Day 2 Breakout Session II (11.35am - 12.15pm)

Venue: SR 6.05

[80] A case study of using blended learning pedagogy in science general education subjects

Author/s: Kim Hung Joe Lam

Abstract: We would like to present the blended learning approach in our popular science general education courses. This approach has shown significant enhancing the learning experience of our students. This study is to share our current practice and to report the effectiveness of blended learning activities in increasing student engagement and motivation in two foundation-year general education science subjects, ABCT1D09 Greenhouse Gases and Life and ABCT1D10 Food Color Taste and Smell. We utilized various types of blended learning activities and technology to sustain students' learning. Our findings indicated that students preferred activities with interactive components, such as PolyU EDTools polls, Panopto videos, self-quizzes, and shared worksheets, as these elements were helpful in their learning. Our university recently introduces Hybrid Immersive Virtual Environments (HiVEs) facilities to support university teaching. In addition, Generative Artificial Intelligence (AI) is now becoming very popular and significant impact on various industries including education. Due to convenience and high productivity, many students are now using AI tools to assist their study, such as real-time feedback and guidance. In order to catch up the modern technology to support teaching, we also tried and report the use of HiVEs and GenAI to prepare teaching materials and to support our current teaching.

Method: Two foundation year subjects (ABCT1D09 Greenhouse Gases and Life (registration number: 91) and ABCT1D10 Food Color Taste and Smell (registration number: 100)) were selected for this study. A total of 191 full time undergraduate students having broad academic background were invited to participate in this research through questionnaire survey and focused group interview. The effectiveness of this study was evaluated by questionnaires and by focus group interview on students' perception. For both ABCT1D09 and ABCT1D10, students' academic performance was assessed based on continuous assessments only, and the blended learning activities were breakdown and design into various task for selected topics. The design blended learning activities for both subjects including (i) team work tasks from students and (ii) student-initiated voluntary learning activities. Results: It was also noteworthy that students found laboratory classes and projects to be valuable supplements to their learning experience. Overall, students reported high levels of satisfaction with the designed pedagogy, with an average satisfaction rating of 4 out of 5. The preliminary results of student survey reflect that students were satisfactory of using HiVEs for their virtual site visit. These results suggested that this pedagogical approach likely sustained students' interest in learning science subjects.

Reference: Chung P.Y., Lam KH., Leung C.W., Mak C.L., Mark K.P., Lam J. (2023) Active learning opportunities outside classroom and laboratory In: Hong C., Ma, W. (eds) Applied Degree Education and the Shape of Things to Come. Springer, Singapore. https://link.springer.com/book/10.1007/978-981-19-9315-2

[94] An Investigation into the Role of Creative Self-Concept and Entrepreneurial Mindset in Innovation and Entrepreneurship Education in High Education

Author/s: Vincent K.K. Leung, Pamsy P Hui and E.W.K Yeung

Abstract: Entrepreneurial behaviours and competencies are what many higher education institutions (HEIs) intend to encourage among students. Although typically associated with startup

activities, entrepreneurial behaviours and competencies are strongly linked to employee proactiveness, problem-solving ability, and on-the-job learning initiatives. Despite the consensus about their importance, our knowledge of developing entrepreneurial behaviours and competencies in higher education is limited. In this connection, we attempt to deepen our understanding of this matter by investigating the relationships among entrepreneurial mindset (EM), creative self-concept (CSC), creative behaviour (CB), and entrepreneurial intention (EI) among students in a university in Hong Kong. We conducted a pre-course survey in an online module on Innovation and Entrepreneurship for third-year students from different disciplines. Our data (n=463) revealed a positive interaction between CSC and EM in promoting CB. We also found CB to mediate the relationship between CSC and EI fully. Our findings were consistent with prior research highlighting CSC's importance in encouraging students to pursue creative and entrepreneurial activities. More crucially, mindset matters – a positive EM could encourage CB independently and as an "amplifier" of CSC. CSC (a belief) and EM (an attitude) can be cultivated through education. We explore possibilities for HEIs to develop CSC and EM among students, especially in learning and teaching activities through a digital medium.

Day 2 Breakout Session II (11.35am - 12.15pm)

Venue: SR 6.06

[108] The Potential of ChatGPT in Education: Evolution and Challenges

Author/s: Zhihua Zhang and Toshiyuki Yamamoto

Abstract: The emergence of ChatGPT in the rapidly evolving landscape of large language models (LLMs) and artificial intelligence (AI) has introduced a new realm of interaction between humans and AI. This study focuses on ChatGPT's evolution and capabilities, particularly its implications for education. It begins with a review of literature on ChatGPT and LLMs, discussing the potential and challenges of integrating prominent ChatGPT models into higher education. Through a case study in Data Science programming, the paper examines how ChatGPT can be utilized for personalized tutoring and learning support, offering tailored assistance and fostering creative learning experiences. ChatGPT shows promise in providing personalized tutoring, learning support, and facilitating creative learning environments. Yet, challenges such as information reliability and ethical considerations must be navigated. Consequently, while ChatGPT holds the potential to revolutionize education, addressing these challenges cautiously is crucial. Furthermore, the paper suggests that ChatGPT can aid in developing 21st-century skills like critical thinking, communication, collaboration, and creativity, departing from traditional educational methods and embracing a constructivist approach that stimulates cognitive growth and enhances learning abilities. The study's rationale stems from the rapid advancements in LLMs and AI, coupled with the growing interest in their educational applications. It provides a comprehensive assessment of ChatGPT's potential and challenges in education, calling for further research into its implementation. To handle challenges such as information reliability and ethical concerns, institutions are encouraged to formulate policies and procedures guiding ChatGPT's use. In summary, ChatGPT's emergence holds transformative potential in education, demanding a measured approach to surmount accompanying challenges. The study serves as a plea for extensive research and the establishment of guidelines to effectively harness ChatGPT's power in education.

[123] Enhancing 21st Century Skills through Simulated Platforms in Virtual Classrooms: A Metaverse Approach

Author/s: Manpreet Singh

Abstract: Metaverse technologies have entirely transformed how students interact with course materials and one another in virtual classrooms. This study investigates the use of a simulated platform in a virtual classroom where students act as digital avatars and take part in assignments assigned to groups. The teacher, likewise represented by a digital avatar, minimally interferes by giving directions so pupils can take charge of their learning process. Students begin working on their assigned group projects through self-exploration and discussions in the virtual lecture hall. Students can actively engage in and contribute to the learning process thanks to the digital avatars' sense of immersion and presence. A seamless transition between various learning areas is made possible by using portals in the virtual environment, increasing student engagement and a sense of continuity. A separate virtual environment, the evaluation area, is provided for students to demonstrate their completed work to promote a sense of belonging and individual expression. This separate virtual evaluation area serves as a platform for students to share their work and receive feedback from peers and the teacher. According to preliminary findings, using simulated platforms in virtual classrooms encourages a dynamic learning environment. It allows students to take charge of their learning while fostering the growth of 21st-century abilities, including cooperation, communication,

critical thinking, and creativity, through active engagement and self-expression. Furthermore, this immersive learning approach strengthens students' digital literacy as they navigate and interact with the metaverse platform. By engaging with digital avatars and utilizing various tools and features, students gain proficiency in using technology for educational purposes. In conclusion, using simulated platforms in virtual classrooms, facilitated by metaverse technologies, offers a promising approach to enhancing student engagement, fostering 21st-century skills, and strengthening digital literacy. In addition to the current findings, future studies should concentrate on assessing the long-term effects of this approach on student learning outcomes and exploring innovative pedagogical strategies to maximize the potential of metaverse technology in education.

Day 2 Breakout Session II (11.35am - 12.15pm)

Venue: SR 6.07

[120] A proof-of-concept study on the efficacy of agent-enabled nudge messages on learners' online learning behaviours

Author/s: Koon Guan Lee, Ren Guo, Paul Cheung and Poh Nguk Lau

Abstract: As flip learning gains traction in higher education (HE) courses in a post-COVID era, it is critical that instructors are able to monitor learners' learning progress and preparation for in-person classes. A common problem that lecturers at Polytechnics in Singapore face is that learners do not watch the asynchronous lecture videos and complete tutorial worksheets before coming to tutorial classes.

To counter this problem, a proof-of-concept pilot was implemented to explore how autonomous email messages could nudge learners towards adopting such positive learning behaviour in a flipped learning environment. Three tutorial lessons in a freshmen level microbiology course (n = 487) were selected. Messages were configured using an intelligent agent (IA) tool in the Learning Management System (LMS) to deploy customized emails. Learners who did not watch the lecture videos received a reminder message two days before class. If they did not respond by watching the videos, another reminder email would be triggered one day before the scheduled class. To nudge learner action, links to the lecture videos, the tutorial worksheet and time management resources were embedded in the reminder emails. Encouragement emails were sent to learners who viewed the videos to reinforce positive learning behaviour.

From LMS analytics, it was observed that there was a general decreasing trend in the number of learners who received reminders (meaning that they watched videos ahead of time) across the three tutorial sessions (from 48% to 42%), with the video analytics data showing a sharp upward spike in video views coinciding with the launch of the study. Post-survey results showed that majority of learners perceived the reminder and encouragement emails to be useful. Interestingly, despite the increased number of video viewers, a McNemar analysis of paired responses in pre- and post-surveys revealed an increased proportion of learners reported that they were not able to watch videos according to the course schedule. This could be explained either by enhanced learners' self-awareness from email reminders or confounding factors from the time of survey. Focus group discussions revealed that adoption of a personal and encouraging tone in the emails, provision of direct links to the learning resources, and strategically timed emails were the key factors in promoting learner actions. Overall, the IA reminders were considered effective as supported by the quantitative and qualitative data, showing the potential of such tools to promote self-awareness and desirable learning behaviour.

[159] Enhancing Follow-up Learning Experience: Leveraging Topic Guidance Enquiry Framework and NLP for Tailored Student Engagement

Author/s: Kim Fung Yip

Abstract: This research study investigates the effectiveness of a follow-up learning approach that utilizes Topic Guidance Enquiry Framework prompts to guide NLP models and actively engage students in assessing their abilities and enhancing their understanding of different subject matters. The purpose of this study is to improve students' learning outcomes by providing tailored missions, feedback, and supplementary resources based on their interactions with NLP-powered systems.

In this study, Topic Guidance Enquiry Framework prompts are provided to half of the students via email at the end of each lesson. These prompts guide students in generating personalized questions and insights using NLP models, catering to their individual strengths, weaknesses, and areas of interest. The research methodology involves collecting student responses, analyzing feedback on suggested missions, and providing additional resources to enhance their learning experience.

The evaluation of this follow-up approach is based on comparing students' performance in the midterm examination with and without the intervention. The empirical results, obtained from real-world data and observations, are analyzed using statistical analysis to determine the impact of the intervention on students' learning outcomes.

The findings of this study contribute to our understanding of the effectiveness of using Topic Guidance Enquiry Framework prompts and NLP techniques for tailored student engagement. The results provide insights into the benefits of personalized missions, feedback, and supplementary resources in enhancing students' learning experiences and subject proficiency.

Based on the empirical results, this study justifies the adoption of this follow-up learning approach as a means to improve student engagement and learning outcomes. The recommendations include the integration of Topic Guidance Enquiry Framework prompts and NLP models into educational practices, providing personalized support to students and enhancing their overall learning experience.

Day 2 Breakout Session II (11.35am - 12.15pm)

Venue: SR 6.08

[161] eTeachers Online: Developing an organic, technology-enhanced professional development platform with roots in the real world

Author/s: Timothy Taylor

Abstract: This paper will present the aims, approach and outcomes of a long-term project called "eTeachers Online", designed to provide Hong Kong primary and secondary English teachers with a wide range of highly-contextualized professional development resources. The project focused on delivering professional development support from both professional peers in the primary and secondary local school sector as well as from academics in pre-service and in-service teaching programmes at a Hong Kong university. Additionally, the professional development resources and training were delivered in multi-modal contexts, including face-to-face, online and hybrid. Training activities were held on the university campus, in the local schools, and on the centerpiece of the project, an online professional development platform: https://eteachers.online. Resources on the platform, including the experience-sharing and training media, were made continuously available to local teachers. Over the course of the project, data reflect that in addition to supporting hundreds of local Hong Kong English teachers, eTeachers Online attracted English teaching professionals from the Philippines, Indonesia, and other Asian countries as well. The project data reflects a positive response from local teachers regarding their use of the eTeachers Online platform, which provided them with access to free, relevant and readily accessible teaching training content from the university sector. The aims of the project included the strategic development of the university of education as a center of expertise in the integration of technology in language teaching, as well as the key strategic objectives regarding innovative pedagogy; quality education; knowledge transfer; development of learning communities and connecting international communities of stakeholders with a shared interest in promoting English teaching enriched with IT and eResources. The project also met several aims of the Education Bureau of Hong Kong's Fourth Strategy on Information Technology in Education (ITE4): Realizing IT Potential; Unleashing Learning Power; a Holistic Approach, namely: enhancing the quality of e-learning resources; transforming pedagogical and assessment practices; and building professional leadership, capacity and communities of practice.

[162] Facilitating Large-scale Multi-cultural Exchange in Global Citizenship Education: Opportunities and Challenges

Author/s: Emma H Zhang

Abstract: Collaborative online international learning (COIL), also known as virtual exchange (VE), is an emerging pedagogical field with growing communities of practitioners around the world. Compared with study abroad programs, the advantages of COIL include cost effectiveness, tech-enabled accessibility, and multicultural exposure. Embedding COIL in existing courses can potentially enable a far higher percentage of students to encounter and engage with peers from different cultures than traditional overseas exchange programs. Existing literature shows that the key advantages of COIL are often not fully realized in many COIL collaborations. COIL programs are typically small in scale and enable intercultural exchanges between learners from two different cultures. This paper reports the organization and facilitation of a large-scale multi-cultural global citizenship course that involves over 1,000 undergraduate students from ten higher education institutions from six countries around the world. Students were expected to fulfil a total of ten hours of synchronous and asynchronous multi-cultural engagement over a 13-week semester. Students'

global citizenship development was measured with pre- and post-course questionnaires, students' pre- and post-course reflections, and the quality of their global citizenship projects. The paper demonstrates that creating a multi-cultural space for peer-to-peer exchange facilitates global citizenship development in an authentic setting and cultivates students' openness to other cultures. However, students need adequate external incentives to maintain engagement. Course fulfillment is the strongest motivator among students of different cultures. Furthermore, demographic variables influence students' rate of program completion. Students with limited experience travelling overseas tend to embrace multi-cultural engagement in the digital space more readily than students with higher level of overseas mobility. Program completion rate of female students tends to be higher than male students. This paper concludes with insights gained from facilitating a large-scale multicultural global citizenship COIL course, including staff training and preparation, program design, and learner support.

Day 2 Breakout Session II (11.35am - 12.15pm)

Venue: SR 6.09

[77] Quantitative Analyses on Students' Reading of Course Materials and the Page Views Effects on Academic Performance in Online Courses

Author/s: Sze Kiu Yeung

Abstract: Students' reading of course materials can be measured as data was available for analyses. In each course, students at the Singapore University of Social Sciences (SUSS) would receive digital course materials comprising an e-textbook(s) and a study guide.

Purpose

The purpose of this study, based on data from the Academic Year 2020, was to find out, quantitatively, over 10 online courses, which kind of course materials was popular for students' reading. At the same time, we would also want to know was there a correlation between students' reading of course materials and their performance. Thereafter, we would learn whether a statistical significance existed between reading behaviours and performance.

Methodology

Given that a lot of data was available for analyses, a statistical approach was used to first determine, quantitatively, a comparison between students' reading of e-textbooks versus study guides. Secondly, an analysis of correlation on reading behaviours and performance in both e-textbooks and study guides were conducted. Finally, non-parametric statistical tests were performed to determine the significance in reading behaviours between students with "Pass" grades and those with "Fail" grades in both e-textbooks and study guides.

Results

From the data analysed, it was found that students' reading of the study guides (n = 1,950) were more popular compared to their reading of e-textbooks (n = 1,582); that a very weak positive relationship, r (0.151), existed for students who read the e-textbooks and almost no relationship, r (0.084), for reading the study guides when the data was correlated with performance. Furthermore, a statistical significance existed such that the medians were different in both e-textbook and study guide reading between students who passed the online courses compared to those who failed in these courses.

Conclusion

This study will be of interest to institutions with data available on students' readership. It is relevant to the theme of learning, teaching and education in the era of global digital futures as data analytics are used for this quantitative study on students' preference between e-textbook and study guide reading as well as on students' reading behaviors and performance.

[104] The Zoom Revolution: Redefining Blended Leaning through Virtual Connections

Author/s: Ellie Chan

Abstract: The rapid technological advancements in recent years, particularly the widespread adoption of Zoom during the pandemic, have had a transformative impact on education. Among these changes is the advent of blended learning, a hybrid model that fuses traditional face-to-face instruction with online, technology-enhanced learning activities. This approach offers an adaptable and personalized educational experience, promotes active learning, and fosters communication and

collaboration between students and teachers. This research aims to evaluate the enactment of blended learning in higher education, focusing on the use of real-time online Zoom Meetings as a virtual classroom. A comprehensive methodology incorporating both quantitative and qualitative data collection methods was employed. Classroom observations, student feedback surveys, focus groups, and interviews with lecturers and teaching assistants were conducted to gather valuable insights from a variety of stakeholders. Statistical data from Canvas learning management systems and online video logs, as well as any online e-learning tools used, were also included in the analysis. The findings of this study provide a holistic understanding of the effectiveness of blended learning via Zoom Meetings. The results indicate that the implementation of blended learning through Zoom Meetings had a positive impact on student engagement, collaboration, and satisfaction. Students reported increased flexibility in their learning experience, enhanced access to resources, and improved communication and interaction with instructors and peers without geographical barriers. Importantly, blended learning through Zoom Meetings has demonstrated particular benefits for passive students, providing them a level of anonymity and reducing the pressure associated with face-to-face interactions. Consequently, these students demonstrated increased participation and engagement The study also contributes to the ongoing debate on the effectiveness of blended learning and demonstrates the transformative power of virtual connections. The Zoom revolution has already redefined the boundaries of education, providing a platform that enables flexible, personalized and collaborative learning experiences.

This research highlights the importance of leveraging virtual technologies like Zoom in a blended learning approach in higher education to increase student engagement and achievement.

Day 2 Breakout Session II – Award Nominee Presentations (11.35am - 12.15pm)

Venue: SR 6.12

Technology Innovation Award

Author/s: Steven Tok and Desmond Ng

Abstract: The Department of Educational Development in Singapore Polytechnic has introduced Asynchronous Practicals (AP) to enhance traditional face-to-face practicals. These online practicals leverage advanced eLearning tools to transform images and videos into interactive simulations, allowing students to engage with equipment virtually. This approach aims to boost student engagement, promote deeper learning, and enhance competence and confidence. Additionally, it may reduce the time needed for pre-lab briefings, offering instructors more opportunities to oversee students during in-person practicals while ensuring consistency in teaching methods across the faculty.

Technology Innovation Award

Author/s: Jonald Justine Ltugot

Abstract: Cerebro is a courseware providing ready-made and curriculum-based digital contents for schools, allowing teachers to ease their workload and reduce their preparation time by up to 400 hours per year. It currently features more than 4,000 lessons, quizzes, test banks and e-books from more than 120 courses covering at least 95% of the entire Philippine K-12 curriculum, and is currently being implemented in nearly 30 schools throughout the country.

Day 2 Breakout Session II – Award Nominee Presentations (11.30am - 11.50am)

Venue: SR 6.13

Community Outreach Award

Author/s: Leonora Astete

Abstract: Research showed that only 10% of the Philippines' Indigenous learners in remote areas finished elementary school. This sad reality on the indigenous peoples' education status pushed the Lyceum of the Philippines University (LPU) through its Community Outreach and Service Learning (COSeL) unit in 2009 to strengthen its social responsibility focused on education. By 2011, making education accessible to the "remotest of the remote" became LPU's unwavering goal. To date, LPU actively works with four ethnolinguistic groups -- the Agta of Quirino and Isabela, Ayta of Zambales, Batak of Palawan, and Dumagat of Aurora, Rizal and Quezon. Community engagements come with many challenges, so we prepare our volunteers through massive orientations. Hiking long hours in mountains or crossing rivers and seas under the sun and rains, riding in carts over uneven terrains, or sleeping with only the sky as the roof has become a gratifying experience as they conduct literacy and numeracy tutorials, sports clinic, livelihood and leadership training. By 2012, we started building schools and community libraries with our partner indigenous communities. Computer equipment to facilitate learning and to document the dynamic exchange of ideas became a felt need. This started our Teaching with Technology program with Information and Communication Technology Department. In 2014, the LPU-Microsoft partnership was forged when teachers in our partner communities requested training on more advanced computer applications. This paved the way for the creation of LPU- Microsoft students and teacher ambassadors by 2015 and continuing to date.