

Day 2 Breakout Session I (10.50am - 11.30am)**Venue: SR 6.05****[106] Effectiveness of internships in acquiring lifeskills from the perspective of the student and the employer****Author/s:** Lih-Han Khoo

Abstract: Internship offers a depth of teaching and learning new experiences for every student playing a pivotal role in completion of diploma courses. It provides an opportunity for students to acquire lifeskills applicable in real-life situations.

In 2022, the Ministry of Education Singapore ("MOE") and the polytechnics/Institute of Technical Education ("ITE") have worked together to develop a common lifeskills framework, comprising 10 lifeskills to help students navigate work and adulthood. Lifeskills have been defined as abilities for adaptive and positive behaviour, that enable individuals to deal effectively with the demands and challenges of every day. These lifeskills been contextualised to the polytechnic and ITE setting, where many students will enter the workplace after completing their education.

This paper seeks to analyse the effectiveness of internship program (for a sample group of learners from Nanyang Polytechnic School of Business Management) on acquiring lifeskills based on the students' learners' assessment of his/her lifeskills competencies before and after the completion of the internship as well as the employers' feedback on students on lifeskills competencies after the completion of the internship.

The research findings support that internships for this sample group of business school learners were useful in acquiring communication/engagement skills/self-awareness/mental resilience. While internship is an essential component of acquiring lifeskills for the students, the academic life of a student also plays an important role for the student in complementing their experience at internship in achieving the objectives of the lifeskills framework by MOE.

[135] Developing a global framework for university-industry collaboration**Author/s:** Yi-Teng Shih and Luqian Wang

Abstract: University-industry collaboration has been widely implemented by universities worldwide in various forms, aiming to foster innovation and technological advancement. This research specifically focused on one collaborative modality: curriculum development and implementation. Prior studies have proved the benefits of such collaboration for all stakeholders involved, but also identified challenges and barriers hindering effectiveness in different contexts. Universities are expected to constantly contribute to the innovations on course design, enabling the future students acquire the necessary skills to navigate the rapidly changing technological landscapes and a fiercely competitive job market. From the industry's standpoint, university-industry collaboration presents valuable opportunities to engage with emerging talent, identify potential employees, and shape the curriculum aligning with industry demands. Effective cooperation also enables industry to gain fresh perspectives, innovative ideas, and potential partnership with academia, fostering a culture of continuous innovation and growth. This research aims to develop a co-operative framework regarding effective University-industry collaborations in curriculum design and delivery, fostering innovation, achieving effective knowledge exchange, and enhancing learning outcome of students. We established a toy design curriculum for second year undergraduate students majoring in product design, partnering with Spin Master, a Canadian toy production company. Professional toy inventors from Spin Master actively participated in the course as teaching fellows, delivering lectures,

seminars, and tutorials alongside supervisors from PolyU Design. By involving professionals in the curriculum planning and conduction process, the design courses can harness their expertise and practical experience, thereby offering students tangible insights and improving their employability prospects. The action research model proposed by Kemmis and Mc Taggart are adopted in this research, which is a spiral process commonly applied for investigating pedagogical hypotheses and project, primarily comprising planning, implementation, observation, and reflection. It is an effective approach serving to improve and revise teaching practices and research procedures as each cycle builds upon the observation and reflection from the prior cycle. In this study, the action research framework guided four principal steps: reflection, planning, implementation, and observations. The reflection section involved critically reviewing prior teaching experience, design outcomes, and feedbacks to identify issues and propose research questions. The planning step entailed carefully developing teaching strategies and activities to address the problems identified during reflection. Furthermore, implementation involved executing desired outcomes. The final section is the observation step, which closely linked with implementation, facilitated periodic reflection and re-planning, enabling data collection, extraction, and evaluation. This framework has demonstrated its success through a comprehensive assessment conducted by students, academic supervisors, and industrial representatives involved. Students stated that the participation of industry enhanced their understanding concerning actual industrial needs and their workflows, while also fostering their human-centred design thinking skills. They highlighted the direct interactions with industrial design professionals as being particularly beneficial for their career planning and development. Furthermore, both course supervisors and industrial partners reflected positively on the curriculum design and student learning outcomes, which were well-aligned with the initial objectives and expected performance, successfully bridging the gap between industry's requirements and the education offered.

Day 2 Breakout Session I (10.50am - 11.30am)**Venue:** SR 6.06**[88] Enhancing Student Engagement and Learning through a Digital Video Archive: A Case Study in Hong Kong****Author/s:** Henry T. Y. Fung

Abstract: In times of uncertainties where virtual learning has become prominent, it is essential to make learning resources available for students to explore through digital means. This study, situated in a public university in Hong Kong, focuses on curating a digital video archive featuring exemplary student works to facilitate peer-to-peer learning. Fifty high-achieving students majoring in communication were invited to share about their learning experiences and the processes of creating different class projects in camera interviews. These interviews were then turned into 30 short peer-learning videos, edited by students before uploading onto the digital archive. The archive was promoted to more than 200 students via mass email, in-class promotions, and the school webpage during the Fall 2022 and Spring 2023 semesters. Peers can access the digital archive for seeking inspiration and guidance anytime and anywhere using personal computers, tablets, and/or mobile phones.

To explore how students use the digital archive to engage in active learning and construct their own knowledge, three focus group interviews were conducted involving 15 student representatives coming from different school years and concentrations. Results revealed that the digital archive has a positive impact on students' learning by offering an accessible, self-paced learning opportunity for them to understand course materials at home. This is particularly useful during the add/drop period when students want to learn more about the course before enrolment. Moreover, the advice from students and work samples shared in the videos provide a grounded perspective for peers to learn about the instructors' expectations. The high-achieving students also benefitted from the video project as it provides a good opportunity for them to consolidate the knowledge gained and reflect on their learning experiences. Many of them claimed that sharing their challenges and accomplishments in front of the camera bolsters their enthusiasm for learning.

This innovative digital video archive project offers a valuable resource for enhancing peer-to-peer learning and promoting student engagement across diverse academic backgrounds. By incorporating student feedback, the archive can continue to evolve and provide an effective and accessible tool for teaching and learning. Future studies should explore the use of the digital archive in benefitting the learning outcomes of students.

[139] Interweaving Bloom's Taxonomy and Six Thinking Hats in Online Class Environment to Augment Student Engagement and Cognitive Gain**Author/s:** Dr Rupali Ahluwalia

Abstract: Educational systems have evolved, particularly after the impact of the Corona Virus Pandemic and digital era. In blended and hybrid classes it is needed to adopt pedagogies to augment students' engagement. Premised on this, the study in the initial section delves into understanding the term 'education' and then enumerates Bloom's Taxonomy. It focuses on the need to go beyond Revised Bloom's Taxonomy, ameliorating Bloom's Taxonomy to a Wedge Shape Model. In an online or hybrid class, active learning techniques play a vital role and act as a hook for learners. The Six Thinking Hats method of thinking developed by Dr Edward de Bono can be an appropriate online active learning technique as it embeds parallel thinking. Many research studies have

considered the application of De Bono's Six Thinking Hats Technique in answering HOTS (Higher Order Thinking Skills) based question but a gap exists in examining this technique as an online active learning method. This research is amongst the first to interweave Revised Bloom's Taxonomy Wedge model with Six Thinking Hats approach. This study is conducted in online Classes in Undergraduate Program of B.Com (Honours) in India on the topic Corporate Social Responsibility. Questions related to the topic were mapped to levels of understanding and assigned the six hats to interrogate and evaluate its impact on student engagement and cognitive gain. The Research has been carried out with scrupulous attention to detail. The method the study adopted was two problem solving sessions, PRE-TEST and POST-TEST of Ninety-minute each conducted with Six groups of 10 students in each group of the class. Time given in solving HOTS is a crucial element in both the Pre-Test and Post-Test. Pre-Test used revised Bloom's taxonomy as a framework with more time on LOTS (Lower Order Thinking Skills), next in Post-test, approach of Wedge shape of the Bloom's Taxonomy was implemented with more time on HOTS. To induce student engagement Six thinking Hats approached was used. The tools used to collect data were: Marks/Grades of Pre-Test and Post Test, classroom observation by the teacher and group interaction. Answers of all the groups were analyzed. It was observed that the marks of all the groups increased gradually in the Post test when Teacher used Bloom's Wedge Model and focused on honing the higher order thinking skills of students. The narrow peak of the Revised Bloom's taxonomy when replaced with the broad wedge led to enhanced cognitive gain and ability to answer questions based on higher order thinking skills. Revealed through findings is that Six Thinking Hats when Intertwined with Revised Bloom's and Wedge model created an engaging online learning environment and escalated cognitive gain. The study also presents a unique model illustrating the results. Its significance is long lasting as online and hybrid classes are implemented by many world class institutions even after the pandemic.

Day 2 Breakout Session I (10.50am - 11.30am)**Venue: SR 6.07****[119] Enhancing Digital Security Awareness among Thai Youth: Lessons from the Think-Digital Platform****Author/s:** Apinya Hiranyawech, Songklod Saengvoratip and Worawat Lawanont

Abstract: In an era of rapid and advanced technology, the responsibility of digital citizenship has become paramount. Recognizing that digital citizenship extends beyond students to individuals of all generations, future directions is a comparative analysis of digital citizenship knowledge across different age groups. These insights will effectively guide educational adaptations to ensure that everyone becomes a responsible and adept digital citizen. This paper aims to understand the current situation regarding digital citizenship among Thai students aged 6 to 18 years old.

The study emphasizes the pressing need to address two crucial gaps: 1) digital security, by educating and raising awareness about the potential consequences of neglecting digital security practices, and 2) digital use, by educating and raising awareness about balancing time online and offline and utilizing digital resources in a constructive manner. The study acknowledges certain limitations, notably the restricted scope of the assessment, comprising only 30 questions.

Based on the collected data from 15,965 students through an online assessment on the Think-Digital Platform. The students exhibited a moderate level score between 50-74 percent in digital literacy, digital communication, digital rights, and digital use, in descending order. However, when we examine the scores, we clearly see differences in the results between age groups, which are primary school, middle school, high school, undergraduate, and general. For instance, the older age group, namely students in high school and older, have significantly higher scores in topics of safety and emotional intelligence where their scores are over 87 and 84 percent respectively. Other topics present the same pattern. However, all age groups show an alarming level of score in use of digital and security, where the highest score from either of the topics was only 56 percent. The range of the average score for digital use was 46 to 56 percent in all age groups and 42 to 55 percent in the topic of digital security across all age groups.

In conclusion, this study sheds light on the current state of digital citizenship among Thai students, highlighting strengths in some areas and the need for improvement in digital security awareness and responsible digital use. Addressing these gaps and promoting digital security and digital use education are essential steps towards cultivating a generation of informed and responsible digital citizens. Furthermore, by comparing digital citizenship knowledge across age groups, the path is paved for tailored educational strategies that promote responsible digital behavior across all segments of society.

[125] A Study on the Integration of PaGamO into Engineering Ethics and Integrity Education in the Public Sector**Author/s:** Hou-Yi Ting

Abstract: To respond the United Nations Convention against Corruption, the Highway Bureau (HB) of the Ministry of Transportation and Communications (MOTC) in Taiwan has been conducting integrity education for students from elementary to high school for many years. Due to the COVID-19 pandemic, HB collaborated with a well-known online game learning platform (PaGamO) in 2022 to create a digital learning game called "Highway Tour: Journey with Integrity" to promote key policy knowledge. This study used the data of students who completed whole digital learning game (total

in 6 sections) from April 4 to July 31, 2022 as the sample, totaling 3,545 (including elementary, junior high and senior high school students). The purpose was to explore the learning outcomes of different age groups of students by integrating digital games into learning and managing instructional elements, and to analyze the effects of instructional elements on learning outcomes. The results showed that:

1. Overall, adopting digital game-based learning for promoting HB's key policy education reached a total of 355,777 young learners, which had a certain effect on improving the outreach rate of education promotion. Moreover, 83% of the participants expressed satisfaction with the engineering ethics and integrity education through digital game-based learning launched by HB MOTC.

2. In terms of policy awareness, the overall first-time correct answer rate for the 6 waves of tasks was 90.2%, indicating that more than 90% of students had a considerable degree of awareness of integrity education and engineering ethics.

3. From the perspective of instructional element management, more than 80% of the participants self-evaluated that integrating digital games into learning could effectively help them absorb the content of the instructional themes. 66% of the participants said that the difficulty of the questions was challenging, but the indication of key points (73%) and the combination of graphics and text (81%) made answering easier.

Finally, this study also provided three suggestions for the public sector to apply digital game-based learning for education promotion in the future, including: extending the planning of virtual-real integration education promotion through learning process data analysis; providing flexible module design and application modes, in order to diffuse the game-based learning mechanism and strengthen the evidence of learning outcomes; and providing diverse instructional design modes for learners of different age groups, to achieve differentiated instruction.

Day 2 Breakout Session I (10.50am - 11.30am)**Venue: SR 6.08****[174] SUSS's Journey: Mining Digital Footprints**

Author/s: Jennifer Mui Kheng Huang, Wee Leong Lee, Jess Wei Chin Tan, Ken Kian Xian Tan, Sze Kiu Yeung, Rui Chen, Joanne Suat Lym Goh, Matthew Shun Liang Chan and Adam Wong

Abstract: In the era of global digital futures and evolving landscape of higher education, emerging trends and cutting-edge technologies are expected to push the boundaries of traditional education practices. A wealth of data – digital footprints – are generated from digitalisation and the integration of a wide range of technology-based learning tools, strategies, and approaches. The utilisation of digital footprints has emerged as a promising avenue for understanding learner behaviour, and for enhancing the learning experience of individual learners. This abstract delves into the approach taken by the Singapore University of Social Sciences (SUSS) in harnessing the digital footprints generated as learners interact with the learning platforms. These digital footprints encompass a spectrum of interactions, from navigating learning management systems (LMS) to consuming e-textbooks, study guides, and video-based learning. The proposed approach amalgamates these diverse digital footprints into meaningful measures of engagement indicators or features and records. These digital footprints are supported by a technology stack for the efficient data storage and retrieval of voluminous raw data, pre-processing and transformation of learner digital footprints. By leveraging these data technologies, dashboards are created and deployed to educators to shed light on an individual learner's engagement profile, a tutorial group's engagement profile, a course's engagement profile, a programme's engagement profile. These dashboards are capable in facilitating 'as it happens-analyses' and ex-post analyses of engagement profiles. This capability benefits the institution in two-fold: (1) educators can now examine engagement profiles in dashboards – reducing the time and effort to access them from disparate sources and systems, and (2) educators can utilise the savings from this efficiency (of access to these learner profiles) to focus on what matters – making data-informed instructional decisions and interventions to enhance the learning experience of the learners, ultimately leading to improved academic success and wellbeing.

Day 2 Breakout Session I – Award Nominee Presentations (10.50am - 11.30am)**Venue:** SR 6.12**Exemplary Teaching and Learning Award****Author/s:** Vincent KK Leung

Abstract: In July 2022, a PolyU Team launched an initiative to provide students with global learning experiences through virtual classrooms. Amid travel restrictions during the COVID-19 pandemic, the program fosters cross-cultural exchange among diverse students, continuing PolyU's internationalisation efforts when supplementing exchange programs are suspended. The initiative targets up to 1,000 undergraduate and postgraduate students and prepares graduates with the ability to analyse international affairs with cross-cultural understanding.

Exemplary Teaching and Learning Award**Author/s:** Rodney Wai-Chi Chu

Abstract: This initiative, developed by a team comprising social scientists and educational technologists from PolyU, focuses on integrating the Hybrid Immersive Virtual Environment (HiVE) into frontline teaching. HiVE utilizes immersive virtual reality (VR) to create a revolutionary learning experience characterized by the 3Is pedagogy (Immersive, Innovative, and Interactive). It aims to enhance student engagement, and peer learning, provide flexibility in space and resources, and foster co-creation of learning content between students and teachers.

Day 2 Breakout Session I – Award Nominee Presentations (10.50am - 11.30am)

Venue: SR 6.13

Community Outreach Award

Author/s: Ka Yan Fung

Abstract: Specific learning disabilities (SENs), especially dyslexia, affect how people process and learn language-based information. We develop an AI-empowered SENs pre-screening and a Robot-enabled training system incorporating different interactive games to provide students with a pleasant learning environment. With a quick pre-screening and training solution, students with dyslexia can relieve their learning obstacles in the early stage. The system applies AI technology, the Human-Computer Interaction and Human-Robot Interaction method, data visualization, empathic design methodology, and scaffolding skills to our system to maintain our competitive edge. We truly believed that all students deserved a harmonious and pleasant learning environment.