However, the additional workload, the variation in student attention, and the inconsistent skills and practices required for teacher accommodation of recorded lessons create challenges and potential inadequacies in the delivered content. To assess such experiences, a comparative review of the perspectives of 40 educators from 8 distinct higher education institutions in Hong Kong was conducted. This thematic analysis revealed that the gap between expected student benefits and educator observations has a dilutive effect on the overall advantages of recorded lessons. At the same time, the ability to support a broader range of student learning needs and the asynchronous nature of such experiences were identified as core benefits that continue to be supported through various in-classroom strategies. Improved technological support that transfers responsibility for student access and lesson posting away from individual educators to a formal support team was identified as an essential antecedent to future recorded lessons.

Keywords: Digital Learning, Hybrid Classroom, Pedagogy, Recorded Lessons, University Education

Reflections on the Development of a Virtual Learning Accessibility Toolkit

17 May 2023 | 13:45-14:00

Gloria Yuet Kwan MA
The University of Hong Kong

Cherry CHOI
The University of Hong Kong

Patcy P S YEUNG
The University of Hong Kong

Abstract
A toolkit on virtual learning accessibility has been developed to provide systematic and practical guidelines and resources on creating accessible digital educational materials and virtual learning environment. It aims at empowering university staff members and students to promote accessible virtual teaching and learning in university education. This presentation will first briefly introduce the toolkit content, then, we will mainly share our reflections on the process and experiences of developing this toolkit. We will contextualize our reflections from multiple perspectives. Besides self-learning digital and web accessibility techniques, the toolkit development process involves mindset shift, changes in the habit of handling project files and data, learning how to communicate accessibility ideas to fellow colleagues and students and community members, and increased motivation to the share ideas of accessibility and disability with fellow colleagues and students. Our reflections also aim to raise the awareness of the importance of collaboration of different stakeholders to promote an accessible virtual teaching and learning environment. For example, besides university units and members, vendors and creators of e-learning tools in the market play essential roles in promoting accessible virtual learning. Overall, such experiences provide us with insights into the development of follow-up initiatives that aim to co-create the accessibility of virtual teaching and learning in university education.

Keywords: Accessibility, Diverse Learning Needs, Disability, Ecological Model, E-learning

Strategic Development of Virtual Teaching and Learning (VTL) for Pre-and in-service Teacher Professional Development During the COVID-19 Pandemic

18 May 2023   I   14:50-15:05

**Kevin Wai Keung KAM**
The Education University of Hong Kong

Frank Shun Shing PAO
The Education University of Hong Kong

Abstract
At the Education University of Hong Kong (EdUHK), Block Practice (BP) provides students with opportunities to teach and to be engaged in the life and work of the school. Under the new educational normal during the pandemic, three teaching modes, including authentic, simulated, and virtual modes of teaching, had been developed. To support student teachers in conducting virtual teaching, the School Partnership and Field Experience Office (SPFEO) of the EdUHK has promoted the integration of Virtual Teaching and Learning (VTL) into BP since the academic year of 2021/22. The project aims to promote student teachers' self-regulated, self-directed, and self-paced learning in VTL. Therefore, the project team produced exemplary teaching videos by inviting seasoned in-service teachers, including awardees of innovative teaching awards, to share good practices of VTL in the local school context. Additionally, an excellent e-Teaching Student Award was offered to student teachers to recognize the good practice of VTL videos. Finally, three VTL practice seminars, which in-service teachers and university tutors facilitated, were organized to share and exchange distinguished VTL ideas with pre-and in-service teachers. The result of the project from both the quantitative and qualitative approaches revealed that both student teachers and university instructors believed the measures could not only have promoted student teachers' self-regulated, self-directed, and self-paced learning in VTL, but also stimulated their interest and addressed their educational needs in teaching and learning. The findings of this study can add to the literature on professional development and student learning from teaching practice amid the COVID-19 pandemic.

Keywords: Block Practice, COVID-19, Professional Development, Virtual Mode of Teaching, Virtual Teaching and Learning
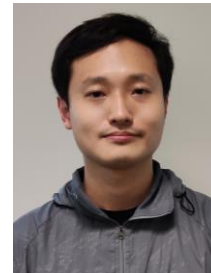
Students Thrive as Partners in Virtual Learning

17 May 2023   I   14:45-15:00

Yilin TANG
The University of Hong Kong

Maggie Yue ZHAO
The University of Hong Kong

Abstract
Despite the calls to incorporate student-staff partnership in 21st-century teaching and learning, the notion of students as partners in virtual learning remains under-studied. The present study aims to examine how undergraduate students engage as partners for co-designing and co-creating virtual learning in a newly developed positive education programme WeThrive. WeThrive is a university-wide initiative designed to equip students with a set of intellectual, intrapersonal, and interpersonal capabilities for nurturing student positive strengths and whole-person development. Student partners actively engaged in multiple carefully designed pedagogical activities in WeThrive, such as role play, virtual gallery, online collaborative learning, and online student tutoring. Results from quantitative and qualitative investigations showed that students as partners were effective in knowledge co-creation under the virtual learning environment. Taking the virtual gallery as an example, it has been shown to serve as an immersive space for fostering students' engagement and reflective learning. Additionally, the online student tutoring process enhanced student partners' knowledge comprehension and their cognitive, emotional, and social skillsets, such as leadership, creativity, emotional resilience, and communication skills. As to the practical implications of the study for teaching and learning, evidence-based insights are provided on the effective approaches to nurturing student partnerships online. As the Covid-19 pandemic has encouraged a variety of creative learning activities to be put forward in the virtual space, our study pioneered an innovative student-staff partnership practice and provided a meaningful example for educators and researchers to engage student partners cognitively, emotionally, and behaviourally in the virtual teaching and learning environment.

Keywords: Higher Education, Student Partnership, Student Thriving, Virtual Learning

The Beauty of Mixing It Up? Comparing Online and Hybrid Modes of Peer Mentoring for Disadvantaged Youths in Hong Kong

17 May 2023 | 14:30-14:45

Henry Tsz-Yeung FUNG
Hong Kong Baptist University

Abstract
Service-Learning is an educational approach that integrates community service into learning objectives. It has emerged as a valuable tool for addressing new and pressing educational needs, and for overcoming the unique challenges of class suspension posed by the COVID-19 pandemic. Partnering with Tung Wah Group of Hospitals (TWGHs), the researcher carried out two service-learning projects in his Interpersonal Communication course by inviting his students to serve as peer mentors and offer communication training workshops for disadvantaged secondary school students. The first project, with 31 student mentors and 29 mentees, was conducted in pure online mode in Fall 2021; while the second project, with 30 student mentors and 30 mentees, was conducted in hybrid format in Fall 2022. In this study, the pedagogical design and implementation of these two service-learning projects will first be introduced. Based on the qualitative data collected from two post-intervention focus group interviews (N=12), the strengths and weaknesses of both modes of peer mentoring will then be compared. Given the prevalent use of conferencing technologies in higher education, hybrid peer mentoring is projected to become the best mode of peer mentoring due to its ability to mitigate the scheduling and transportation woes of face-to-face meetings, as well as compensate for the loss of physical interaction from the pure online mode.

Keywords: Higher Education, Hybrid Peer Mentoring, Online Peer Mentoring, Service-learning, Youths

The Efficacy of Educational Apps for Teaching in the Humanities: Adopting the PICRAT Model

17 May 2023 | 12:00-12:15

Lixun WANG
The Education University of Hong Kong

Timothy W TAYLOR
The Education University of Hong Kong

Abstract
The use of educational apps in teaching the humanities in higher education is increasingly widespread and commonplace. Understanding the efficacy of using such apps, however, presents a challenge due to the proliferation of countless different apps, each with unique and overlapping functions, often used in courses with very different content and objectives. The PICRAT model provides a framework to compare the educational efficacy of integrating various education apps, even when used in a variety of different courses. This paper presents the results of a project conducted at the Faculty of Humanities at a Hong Kong university. The objective was to develop examples of effective technology-enhanced teaching in the humanities that could be shared as models with other instructors teaching in the humanities. The PICRAT framework focuses on the students' and teachers' roles in using technology. All the project courses aimed to change the students' role from one of more passive to more active and ultimately more creative engagement; and to advance the teachers' use of technology from merely replacing traditional pedagogy to providing a more amplified and, whenever possible, transformative approach to its use. Examples from three of the twelve project case studies will be described; teacher and student perspectives of the efficacy of using the apps will be analyzed; and the PICRAT model will be used to analyze the overall conclusions that can be drawn from the range of diverse exemplars developed in the project.

Keywords: Blended Teaching, Educational Apps, Humanities, Online Teaching, PICRAT

The Relationship Among Shenzhen Junior High School EFL Students' Motivation, Language Anxiety and Language Learning Outcomes in the MALL Context

17 May 2023 ㅣ 14:45-15:00

Yuxiu DAI
University of Leeds

Abstract
The use of mobile-assisted language learning (MALL) has been promoted for some time to improve the language learning results of students. However, research into the effects of MALL on students' motivation, language anxiety, and real accomplishment in MALL context is scarce. This study used mixed methods to investigates Grade 7 and Grade 9 students in a Shenzhen state-run junior high school about their language learning motivation, anxiety, and the relationship between their language learning outcomes in the MALL context and considered the distinction between grades and genders as well. Results showed that young adolescents' motivation to study English was influenced favorably by their parents but adversely by the pressure of the senior high school entrance exam; students who are facing the high school entrance examination suffer more from anxiety and have lower motivation than those in the first year of junior high school; and the results demonstrated little difference between genders. Implications for language planners, policy makers, teachers, and curriculum designers are discussed. The status of English needs to be replanned; the spread of EFL needs to be modified and developed; pedagogical methods of teachers need to be changed to reflect these positive attitudes and motivations on students' achievement and lessen the anxiety of language learning for junior high school students; findings should be incorporated into course curricula design to improve students' motivation for English learning. Future research directions are also suggested.

Keywords: Language Anxiety, Language Learning Motivation (LLM), Learning Outcomes, Mobile Assisted Language Learning (MALL), State-run Junior High Schools in China

Virtual Learning Space for Health and Physical Education

17 May 2023 ㅣ 11:30-11:45

Roy Ching-yat CHAN
The Education University of Hong Kong

Abstract
The COVID-19 pandemic has changed local schools' learning and teaching environment permanently. Due to the suspension of face-to-face classes, shifting to online or blended courses became the new normal. To support teachers under the "new normal", our team developed an online teaching platform named "HPE Virtual Learning Space". The platform was developed based on the Flipped Classroom pedagogical approach and Reciprocal teaching style. Skills and demonstration videos of different levels with related rubrics are uploaded to the e-platform by teachers, allowing students to self-learn while watching the videos and reading the rubrics. The platform's functions include student's personal video uploads, while providing avenues for both self and peer feedback. Teachers are able to give comments and adjust teaching plans based on the evaluation reports generated by the platform. A quantitative study was conducted to analyze the effectiveness of the platform. The sample (N=53) consisted of EdUHK students in year 2 and 3 within the physical education programs. Based on year 3 users, the main key findings with significant differences (p<0.05) include, extended learning, motivation, and skill proficiency. As for year 2 students, the main key findings include, peer interaction, skill knowledge, and improved feedback process. When comparing the test score differences between year 2 and 3, scores for interaction and engagement, clearer rubrics, and increased practice time were higher in year 2. For future development, the platform will be used in other practical courses of EduHK and introduced to in-service PE teachers.

Keywords: Flipped Classroom, Online Teaching Platform, Physical Education, Reciprocal Teaching Style, Virtual Learning

Metaverse Education

Applications of the Metaverse in Education – A Systematic Review of Studies from 2013-2022

17 May 2023 I 11:15-11:30

Yanjie SONG
The Education University of Hong Kong

Yin YANG
The Education University of Hong Kong

Lei TAO
The Education University of Hong Kong

Abstract

This study aims to understand how the metaverse has been used in educational settings from 2013 to 2022. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was adopted. A total of 22 refereed journal articles were selected. Metaverse applications in education were classified and challenges were explored. First, two categories of the applications of the metaverse were classified: metaverse as a target for development and standalone virtual worlds in which various educational activities can be conducted; and metaverse as a tool for solving problems and performing educational tasks that are difficult to solve in real life settings. Second, challenges in terms of these two categories were discussed. Regarding applications of the metaverse as a target, (a) few platforms have enabled the users to act as avatars that mirror their own behaviours; (b) rare custom tools have been developed to meet the instructional design needs; (c) most platforms have required VR headsets, increasing the threshold for participation; and (d) privacy and ethical issues remain. Regarding applications of the metaverse as a tool, (a) scant studies have examined how social interactions and collaboration occur; (b) few platforms have provided a truly immersive learning environment in which the avatars can mirror real users' behaviours and interact with other avatars and virtual objects; (c) few studies have presented the instructional design; and (d) most of the studies are small-scale pilot studies. The implications of metaverse in education were discussed.

Keywords: Applications of the Metaverse as a Target, Applications of the Metaverse as a Tool, Avatar, Metaverse in Education, Systematic Review

Assessing the Evolution of Metaverse Research: A Scientometric Review Approach Using CiteSpace and R

17 May 2023 I 11:45-12:00

Juan GAO
The Education University of Hong Kong

Lan YANG
The Education University of Hong Kong

Lorna UDEN
The Education University of Hong Kong

Abstract

Metaverse as a virtual world is attracting rapidly increasing attention worldwide. This study examines the status of metaverse education using a scientometric review approach. The authors analyzed 138 published metaverse research articles from 1996 to 2022 in the Web of Science database using CiteSpace and R-tools. The results showed a 2.6% annual growth rate in metaverse research, with China, the USA, and England being the top three productive countries. The top three prolific authors were Kim J., Demian P., and Zhen Liu, and the top three institutions were Bundeswehr Munchen University, Yale University, and Kwangwoon University. The analysis of representative keywords showed that media richness, user-created content, virtual world project, social space, human factor, metaverse retailing, user innovation, self, and research framework were among the most frequently used keywords from 2007 to 2022. The analysis also revealed emerging keywords such as student, emotion recognition, motivation, perceived usefulness, attitude, and psychology since 2022. The study identified self, experience, environments, and emotion as the top four research themes showing a significantly increasing trend from 2007 to 2022. The authors highlight the importance of metaverse education as an essential theme to be examined and discussed in the upcoming LCLT2023 conference. The implications of metaverse education will be discussed in the presentation. These findings provide insights into the current status and future directions of metaverse education research.

Keywords: Evolution, Metaverse Education, Metaverse Research, Scientometric Analysis, Visualization

Gallery Walk as an Alternative Teaching and Learning Method to Student of Healthcare Studies

17 May 2023 I 11:15-11:30

Mimi Mun Yee TSE
Hong Kong Metropolitan University

Chun Wai TAM
Hong Kong Metropolitan University

Tak Wang LIU
Hong Kong Metropolitan University

Siu Hang LEUNG
Hong Kong Metropolitan University

Abstract

Compared with traditional teaching and learning method such as lectures and tutorials, gallery walk is considered as an alternative method. Gallery walk is suggested as an interactive teaching and learning way to student and teacher, including spatial, visual and bodily engagements. Students taking master course in Smart Aging are invited to join the gallery walk. They required to form into groups and put up a poster for 15 minutes presentation and 5 minutes Q&A. They are encouraged to move freely in the classroom to go over the poster and wrote down their questions and comments for other classmates. All of them have no prior experience in gallery walk. Upon completion of the gallery walk exercise, 23 of them response to the evaluation questionnaire "Questions of Gallery Walk" using a google form. There were six questions and students have to rate from 1 (disagree) to 5 (agree) for each question. The questions mainly focused on the activeness, involvement and learning satisfaction of gallery walk. Students were very satisfied on the gallery walk and they gave positive feedback on this learning process like they can interacted with their fellow classmates and teachers, and thus, get a deeper understanding of the topics. Importantly, gallery walk has offered the concept of "equality" to student and teacher which changed the fixed positions of knowledge giver and receiver. Therefore, gallery walk is not only a way to enhance learning quality but also exploring a new understanding of learning and teaching to both teacher and students.

Keywords: Activeness, Gallery Walk, Involvement, Learning Satisfaction

Innovating Social Sciences Learning Experience Through Gather Town

19 May 2023 I 11:00-11:15

Nicole Kwan Yee LAI
The University of Hong Kong

Abstract

The presentation will illustrate how the experiential learning team at the Faculty of Social Sciences innovated the learning experience for undergraduate students by creating active learning opportunities in online internship job fairs, poster and video presentations, or even a remote office with community partners. When the COVID-19 pandemic forced Higher Education to quickly adapt to online teaching and learning, most of us moved to video chat platforms to continue learning. Yet, taking one step further to experiment and create an interactive a/synchronous learning space with Gather Town brought people closer together, adding a bit of human touch when everyone learns from their own screen. It also facilitated better peer learning and enhanced the quality of constructive feedback. Teaching staff, community partners, and students came together to co-construct learning and the spaces where the learning experience empowered them to create meaningful human connections. As the pandemic starts to fade and educators are now trying to rethink teaching and learning, the authors are also interested in discussing the benefits or concerns of further exploring the possibilities of metaverse education. How common and easy would it be to create a simple metaverse learning space? Would metaverse in education continue to develop and grow? Would students get bored with it? What is it like in the future education landscape?

Keywords: E-Learning, Internship, Learning Experience, Metaverse, Social Sciences

Towards Developing a Metaverse of Student-created Virtual Heritage Environments

19 May 2023 | 10:00-10:15

Jeremy T D NG
The University of Hong Kong
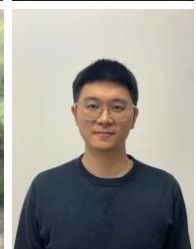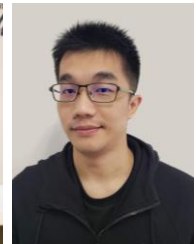
Xiao HU
The University of Hong Kong

Zuo WANG
The University of Hong Kong

Ying QUE
The University of Hong Kong

Ruilun LIU
The University of Hong Kong

Abstract

In the age of metaverse, immersive technologies still prevail wide-ranging sectors due to their unique affordances in prompting users' immersion, interactions, and imagination. Thanks to the democratization of technologies, virtual reality (VR) has become more affordable and accessible, with applications in both formal (e.g., classrooms) and informal learning contexts. VR has also been adopted across diverse domains including cultural heritage education, where it helps preserve and promote socio-historically significant heritage sites. Shifting from a viewer- to creator-centered paradigm, the digital maker activity of creating VR content has been shown conducive to not only learners' understanding of content knowledge (e.g., values of cultural heritage) and acquisition of 21st century skills (e.g., digital literacy skills), but also demonstrating real-world impacts of producing user-facing VR environments. Taking advantage of system log data, learning analytics can automatically capture VR creation and viewing behaviours, for systematically examining their learning processes and outcomes. This paper will report the deliverables of a multi-year design-based research (DBR) project towards developing a metaverse of student-created virtual heritage environments. In several DBR iterations, our project team 1) designed and developed a low tech-barrier pedagogy and an online platform for VR creation, 2) explored the benefits and challenges of VR creation in cultural heritage education, 3) examined students' needs for learning analytic support for VR creation, and 4) evaluated the effectiveness of student-created virtual heritage environments via multi-modal of data sources. Results are expected to yield theoretical, methodological, and practical contributions towards metaverse in education and cultural heritage digitization.

Keywords: Cultural Heritage Education, Learning Analytics, Maker Activity, Metaverse, Virtual Reality

STEM Education

Designing and Implementing an Inquiry-based Virtual Interactive Learning Environment for Physics Curriculum Enabled by Mobile Technologies Supported

19 May 2023 | 09:30-09:45

Manpreet SINGH
The Education University of Hong Kong

Daner SUN
The Education University of Hong Kong

Abstract
The Hong Kong Education Bureau (EDB)'s "Bring Your Own Device (BYOD)" has prompted primary and secondary schools to invest in iPads and Chromebooks in an effort to provide every student with a web-connected computing device. This scheme allows students to use their own mobile computing devices for personalized learning activities, with aim of developing knowledge understanding and generic skills required in the curriculum syllabus. However, the effective integration of pedagogy, e-learning tools, and the required learning objectives from syllabus has been the main issue in schools because of different factors from schools, teachers, students and parents. To address the issue, this study designed and implemented an inquiry-based virtual learning environment enabled by PhET platform supported by mobile technologies at a senior secondary school in Hong Kong. The HKDSE Physics topic "Gas Laws" was taught in this study in which 21 pupils conducted simulated experiments and engage in inquiry-based learning by summarizing their findings in graphs. Their understanding was measured by their ability to solve numerical problems based on Gas Laws with little or no guidance. The Simulated platforms, besides promoting students deeper conceptual understanding, also helps in the implementation of student-centered learning with hassle-free activities to explore the abstract topics of Physics understandably and enjoyably. As in real physics experiments, the students revel in determining cause-and-effect links and guide their learning through research. The goal is to improve their abilities rather than replace them so they can confidently and competently undertake physics experiments with real equipment.

Keywords: Conceptual Understanding, Inquiry-based Learning, Mobile Learning, STEM Education, Virtual Simulations

Entrepreneurship Education Within STEM Education

17 May 2023 | 15:00-15:15

Hannah Y H WONG
The University of Hong Kong

Cecilia K Y CHAN
The University of Hong Kong

Abstract
There is an increasing awareness and interest in entrepreneurship education within Science, Technology, Engineering and Math (STEM) education, particularly the engineering discipline, with a noticeable rise in engineering entrepreneurship education within higher education institutions. Innovation has become a focus of STEM education, and the inclusion of entrepreneurship education in STEM promotes technology transfer to the market with aims to increase opportunities and competitiveness. STEM entrepreneurship education also fosters entrepreneurial spirits in individuals in response to the transition to a knowledge-based economy. However, a question remains on what should be taught. Existing literature offered suggestions to various learning outcomes, such as developing creativity, innovation, entrepreneurial skills, marketing, business management, and entrepreneurial intentions, yet entrepreneurship education in higher education institutions were not meeting student expectations. In a survey to engineering students at a public university in Hong Kong, 154 completed surveys were collected from first and final year students. The survey investigated student perceptions on entrepreneurship education and their perceptions of the importance of competencies to a successful entrepreneur. A majority of the engineering students believed that that entrepreneurship should be taught in universities, and that entrepreneurship education is useful for students even if they never plan to start their own business. Moreover, findings revealed eight competencies which students perceived were important to entrepreneurship. The results offered implications for engineering entrepreneurship education and STEM entrepreneurship education curriculum design and educational practices, with a particular highlight on embedding competencies development in course or programme objectives.

Keywords: Entrepreneurial Competencies, Entrepreneurship Education, Higher Education, STEM Education

Evaluation Index of STEM Curriculum Quality in Chinese Primary School

18 May 2023 I 12:30-12:45

Chang YUAN
Xi'an Jiaotong-Livepool University

Abstract
STEM education has been introduced to China during the past few years and has resulted in increased attention, and even incorporation into national strategic development policy. Although the implementation of STEM programs in Chinese primary schools is now expanding quickly, the creation of associated evaluation systems has lagged behind. The purpose of this article is to create an effective set of criteria for assessing the quality of STEM curriculum in Chinese elementary schools. In this study, the interview method, Delphi method, and literature research approach were all employed. The exact procedure was as follows. First, data on the development of STEM education and the state of curriculum quality assessment in China and overseas were collated. Then interviews were conducted with Chinese primary school STEM teachers. By Using the collated literature and interview results, the first-level indicators were splitted out. Next, questionnaires were given to the experts and summarized to obtain a new version of the evaluation indicator system, which was then fed back to them, and opinions were again sought through the questionnaires. Finally, the indicators at all levels were determined and all important expressions were adjusted in accordance with the experts' recommendations. And a new version "Quality Evaluation Indicator System for Primary School STEM Courses in China" was derived. The article's limitations and the prospects for future research are offered in the end to serve as a reference for future studies on the evaluation of STEM curriculum quality in primary schools.

Keywords: Curriculum Evaluation, Evaluation Index System, Primary School STEM Curriculum, STEM Education

Improving Students' Global Problem-solving Skills Through STEM and English Language Teaching Integration

18 May 2023 I 12:45-13:00

Quynh Thi Nhu TO
Lao Cai High School No.3

Abstract
Nowadays, students face many challenges when solving global problems because they lack life skills, especially problem-solving skills, creativity skills, critical thinking skills and English skills. The purpose of the study is to show that STEM and English language teaching integration is one of the great ways to inspire young learners learning English, but also encourage and empower them to develop life skills. This research described a way of integrating STEM into the language teaching process following project based learning (PBL), and it was designed with the implementation of qualitative and quantitative research methods. Participants, 80 non-English major students, were asked by surveys to know their needs for learning STEM projects in English before and after this project. STEM English projects applied which were aligned with the content subjects that students learned in Vietnamese with balancing the learner's language proficiency and the material input because of academic language (Science, Maths, Biology, Chemistry, Physics, Computer Science). As a result, the integration of STEM and English language teaching improved students' language skills and gave students the chance of using knowledge of other disciplines in English courses and developed students' 21st century skills significantly. This research can be an inspiration for both English teachers and STEM teachers to apply various approaches in their teaching processes and be accepted as an example of the contribution of STEM to the English language teaching process. This study proved that teaching STEM English is one of the great ways of promoting young learners to solve global issues.

Keywords: PBL, STEM education, The 21st Century Skills

Investigating the Effects of Inquiry-based STEM Learning on Student Learning Engagement in Junior Secondary Biology Curriculum

18 May 2023 | 10:00-10:15

Minjie GU
The Education University of Hong Kong

Abstract

This mixed methods research examined the effectiveness of inquiry-based 6E STEM learning in enhancing students learning engagement in biology class in a junior secondary school in Mainland China. The researcher first integrated the 6E learning cycle, STEM and inquiry-based learning, into the junior grade-one secondary biological curriculum. 6E learning cycle is an inquiry-based learning process including Engage, Explore, Explain, Engineer, Enrich, Evaluate. It provides teachers and students with a detailed inquiry procedure under the cross-subject situation between science, technology, engineering and mathematics. This teaching and learning strategy helps jump students' mind out of the regular classroom, and students were allowed to tackle with real-world authentic questions by making respiratory system models. In the trial, nearly 180 students from three natural classes conducted a quasi-experiment. One group using traditional teaching was the control group, and the other two groups were intervention groups taught by different teachers. Students' learning engagement would be assessed by questionnaire. Chosen students would participate in student interviews. Chosen teachers would take part in classroom observation and teacher interviews. This study tried to find out whether and how inquiry-based STEM learning can influence students' learning engagement. The results showed that the 6E STEM learning was effective in increasing students' learning engagement. Among them, the Engineer phase in the 6E learning cycle provided a central role in improving students' learning engagement. The 6E STEM learning cycle, because of its emphasis on "design" and "inquiry", made behavioural engagement quickly stimulate emotional engagement and cognitive engagement.

Keywords: Biology, Inquiry-based Learning, Learning Engagement, STEM

The Mediating Role of Self-Efficacy in the Associations Between Collaboration, Reading, School Funding, and Mathematics and Science Teachers' Feedback Practices

18 May 2023 | 09:45-10:00

Jinxin ZHU
Hong Kong Baptist University

Abstract

Teachers' feedback has a large positive effect on students' learning. However, many past studies have documented teachers' unsatisfactory feedback practices. As such, there is a strong need to improve teachers' feedback practices, but how teachers' feedback practices can be facilitated remains an open question. Guided by the social cognitive theory, this study examined the direct and mediating effects of self-efficacy on teachers' feedback practices. The hypothesized model was tested using a two-level SEM on a representative sample of teachers who were eligible to teach mathematics or science to 15-year-old students in 19 societies from PISA2018 study. The results show that self-efficacy has a strong (medium-to-large) direct and mediating effect, collaboration has a close-to-medium total effect (both at the teacher and the school levels), and reading has a small-to-medium indirect effect (at the school level) on teachers' feedback practices. Also, professional development in assessment has a small effect, and the percentage of funding from the government shows a negative effect on teachers' self-efficacy at the school level. Hence, stakeholders can facilitate teachers' feedback behaviors by various self-efficacy enhancing activities including collaboration and reading. Besides engaging teachers in professional development programmes, school leaders and policymakers should also support teachers to put what they learned from the professional development programmes into practice. Finally, schools with more funding from the government may pay more attention to enhancing teachers' self-efficacy. Future studies can address the limitation of a limited sample by including teachers from different school levels, of different subjects, and from more countries.

Keywords: Collaboration, Mathematics or Science Teacher, Reading, Self-efficacy, Teacher Feedback Practice

Nature of Technology Elements in the Undergraduate STEM Curricula: A Curriculum Proposal

17 May 2023 I 14:45-15:00

Ka Lok CHENG
The University of Hong Kong

Abstract
This conceptual paper argues the necessity of including Nature of Technology (NOT) elements in the undergraduate STEM curricula to prepare graduates for the Industry 5.0 era. After a preliminary consideration of the current positioning of STEM disciplines, particularly the societal expectations on the graduates of these disciplines, the features of Industry 5.0 will be summarized from the documents of key international organizations. Considering the divergence between the current disciplinary positioning and the upcoming societal changes, we will examine the new demands posed to the STEM degree programmes due to the required perspectival changes, particularly the qualities required for a human-centric future designed to be resilient and sustainable. Subsequently, it would be reasoned that introducing the NOT elements in the curricula can help prepare a workforce that is Industry 5.0-ready through an enhanced understanding of how technology is situated in its academic and societal contexts, the development of technology, and the possible impacts of technology to the individuals and societies. Having established the need for the inclusion of NOT elements, the curricular and pedagogical arrangement necessitated will then be outlined, and the implications for further curriculum development and research are to be stated in the final parts of this paper. The current article is expected to spark an in-depth discussion regarding how STEM-related undergraduate curricula should be designed and organized.

Keywords: Curriculum development, Higher education, Industry 5.0, Nature of Technology, STEM disciplines

Scaffolding Young Children's Computational Thinking in a Technology-mediated Classroom

18 May 2023 I 12:00-12:15

Xinyun HU
The Education University of Hong Kong

Yutong LIANG
The Education University of Hong Kong

Abstract
Educators increasingly view computational thinking as a fundamental competency that is aligned with science, technology, and engineering (STEM) academic success. Accordingly, teachers must provide opportunities to support their children's computational thinking during the STEM learning process. Although research has shown that computational thinking (CT) can enhance learning processes and outcomes across traditional subjects or learning domains, less is known about how teachers scaffold children's CT in a technology-mediated learning context. This exploratory study examined how a teacher's actions and technologies impacted the CT of three children (6 to 8 years old). Seven weekly videotaped 90-minute sessions of project-based activities, yielded 4,842 turns of talk (2,974 by children). Statistical discourse analysis revealed these results. After a teacher command, the children more often executed a sequence of actions leading towards solution, but less often showed problem understanding. After a teacher's open question, children were more likely to offer logically organized ideas. After a teacher's rhetorical question, they more often continued to search for information around the issue. When engaged in 3D printer activities, they more often logically organized ideas but less often showed problem understanding. Hence, it became apparent that educators should judiciously use teacher talk coupled with technology to scaffold and encourage the use of CT process in project inquiries.

Keywords: 3D Printer, Computational Thinking, Early Childhood Education, Teacher Talk, Technology

Secondary School Students' Experience of Learning STEM Using Technology in an Open Natural Laboratory: The Case of Nepal

18 May 2023   I   10:15-10:30

Parbat DHUNGANA
The Education University of Hong Kong, Kathmandu University

Chi Chiu CHEANG
The Education University of Hong Kong

Abstract
Research to match students' preferences for STEM pedagogy is expanding internationally, but less in the global south. The pedagogy and tools scaffold the learning challenges and facilitate learners in attaining the achievement zone through the development zone. The sociocultural situatedness, curriculum, perceptive ability of learners, and pedagogy are instrumental in maximizing learning. This study investigates Nepalese students' (grade 8) learning experiences for an experimental pedagogy for science lessons that use data loggers tailored to the curricular aims in an open natural place. It followed a sequential mixed-method approach in general and design-based research that guided the intervention. 312 students participated in the intervention. Their pre- and post-learning experiences and attainment of lessons were obtained through questionnaires and observations; a selective interview followed to understand the patterns in the survey. An equivalent pre- and post-survey were also administered among the students with their regular lessons. Despite having low confidence in using technology, students had high aspirations to use technology for learning. The intervention grew learners' confidence in technology-enhanced learning. Learners taking the experimental pedagogy increased confidence in learning science and a positive attitude. However, learners equally valued the ongoing narrative approaches. The intervened pedagogy significantly improved learners' science process skills (self-reported), whereas there was no difference in knowledge and understanding compared to the ongoing pedagogical approach. These findings add to the international literature on STEM pedagogy development; it suggests new pedagogy and pedagogic changes should align with the ongoing practices, which makes pedagogy a subject of continued audit and research.

Keywords: Open Natural Laboratory (ONL), Pedagogy, STEM Education, Technology Enhanced Learning Environment (TELE)

STEM Education in a Liberal Arts University: Hands-on Experiments to Improve Students' Learning Motivation, Problem-Solving Competence and Learning Achievement

19 May 2023   I   09:45-10:00

Helen Hongyan GENG
Lingnan University

Abstract
Lingnan University is a liberal arts university which hosts non-science majors only. To cultivate students' whole-person development, the university implements a Common Core science course, which is a requisite to every undergraduate. However, many students are not confident in (even fear of) science courses. To enhance students' learning motivation, based on extensive communications and discussions with students, this project employs hand-held air meters, via which students measure the air quality data by themselves (i.e., STEM education or hands-on experiment) and work on the topics they are interested in (e.g., Does incense burning affect the air quality of my home?). This project has been running for two semesters, with 51 students from various backgrounds (i.e., different year of study, major, etc.) joining the projects. Likert scale online questionnaire and focus group interview were conducted to collect students' feedback. Our data reveals that (1) compared with male students, female students demonstrated higher achievement on STEM education, (2) low performing students were motivated to a greater extend as compared to high achievers, (3) technical support on the use of the air meter is an essential to maintain students' quality learning. By exposing students to the "real-world" issues, the implementation of STEM education enhances students' interest in science, improved their problem-solving competence and learning achievement.

Keywords: Hands-on, Learning Motivation, Liberal Arts, STEM

Structural Topic Models for Exploring Formative Assessment in Mathematics Education

18 May 2023 I 12:15-12:30

Yanxin SHAO
The Education University of Hong Kong

Lan YANG
The Education University of Hong Kong

Abstract
Formative assessment (FA) plays an essential role in evaluating students' learning progress and helping teachers adjust instructional strategies to meet their students' needs. Although FA has been extensively studied in educational research, there have been considerably fewer investigations on its implementation in STEM education. In this study, we aim to investigate the current status of FA implementation in mathematics education and research trends from 2007 to 2022, particularly regarding technology-enhanced FA. We employed the Structural Topic Model (STM) as a powerful approach to conduct content analysis. STM was used to categorize hundreds of literature based on their abstracts and provide organized topics with indices of topic coherence and exclusivity for researchers to make professional decisions on suitable topic numbers. This study used the STM approach to examine the current status of FA implementation in mathematics education based on 341 studies, according to the PRISMA review flow. After comparing coherence and exclusivity results, we selected a more suitable model with 18 topics. Next, we examined technology-enhanced FA publications among these topics. Three topics (16.7%) explicitly included technology. One topic with 14 papers reflected that technology facilitates FA in mathematics education. In contrast, the other two topics, with 26 papers, reported on the role of technology in assisting mathematics educators in developing innovative instructional strategies and FA activities. The presentation will introduce key research designs and findings of these technology-enhanced FA in mathematics and their implications.

Keywords: Formative Assessment, Mathematics Education, STEM, Structural Topic Modeling, Technology-Enhanced Formative Assessment

Supporting K-12 STEM Teachers with Professional Development Programs: Evidence-based Practices in the East and the West

19 May 2023 I 10:15-10:30

Biyun HUANG
The Chinese University of Hong Kong

Morris Siu-Yung JONG
The Chinese University of Hong Kong

Yun-Fang TU
Fu Jen Catholic University

Abstract
Teachers play a crucial role in science, technology, engineering, and mathematics (STEM) education and are recognized as the essential school-related factor that influences talent development. Professional development programs are thus widely believed to be paramount in supporting the success of STEM education. For the purpose of borrowing good practices from the East and the West, the present study reviewed journal articles published in the last fifteen years to understand the commonly adopted professional development formats and the effects of the varied formats on teachers' knowledge and perceptions. The results indicated that most in-service teacher professional development programs adopted workshop plus follow-up formats. The follow-up often consists of weekly reflection meetings, online learning communities, or coaching. Several studies reported positive effects regarding the influences of the programs on teachers' knowledge and perceptions. Through a scoping view of the studies with positive effects, strategies for promoting successful professional development are summarized. It is found that empowering teachers in the process of self-improvement, enabling them to share voices, and taking ownership of professional development programs are important in designing successful professional development programs. The present study also summarizes the challenges in implementing STEM initiatives and teachers' needs. This study has important implications for the design of future STEM professional development programs to better support in-service teachers.

Keywords: Evidence-based Practices, Scoping Review, STEM, Teacher Professional Development

Undergraduate Mechanical Design Education via a Virtual Interactive Platform

18 May 2023 I 09:30-09:45

Molong DUAN
Hong Kong University of Science and Technology

Gao LOU
Hong Kong University of Science and Technology

Stanley Y Y LEUNG
Hong Kong University of Science and Technology

Abstract
Modern engineering education faces the core difficulties in delivering thousands of years of continuous innovations with a relatively short one-semester lecture. This difficulty is particularly outstanding in undergraduate mechanical design courses, as the students need to learn and practice various mechanical components and manufacturing processes in a short time. To address this issue, this work aims to establish and exploit a virtual interactive platform to help students quickly enhance design experiences by learning, evaluating, sharing, and recycling mechanical designs. The established virtual platform contains classical designs delivered in lectures, important designs in local and global histories, modern designs in different fields, as well as the students' own designs. The platform is also used for group-based design review sessions and collective design debugging during the lecture. Through a virtual design expo open to the public, the platform also helps showcase the student designs to their family members and potential recruiters. The platform is established via a combination of a commercial online virtual platform Spatial and a computer-aided design software Fusion 360, so that the students have professional tools to evaluate the different levels of details in the design. Corresponding teaching activities are constructed to ask the students to locate, understand, and differentiate the critical mechanical components, which enhances students' design experience. The platform is evaluated with surveys to quantify its contributions to students' understanding of mechanical design concepts and components. Its effectiveness is also assessed with quiz scores of controlled and experiment groups of students (with and without access to the virtual platform, respectively).

Keywords: Mechanical Design Education, Undergraduate STEM Education, Virtual Interactive Platform

Understanding and Enhancing the Development of Students' Leadership Skills Self-Efficacy in Engineering Education

17 May 2023 I 15:15-15:30

Katherine K W LEE
The University of Hong Kong

Cecilia K Y CHAN
The University of Hong Kong

Abstract
Leadership skills are a key holistic competence for students' all-rounded development and future-readiness, recognized also in the criteria of engineering accreditation bodies including the Hong Kong Institute of Engineers. These skills enable young engineers to solve problems, work effectively with others, manage interdisciplinary teams, and so on; it is thus vital that educational institutions proactively facilitate the development of their students' leadership abilities. This includes students' self-efficacy (SE) – an individual's beliefs and perceptions about their own effectiveness and competence – which has important implications for motivation, effort, and resilience, and in turn also performance and learning outcomes. Applications of SE to competencies development have so far been limited; to thus gain insight and enhance efforts in the latter, this presentation shares details and findings of a research project on the development and formation of engineering students' leadership skills SE, and how these self-beliefs further impact engagement in leadership opportunities. Drawing on data from reflections and individual interviews with engineering students at a university in Hong Kong, six case studies are presented to illustrate the key elements and experiences that influence students' leadership skills SE and how, including sociocultural challenges faced by women navigating leadership opportunities in a male-dominated field. Based on the findings, recommendations for enhancing both students' development of and confidence in their leadership skills will be raised. This includes the need to provide support and training for students to engage in constructive self-reflection, to give useful peer evaluations to one another, and to engage effectively in collaborative learning environments.

Keywords: Leadership Skills, Holistic Competencies, Engineering Education, Higher Education, Self-efficacy

Working in the Guangdong-Hong Kong-Macao Greater Bay Area: Hong Kong Science, Technology, Engineering and Mathematics (STEM) Undergraduates' Intention and Concerns

17 May 2023   I   14:30-14:45

Zhi Hong WAN
The Education University of Hong Kong

Chi-Kin John LEE
The Education University of Hong Kong

Zhenzhou ZHAO
The Education University of Hong Kong

Abstract

The development of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) is a significant national strategy raised in China's 13th Five-Year Plan announced on 7 December 2016. Innovation and Technology (I &T) is a key direction in the development of the entire GBA and Hong Kong. To realise the vision of building a globally competitive I&T hub in the GBA and accelerating the I&T development in Hong Kong, it is necessary to strengthen the bilateral flow of the four key I&T resources (i.e., talent, capital, information and technologies) within the GBA, in which talent is the most important. Based on the well-established Theory of Planned Behaviour, this project conducted a large-scale survey to explore the intention of STEM undergraduates to work in the GBA and the major factors influencing their intention. 890 final-year STEM undergraduates from seven universities in Hong Kong participated in this survey. The findings revealed significant differences in STEM undergraduates' intention to work in other cities and the GBA between the local and non-local students. Local students had a significantly higher intention to work in Hong Kong than in other cities in the GBA. On the contrary, non-local students had similar intentions to work in Hong Kong to other cities in the GBA. Structural equation modelling analysis indicated that students' perception of personal value, significant others, and internal conditions were the significant factors facilitating STEM undergraduates to work in the GBA. At the same time, their concern about external conditions significantly constrained their intention.

Keywords: Guangdong-Hong Kong-Macao Greater Bay Area, STEM Undergraduates, Work Intention

AI Education

AI and Education: Using AI to Detect Mindset States of Students Through Facial Expressions and Computer Logging Data

17 May 2023 I 14:00-14:15

Cheng WANG
The Hong Kong University of Science and Technology

Chung-Yan FONG
The Hong Kong University of Science and Technology

Xin GUAN
The Hong Kong University of Science and Technology

Xiaolong CHEN
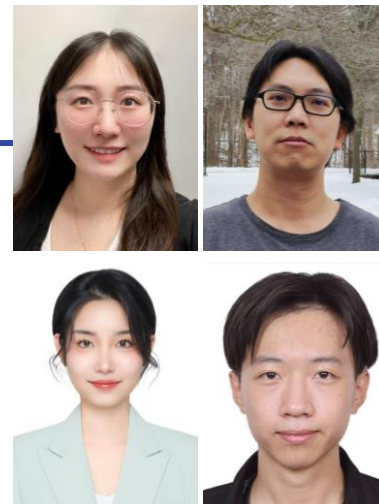The Hong Kong University of Science and Technology

Dit-Yan YEUNG
The Hong Kong University of Science and Technology

Tai Kai NG
The Hong Kong University of Science and Technology

Abstract
In this study we investigate the feasibility of using machine-learning algorithm to identify students' mindset through facial expressions and computer logging behaviours in two online courses offered to gifted students in the Hong Kong Academy for Gifted Education. The chosen mindset we studied are concentration, motivation, engagement, perseverance, and self-initiative. The input data are facial expressions (observed by a computer camera) and computer logging data during the students' study. The machine learning model we employed is the Recurrent Neural Network (RNN). We wish to see whether machine learning can predict correctly the mindsets of students from data logs and facial inputs. The input data (facial expression) is categorized according to existing research on the relationship between facial expression, emotions and the five states of mind and the computer logging data is categorized to reflect the actually learning behavior of students in the online courses. A pre-class survey is used to determine students' mindset states and the RNN is trained to see whether it can correctly reproduce the survey results from the input data. Our study, if successful broaden the horizon for future applications of AI to help students learn and develop better through identifying their mindset. We shall report our preliminary result of this study in this presentation. This project is done in collaboration with Hong Kong Academy for Gifted Education and the Hong Kong Applied Science and Technology Research Institute.

Keywords: Artificial Intelligence (AI), Facial Expression, Logging Behaviour, Mindset States, Online Course

Artificial Intelligence Text and Image Generation for Student Co-creativity Within Higher Education

17 May 2023   I   14:30-14:45

Jack TSAO
The University of Hong Kong

Collier NOGUES
The Chinese University of Hong Kong

Abstract
Recent advancements in Artificial Intelligence (AI) deep generative modelling for writing and image synthesis, with digital tools such as OpenAI's GPT-3 and DALL-E-2, Midjourney, and Stable Diffusion have extraordinary implications within the cultural arts and literary domains. Reviewing the relevant literature within higher education reveals emerging concerns about the technology's impact on student plagiarism and academic honesty while threatening pre-existing definitions and conceptions of originality and creativity. This paper aims to make a case for embracing AI text and image generation technologies in transforming the possibilities for pedagogy, curriculum, and assessments and facilitating higher-level order learning in developing future readiness competencies such as critical thinking, communication skills, mental flexibility, and digital literacy and collaboration. We illustrate the pedagogical possibilities by presenting a case study of a Creative Writing programme using text and image synthesis tools, participated by undergraduate and postgraduate students from the University of Hong Kong and the Chinese University of Hong Kong. Drawing on Jacques Ranciere's politics of intellectual emancipation, we analyse the reflections, interviews, and creative graphic fiction generated by the students, together with teacher observations. We highlight how the co-creation process with AI deep generative modelling applications is an immersive learning process and productive in the development of future-ready graduates. The findings have implications for guiding higher education in enhancing teaching and learning by reconfiguring outdated practices and leveraging advances in big data and machine learning for student-centred and future-orientated learning.

Keywords: AI Co-creativity, Creative Writing, Generative Pre-trained Transformer (GPT), Student Future Readiness, Text-to-image Generation
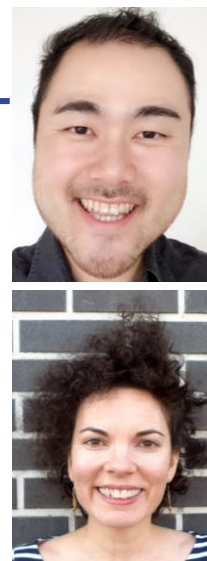
Building a Collaborative Community for Enhancing Artificial Intelligence Applications in Higher Education

17 May 2023   I   13:30-13:45

Paul LAM
The Chinese University of Hong Kong

Andy WONG   **Wikie CHAN**
The Chinese University of Hong Kong   The Chinese University of Hong Kong

Abstract
AI brings opportunities to disrupt traditional teaching practices and administrative tasks. Nevertheless, challenges such as high upfront investment, difficulties in collaboration between educators and developers, and privacy concerns discourage the broader use of AI in higher education. Accordingly, this project proposes a collaborative community to provide teachers with the necessary support and resources to leverage AI tools for innovative pedagogies. To achieve this, based on the four areas of AI applications (i.e., profiling and prediction, intelligent tutoring systems, assessment and evaluation, and adaptive systems and personalisation), this project expects to deliver introductory seminars to share the fundamental knowledge of AI with beginners along with practical workshops to furnish advanced learners with hands-on training to develop their AI tools for educational purposes. Further, the project team aims to conduct a mixed-method study to investigate college instructors' and students' perceptions and readiness of AI applications in education through their current experiences, future expectations, perceived benefits and drawbacks, practical difficulties, and legal and ethical considerations. Consequently, this project seeks to suggest up-to-date AI policies, practices, and procedures for educational institutions. In the long term, as a collaborative community, the project team aspires to connect AI experts to undertake further research and advocacy activities to sustain the efforts of this project in fostering AI applications in higher education.

Keywords: AI Applications, AI tools, Collaborative Community, Higher Education, Innovative Pedagogies

Promoting AI Literacy in Pre-Service Teacher Education: Case Studies on Pedagogical Design

17 May 2023 | 13:45-14:00

Wai Yin Koey CHUNG
The Education University of Hong Kong

Gary CHENG
The Education University of Hong Kong

Chi Ching CHOW
The Education University of Hong Kong

Sin Manw Sophia LAM
The Education University of Hong Kong

Abstract
The use of Artificial Intelligence in Education has become an emerging practice to enhance student learning experiences. Nowadays, AI has opened up new possibilities and roles for technology to contribute to designing engaging and productive learning activities. However, it remains a challenge for educational practitioners and researchers to make effective use of AI for teaching and learning in practice. To tackle this challenge, a pilot project was conducted at The Education University of Hong Kong to explore how AI can support pre-service teacher education. Specifically, Natural Language Processing was utilized to promote constructive and reflective learning approaches, enabling pre-service teachers to enhance their knowledge, experiences and decision-making in addressing the needs of individual learners. Two NLP-powered courses from pre-service training programmes were selected, analyzed and discussed in the study. The first module intended to familiarise the students with the structure and format of writing classical poetry. The second course was intended to develop instructional skills and classroom language of students. A total of 129 students from these two courses voluntarily participated in the project and completed a questionnaire followed by focus group interview to share their learning experiences with AI. The results show that the majority of students surveyed not only have a positive attitude towards the use of AI in education, but they also become more engaged with AI-driven learning activities. Overall, these findings highlight the potential applications and effects of AI in pre-service teacher education which could stimulate further design and development of AI for other learning areas.

Keywords: AI in Education, AI Literacy, Pedagogical Design, Pre-Service Teacher Education

Gaming in Education

Learning Stuff While Having Fun? - Testing the Effectiveness of a Serious Game About Sustainable Consumption in a Class-settings Compared to Casual Play

17 May 2023 I 12:00-12:15

Meike SAUERWEIN
Hong Kong University of Science and Technology

Man-Lai YEUNG
Hong Kong University of Science and Technology

Wei-Lin-Whitney YU
Hong Kong University of Science and Technology

Abstract
In times of changing climate and intensifying resource limitations, games around sustainability have emerged and proven effective in raising students' awareness and knowledge. While the effectiveness of educational games has been explored in classroom settings, it remains difficult to reach ordinary citizens. The theme of the game studied in this research revolves around the topic of consumption and happiness and was developed to be both an educational game and for entertainment. Players aim to achieve a high level of happiness through a well-curated amount of work, purchases, as well as activities and incorporate collaborative consumption principles (e.g., sharing, purchasing second-hand). This study aims to test whether playing the game can achieve similar learning outcomes when played in (A) a casual game-play setting compared to (B) a facilitated in-class game (including debriefing, embedded within a sustainability-related course). Gaming sessions with over 350 university students were held to explore this question. The students' personal consumption behavior, personal beliefs and environmental concern, knowledge and awareness around sustainable consumption were evaluated and statistically analyzed through pre- and post-game surveys. Initial findings show that serious gaming can enable players to experience real sustainability issues in a gaming context, increase their knowledge around sustainable consumption, and increase awareness of sufficiency, materialism, and resource in both classroom and casual play settings. This study is one of the first that uses a comparatively large dataset to provide evidence that games played in a casual setting can trigger awareness changes and enhance knowledge around sustainability.

Keywords: Educational Games, Game-based Learning, Materialism and Sufficiency, Sustainability Education, Sustainable Consumption

Game-Based Assessment of Career Adaptability for Students with Special Educational Needs - A Pilot Study

17 May 2023   I   12:00-12:15

Fengzhan GAO
The Education University of Hong Kong

Kuen Fung SIN   **Lan YANG**
The Education University of Hong Kong   The Education University of Hong Kong

Kin Kwan SO
The Education University of Hong Kong

Abstract
The purpose of this pilot study was to test the reliability of a game-based assessment tool to assess the four dimensions of career adaptability (i.e., Curiosity, Control, Confidence, Concern, hereafter called "4C") among students with special educational needs (SEN). The 4C tool is a board game developed in relation to the short form of the career adaptability scale (CAAS) for SEN adolescents. Unlike self-reported CAAS without specifying career-related scenarios, the board game provides researchers and practitioners with an assessment platform to evaluate SEN students' 4Cs in multiple employment-related scenarios. Participants in this pilot study were 44 secondary school leavers with SEN. They were studying in a training course organized by Youth Academy for SEN. They were assessed through the board game assessment tool before and after the training in the year. Statistical analyses included spearman's rho coefficient and intra-class correlation coefficient (ICC). It was noted that the 4Cs assessed by the board-game are 1) positively correlated with each other (correlation coefficients ranged from .42 to .63, $p<.05$), 2) with good inter-rater reliability, $rs= .688(92)$, $p<.01$, 95% CI [.565, .797], and 3) with moderate test-retest reliability, ICC = 0.66, $p<.001$, 95% CI [.433, .805]. These findings supported the reliability of this game-based assessment tool for assessing the 4Cs of SEN youths. Aside from self-reported data, this game-based assessment tool can provide supplementary information on the 4Cs of school leavers with SEN from other assessors (e.g., teachers and practitioners) across career-related scenarios. The presentation will further discuss limitations and further direction of research.

Keywords: 4Cs tool, Career adaptability, Career assessment, Game-based assessment, Special educational needs

Increasing Students' Moodle Engagement Through Gamification and Storytelling

17 May 2023   I   11:45-12:00

Donn Emmanuel GONDA
The University of Hong Kong

Lu HUANG   **Shurui BAI**
The University of Hong Kong   The Education University of Hong Kong

Abstract
This case study examines gamification and storytelling in a taught postgraduate course at The University of Hong Kong to enhance student engagement with the learning management system (LMS). The study uses the ADDIE instructional design model, MDA framework, and Cohen's story elements to create an engaging and effective student learning experience. Qualitative responses from students, LMS learning analytics, and course assessments are analyzed using a mixed-methods approach that combines qualitative and quantitative techniques. Qualitative data is analyzed thematically to identify key themes and patterns, while quantitative data is analyzed using student online activity log files and course assessments performance evaluation. The study provides practical suggestions for how gamification and storytelling can be used in face-to-face and online learning environments to enhance student engagement and learning outcomes. It highlights the nuances of creating an engaging and effective learning experience for students in the digital age. Overall, this case study contributes to educational technology and provides insights into how game mechanics, story elements, and instructional design can be combined to create engaging and effective student learning experiences.

Keywords: Gamification, Instructional Design, MDA, Story Elements, Storytelling

Quest of Ocean Through Gamification

17 May 2023 | 11:15-11:30

Pinky KWOK
Hong Kong University of Science and Technology

Cindy LAM
Hong Kong University of Science and Technology.

Abstract
Gamification and simulations in eLearning is a new concept in higher education recently. This new approach will provide alternative learning tools and assessments to students, but also promote self-regulated learning and in-depth thinking in their learning journey. A mobile game application 'The Mira Island' incorporating games and course materials of each lab session is developed to facilitate virtual teaching and learning in an ocean-science laboratory course for year 3 students beyond classroom. In the game, players are requested to complete the assigned laboratory quests on an island. To purchase appropriate equipment and unlock the next lab session, they have to gain enough experience and money by following the instructions and attending the quizzes. A leaderboard feature is also available for tracking students' progress to boost preparation and identify students who need additional support. The mobile game serves multiple purposes in eLearning: (i) strengthening students' knowledge in ocean science research; (ii) engaging students' in field trips and experiments through the case-study questions and game-based assessments; (iii) improving English writing skills for scientific reports; (iv) recognizing the importance of variables, errors and limitations in experimental design and data collection so that this can motivate students' towards experimental learning in other courses. With the proper utilization of information technology, this new learning experience could strengthen students' pre-laboratory preparation and adopt active learning in a fun and interactive way.

Keywords: eLearning, Gamification, Mobile Game, Ocean Quest

Student-as-Partners in Game Design for Teaching Citizenship in Higher Education

17 May 2023 | 11:30-11:45

Jack TSAO
The University of Hong Kong

Vincent SIU
Press Start Academy

Abstract
Within higher education, teaching citizenship-related competencies and orientations such as ethics, empathy, and social responsibility is often complicated and problematic due to the dominant emphasis on graduate employability. This paper presents a case study of a pilot co-curricular programme involving twelve (12) undergraduate and postgraduate students from mixed disciplinary backgrounds designing non-digital analogue games to teach citizenship concepts. The Student-As-Partners (SaP) programme, structured around the design thinking process, consisted of workshops, consultations, and game-play sessions to guide students towards conducting their own research around citizenship education, designing, prototyping, and facilitating their games to audiences of student peers. Data collected included the questionnaire survey, interviews, and students' outputs, including the game artefacts and manual, promotional poster and video, and post-event reflection videos. Students selected citizenship themes related to sustainability, corporate ethics, individual responsibility, and misinformation. Our findings indicate that theme selection steered game design towards story-centred or mechanics-driven experiences and how the SaP process supported the development of 'serious games' while offering students substantial influence and control of decision-making. The results demonstrate how games offer modest but effective opportunities for potentially transformative learning of citizenship values and orientations required for future-ready graduates to critically negotiate the dominant neoliberal orthodoxy of the knowledge economy and shifting global dependencies.

Keywords: Citizenship Education, Educational Games in Higher Education, Future Readiness (at most 5 keywords), Serious Gaming, Student-as-partners

Other Topics Related to Learning and Teaching

Building a Mutual Parental-Teacher Relationship to Enhance Motivation of Young Students in Rural Area Towards English Learning

17 May 2023 | 11:45-12:00

Soryaly CHAU
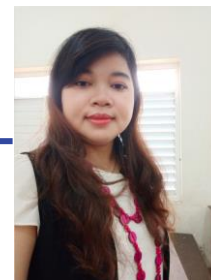The Education University of Hong Kong, An Giang University

Khon CHAU
An Giang University

Abstract
Previous researchers have involved in school-family engagement and motivation among the young learners, leading to a long-term consequence for the young students' academic achievement. The positive relationship between the family with school differs from the low-income and higher income family. English learning and ELT in rural area of the Southern of Vietnam are also concerned, but just a few of involving in the external motivation that results in English performance of young students. With an experience on English teaching for an 18-year period in rural area, the authors explore how the engagement and involvement of parental-teacher role positively impact the young students' dynamics towards English studying. The study is conducted with 27 in-depth interviews with children's parents and six focus groups of young students, in which five-student participants belong to each focus group to explore a thorough understanding about the influence of parent-teacher relationship quality. The finding indicates the more family get involved in young students' English study, the better outcomes of children academic performance are witnessed. The finding also confirms the voices of students sharing, facilitating them to be more confident and more inspiration through the mutual relationship of their family with teachers. It is necessary for schools, particularly teachers, to set up a close relationship with children family to get insight into this type of motivation. For further recommendations, principals of primary school to high school level in rural and other contexts can establish more programs entailing ELT within the honest parent-teacher relationship to inspire young students.

Keywords: Learning English, Motivation, Parental-teacher Relationship, Rural Areas, Young Students

Chatbot as a Pedagogic Tool for Collaborative Goal-Setting in Teacher Education: Instructor and Student Perceptions

18 May 2023 | 14:05-14:20

Nicole TAVARES
The University of Hong Kong

Abstract
Situated within the context of initial teacher education at a university in Hong Kong, this paper examines an instructor's first experimentation with the use of chatbot in an undergraduate module on English language teaching methodology. The chatbot was designed to engage pre-service English teachers in a dialogue in negotiating expectations and defining learning goals prior to course commencement. The scripting of the question-prompts in the text-based chatbot conversation was guided by Doran's (1981) and Harmer's (2015) SMART frameworks. Strategies recommended by Garrison, Anderson and Archer (1999) to promote interpersonal, open and cohesive communication online were employed to amplify the instructor's social presence on chatbot. Data of this case study was collected via questionnaires and semi-structured interviews with the students and instructor, and an analysis of chatbot-student utterance turns. Results indicated students' behavioral engagement, perceived social presence and positive goal-setting experience. Most interestingly, students were observed to be interacting with their Learning Buddy on chatbot as "a real person". Findings suggest the mediating role of chatbot in establishing instructor-student rapport and facilitating communication, and its influence in the tailoring of ongoing course learning activities. The instructor's critical reflections on how chatbot could be optimised as a pedagogic tool for use in both virtual and face-to-face classroom settings in the shaping of a co-constructed and negotiated curriculum and to achieve desired learning outcomes will be discussed. Further implications for chatbot use in teacher education will also be explored.

Keywords: Chatbot, Engagement, Goal-setting, Negotiating Expectations, Online Social Presence

Connected Speech Assessment and Its Implications for Future Classroom Instructions: An Empirical Study on Chinese EFL Children

19 May 2023 | 10:45-11:00

Huichao BI
Xi'an Jiaotong-Liverpool University

Rong YAN
Xi'an Jiaotong-Liverpool University

Abstract

Phonological variants are common in native-speaker daily conversations, which may cause significant word recognition and listening comprehension difficulties for second/foreign language learners. However, K12 classroom language teaching pays more attention to standard English pronunciation, ignoring the rules and contents of these particular phonetic changes in naturally connected speech. Therefore, this study aimed to explore the development of English connected speech perception skills among Chinese EFL children and its implication for future classroom instructions. A total of 144 students aged between 9-to-12 years participated in this study. The results indicate that: (1) although there were significant age differences in connected speech perception skills, the developmental trend of each connected speech process (CSP) was varied. (2) there were significant differences in children's perception performance of different CSPs (e.g., elision, vowel weakening and assimilation). These findings suggested that providing EFL learners with target training on CSPs with higher error rates and not developed significantly with age is essential. This study will help teachers better understand foreign language listening comprehension difficulties and formulate targeted second language teaching strategies in the future classroom.

Keywords: Classroom Instructions, Connected Speech Perception, English as a Foreign Language

Designing an Applied Learning Course on Information and Communications Technology for High School Students

19 May 2023 | 10:30-10:45

Kara CHAN
Hong Kong Baptist University

Florin C SERBAN
Hong Kong Baptist University

Mandy TSE
Hong Kong Baptist University

Andrew HO
Hong Kong Baptist University

Abstract

Many businesses suffered from the COVID-19 pandemic, but the tech industry tended to benefit from the global crisis. The need for remote working and learning as well as online delivery of services increased the demand for software developers in different industries. Businesses have had to re-evaluate their priorities and operations to provide innovative and often technology-embedded products and services. The Hong Kong government identified the information technology industry as a priority industry for development. The pandemic elevates the demand for information and communications technology talents. A two-year Applied Learning course titled "Tech Basic" was developed as an initiative to nurture information and communications technology talent among high school students in Hong Kong. The Applied Learning course has the unique feature of bringing together secondary schools, university, and industry partners in its curriculum design and program delivery. Students participated in career exploration activities. The teachers of the participating schools enjoyed professional development opportunities. The paper is a case study providing updated information on its course contents, teaching and learning, and out-of-classroom activities among students. It explains the different roles of secondary schools, higher education institute, and industry partners. The impact on the first cohort of about 120 students was evaluated both qualitatively and quantitatively, and those results are presented. Altogether, 101, 95, and 59 students participated in the student self-assessment survey at the end of forms 4, 5, and 6. Feedback from secondary school teachers and mentors from the industry is analyzed. Recommendations for improvement and future development are discussed.

Keywords: Industry Partnership, Information Technology, Professional Education, Program Evaluation, Vocational Education

Developing Pre-service Teachers' Classroom-talk Competency Through Video Visualisation and Peer Review

19 May 2023 I 10:15-10:30

Lanfang SUN
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Sau Yan HUI
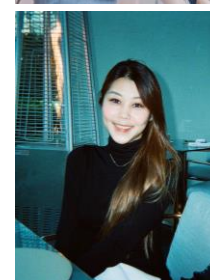The University of Hong Kong

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Louisa YEN
The University of Hong Kong

Abstract
Classroom talk is an essential skill for pre-teachers in their future career, and microteaching is a widely used pedagogical approach to develop pre-service teachers' classroom talk competency. Yet, pre-service teachers often find classroom talk challenging, and their classroom talk is limited to simple phrases or short-sentence responses, which seldom facilitate students' reasoning. Although microteaching is a critical pedagogical approach to developing pre-service teachers' teaching competencies and skills in teacher education programs, their classroom-talk competency has remained unaffected. Therefore, an interactive and process-focused video visualisation platform was designed to demonstrate the classroom discourse to understand better how teachers and students contribute to the dynamic process of classroom interaction. Plus, a technology-enhanced microteaching model combined with video visualisation technology for assessment, feedback, and reflection was designed and implemented in the teacher training to enhance pre-service teachers' core teaching practices, self-efficacy, classroom-talk competency, and reflection skills. Quantitative data showed that 67 pre-service teachers improved significantly in the above-mentioned dimensions after training, and qualitative data revealed in interviews demonstrated that not only microteaching was a valuable chance for them to get through the preparation phase before the internship, but also the classroom-talk strategies allowed them to have a more thorough plan before teaching. Moreover, the video visualisation platform that we designed, which combines videos, transcripts, and the coding for classroom talk, helps the pre-service teachers develop their reflection skills so that they could review their performance from the use of the classroom talk strategies.

Keywords: Classroom Talk, Microteaching, Pre-service Teachers, Teacher Education, Video Visualisation

Emotion Transmission: A Model of Teacher Enthusiasm, Self-concept of Reading, Reading Enjoyment, and Reading Achievement

19 May 2023 | 10:00-10:15

Chenlian ZHANG
Hong Kong Baptist University

Jinxin ZHU
Hong Kong Baptist University

Abstract

Teacher enthusiasm, like a catalyst for students' academic enjoyment, induces their interest and motivation to learn and thus benefits academic achievement. Although many past studies have shown that teacher enthusiasm can be a predictor of student enjoyment and learning outcomes, few studies have examined the potential mechanism through which teacher enthusiasm affects student learning, especially secondary school students' language learning. This study investigated the mediating role of students' self-concept of reading and reading enjoyment in the association between teacher enthusiasm and students' reading achievement. We conducted a two-level path analysis on a representative sample of 12,058 15-year-old secondary school students (Male = 6,283, Female = 5,775) from Beijing, Shanghai, Jiangsu, and Zhejiang provinces in Mainland China. Results revealed that teacher enthusiasm contributed to students' self-concept of reading, which in turn may benefit reading enjoyment and reading achievement. Also, the effect of teacher enthusiasm on students' self-concept of reading was small to moderate at the student level but large at the school level. In addition, the intra-class correlations (ICCs) for reading achievement, enjoyment, and self-concept of reading were .470, .077, and .087, respectively, with the design effects all greater than 2, indicating that a multilevel analysis was needed; much variance of reading achievement was explained at the school level. These findings have practical implications for educators and counselors who may consider designing appropriate training sessions to promote teacher enthusiasm for teaching and student learning improvement.

Keywords: Reading Achievement, Reading Enjoyment, Self-concept of Reading, Teacher Enthusiasm

Empowering Technology-based Feedback to Nurture Self-Regulated EFL Learners in Primary Education: The Role of Feedback Orientation and Its Ecological Model

17 May 2023 | 11:30-11:45

Qi Shuai ZHANG
The Education University of Hong Kong

Lan YANG
The Education University of Hong Kong

Abstract

Although research shows that self-regulated learning matters to students' learning of English as a foreign/second language, less research has been done to examine the role of teacher feedback in cultivating SRL, let alone focused research on students' feedback orientation. Feedback orientation, initially conceptualized in organizational psychology, has been introduced to education recently. Its significant impact on the learners' proactive engagement with feedback and effective use of feedback to improve learning performance have been identified in an increasing number of studies. We extended previous work on feedback orientation to form the feedback ecological model (FEM) in education. The FEM illustrates the interplay among external feedback, feedback orientation, feedback engagement, feedback culture, and learning outcomes. Though the concept of feedback orientation is relatively new in the education field, its significance in enhancing feedback practices and learning outcomes has been recognized in recent publications. This scoping review aims to explore the impacts of technology-enhanced feedback on external feedback provision (from teachers and peers), a dynamic feedback process (consisting of receiving, processing, and applying feedback), and the development of self-regulated learning strategies as the learning outcomes of feedback practices among English learners in primary education. We use a scoping review based on the FEM to screen and code selected publications. Key findings related to the effects of technology-enhanced feedback on the feedback process and feedback provision will be presented. We will also suggest directions for future studies.

Keywords: EFL Learners, Feedback Ecological Model, Feedback Orientation, Primary Education, Technology-enhanced Feedback

Enhancing Chinese College Students' English Writing Performance Through Using Computer-Based Concept Mapping

18 May 2023 I 10:15-10:30

Jiahui CHENG
The Education University of Hong Kong

Abstract
Many college students in mainland China have difficulties in academic writing in English. One of the reasons is that they cannot adapt to the English thinking mode and they lack logic and coherence in discourse cohesion. Computer-based concept mapping (CBCM) can be a tool to solve these problems because it can construct a clear knowledge network and help students to have better performance in academic writing. There is much evidence regarding using paper-based concept mapping in different subjects but few studies have been conducted to research the application of CBCM to English writing. Consequently, this study aims to explore the effects of CBCM on Chinese college students' English writing to find out how it can improve students' writing skills and foster their English writing motivation. Second, their attitudes towards CBCM will also be studied. Another aim is to investigate the CBCM environment delivered through Google Classroom since such research is also scarce. Mixed methods including both quantitative and qualitative methods are used. The participants are 120 first-year students from a vocational college in Guangdong whose first language is not English and who are assigned randomly to three groups. In each group, students are required to use different methods of concept mapping in English writing (computer-based concept mapping, paper-based concept mapping, and no concept mapping). After writing, their writing performance in different experimental contexts will be assessed. There will be a post-test questionnaire survey to collect students' intrinsic motivation to use CBCM to enhance their English writing. And face-to-face semi-structured interviews will be conducted to further understand the effects of CBCM on their writing performance and their motivation. The results are expected to provide some evidence showing that CBCM can significantly improve the writing performance of college students who use English as a second language and to show some relationship between students' motivation to use CBCM and their performance in writing English essays.The findings may inform English teachers regarding how to help Chinese college students improve their academic writing and increase their interest in learning English writing. It also provides a new research perspective of applying CBCM on teaching the writing of English as a Foreign Language (EFL).

Keywords: Computer Mapping, Concept Mapping, English Essay Writing, Expository Essay, Writing Performance

Getting Ready for the Future by Knowing the Self of Here and Now

17 May 2023 I 11:15-11:30

Amy LEE
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Abstract
The three-year pandemic has generated a lot of pressure on how we conduct our daily business, but has also given the world opportunities to discover new ways of going about activities that are central to our lives, including education. The expanded implementation of e-learning has created great possibilities for every level and aspect of education across the world. While we enjoy and engage with these technical possibilities, we should also attend to the subjects whom we engage through these learning opportunities. This presentation reports a funded research-learning experience for a group of local university students, who went through a creative learning experience that is beyond their own disciplines. Through a taste of dramatic expression, creative writing, and outreach to members of the community, this group of university students went through a journey of self-reflection, interpersonal communication, and collectively participated in artistic expression to make connections with the community. A learning kit which embodies some of the personal stories that were discovered in this learning journey was produced and shared with members of the community. In the presentation, one personal story from this learning kit will be used to illustrate the kind of creative learning and personal development that students had experienced. It is hoped that the illustration can help to enhance general awareness and recognition of the value of such learning now in nurturing self-understanding and resilience in the face of a quickly changing world.

Keywords: Community Engagement, Creative Learning, Interpersonal Communication, Learners' Well-being, Self-reflection

Global Dialogues as Transformative Pedagogy for Climate Change Education: A Hong Kong Case Study

18 May 2023 I 09:30-09:45

Sally Wai-Yan WAN
The Chinese University of Hong Kong

Suzannie Kit-Ying LEUNG
The Chinese University of Hong Kong

Janet ORCHARD
University of Bristol

Abstract
Global dialogues, one form of transformative pedagogy, are regarded as an effective way to help and mediate the development of global mindsets towards Education for Sustainability (EfS). The study intends to investigate the impact of global dialogues on Hong Kong prospective teachers' awareness of and readiness for climate change education after the completion of a one-month voluntary-based teacher education programme entitled Global Dialogues on Climate Change Education, where a group of 14 Hong Kong prospective teachers from one public university engaged in two synchronous and asynchronous dialogues about climate change education with the prospective teachers and teacher educators from one UK university during the period from late March to April 2022. Data was collected through focus group discussion, accompanied with creative methods (i.e. writing post-it memos, drawing and concept mapping). Findings revealed that global dialogues enriched and extended the local Hong Kong participants' understandings and awareness about climate change education. However, there was a tendency for non-native English-speaking prospective teachers to face language barriers to global dialogues. Implications of developing global dialogues for climate change education in teacher education and higher education are discussed.

Keywords: Climate Change Education, Creative Methods, Global Dialogues, Sustainable Development Goals (SDGs), Teacher Education

Immersive Learning in Mechanical Engineering via an Online Community-based Augmented Reality Platform

17 May 2023 I 13:45-14:00

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VisionARi Limited

Molong DUAN
The Hong Kong University of Science and Technology

Larry K B LI
The Hong Kong University of Science and Technology

Abstract
We present the development and deployment of VisionARi, an online community-based augmented reality (AR) platform for immersive learning. The platform is designed to simplify the workflow of making and publishing AR content; two common barriers that have hindered widespread adoption and effective usage of AR in education. The creation process is simplified by leveraging popular free-to-use and open-source tools such as Unity and Blender, and eliminating the need for any coding or independent software development by the creator. Furthermore, creators are provided with example template files and playlists of short tutorial videos, thus enabling beginners to learn how to create AR experiences with ease. The VisionARi platform makes publishing and deploying AR easier by acting as a public digital library for such content. In other words, users may view AR models created and uploaded by other users, enabling high-quality content to be shared and disseminated with a global outreach. The VisionARi platform is being pilot tested at the Hong Kong University of Science and Engineering (HKUST) to enhance engineering education, preparing for deployment in a second-year mechanical engineering course. In this course, students use AR to study various historical mechanical designs and inventions, such as the steam engine, scissor-lift mechanism, and gear differential, and will learn how to present their own 3-D engineering designs in AR through the VisionARi platform. Students' learning experience and learning outcome are assessed both quantitatively and qualitatively in collaboration with the Center for Education Innovation at HKUST.

Keywords: Augmented Reality, Engineering Education, Immersive Learning

The Impact of Preschool Teachers' Resilience on Emotional Responses in the Context of COVID-19: The Mediating Role of Social Support

18 May 2023 | 15:20-15:35

Zehao ZHANG
Xi'an Jiaotong-liverpool University

Abstract

Since the end of 2020, the emergence of COVID-19 has greatly affected all aspects of people's lives and has caused a lot of emotional stress, even on the psychological side. The variables in this study are psychological resilience · emotional response, and social support. Psychological resilience refers to the ability of an individual to develop his or her psychological functions normally even when faced with the effects of adversity stress or setbacks. Emotional response refers to all aspects of the psyche and the emotional state in the face of external events during life. Social support is a general or specific support behavior with a supporting role. In the context of COVID-19, this study investigated the impact of COVID-19 on the emotional response (depression, anxiety, and fear) of preschool teachers, and also explored the impact of social support and psychological resilience on emotional response. In December 2020, COVID-19 erupted again in Shijiazhuang, Hebei province, Shenyang, and Dalian, Liaoning Province. The psychological resilience, emotional response, and social support were investigated in high, medium, and low-risk areas with online anonymous tests conducted. With a total of 948 valid subjects. The study conclusions are as follows: Preschool teachers have mild anxiety, moderate depression, and mild fear conditions. The psychological resilience of preschool teachers is at the upper-middle level. Kindergarten teachers all have very high levels of social support. Psychological resilience is inversely related to anxiety, depression, and fear. Social support plays a significant mediating role between psychological resilience and emotional response.

Keywords: Emotional Response, Preschool Teacher, Psychological Resilience, Social Support

The Importance of English in Primary School Education in China: Perception of Teachers

18 May 2023 | 13:50-14:05

Noble LO
The Hong Kong Polytechnic University

Bryan TO
Suzhou Singapore International School

Abstract

This study aimed to investigate the importance of English language learning in primary schools in China. A total of 2154 English teachers in China participated in an online survey to assess their perceptions of the importance of English language learning. The data was collected using a self-administered questionnaire. Descriptive statistics were used to analyze the quantitative data. The results showed that the majority of English teachers recognized the importance of English language learning in primary schools, particularly in improving children's performance in other academic subjects. However, the findings also revealed that female English teachers showed a higher level of interest and attitude towards teaching English than male teachers. To improve male teachers' involvement in English teaching, more incentives and motivation strategies should be implemented. The study also identified some potential challenges in implementing English language learning programs, such as inadequate staffing and difficulties in fulfilling curriculum requirements. To address these challenges, policymakers could consider investing in online language learning resources or creating partnerships with international schools and organizations to facilitate teacher training and exchange programs. Future research could explore other factors that may influence the perceptions and attitudes of English teachers towards teaching English, such as the role of culture and language proficiency. Qualitative research methods could also be employed to gain a deeper understanding of the challenges faced in implementing English language learning programs.

Keywords: Academic Performance, English Education, Perception, Primary Schools, Teachers

The Importance of Enhancing the "CoP-CEPPING" Framework in Training and Educating Undergraduate Students

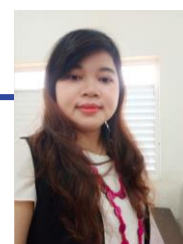18 May 2023　I　09:30-09:45

Soryaly CHAU
The Education University of Hong Kong, An Giang University

Khon CHAU
An Giang University

Tien Phong NGUYEN
A Kien Thanh Primary School

Abstract

Internationalization in higher education is one of global trends that worldwide nations have concerned about, particularly developing countries. Furthermore, numerous institutions and universities aim at a holistic education in the purpose of training their students to acquire not only based-knowledge and academic learning but also skills, behaviors, and attitudes in the most effective ways. In other words, each curriculum, training program or lesson plan which is designed for training and educating students must contain both knowledge and skills. Meanwhile, among different people of stakeholders, particularly recruiters and employers in the 21st century, they have increasingly involved in skills of undergraduate students besides of major knowledge which are trained at colleges or universities. In this article, the authors by personal experiences in daily teaching together with combining previous studies, will go insights into "the importance of enhancing CoP-CEPPING framework" (Collaboration & Public speaking; Computer; English; Practice & Process; Internationalization & Globalization) for undergraduate students in order to: (1) help students gain more confidence during their practical practices that may allow them to immediately seek a great job after their graduation; (2) satisfy requirements of recruiters these days and help to decrease unemployment rates; and (3) improve the quality of training and educating, the quality of human resources that leads to reduce certain costs for re-training and re-educating.

Keywords: "CoP-CEPPING", Enhancing, Training and Educating, Undergraduate Students

An Investigation into the Factors Influencing Hong Kong Primary School Teachers' E-assessment Practices During the COVID-19 Lockdowns

19 May 2023　I　09:45-10:00

Ying ZHAN
The Education University of Hong Kong

Abstract

Few studies have explored primary school teachers' e-assessment practices in conditions of emergency remote teaching caused by the COVID-19 lockdowns. This study explored Hong Kong primary school teachers' e-assessment practices during the fifth wave of the COVID-19 pandemic from late January to March 2022, when all primary schools were closed and transitioned rapidly to online teaching. 48 teachers from different schools were individually interviewed. The participants reported a variety of e-assessment practices, which were categorised into three types: e-tests/exercises, alternative e-assessments and e-teacher feedback. It was found that participants cautiously approached e-tests for summative purposes but majorly for formative purposes. It was also found that the participants less frequently used alternative e-assessments and tried out e-feedback. The participants' e-assessment practices were influenced by their own conceptions of the usefulness of e-assessment, others' attitudes towards its use, and perceived behavioural control. Crises such as pandemics and climate disasters will inevitably disrupt education again in the future. The findings of this study encourage policy makers, researchers and teachers to rethink the purposes and process of e-assessment in primary classrooms, thus sustaining, deepening and focusing on learning in the 'new normal'. COVID-19 pandemic provides an opportunity to break away from content-heavy summative assessment and to make effective use of technology to enhance formative assessment.

Keywords: COVID-19, E-assessment, Primary School Teachers, Theory of Planned Behaviour

An Investigation of Students' Implicit Theories of Intelligence and the Relation with Learning Behavior and Academic Performance in a Chinese Context

18 May 2023 | 12:45-13:00

Huifei JIANG
The University of Hong Kong

Abstract

Dweck's theory of mindset has been considered as the major predictor of various educational outcomes. It can help develop adaptive psychological traits and behaviors in students, especially in the face of adversity, and can lead to greater academic achievement. However, Controversies about whether mindsets are positively or negatively related to academic achievement still remain and need to be further clarified. More research has revealed that the relationship between a growth mindset and students' academic achievement has not been successfully replicated in certain naturalistic scenarios. Contextual influence has been suspected to be the main attribution when applying the mindset theory in different contexts. Moreover, there is lack of mixed-method research on how contextual differences affect students' intelligence beliefs in mainland China. This study attempts to collect data from real-life student scenarios, using quantitative questionnaire and semi-structured interview to investigate students' intelligence beliefs and to explore how cultural orientation affects their intelligence beliefs. Classroom observation will be adopted to analyze students' learning behavior. The aim of this study is thus to shed light on the cultural orientation as a potential factor that may affect students' mindset beliefs and learning behavior.

Keywords: Cultural Values, Implicit Theories of Intelligence, Learning Behavior, Students Achievement

Is Growth Mindset Really a Panacea to China?

18 May 2023 | 10:00-10:15

Kai ZHANG
The Education University of Hong Kong

Abstract

A failed replication of Dweck's Theory of Growth mindset has been continually reported in a Chinese context, regarding to the no significant or negative relation is evidenced between growth mindset and student's academic performance, raising the issue on the validity of the theory's acculturation. However, increasingly studies conducted in China relating to teaching scenario keeps suggesting the cultivation of teacher's growth mindset is beneficial to the establishment of positive learning environment only rely on the data comes from self-report, without considering the contextual influence. This study questions about the effectiveness of Dweck's Theory of Growth regarding to it's implication in a Chinese context. This study explore teacher's mindset by observing actual teaching practice and investigating the formation of teacher's mindset, and to do so with the consideration of Chinese context. By adopting questionnaire, interview and classroom observation, totally 62 middle teachers and 218 students in Shanghai are recruited. It finds incongruencies between teacher's mindset and actual teaching practice, and the strong influence comes from individual cultural orientation and school climates, as moderating effects, shape the formation of teacher's mindset and resulting teaching practice as growth or fixed quality. More, statistical evidence found teacher's growth mindset is not positive related to all student's learning outcomes.

Keywords: Chinese Context, Growth Mindset, Teaching Practice

Is It Procrastination or Something Else? Exploring Cost-Value Perception in Undergraduates' Avoidance of Sustaining Feedback-Seeking

17 May 2023　I　14:00-14:15

Stephanie YOUNG
The University of Hong Kong

Abstract
In tertiary education, students learn how to improve their academic work by seeking and using feedback sustainably. Yet, there exists a paradox where students do not seek feedback regardless of its potential benefits. Although the value of feedback-seeking is thoroughly researched, students' perceptions of the costs in feedback-seeking are under-explored. To understand why students do not engage in feedback-seeking behaviour, it is significant to first explore the variations in their perceptions of the costs in feedback-seeking. This phenomenographic study explores senior undergraduates' perceptions of feedback-seeking. 24 undergraduate students studying in the same English & Education double degree programme in a Hong Kong university were interviewed. Five conceptions ranging in inclination towards feedback-seeking have been identified. 1) Feedback-seeking as beneficial and necessary, 2) Feedback-seeking as selectively beneficial and necessary based on external factors, 3) Feedback-seeking as selectively beneficial and necessary based on internal factors, 4) Feedback-seeking as extrinsically beneficial, but may not correlate to intrinsic needs, 5) Feedback-seeking as non-beneficial and unnecessary. The five conceptions form a continuum where the more costs are perceived, the less likely are students to view feedback as necessary, thus becoming less inclined to seek feedback. These students are also less inclined to implement the feedback sustainably. The originality of this paper lies in eliciting and analysing multiple student perceptions on reasons to avoid feedback seeking. Implications for practice include acknowledging the different needs and goals of students when encouraging them to seek feedback and providing concrete feedback for students to implement in future pursuits.

Keywords: Cost-value, Feedback Literacy, Feedback-seeking Behaviour, Phenomenography,Student Perception

Learning Chinese Language Reading: From Hong Kong Secondary School Students' Perspectives

18 May 2023　I　12:15-12:30

Wai-Yan WAN
The Chinese University of Hong Kong

Yu Kei TSUI
The Chinese University of Hong Kong

Abstract
以學生為中心向為教育界圭臬，而於中學教育中，如何比較及量度教師理解之學生為中心，則主要以教師對教學的看法及實踐為主。本研究以中文科高中閱讀教學切入，同時從學生及教師角度出發，梳理兩者對閱讀教學之看法及配合情況，通過疏理學生與教師視角之差異，以歸納出量度學生為中心之有效因素。研究數據來自教師訪談、學生焦點小組訪談及課堂觀察，通過三者比對分析，以建立研究學校之中文閱讀教學模型。研究結果顯示教師之閱讀教學觀受其興趣、對課程理解、自身成長經驗等不同因素影響，但其踐行時又會因應教學經驗、環境配套等配合而出現與自身觀念未配合之處。而學生對閱讀教學之理解則由先前之學習經驗及考評設計而建立，而學習經驗與考評設計之落差又會影響其對閱讀教學之理解。通過此結果可讓不同科目教師反思學生於實行教學中之角色，多探索他們之期望及需要，繼而建立更具學與教效能之學生為中心課堂。

Keywords: 以學生為中心, 教學觀, 閱讀教學, 學習經驗

Learning Critical Thinking in Secondary Schools and Universities: Perspectives of the Students

19 May 2023 | 11:00-11:15

Siu Long Ernie HO
The University of Hong Kong

Ka Lok CHENG
The University of Hong Kong

Abstract

While critical thinking is often highlighted as an essential 21st-Cenutry Skill, scholarly efforts thus far have focused more on factors affecting the promotion of critical thinking through curricular means. However, limited evidence reflected curriculum users' (i.e., students') views on how the curricular experiences could help them become critical thinkers. To such end, this qualitative study aims (1) to compare students' learning experiences of critical thinking in their learning of Liberal Studies during their secondary schooling and the courses during their tertiary education and (2) to explore how the different learning experiences have shaped their perceptions of what an ideal learning experience of critical thinking is. Fifteen local participants from different academic disciplines in Hong Kong were interviewed, and several patterns emerged. Firstly, the interviewees generally considered that enhanced critical thinking capabilities had been favoured more by the learning groups formed by students with more diverse academic backgrounds, which are more often found in universities than during their secondary schooling. Secondly, the facilitative roles of teachers, whenever a cooperative learning approach was to be adopted, were suggested to be of great importance. Finally, somewhat inconsistent with previous findings, not all respondents agreed that cooperative learning was always the most effective approach for promoting critical thinking. The implications of learning and teaching critical thinking will be discussed in general. The possible insights for implementing the recently developed Citizenship and Social Development will be indicated in particular.

Keywords: 21st Century Skills, Critical Thinking, Enacted Curriculum

Listen with the Heart Instead of the Ear: Using Drama to Teach Chinese to Deaf Students

18 May 2023 | 10:15-10:30

Amy Wai-Sum LEE
Hong Kong Metropolitan University

Wai Yee TANG
Hong Kong Metropolitan University

Abstract

如何在聾生與健聽生融合的班別中提升其中國語文學習能力？就讀香港主流學校的聾人學生，雖部分獲得手語翻譯輔助，然而對學習語文仍感困難，且手語在表達複雜的語文概念和思維上有所限制，局限了聾生對語文的理解。研究計劃「以心代耳——聾生透過戲劇學習中國語文」，正針對聾生學習語文的情況，嘗試透過強調想像力、視覺傳意及身體感知的戲劇，作為一種有效的教學策略，結合原有的手語翻譯，補足聾生在語文理解及表達過程所需的條件，從而提升其語文學習能力。研究教學計劃於 2021-22 年，在一所以口語及手語雙語為教學語言的學校試行，班上有聾生及健聽生各七位，介乎中二至中四。八節課的教學以新詩為切入點，透過戲劇策略提升學生的想像力，理解、欣賞及創作新詩的能力。本研究將透過學生作品、計劃導師及校內老師的觀察，分析並呈現戲劇教學法運用於聾健共融的語文教學中的各種可能性，以填補語文教育研究的空隙。

Keywords: 中國語文, 想像力, 新詩, 戲劇教育, 聾生

Making Change: Embedding Social Innovation in Service-learning for Empowering Future Changemakers

17 May 2023   I   13:30-13:45

Liang SHANG
Lingnan University

Tuen-yi CHIU
Lingnan University

Abstract
Young generations have been increasingly exposed to constant social and environmental changes in our society, and thus consequently require new knowledge and skills to support them to better tackle current and future challenges. To sharpen and unleash the creative potential of university students, we designed and delivered an integrative service-learning model that embraces the spirit of social innovation in which students are encouraged to seek new answers to social problems and play a more central role in their service learning experiences. We implemented this integrative model in four undergraduate courses that cover various major social issues and challenges in contemporary societies, including housing, ageing, sexual violence, and social inclusion. Drawing upon a lens of co-production that locates our attention on students' engagement and contribution to their own education, we examined and discussed the changing roles of students in the integrative service-learning programme and the implications for social innovation education. An ethnographic approach was used to explore and evaluate students' perspectives and experiences, their nexus with teachers and community partners, as well as the opportunities and challenges they encountered during the 3-month service-learning experience that followed a social innovation and design-thinking framework. We suggest that a paradigm shift is needed in higher education by moving away from the notion of 'students as customers' to 'students as co-producers', which puts students at the front and centre of their learning experiences and helps promote social innovation education to nurture future social change agents in higher education.

Keywords: Co-production, Higher Education, Hong Kong, Service Learning, Social Innovation Education

Ocean Literacy Programme for Local Primary and Secondary School Students Through Service-based Learning

17 May 2023   I   14:15-14:30

Ho-San CHAN
The Education University of Hong Kong

Yuen-Sam Diana WONG
The Education University of Hong Kong

Chi-Chiu CHEANG
The Education University of Hong Kong

Po-Keung Eric TSANG
The Education University of Hong Kong

Chi-Kin John LEE
The Education University of Hong Kong

Abstract
The ocean not only breeds all living things and accommodates hundreds of thousands of marine creatures, but also provides ecosystem services such as regulation, provisions, culture, and support for humans. Ocean Literacy, which means the understanding of how humankind interacts with oceans, is important for ocean conservation. Hong Kong, being a coastal city, nurtures rich marine biodiversity including Chinese white dolphins. With their charisma, Chinese white dolphins were used as flagship species in our ocean literacy programme in 2022. In the programme, 32 senior primary and secondary school students acted as 'dolphin messengers' to promote the message of ocean conservation by providing service to guide eco-tours in Tai O after various training sessions on knowledge related to the Chinese white dolphins and the marine environment of Hong Kong, as well as eco-docent skills. Semi-structured interviews were conducted to investigate the experiences and learning outcomes of 18 students after joining the programme using phenomenographic approach. The preliminary results indicated that the programme not only increased students' ecological knowledge about dolphins and ocean-related issues, but also stimulated students' empathetic attitudes towards dolphins when they reflected on the human impacts deteriorating dolphins' habitat and promoted conservation messages to tourists in the programme. The authentic experience in facing tourists during the eco-tours also facilitated their personal growth. This research provides educational insights for the use of flagship-species and service-based learning in marine education to promote ocean literacy.

Keywords: Environmental Education, Field-based Learning, Flagship Species, Ocean literacy, Service-based Learning

Paper-based Portfolios and E-Portfolios in EFL Writing: Examining Learners' Writing Proficiency and Emotions

18 May 2023 I 12:00-12:15

Alex Lap-kwan LAM
The Chinese University of Hong Kong

Abstract

In English as Foreign Language (EFL) teaching, writing implicated great challenges to EFL teachers and students and has long been considered as the hardest English language skill to master. With support of various research, educators 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. This study investigated the use of e-Portfolios (AKA electronic portfolios) with reference to the portfolio pedagogy in EFL writing, focusing on its effects to learners' writing proficiency and emotions towards English writing. A total of 19 sixth graders from one primary school in Hong Kong participated in the study. 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. Through qualitative and quantitative analysis, the findings show that EFL learners generally have improved writing proficiency, 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 158 participants, which will be conducted in 2023. This paper presents the outcomes of the study and discusses the factors that facilitated the changes identified. It is believed that this paper provides useful tips for other educators who are interested in such e-learning pedagogies and offers meaningful insights for other front-line teachers and school administrators to pick up this English writing pedagogical method in similar contexts to bring improvement to EFL writing.

Keywords: English as Foreign, E-portfolio, Language Writing, Learners' Writing Proficiency, Portfolio Pedagogy

Paradigm Shift on Use of Teaching Voice: The Transmission and Influence of Voice

19 May 2023 I 10:30-10:45

Chung Kit Ken CHAN
The Education University of Hong Kong

Abstract

為什麼有些老師常說學生「左耳入，右耳出」？教學的聲音運用一直受到忽略。兒童教育的聲音運用講求誇張多變，然而未必適用於實用主義的成人教育、專業職育及高等教育的學員。成人教育著重多分享實務經驗，卻未有提及聲音運用。本文反思筆者在大學教學獎的分享環節的內容，再發展為論文，解構筆者任教的教師課程獲教學獎，以及政府部門中級官員課程獲最高教評分數的實務經驗結果。以心理輔導及聲樂的理論與技巧，將教學聲音說進已經身為專業人士的學員的心內。心理輔導可以說到心底深處，但尚未指出需要聲音運用配合。聲樂可以做出多元的聲音效果，卻沒心理基礎支撐。在深造高階教學技巧之後，教師可以跨學科結合心理輔導及聲樂的理論與技巧，使教學聲音穿透人心，提升教學感染力，再次突破自己。建議摒棄盲目過份追求流行一時的教學方法，返樸歸真回歸最真摯自然的教學方法。本文的原創亮點在於提出範式轉移，將教學聲音從「說進耳內」轉到「說進心內」。

Keywords: 穿透力, 教學聲音運用, 感染力

Principal Resilience: Preliminary Results

Junjun CHEN
The Education University of Hong Kong

Abstract
Leading during the uncertainties of challenges, changes, and crisis requires school principals respond and react effectively, cohesively and proactively using resilience. By utilizing a resilient leadership perspective, principals have the unique opportunity to not only promote resilience in others by developing the belief that an individual has the capacity for resilience, but build a more resilient school in the post-pandemic. This study aimed at understanding the situation of principal resilience in Hong Kong during the pandemic and what compositions are included in principal resilience using 20 school principals from Hong Kong. Thematic analysis was used to analyze the interview data. Thematic analysis is a theoretically flexible method focusing on patterned meaning identified across a qualitative dataset. Two major steps of thematic analysis were utilized to analyze the interview data. In Step 1, the participant's status of resilience was coded according to the resilience scale (a continuum from 1 to 10). In Step 2, the team coded the compositions of principal resilience. The results are not available yet. The evidences from this study is expected to support principals to infuse themselves into their professional lives in pursuit of the collective good with resilience. Therefore, principal resilience is not one of the qualities that lead to successful leadership, but in an indispensable essential of successful leadership.

Keywords: Hong Kong, Post-pandemic, Qualitative Method, Resilience, School Principal

A Review on Student Feedback Literacy and Its Influencing Factors

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The Education University of Hong Kong

Anqi TANG
The Education University of Hong Kong

Abstract
反饋素養是在以學習為中心的反饋框架下出現的，對於學生而言可認為是針對反饋的理解、判斷和運用的一種綜合能力及傾向。本文整合了學界對學生反饋素養的多個定義及維度，並從其影響因素視角進行細分為學生、教師、環境因素三個具體角度。研究結果表明，內在因素包括學生的自我調節、情緒、動機、信念、目標、能力、態度、學習風格、其他個人因素，外在因素包括教師個人特點及教學水準、課堂設計、反饋文本、人際關係、教師反饋素養等，以及社會文化環境、課程與教學設置、材料及資源、時間及反饋人數等實際限制、其他背景因素等環境因素，且發現學生、教師、環境因素三個角度是聯動發展的，共同影響學生的反饋素養。今後，除去醫學、二語寫作、一般課程教學等領域，學生反饋素養及其影響因素將作為理論基礎進行更多實證研究。

Keywords: 反饋素養, 教師, 影響因, 學生, 環境

A Structural Model of English Teachers' Professional Fulfillment in Higher Education: An Exploratory Analysis Based on Grounded Theory

17 May 2023 | 15:00-15:15

Wen LEI
The Education University of Hong Kong

Abstract

職業成就感是教師職業發展的動力，但國內外仍鮮見針對高校英語教師職業成就感的研究。 本研究基於 Bronfenbrenner 生態系統理論，對 14 位高校英語教師進行訪談，運用紮根理論，歸納高校英語教師職業成就感產生來源及其在生態系統不同圈層的分佈情況。 研究發現，高校英語教師的職業成就感分三類：物質成就感、人際成就感和精神成就感， 其中以人際成就感和精神成就感為主。 職業成就感來源在高校英語教師所在微觀、中觀、外層和宏觀系統中都有分佈，大部分分佈於微觀系統。 各生態系統之間的良性互動可以促進職業成就感的產生。 然而，如果滿足較低層次需求的物質成就感和人際成就感長期處於較低水準，則會制約滿足較高需求的精神成就感的產生。 瞭解高校英語教師職業成就感生態系統分佈情況，對於探索利於高校教師職業發展的環境、緩解高校英語教師職業倦怠、提升教 師幸福感、建設高素質的高校教師隊伍有重要意義。

Keywords: 人際成就感, 生態系統理論, 高校英語教師, 精神成就感, 職業成就感

A Study of Art Teaching Practice of New Kindergarten Teachers

19 May 2023 | 10:45-11:00

Yue QIU
The Education University of Hong Kong

Abstract

入職初期是教師職業生涯的開端，是困難與機遇、考驗與希望並存的過渡時期，也是專業能力發展的關鍵時刻。對每一個師範生而言，從「學生」到「教師」的角色轉變都有強大的現實衝擊。艺术教育是幼兒教育的主要領域之一，但艺术教学对幼儿园新教师充满挑战。本研究選取了 3 名在幼稚園工作的新教師，通過為期半年的觀察与訪談，對她們的教學實踐活動進行剖析，並探討如何有效支持幼稚園新教師的美術教育工作。本文以舒爾曼的教學推理和行動模型（Model of Pedagogical Reasoning and Action）為理論框架，將教學實踐活動分爲課前轉化、課堂指導與評估、課後反思三大環節。研究發現幼稚園新教師教學目標含糊且未與活動環節相對應，活動中注重兒童的情緒體驗但忽略視覺藝術領域內的核心知識經驗，課前轉化和課後反思不足等，並從幼兒教師職前培養、幼兒園管理以及幼兒教師自身成長提出了建議。

Keywords: 幼稚園, 教學實踐, 新教師, 學前教育, 藝術教育

A Systematic Review of Qualitative Methods for Assessing Intercultural Competence in Higher Education Research

18 May 2023 | 09:45-10:00

Jiahui LUO
The University of Hong Kong

Cecilia KY CHAN
The University of Hong Kong

Abstract
As the world grows more interconnected, intercultural competence is believed crucial for students to thrive in the job market and become responsible global citizens. While the importance of intercultural competence has been well-established, how it can be effectively assessed and evidenced remain contested. A systematic review will be beneficial to understanding the current assessment methods in use and provide implications to improve future practices. At present, several reviews on quantitative assessment methods of intercultural competence (e.g., self-report surveys) have been published, but none has systematically reviewed empirical research that employed qualitative methods to assess this competence. To address this gap, this presentation will introduce a systematic review of qualitative methods used to assess students' intercultural competence in higher education research. Based on 34 empirical studies published between 2007 and 2021, the review identified 25 qualitative assessment methods and developed a two-dimensional typology to locate these methods. Findings suggest that (a) qualitative methods to assess intercultural competence are mostly 'writing-based' and 'expressive' in nature; (b) the assessment outcomes primarily undergo 'thematic' or 'scalar' analysis; and (c) the assessment is seldom conducted in STEM education. In the presentation, I will discuss and problematise these findings, as well as provide useful resources to help teachers develop and assess students' intercultural competence in the higher education curriculum.

Keywords: Assessment, Higher education, Intercultural Competence, Qualitative Assessment, Systematic Review

Teacher-child Interaction in Hong Kong Kindergartens

19 May 2023 | 09:30-09:45

Chui Yee CHEUNG
The Education University of Hong Kong

Abstract
Teacher-child interaction stresses the active roles of teachers and children to co-construct learning, however, the increased focus on teacher-directed practices seems to disregard children's active role in early education. In Hong Kong, little is known to how children may actively participate in learning with the teachers. This study focuses on children's responses to teachers' involvement in play activities, and how children's responses may be determined by teachers' beliefs and practices. Rogoff's three lenses of analysis address the link between children's responses, and teachers' beliefs and practices. The ethnographic methodology with the use of videotapes and fieldnotes is to observe teacher-child interaction. Six teachers from two local kindergartens form the key informants. Participant observation, teacher individual interviews, and field notes are used to collect research data. Braun and Clarke's six-phase guide is adopted to conduct the thematic analysis. Pre-set themes are developed based on the research questions with reference to literature. The pre-set themes of teachers' roles are director, play leader, and co-player, and children's responses are extension, acceptance, rejection, and ignorance. The study also includes other emerging themes beyond these categories. Findings may show the social forms of teachers and children in classroom practices, and give insights into the roles of teachers that encourage co-constructive learning in play activities. Political implication is generated so that more resources can be allocated to teachers continuing professional training for quality learning through play.

Keywords: Children Responses, Teacher-child Interaction, Teachers Beliefs, Teachers Practices

Teachers and Values Education in China: Perceptions, Practices, and Implications

18 May 2023 I 15:05-15:20

Ji YING
The Education University of Hong Kong

Liz JACKSON
The Education University of Hong Kong

Abstract
It is a widespread assumption in many cultural contexts and within the moral and values literature that teachers are moral exemplars. In China, there is a particularly long and paternalistic tradition of regarding teachers as moral guardians and moral authorities who shall not be challenged by students or parents. However, in the wider context, the notion of 'teacher as moral authority' is becoming problematic as teaching is increasingly defined by many "in terms of the acquisition and practice of skills of pedagogy and management in a contractually defined framework of professional responsibilities and obligations" instead of a reference to moral obligations and personal virtues and values. It is in this context that our research explores mainland Chinese teachers' perceptions and practices of cultivating moral values in education and reflects on what shapes these perceptions and practices. We conducted online semi-structured interviews with 20 secondary teachers in mainland China and analysed the data using a thematic analysis approach. Our primary findings show that the teachers regard moral education to be an important part of their professional responsibility. However, they also hold strong beliefs of 'parental determinism' according to which parents, instead of teachers, should be responsible for shaping children's moral values. Such teacher perceptions are in contrast with conventional Chinese/Confucian values about teachers as moral authorities, and reflect the changing roles and status of teachers, and teacher-student and teacher-parent relationships in contemporary China.

Keywords: China, Moral Education, Moral Values, Teachers

Translanguaging and Codeswitching in Classroom Practice Through English-Medium Instruction (EMI) Implementation: Teachers' and Students' Perspectives

18 May 2023 I 14:20-14:35

Soryaly CHAU
The Education University of Hong Kong, An Giang University

Abstract
Teaching and learning academic programs through English or EMI implementation in higher education have been prevalent in EMI literature globally, from the Anglophone to non-Anglophone countries or from "inner circle" to "outer circle" and "expanding circle" of world Englishes. In Vietnam, the EMI implementation has been witnessed in a few universities since the 1990s, but mostly in the big cities. The paper aims to investigate translanguaging and codeswitching in classroom practices via EMI implementation in terms of teachers' and students' perspectives within the two majors: agriculture and business administration in one university in Mekong Delta area of Vietnam. In terms of qualitative research method, national policy documents, in-depth interviews and classroom observation are used to conduct this study to examine teachers' and students' perspectives, in which six teachers and ten students are invited to address their point of views through the interviews towards the issue by mother tongue (Vietnamese). Four sessions of classroom observations are also examined to discover the two-way interactions that translanguaging and codeswitching are employed in the classroom practices. For the data analysis, themes and subthemes are coded and then reported for the next stage of the study with the support of NVivo after Vietnamese translated into English version. The paper's findings are expected to explore translanguaging and codeswitching during process of EMI classroom practice in terms of EMI implementation of the two majors mentioned above. It also brings the future researchers to continuously conduct other studies relevant to the phenomenon nationally and regionally.

Keywords: Classroom Practices, Codeswitching, EMI Implementation, Teachers' and Students' Perspectives, Translanguaging
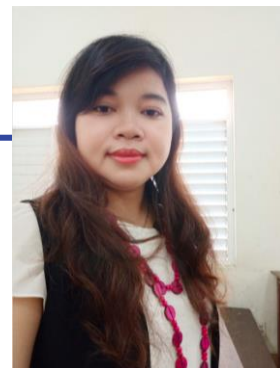
Understanding Principal Well-being: A Quantitative Study

18 May 2023   I   09:45-10:00

Junjun CHEN
The Education University of Hong Kong

Abstract
The occupational well-being of school principals has played a vital role in the pursuit of individual and school wellness and success. However, principals' well-being worldwide is under increasing threat because of the challenging and complex nature of their work and growing demands for school standardisation and accountability. This paper aimed at understanding the situation of principal well-being in Hong Kong during the pandemic and which dimensions that principal well-being has involved. This paper reported a qualitative study with 324 principals from Hong Kong. Exploratory and confirmatory factor analysis approaches were used to deal with the dataset. As a result, a 24-item model with six dimensions demonstrated a good model fit. The six dimensions consist of physical, cognitive, emotional, psychological, social, and spiritual well-being. This multidimensional principal well-being model present a general picture of principals' occupational well-being associated with job nature, well-being literacy, leadership and context. Based on published literature and the current study, this theoretically and empirically model serves as a robust tool for comprehensively understanding principal well-being and provide the implications for future research to further explore principal well-being literacy, drivers and outcomes. The model identified in this study will promote principal well-being as an essential component of schoolwide well-being, quality education, and a wellness society.

Keywords: Hong Kong, Quantitative Method, School Principal, Well-being Element, Well-being

Visualizing Scientific Knowledge and the Development of Technology-enhanced Formative Assessment Research (2009-2022)

18 May 2023   I 10:00-10:15

Juan GAO
The Education University of Hong Kong

Lan YANG
The Education University of Hong Kong

Abstract
Black and Wiliam's seminal work on formative assessment (FA) theory in 2009 filled a significant conceptual gap in FA research and has since guided a substantial number of studies. This study examines the research development trends of technology-assisted formative assessment (TFA) by analyzing 295 publications from 2009 to 2022 in the Web of Science Core Collection using scientometric analysis. The study found that the USA was the most productive country, while Natl Taiwan University Science and Technology was the leading institution with 68 publications. Hwang G.J., Beatty I.D., and Chang H.F. were identified as the top three influential authors. The analysis of representative keywords revealed that feedback, higher education, academic achievement, formative experiment, performance, perception, intervention, motivation, online education, formative feedback, efficacy, and achievement goal were the most frequently used keywords from 2009 to 2022. The study also identified positive trends for research topics such as formative assessment, assessment, blended learning, learning analytics, online formative assessment, and secondary education. The study further identified six meaningful clusters based on cluster analysis, and key findings of seventeen representative studies retrieved from these clusters will be presented in light of the FA theory to discuss what key aspects of the FA theory have been examined. The authors will discuss how key findings of this review can contribute to the future of TFA in the 21st century.

Keywords: Formative Assessment Theory, Research Trend, Scientometric Analysis, Technology-enhanced Formative Assessment, Visualizing Scientific Knowledge

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