



**Expo
2018**

e-Book



Talks

Curriculum and Learning Design

T1. Blended Learning in MBA

Dr. Andrew YUEN	MBA Programmes, Faculty of Business Administration
Canethy YIP	MBA Programmes, Faculty of Business Administration

The Master of Business Administration (MBA) Programmes started to pilot a blended learning mode (a.k.a. Flex MBA) in 2015/16. The blended mode supports University's eLearning initiatives on promoting flipped classroom pedagogy and diversify forms of communication and content delivery to enrich teaching and learning. It also responds to the needs of working professionals in Hong Kong and in the region who are already familiar with mobile technology and opt for a more flexible part-time MBA learning experience. With the blended learning, the MBA Programmes hope to bring a more flexible and technologically enhanced learning experience for students.

A comprehensive review has been conducted to evaluate the effectiveness of the Flex MBA Programme on Teaching and Learning. The evaluation was based on students' performance and feedbacks as well as teachers' review. In the talk, we will present the design of Flex MBA programme and the course design with different natures. The challenges and difficulties we have faced in the development process will also be shared in this session. Recommendation will be suggested to tackle them. In addition, we will also provide the evaluation of various eLearning software that we have used in the programme.

Curriculum and Learning Design

T2. Knowledge Transfer in Project-Based Learning

Dr. Yan Chi Vinci CHOW	Department of Economics
Dr. Chor Wing Linda YUNG	Department of Economics

Project-based learning has become an integral part of many academic programmes. While it is not uncommon to see high-quality student work out of such learning experience, in many academic disciplines these work are rarely known to the public. To tackle this issue in our department, starting four years ago we have organized an annual public exhibition of student work. Each year, over half of students in the department participates in the exhibition, demonstrating their work on a variety of current economic issues. The exhibition has also become a major event locally, attended by hundreds of secondary school students each year. We believe other academic units can also benefit from a programme similar to ours, and we will be sharing our experience organizing this exhibition in our submission.

Curriculum and Learning Design

T3. Challenges and Barriers in Interprofessional Education in University – A Six Years Journey

Prof. Vivian W.Y. LEE	School of Pharmacy
Prof. Pak Chun Janita CHAU	The Nethersole School of Nursing
Dr. Sin Nga Ann LAU	School of Biomedical Sciences
Prof. Bo San Paul LAI	Office of Medical Education
Prof. Yeung Shan Samuel WONG	The Jockey Club School of Public Health and Primary Care
Prof. Wan Ting Wendy WONG	School of Chinese Medicine
Wai Yeung Michael CHUNG	School of Chinese Medicine
Prof. Chi Ho Wallace CHAN	Department of Social Work
Kar Choi CHAN	Department of Social Work
E Nok Enoch NG	School of Pharmacy
Yan Hin Felix FONG	School of Pharmacy
Shuk Man Amy LAM	School of Pharmacy
Yee Shan Livia NGAI	School of Pharmacy
Lok Him Laadan LO	School of Pharmacy
Wing Kit Marco LEUNG	The Nethersole School of Nursing
Wing Tung Artemis CHAN	School of Pharmacy
Hiu Yung Hubert CHAU	The Nethersole School of Nursing
Hiu Lam Tammy YU	School of Pharmacy
Chak Yee Anna LO	School of Pharmacy
CU CHAMPION Core Team	Student leaders of Faculty of Medicine, School of Pharmacy, The Nethersole School of Nursing and School of Chinese Medicine

This year marks the 6th year of our inter-professional service learning program – CU CHAMPION. As a global trend in tertiary education, it's always been our team's passion to strive for improving inter-professional education (IPE) and enhancing students' involvement in the community.

This year we scaled up our IPE program and organized an one unit bearing summer elective course – PHAR2018, which attracted Faculty of Medicine students of different majors. Furthermore, we also expanded our yearly summer community outreach program which involved 206 Faculty of Medicine and Department of Social Work. On the other hand, we organized 48 sessions of community outreach service, produced 28 micro modules for self learning purpose, and organized 4 workshops for university student volunteers. In short, our program involved university students, healthcare professionals and high school student volunteers, each party played a crucial role in the IPE program. Their satisfaction and change in knowledge level were well perceived as expected.

IPE development has never been easy for us. Our team has met various challenges and barriers over the years such as lacking secured funding sources, understaff, logistic, and short of professional academic staff as front line facilitators. However, we are still able to overcome these barriers and make favorable outcomes every year. We will present and sum up our IPE experience in this year's CLEAR Expo.

Micro-module Courseware I
T8. Virtual Experiential Learning for Science Classics

Dr. Andy Ka-Leung NG	Office of University General Education
Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Chun-Yeung LO	Office of University General Education
Chi-Tat LI	Office of University General Education

Virtual experiential learning is an emerging pedagogy in higher education all over the world. The rapid development of mobile technologies has opened up many new possibilities of using mobile applications in experiential learning. A mobile application has been developed to enrich student learning experience in the General Education Foundation Programme – In Dialogue with Nature (UGFN) and In Dialogue with Humanity (UGFH). The app consists of a total of five modules; each corresponds to three to four classics in the courses. In each module, students will play the role of a protagonist to engage in a challenging life scenario or dilemma to deal with essential issues and debates arising from the classics. The thoughts of various thinkers are introduced to them through interactive mini-games, animations, short conversation, slideshows and videos. Students are guided by those thinkers to approach the problem in different perspectives and are expected to make informed judgements at the end of each module. In this presentation, we focus on the process of development of two modules related to science classics in UGFN.

Micro-module Courseware I

T9. Diversity in Video Learning: A Cost-effective Comparison of Four Video Types

Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Andy Ka-Leung NG	Office of University General Education
Isaac Ka-Tai WONG	Office of University General Education

Utilization of videos to supplement students' learning has been a trend in higher education. Educational videos can be produced in various formats and it is essential to investigate the cost-effectiveness of the different types of videos to inform the future practice.

Four types of videos have been produced for the compulsory general education course, In Dialogue with Nature, including studio recorded lecture (1) with lecturer's image and (2) without lecturer's image, (3) Powtoon videos, and (4) recorded student discussion. In this study, we evaluated their production cost and their corresponding effectiveness in aiding students' learning.

In 2017-18, we invited students who had finished the course to participate a semi-structured focus group interview. Excerpts from the four types of videos, which discuss similar course issues, were selected. Participants were asked to watch through the excerpts during the interview and rate their preferences in a survey. They were also asked to comment on which video prompts their learning motivation and aid their learning the most. Regarding the cost of video production, we interviewed the video developers on the expenditure and manpower used in producing one video clip of each type.

Analysis suggested that Powtoon video attracts students' attention and motivate students to learn more about the corresponding course issues, but it costs the most. Studio recorded lecture were more concrete in delivering factual information and examples therein were more likely to be used in written assignments. Student discussion was less preferred by students but some suggested that they could know other students' perspectives on controversial topics.

Micro-module Courseware I

T10. Micro-Modules Production & Management Sharing Session

Prof. Irwin KING	Department of Computer Science and Engineering
Prof. Yi-Chun LU	Department of Mechanical and Automation Engineering
Rudi CHOW	Faculty of Engineering Media Studio

CUHK CLEAR and ITSC eLearning Team of the Chinese University of Hong Kong define micro-module as a part of micro-learning*. It is a way of teaching and delivering content to students in small and very specific bursts that is used to support blended learning and encourage teacher-student discussion in the form of flipped classroom. In this sharing session, Mr. Rudi Chow from the Faculty of Engineering Media Studio will share the strategies and the process on how to create an effective micro-module for your course. In addition, he will present the ADDIE development model through each production stages - from pre-production, production to post-production. Together with Prof. Yi-Chun Lu from Mechanical and Automation Engineering Department, he will also share some examples from TDLEG Micro-Modules Production and Management project funded by Teaching Development and Language Enhancement Grant (2017/2018) to produce a series of micro-modules for foundation courses at the Faculty of Engineering. The project works with nine faculty members with the goal to encourage personalized learning through micro-modules and to enhance the teaching and learning quality by providing a knowledge and content repository which leads to better engagement and interaction between teachers and students during flipped-classes.

* <http://elearning.itsc.cuhk.edu.hk/tdgcd/?cat=4>

Innovations in Medical Education

T15. An Innovative Mobile eLearning Platform: Integration of Basic Histology, Physiology and Histopathology for Health Professional Blending Learning

Dr. Florence M.K. TANG	School of Biomedical Sciences
Dr. Aden K.Y. CHAN	Department of Anatomical and Cellular Pathology
Dr. Leung Fu CHENG	Department of Mathematics
Dr. Sam H.K. POON	School of Biomedical Sciences
Dr. Molly P.M. WONG	School of Biomedical Sciences
Dr. Po H.M. YEUNG	School of Biomedical Sciences
Taylor L.H. TANG	Information Technology Services Centre
Ray M. F. LEE	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics

Regarding the teaching of basic clinical knowledge of the Faculty of Medicine, lectures and practicums in Histology, Physiology and Histopathology are often delivered too hastily, leaving insufficient time for students to digest the teaching materials. The primary objective of this project is to facilitate the students' learning of skills for retention of the knowledge. Moreover, our team has designed the innovative mobile learning platform, entitled electronic Histology Guide (eHisGuide), which aim to enhance cellular level education including histology, physiology and pathology and health professional students can learn actively anywhere and at any time.

This proposed project is collaborative with expertise from different disciplines. Our team had analyzed the teaching and learning needs of the health professional students. We, therefore, built-up the contents and divided into four micro-modules, ie. Cell-cell Junction, Basic Tissue, Respiratory System and Histology of Cartilage and Bone. Our team invited the colleague of the ITSC to participate in the computer information technology support to develop the platform of the eHisGuide. All the micro-modules have been gradually launched in the Blackboard CUHK for the trial run issue.

After completion of the project, the outcomes of our team's study are able to:

- increase mobile learning in teaching Histology, Physiology and Pathology;
- implement eHisGuide in other subject related areas for blended learning;
- share experience and make the eHisGuide available to other institutions; and
- use the eHisGuide as a prototype to promote the innovative concept of teaching and learning pedagogy to Hong Kong and international tertiary institutions for health professional students teaching.

Innovations in Medical Education

T16. Clinical Skills Training in Medical Clerkships: The Effectiveness of Integration of Mobile Learning

Dr. Heyson C.H. CHAN	Prince of Wales Hospital
Taylor L.H. TANG	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics
Dr. Florence M.K. TANG	School of Biomedical Sciences

Current MBChB programme integrates the concept of the flipped classroom in the teaching curriculum, where students receive the exposure of basic knowledge before the didactic practicums. There are plenty of teaching tools in the learning of science but lack a cognitive integration in critical connections to clinical signs and symptoms for differential diagnosis of the diseases.

Our team has been built up an interactive mobile application entitled mPACS (mobile Pass A+ in Clinical Studies) to facilitate the development of critical thinking in clinical practice among clerkship training. The pilot study of the project aims to develop micro-modules related to bedside physical examination, chronic liver diseases and its clinical signs for training the ability to think critically, where students acquire skills in the differential diagnosis as such logistic connection is no rules or textbook to define, quantity or teach. It is helpful in preparing students' competence in clinical clerkship training and reinforcing students' commitment to professional principles on health care teams.

Project outcome has been evaluated by an anonymous survey and focus group among students. Overall, there were 87.5% of students who liked and rated the mPACS at 5 out of 5-point Likert Scale. According to the data analysis, our team concluded that the mPACS is the innovative and interactive courseware that can engage students learning experience via mobile devices in combination of traditional face-to-face delivery learning, reinforce their cognitive connections in foundational knowledge and clinical skills through case scenarios studies exercise for differential diagnosis of the diseases for experiential learning; and deepen the clinical skill by on-line formative assessment by personalized instruction study approach in the sophistication of professional knowledge.

Innovations in Medical Education

T17. Digitized Library of Pathology Specimens

Dr. Cheong Kin Ronald CHAN	Department of Anatomical and Cellular Pathology
Prof. Ka Fai TO	Department of Anatomical and Cellular Pathology

Department of anatomical and cellular pathology is a hybrid department dedicated to biomedical research, medical education and clinical duties, i.e. making diagnoses for patients. Throughout decades of clinical practice, we have accumulated a large number of excellent specimens useful for teaching students. Teaching resources of different formats, including physical and digitised ones, with their corresponding descriptions, were indexed and stored separately, making retrieval very inefficient.

Two years ago, with support from teaching and development grant, we started a project to produce an indexed library of all available teaching materials on a web-based application with a powerful search system. We also took this opportunity to review and create new teaching cases.

The web-app is built on Yii framework in PHP language, with database support provided by MariaDB. It was developed by a USA/ India programming house in early 2018. Another software was also acquired from a Belgium company to facilitate the visualization of the digitized full slide image. Both systems integrated, the online specimen library allows mobile-friendly rendering of all specialized specimens formats we own, easy searching with immediate suggestions, hierarchical organization of body organs and diseases for classification, laymen friendly uploading and editing workflow and flexibility for future extension.

With help from recruited student helpers, 800+ interactive gross specimens 200+ digitized glass slides have been uploaded to the database, including specimens used in all tutorials offered to medical students arranged by our department. The system is scheduled to go online in early 2019.

T22. #Mentalhealth: Promoting Public Mental Health outside the Classroom through
Student-created Social-media Messages

Prof. C.Y. Nelson YEUNG	The Jockey Club School of Public Health and Primary Care
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Using social media to raise public awareness about mental health issues becomes increasingly important. To provide hands-on experience in this aspect, two cohorts of students enrolled in the class CHPR4012 (N= 48) were asked to create three short mental health-related promotional messages (including a 1-minute video) and post/share them through social media (including Facebook, Instagram) publicly for two weeks. They also applied the theories, empirical evidence, and health communication techniques learned from the class to create the messages.

For easier identifications of students' messages in the social media platforms, they were also asked to hashtag the course code and other relevant phrases in their messages. After two weeks, students elaborated their rationales behind the messages, the skills they used in creating the messages, the feedback they received from people on social media, and reflected on their project experience in the group presentation.

Students felt rewarded when their efforts/ideas were recognized by people (even strangers) on the social media. Learning was also enriched as students could choose a topic that was not fully discussed in the lectures (e.g., specific mental health problems, challenges of a specific at-risk population). Excellent feedbacks were received from the students, with a significant increment in course evaluation in the second year running the course.

Adding social media-based learning experience not only increases students' sensitivities over what they should take note of when designing mental health promotional messages for the public, but also provides them opportunities to reflect on strategies to promote health using more cost-effective means.

Rethinking the Environment and Location

T23. Ping Che Evolving: Understanding Its Community in Response to “City Development”

Ka Po WONG	CUHK in Communities
Dr. Yin Ha CHAN	Independent Learning Centre
Prof. Sin Piu FAN	Department of Chinese Language and Literature
Dr. Ka Wing YIP	Department of Chinese Language and Literature
Dr. Muk Chi MA	Department of History
Prof. Yiu Tung SUEN	Gender Studies Programme
Dr. Wai Pang CHENG	General Education Foundation Programme
Fai Hung MA	New Asia College Ch'ien Mu Library & United College Wu Chung Multimedia Library
Dr. Ka Lun AU	School of Journalism and Communication
Prof. Tat Pui POON	School of Journalism and Communication
Siu Mui CHUNG	The Office of the Arts Administrator

Ping Che (坪輦), a rural area consists of six villages, was brought into the spotlight when North East New Territories New Development Areas Planning (新界東北發展計劃) was announced and resisted by the non-indigenous inhabitants. Though the government reviewed and replanned the Ping Che/Ta Kwu Ling New Development Area in the New Territories North Study (新界北研究) in 2015, the threat of land redemption remains. Since then, several locals and social activists have been organizing community engagement activities there, including community tours, art festivals and the establishment of Ping Che Mural Village. These not only revive rural cultures and empower villagers with strong identity, but also unite participants as a growing resistance to the Planning.

The stories of Ping Che are worth our attention to rethink “city development”. Starting from September 2018, 21 CUHK students of the Teaching Development and Language Enhancement Grant (TDLEG) project “CUHK in Communities” led by independent curator and urbanist Dr. Sampson Wong have engaged in the festive events and community activities there. It is hoped that, through the eight-month participatory learning and doings, students will have firsthand experience and understanding of the intertwined facets of the people’s living, especially under the threats posed by city development.

The Ping Che community is an exemplary case to rethink the legitimacy of the global trend of urbanization caused by developmentalism. In response to a top-down urban planning, how can we advocate and practice a community-initiated development with land justice and equal participation, hence constructing a civil society? Through on-site participatory learning at Ping Che, students will have first-hand observation and also chances to test the concepts learnt in class: the pursuit of good life, land justice, community-initiated development, and equal participation in a civil society, some of the core components of general education.

Traditionally, academic library was perceived as a place for storing library collection in order to meet the demand for learning, teaching and research materials from the university community. Today, the role of academic library has undergone evolutionary changes. Instead of being solely a collection space, academic library is also designed to support collaborative and active learning, to facilitate the exchange of ideas, to foster the acquisition and creation of knowledge, and much more. In this paper, the author reviews two recent renovation projects of Upper-campus Libraries of CUHK, namely New Asia College Ch'ien Mu Library and United College Wu Chung Library, in order to examine the way in which the learning spaces in these two libraries have been revitalized. The renovation project of New Asia College Ch'ien Mu Library enabled the Library to undertake a spatial reorganization of the ground floor to improve student learning space as well as provide an IT rich environment that support e-learning and collaborative study. It brings together library services, technology and space design to facilitate individual, collaborative and interactive learning. After serving as a multimedia library for 18 years since 2001, the United College Wu Chung Library is now revitalized as one of the two boutique humanities-based libraries on upper-campus. The previous multimedia area on the ground floor and the Late Reading Room on the lower ground floor have been turned into a collaborative learning space with IT rich facilities. This has improved and increased student learning space to support e-learning and collaborative study.

Understanding Students

T29. Learning about Collaborative Skills from Recent Alumni

Prof. Michael LOWER	Faculty of Law
Vivian CHEN	Faculty of Law

Social constructivist approaches to teaching and learning require students to work in collaborative groups. The ability to work collaboratively is also a soft skill contributing to the 'employability' of the students. Teaching and learning in higher education is often a solitary experience. Students may be given few opportunities to cultivate their ability to work collaboratively within formal teaching and learning exchanges. Even when they do work in groups, they may receive little guidance and feedback about the development of their team work skills. We set out to learn what our recent alumni have to say about collaboration. These alumni are well placed to help since they have recent experience of life as students and of making the transition to professional practice. It is, thus, interesting to find out what recent alumni think current students should know about the collaborative skills needed in the professional context. One of us carried out video interviews with 7 recent alumni. In this talk, we will explain the key lessons that we have learnt from these interviews. The next stage is to produce a video and other training materials to prepare current students to carry out collaborative projects in the course of their studies.

Understanding Students

T30. Alternative Approaches to Language Enhancement at CUHK: Implementation and Effectiveness of Interactive workshops and Peer Tutoring Services

Dr. Jose LAI	English Language Teaching Unit
Sophia Yan XUE	English Language Teaching Unit
Carmen Ka Man LI	English Language Teaching Unit
Clorie Siu Tung YEUNG	English Language Teaching Unit
Austin James BLISS	Student of CUHK
Christopher Chun Siu CHAN	Student of CUHK
Bryan Michael Ting Nam KWOK	Student of CUHK
Zoe Sin Ue KUM	Student of CUHK
Sandro Stephen Joseph LAU	Student of CUHK
Charlotte KIRK-PATRICK	Student of CUHK

The Interactive Lounge is a three-year student-centred project funded by TDLEG, which was launched by ELTU in 2016 at The Chinese University of Hong Kong. The project aims to provide additional support and informal English learning experiences to undergraduates and postgraduates outside of the core curriculum. This is achieved by (1) providing a series of interactive workshops of different topics; and (2) offering peer-tutoring services, both online and face-to-face.

To this end, theme-based interactive workshops were designed and peer tutors with varied linguistic and cultural backgrounds were identified and trained. While the former exposes students to a wider use of the target language in authentic situations, the latter creates a positive and supportive platform for trained peer tutors to share knowledge and experience in effective language use with their fellow students.

Currently in its third year of implementation, this project has been providing students with quality language support, which has boosted their motivation and confidence in using English for more effective communication in various occasions, be that social or academic.

This presentation will report the design, implementation, and effectiveness of this student-centered project. The monitoring strategies adopted for quality assurance (QA) and quality enhancement (QE) will be shared together with the initial outcomes drawn from various surveys, reflection forms and interviews. Among others, the voices of the peer tutors and peer tutees will be highlighted.

Understanding Students

T31. Using Learning Analytics to Inform Learning Design

Sonia CHEUNG	Centre for Learning Enhancement And Research
Dr. Paula HODGSON	Centre for Learning Enhancement And Research

Learning design can be defined as a methodology for enabling teachers as well as curriculum designers to make more informed decisions in how they go about designing learning activities and making effective use of resources and technologies (Conole, 2012, p. 121). For making decisions, educators can gather data about learning behaviour which may provide a new lens to understand student learning experience. Data archived in the LMS and library usage can be retrieved for analysis and visualization to reveal learning progress and inform intervention. LMS and Youtube are now built-in with analytics to provide profiles about user activity. Engaging students with writing blogs and discussion forum can provide an alternative source of data that allow teachers to keep track of changes in their conceptual understanding of the course. Educators can review the data to design learning activities, observe student progress, and allow flexibility for just-in-time feedback to students. In this presentation, we will discuss the application of data for enhancing students' success, and introduce some useful analytics tools that can enable educators to better plan and monitor student progress.

Pedagogical Changes

T4. E-Learning and Flipped Classroom in Medical Undergraduate Trauma Teaching

Ronson Sze Long LO	Accident and Emergency Medicine Academic Unit, Faculty of Medicine
Prof. Colin GRAHAM	Accident and Emergency Medicine Academic Unit, Faculty of Medicine
Dr. Kevin Kei Ching HUNG	Accident and Emergency Medicine Academic Unit, Faculty of Medicine

Background:

E-learning and the flipped classroom approach is a growing trend in medical education.

It enhances learning opportunities, boosts teaching efficiency and allows other forms of teaching to take place during contact time.

Knowledge acquisition may occur outside of lecture hall and hospital ward, and contact time will be left for analytical exercises, clinical skills practice and constructive discussions to aid understanding.

Aim:

To investigate if undergraduate emergency medicine trauma teaching may be covered using e-learning material and the flipped classroom approach.

Methods:

The e-learning course was designed for final year medical students.

Five interactive narrated slides were constructed:

Trauma Calls and Trauma Team;

Reception and Initial Resuscitation;

Investigations in Trauma;

Spinal Immobilisation

Splinting

Quizzes were implemented at the end for self-assessment.

Teaching activities include: discussions, scenario simulation training and practical sessions.

Data Collection:

Questionnaire feedback from participants were collected to evaluate:

Time spent, Understanding of the material, Usefulness of the material, Usefulness of the teaching activities, Overall satisfaction.

Students responded to the questionnaire by using a 6-point Likert scale, with a qualitative free-text question included at the end for "any other comments".

Results:

45 students completed the questionnaire.

Students reported spending 10-20 minutes on each topic.

the eLearning material useful (40/45) and the teaching activities useful (38/41).

The modules were well received and students found the modules “interesting and interactive”.

Negative comments from students were taken into consideration when updating the course e.g. narration speed was increased, question format adjusted, and smaller groups for practical scenarios were arranged.

Conclusion & perspectives :

Undergraduate emergency medicine trauma teaching may be covered using e-learning material and the flipped classroom approach. It appears to enhance both teaching and learning efficiency, facilitates self-learning, whilst keeping the topic interesting for students. This paradigm shift of learning should be supported.

Pedagogical Changes

T5. Flipped Micro-Module for Professional Sports Skills Courses (Phase II)

Daniel LEE	Department of Sports Science and Physical Education
Dr. Isabel HWANG	School of Biomedical Sciences
Dr. Yan JIN	Office of Medical Education Department
Alex YUNG	Office of Medical Education Department
Ray LEE	Information Technology Services Centre
Tsz Ming TANG	Physical Education Unit

The Department of Sports Science and Physical Education (SSPE) is dedicated to training physical education (PE) teachers and sports-related professionals. The program includes courses in Exercise Science, Health, PE, and Professional Skills (PSCs). Consistent with the University's education strategies, SSPE promotes critical thinking and independent learning skills. However, there has been a lack of flipped teaching and eLearning strategies for PSCs.

We aimed to produce effective flipped teaching and eLearning micro-modules (MMs) for PSCs.

The project was designed to produce MMs for teaching Field Events (SPED 2133), Individual Sports (SPED 2110) and Tennis: (Men: PHED 1031/Women: PHED 1032). SSPE student athletes and instructors demonstrated the skills associated with specific sports, and experienced editors designed and produced the MMs to meet the needs of students seeking to acquire these skills.

Eleven short interactive and self-directed bilingual MMs were developed in field events (Long Jump, Triple Jump, High Jump, Javelin Throw, Shot Put and Discus Throw), cycling (Cycling Hand Signals and Skills & Assessments) and tennis (Ball Sense, Ground Stroke and Serve). Each MM includes a 2–4-minute video featuring a specific sport's skills with bilingual narration and descriptions, supplemented by interactive questions to improve the students' learning. The MMs have been uploaded to Blackboard for students to reference before and after class.

Based on our team's experience in MM production and application, we anticipate that the MMs will provide learning flexibility and will serve as a reliable source of flipped teaching and eLearning materials for our students in the designated PSCs.

Pedagogical Changes

T6. Teaching Undergraduate Research Methods in the Age of Google

Dr. Brian C THOMPSON	Department of Music
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This presentation will explore the challenges and importance of teaching research methods to undergraduates. The examples will be drawn from my experience teaching research methods to music students, but many of the objectives and difficulties discussed will apply to undergraduates throughout the humanities, in education, and in the social sciences. The presentation will begin with a brief introduction to the place of research in the BA programme in Music. It will then focus on the use of secondary sources, reading texts in digital format (versus hardcopy), and the impact of our new library system on how and what we teach. The presentation will not aim to draw conclusions on the topic but rather to stimulate dialogue among instructors concerned with the attitudes and skills our students will be taking with them as they graduate. As the title suggests, when students are already adept in the use of internet search engines, persuading them to look further and read deeper may require a collective effort.

Pedagogical Changes

T7. Does Creative Writing Have a Role Outside the English Department: Some Observations from Law

Mitchell D. STOCKS	Faculty of Law
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Secondary school is often the last time students are asked to write a story. Yet, searching "narratives" in Google Scholar produces 2,450,000 hits. "Importance of storytelling" produces another 300,000 hits. Some fields in which storytelling is deemed important include academic writing, literacy development, anthropology, criminal prosecution and defense, healthcare education, business management, strategic planning, politics, religion, and personal development.

This talk will reflect on whether storytelling is an important program objective at the university level and, if so, whether students should be offered the opportunity to practice this skill by writing their own fictional stories. Three semesters of classroom experience will be considered empirically and the problems of assessing creative work will be discussed.

Micro-module Courseware II

T11. Supporting Outgoing Students for Overseas Academic Exchange via Online Micro Modules Interacting Across Cultures (IAC)

Dr. Yvonne LOONG	Independent Learning Centre
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In response to the global higher education trend of internationalisation and an increasing number of CUHK students going on for overseas academic exchange programmes, the Independent Learning Centre (ILC), in 2016, developed a series of online micro modules titled “International Across Cultures” (IAC) with an aim to enhance outgoing students’ intercultural competence so they can maximize their learning outcomes when interacting with people of different nationalities. Apart from discussing the quantitative and qualitative data collected via the online feedback forms through a pilot study conducted in 2017, this presentation will also show how the micro modules provided independent learning opportunities outside classroom before students’ departure and upon their return to Hong Kong in various contexts. Ideas about further expanding and extending the IAC to serve an even bigger number of CUHK students will be shared in the presentation as well.

Micro-module Courseware II

T12. Introducing an English Language Reflective Journal Writing Micro-Module

Dr. Karl HOLM	Independent Learning Centre
Dr. Yvonne LOONG	Independent Learning Centre
Dr. Felix CHAO	Independent Learning Centre

Reflective journal writing is an important genre of academic writing in which students are not only asked to think critically about any given experience, topic, or question, but also to be able to monitor their own development as learners. Here, we introduce an English language micro-module for self-directed learning of reflective journal writing skills aimed specifically at students taking the General Education courses In Dialogue with Nature and In Dialogue with Humanity. This micro-module is complementary to Chinese language versions, and supports regular workshops. In the design of this platform, we have tried to reach multiple aims: for example, while we suggest a linear progress throughout the module, we also provide several points of entry in order to satisfy different learning needs and individual preferences. Furthermore, we provide multiple types of exercises generated from authentic student texts in order for the students to monitor their progress. In terms of content, we found it important not only to explain in detail the process of reflective thinking, but also to exemplify and practice the language features of reflective journal writing. Thus, we include detailed sections on how to analyse writing prompts, generate ideas and arguments, and finally outline and compose the writing. Therefore, we believe that core parts of this micro-module are also useful for learning general academic writing.

Micro-module Courseware II

T13. Video Recap of Major Drug Classes Learned in Pharmacology Lectures

Dr. Willmann LIANG	School of Biomedical Sciences
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Two cohorts of Pharmacy students, in their Year 3 & Year 4 studies had undergone lectures on the pharmacology of anti-dyslipidaemic & anti-bacterial drugs, respectively. While revision of taught materials is critical to satisfactory performance in course assessments, the learner may also wish to grasp the essence of the subject before delving into the details. Videos in the series entitled "Pharma's Pie" provide a simplified overview of major classes of drugs mentioned in lectures. By watching these videos, each lasting no longer than 2 minutes, the learner could recapitulate core contents after the lecture quickly. Each video presented classes of drugs for a given condition as slices of a pie chart, e.g. three mechanisms of anti-bacterial drugs are visualised in the video as three slices of the "Anti-bacterial Pie". Learner experience was expected to be enhanced after watching the videos. Usage data were determined by access counts (for both anti-dyslipidaemic & anti-bacterial videos) and by paper-based surveys (for anti-bacterial video only). All 55 Year 3 Pharmacy students accessed the "Anti-dyslipidaemic Pie" video multiple times. 46 out of 48 Year 4 Pharmacy students accessed the "Anti-bacterial Pie" video, with 37 of the students accessing for 2 times or more. Paper-based surveys collected from 35 Year 4 Pharmacy students indicated that 23 of them finding the video helpful in their studies. Since the Pharma's Pie video series were received well by the Pharmacy students, planning is under way to expand this initiative to include other relevant areas in pharmacology.

Micro-module Courseware II

T14. Emergency General Surgery Micro-module: Operations Made Easy

Prof. Kaori FUTABA	Department of Surgery
Carol M.S. LAI	Department of Surgery
Arthur K.H. WONG	Department of Surgery
Nicole M.Y. CHEUNG	Department of Surgery
Jenny S.Y. CHAN	Department of Surgery
Sandy L.Y. LEUNG	Department of Surgery
Prudence T.H. TAM	Department of Surgery
Emmy S.F. TANG	Department of Surgery
Dr. Man Fung HO	Department of Surgery
Prof. Charing C.N. CHONG	Department of Surgery
Prof. James Y.W. LAU	Department of Surgery
Prof. Paul B.S. LAI	Department of Surgery
Prof. Enders K.W. NG	Department of Surgery
Prof. Simon S.M. NG	Department of Surgery
Prof. Tony W.C. MAK	Department of Surgery

Final year medical students are only allocated to 5 weeks attachment in General Surgery. Exposure to surgery during their attachment is therefore limited and variable depending on the case mix availability. When the students attend the surgery in the operating theatre, the views of the surgical field is often limited and it is difficult for the operating surgeon to explain every step of the surgery and teach them whilst carrying out a difficult procedure in a timely manner. Emergency general surgical operations are even more unpredictable, with very sick patients requiring challenging surgery and are often carried out at night. Therefore, students rarely get a chance to see them during their surgical block. Therefore, we have produced good quality general surgical micromodules on six common emergency general surgery operations.

Each module contains comprehensive information on pathophysiology, patient presentation, relevant investigations with examples and management – including narrated short operative videos on the emergency general surgical procedure. Each module is 10-20 minutes long which can be accessed by the students online 24/7 on any platform via the CUHK blackboard.

Pre- and post- MCQs has shown that all students has shown an improvement in their score (mean 54.2% to 83.3%). All students reported that the topics covered were relevant and 96% reported the content was just right for their level. 82.3% said they would definitely use the micromodules in the future when available.

In conclusion, this surgical micro-modules will allow students to have access to good quality learning material at their fingertips to gain basic knowledge on the topic, allowing them to have higher order thinking and deeper learning experience on the ward.

Virtual Reality and Augmented Reality

T18. ARAcupoint - Illustrating Acupoints on Own Face with Augmented Reality Technology

Dr. Michael Wai Yeung CHUNG	School of Chinese Medicine
Lilian Ka Yin LO	School of Chinese Medicine
Dr. Wai Kai WONG	School of Biomedical Sciences
Dr. Rebecca Kit Ying LEE	School of Biomedical Sciences
Dr. Sam Hong Kit POON	School of Biomedical Sciences

Face acupoints are the specific sites where needles or finger pressures could be applied for health-keeping or therapeutic purposes as proposed in the Chinese Medicine Theory. While teaching of these acupoints are usually demonstrated with student models limitedly in classroom, our team explored the use of Real-time Face Augmented Reality (Face AR) technology to allow self-learning of face acupoint with the own face of the learner. In this pilot study we have created the prototype of a digital face mask with learning contents including face meridian and acupoint are produced with Lens Studio and shared in Snapchat, a free social media app. Two groups of students, including secondary school students with no prior knowledge in acupuncture, and Chinese Medicine major students who are practicing acupuncture, were invited for product trial. It is found that (1) Most of the secondary school students enjoyed and found it easier to learn the location of acupoints by taking selfie (2) Chinese Medicine students found it possible to check site of needling insertion matches the point as in the face mask. It is reveal that the learning content based on Face AR technique could enhance self-learning of both public and professional education. The team is exploring further possibility to include more face related learning content in terms of various disciplines.

Acknowledgement: This pilot study is sponsored by EdVant (edvant.net). Thanks to students from STFA Seaward Woo College and School of Chinese Medicine for participation.

Virtual Reality and Augmented Reality

T19. Meeting Safety Needs through Virtual Reality Apps

Prof. Cho Lee WONG	The Nethersole School of Nursing
Anna Hau Yi NGAN	The Nethersole School of Nursing
Kelvin Hai Kiu CHENG	The Nethersole School of Nursing
Ray Mau Fung LEE	Information Technology Services Centre

With support from the Micro-module Courseware Development Grant, four micro-modules that covered two major topics in a first-year nursing course were developed. The two topics were “Meeting safety needs” and “Ensuring a safe and comfortable environment for care”. Contents of the micro-modules were presented as animations or scenarios in the virtual reality application.

The micro-modules aimed at facilitating students to gain preliminary concepts in the topics before class and support flipped classroom implementation. Besides, the VR application provided students with the opportunity to be an active participant in the simulated home and hospital environment. These experiences were difficult to be presented and described in the lectures. With the developed micro-modules, the course teachers could make use of the class time to revisit the important concepts described in the micro-modules. At the same time, students were expected to participate in various in-class activities to consolidate what they learned in the micro-modules.

To date, the project has been evaluated by student surveys and qualitative interviews. The surveys indicated that 88.6% of the students agreed that the micro-modules helped them to gain a better understanding of nursing knowledge and skills on the designated topics. Majority of students agreed that more micro-modules should be produced in the future. The qualitative interviews indicated that many students liked the developed micro-modules because these micro-modules made learning more engaging and interesting. The evaluation revealed the project has achieved its objectives effectively and completely.

Virtual Reality and Augmented Reality

T20. An Integration of Immersive Virtual Reality Technology in Teaching the Laboratory Skill for the Usage of Gamma Irradiator

Dr. Florence M.K. TANG	School of Biomedical Sciences
Prof. Ellis K.M. FOK	School of Biomedical Sciences
Ray M.F. LEE	Information Technology Services Centre
Dr. Po H.M. YEUNG	School of Biomedical Sciences
Taylor L.H. TANG	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics

The core knowledge of course content of Techniques of Biomedical Research in the Biomedical Sciences Programme, students are required to learn the principal of radiation sources that are related to the radioactive chemicals; also need to know how to handle and use them in a proper way under the government ordinance, which are still adopted in the protocols of biomedical research and healthcare occupational settings. Concerning the laboratory safety, training the skills in handling of the radioactive chemicals causes difficulty as they are hazardous and harmful to health causing the potential problem with high-risks and impacts. The students may be threatened with fatal if the handling procedures are improper during the practical training. Nonetheless, the concept of “experiential learning” has become hostable to the undergraduates who must be well-trained for good laboratory practice and etiquettes.

The primary objective of the proposed project is to build up innovative courseware using immersive VR technology for handling chemicals that are harmful to health, entitled in as VR-Handling Radioactive material (VHand). We also aim to investigate whether virtual reality (VR) technology is helpful in stimulating students with limited laboratory experience in managing radioactive chemicals, preventing unpredictable accidental issues, and supporting active and constructive educational sector.

The outcome of the VHand is three-fold: (1) the innovative teaching courseware enhance study motivation via e-learning medium and equip their necessities in the future career path; (2) stimulation higher-order critical thinking by discussing clinical scenario case studies among students; (3) reinforce cognitive and foundational knowledge and clinical skills through online quizzes and case scenarios studies exercise. If the feedback is positive, our project team will further disseminate the courseware to other tertiary institution for the practical training for the usage of the radioactive related instruments.

Virtual Reality and Augmented Reality

T21. Explanation of Difficult Concepts in Science Classics Using Virtual Reality (VR) Technology

Dr. Chun-Yeung LO	Office of University General Education
Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Kenneth Ming LI	Office of University General Education
Dr. Andy Ka-Leung NG	Office of University General Education
Dr. Wai-Man SZETO	Office of University General Education

The use of VR technology in education has become prominent in recent years. Furthermore, technological advancement in mobile technologies has also made VR much more accessible to students than before. A VR mobile application has been developed to assist students' learning in the General Education Foundation Programme – In Dialogue with Nature (UGFN1000). It aims to provide immersive visual experiences that help students grasp abstract concepts present in the classics. In UGFN1000, the cosmological model of Aristotle and Newtonian mechanics are two of the more difficult concepts in the course. Therefore four modules have been developed to enhance students' understanding of these concepts. The first two modules allow students to visualize the relationship between the empirical observations of heavenly bodies from the earth and the cosmological model proposed by Aristotle. This enables students to appreciate the credibility of Aristotle's idea and the significance of the emergence of the modern sun-centered model. The remaining two modules show the trajectories of cannonballs shot vertically upward from both a moving train and a stationary train. This helps them understand better Newton's Laws of Motion and appreciate the conceptual change in the explanation of projectile motion from Aristotle to Newton. This VR app was used in tutorial classes, where students learnt the concerned concepts together under the guidance of the teacher, followed by discussions on relevant concepts. In this presentation, we focus on the process of development and the actual implementation of this VR mobile app.

Systems and Tools

T25. Enhancement of a Commercial Computer Game for Game-Based Learning in Higher Education

Dr. Kai Ming KIANG	Office of University General Education
Dr. Bon Wah Baldwin WONG	Office of University General Education

We have enhanced a commercial computer game for game-based learning in our teaching of the two general education foundation courses as an outside class activity. We choose to adopt and enhance the acclaimed and award-winning strategy game, Civilization, for this project. By enhancing a commercial game instead of developing an educational game from scratch, “quality is maximized by leaving the design of game play up to game designers and the design of learning up to teachers”. We added historical elements to the game so that students can experience the development of civilization and at the same time enjoy the playing. Based on our experience, playing the game can stimulate our students to think and integrate the various great ideas of humanities and sciences that they have learned in the two GEF courses. As there is insufficient class-time to introduce in-depth historical and social background of the classic texts, as an optional assessment, this game can allow students to learn more in their own outside class time. It also can increased students’ interest in the topics and resulted in reading more, not less, of the course materials. Moreover, in general, the game helps students to gain the 21st century skills, such as problem-solving skills, initiative in learning and technology literacy. We will share the experience of implementation and some preliminary evaluation results in this presentation.

T26. Using #Hashtags in Facebook to Facilitate Teaching and Learning of "Research Methods"

Dr. Chun-Sing Johnson CHEUNG	Department of Social Work
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Teaching and/or learning “research methods” have sometimes (always) been a strenuous task for faculties and torturous experience for students respectively, regardless of the academic discipline one belongs to. In an ordinary course that aims to provide students with an introduction to research methods and to produce an appreciation of the research process, an extraordinary approach was adopted to arouse students’ interest in reading research papers, talking about research methods, disseminating research findings, and connecting with audiences outside the context of traditional classroom. Students were invited to pick three research articles that they found important and interesting from reputable journals and then share a very brief summary or commentary (using not only plain text, but also image or video) via Facebook. By using the same #hashtag (i.e. #SOWK6940), students and their critical friends can respond to the posts and discuss with each other immediately and transparently via the social media platform. For both teachers and students, no prior knowledge of IT is required and this approach can be applied directly to different academic disciplines. #Hashtag is free-of-charge and easy-to-use online tool in many social media platforms. It provides a time-saving and hassle-free option especially for faculties who might have little frustrations in encouraging students to read and talk about research papers. Students’ feedback regarding the pros and cons of this approach will be discussed. Some of their creative applications will also be shared.

Systems and Tools

T27. Online Coursework Assistance System - Grasp Golden Moments of Student Learning Motivation

Kim Fung YIP	Electronic Engineering Department
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In CUHK, we have various kinds of E-Learning technologies to assist teaching. However, it seems that it doesn't have specific platform to provide ad-hoc guidance/support for students by peers/instructors/TA when they start working on their coursework (e.g. Assignments, Lab, Group discussion, Projects, etc...). During this time periods before the coursework deadline, students eager to know more about how to finish the coursework properly, so it is essential to grasp these golden moments to empower their learning.

The "Online Coursework Assistance System" will be developed to let instructors/TA to

- create password protected coursework documents;
- provide guidance/hints to each question by recording and sharing voice/video recordings;
- suggest relevant link/URL for students to read and self-study;
- setup chatroom for each question to facilitate peer-to-peer support and let instructor/TA know more about their difficulties;
- save each coursework question as ".cwad" format and reuse it in later time;
- set different deadlines for each question in the same set of coursework;
- allow students to submit their works through the upload process of multi-pages of generated/scanned PDF files to each question;
- make use of an user-friendly environment to mark submitted PDF file online;
- list out common mistakes according to each question type after finished marking;
- get statistics of strengths/weaknesses of majority/individual students in handling different question types;
- show mark distribution to students to let them know how their classmates behave.

Systems and Tools

T28. Innovative Pedagogies in Online Teaching and Learning: Observations on KEEP

Eddy YET	Knowledge & Education Exchange Platform
Bo ZHU	Knowledge & Education Exchange Platform
Antonio CHEUNG	Knowledge & Education Exchange Platform

KEEP (Knowledge & Education Exchange Platform) is a UGC-funded project for empowering educators and learners with impactful resources and innovative technologies for lifelong education. Since its launch in 2015, teachers from local universities and outside has hosted more than 200 online courses on KEEP, serving more than 29,000+ students, with a wide variety in their content and teaching mode.

Online education has enabled teachers to apply various pedagogies more efficiently than in a traditional setting. With the use of KEEP, instructors are practicing different innovative teaching methods, such as blended learning, flipped classroom, peer instruction, badges and gamification. Each of the practices has its own contribution to teaching, including enhancing learning motivation and deepening understanding.

Teachers and e-learning support units are welcomed to our parallel session and poster presentation to exchange observations and experience in adopting innovative teaching practices. We also welcome inquiries at info@keep.edu.hk.

Rethinking Assessment

T32. Criterion Referencing in General Education Foundation Programme: Practice, Review, and Vision

Dr. Kam Moon PANG	Office of University General Education
Dr. Derek Hang Cheong CHEUNG	Office of University General Education
Dr. Julie Chu Lee CHIU	Office of University General Education
Dr. Xin GAO	Office of University General Education
Dr. Shelly Liang LIAO	Office of University General Education
Dr. Baldwin Bon Wah WONG	Office of University General Education
Dr. Wing Hung WONG	Office of University General Education

Criterion-referenced assessment means to measure students' performance against a set of prescribed criteria and standards, which are the sole considerations in grading (i.e., not subject to subsequent grade-distribution adjustment) and made known to students well in advance. Ideally, this provides clear goals for student achievement in a course of studies—what knowledge, skills, and attitudes to achieve (criteria prescribed); where each stands in achieving them (standards met); and how one may move up the “ladder” of achievements.

General Education Foundation Programme (GEFP) comprises two compulsory, seminar-based, reading-intensive courses, In Dialogue with Humanity and In Dialogue with Nature. Assessment in both courses involves the evaluation of students' ability to read classics, to discuss with classmates issues of timely and timeless concerns, to collate intricate information, and to convey personal views on good life, good society, and humans' place in nature in academic papers. In other words, GEFP demands students of a wide range of capabilities, spelt out as five intended learning outcomes (ILOs) for each of the two courses. To incorporate the ILOs into the grade descriptors of the course, and further to translate them into criteria and standards in the rubric for each assessment component, pose a big challenge. Added to it is the vexation of converting grades obtained from various assessment components into the course grade.

In the first part of this presentation, the design and implementation of criterion-referencing in GEFP will be reviewed by examining the difficulties encountered and foreseen, and by exploring ways to address them. In the second part, findings from interviews with teachers and students will be reported. Conclusions will be drawn on how, in the long run, to improve the effectiveness of criterion-referencing in informing teaching and learning.

Rethinking Assessment

T33. SMART Assessment Hub: Staff and Student Stories

Dr. Paula HODGSON	Centre for Learning Enhancement And Research
Wai Yuk Angel HO	Centre for Learning Enhancement And Research
Sin Yee Cindi TANG	Centre for Learning Enhancement And Research
Pui Ying Alison LI	Centre for Learning Enhancement And Research

SMART assessment project, funded by two rounds of Teaching Development and Learning Enhancement Grants between 2015 and 2019 aims to invite faculty to adopt best practices on assessment in the university. Being smart in assessment design, educators may consider (1) synthesis of information to knowledge, (2) measurement of student performance with fair and clear guidelines, (3) authenticity in the assessment tasks, (4) relevancy to real-world practice, and (3) timely feedback which is crucial to enable student pursuing self-regulatory learning habit. This project has attracted staff and students across disciplines in telling their stories. In the SMART assessment hub, ten champions on assessment design and assessment practice illustrate what they do and how best they engage their students in university study; selected student stories across disciplines are highlighted on learning approach and strategies adopted, and ways to plan and organize the study while managing various assessment tasks. Ultimately, the hub serves as a channel to showcase best practices by educators and channel effective learning strategies.

Rethinking Assessment
T34. Failure is Not Failure – ARCH 5321

Prof. Adam FINGRUT	School of Architecture
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Most often design students in studio-based courses or otherwise wind up intensely focusing on their GPA and streamlining their efforts toward a maximum score within a course. This student impression is often corroborated by the common grading practices found throughout architectural education – where a “final project” amounts to 70% of a final grade. This grading scheme deters from process-based learning and inhibits students from taking further risks associated with ambitious design schemes. Often students avoid taking strong critical positions, reduce the number changes in their project, and ultimately wind up with a well resolved, low impact proposal. This teaching approach uses a full-scale design and build project performed in groups and makes use of advanced computational tools for architecture. An important aspect of this course is finding the correct level of student challenge for each project. Since every project is an original design investigation – it needs to be calibrated in a variety of directions to adequately mature through iteration. One effective barometer for this has been through structural failure. By critically examining design prototypes for physical weaknesses, students are immediately able to engage in a conversation pertaining to a relationship between design intent and possibilities for structural strength. This is a common and pragmatic conversation found throughout professional practice and Structural Engineers are invited throughout the term to offer their valuable advice. Although the course is not introduced as a structural study – it has become valuable to the student learning experience in understanding the consequences of design decisions.

T35. Promoting Case-based Teaching and Learning Using an Innovative e-Approach

Dr. Anna TSUI	Department of Management
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The objective of this project is to promote case-based teaching and learning (T&L) using an innovative and valued-added T&L process. Case teaching is a well-known pedagogical method for business education. Students are immersed into realistic business situations using a "student-centred" approach of learning and discussion. Most top business schools in the world adopt case T&L method.

Faculty members also enjoy case teaching because it can engage and motivate students. Case teaching helps broaden and improve their pedagogical skills. In addition, case writing can enhance qualitative research since cases contain rich stories for theories. Not only can case teaching and writing promote professional development of faculty members, they can also build stronger relationships with the business community. Moreover, videos can enhance case impact as they aid the sense-making process of students. We reckon that students are "digital natives" nowadays amidst a boom in the application of online delivery. In sum, the followings are being produced in this project.

1. Business cases with teaching notes - the cases are multi-disciplinary in local, Chinese or Asian contexts.
2. Multimedia cases are adopted - for example, using videos.
3. An eLearning platform is designed to allow faculty members and students to access the case details.

To evaluate such approach of teaching and learning, students are asked to complete questionnaires, attend focus group interviews and may be invited to produce "student voice" video. Information in terms of students' motivation, interest, learning and engagement are gauged.



Posters from CUHK

P01. Alternative Approaches to Language Enhancement at CUHK: Implementation and Effectiveness of Interactive workshops and Peer Tutoring Services

Dr. Jose LAI	English Language Teaching Unit
Sophia Yan XUE	English Language Teaching Unit
Carmen Ka Man LI	English Language Teaching Unit
Clorie Siu Tung YEUNG	English Language Teaching Unit
Austin James BLISS	Student of CUHK
Christopher Chun Siu CHAN	Student of CUHK
Bryan Michael Ting Nam KWOK	Student of CUHK
Zoe Sin Ue KUM	Student of CUHK
Sandro Stephen Joseph LAU	Student of CUHK
Charlotte KIRK-PATRICK	Student of CUHK

The Interactive Lounge is a three-year student-centred project funded by TDLEG, which was launched by ELTU in 2016 at The Chinese University of Hong Kong. The project aims to provide additional support and informal English learning experiences to undergraduates and postgraduates outside of the core curriculum. This is achieved by (1) providing a series of interactive workshops of different topics; and (2) offering peer-tutoring services, both online and face-to-face.

To this end, theme-based interactive workshops were designed and peer tutors with varied linguistic and cultural backgrounds were identified and trained. While the former exposes students to a wider use of the target language in authentic situations, the latter creates a positive and supportive platform for trained peer tutors to share knowledge and experience in effective language use with their fellow students.

Currently in its third year of implementation, this project has been providing students with quality language support, which has boosted their motivation and confidence in using English for more effective communication in various occasions, be that social or academic.

This presentation will report the design, implementation, and effectiveness of this student-centered project. The monitoring strategies adopted for quality assurance (QA) and quality enhancement (QE) will be shared together with the initial outcomes drawn from various surveys, reflection forms and interviews. Among others, the voices of the peer tutors and peer tutees will be highlighted.

P02. English Across the Curriculum (EAC): Alternative Models of Implementation, Processes of Intervention, and Initial outcome

Dr. Jose LAI	English Language Teaching Unit
Olive CHEUNG	English Language Teaching Unit
Dr. Christelle DAVIS	English Language Teaching Unit
Dr. Allen HO	English Language Teaching Unit
Helen LAVENDER	English Language Teaching Unit
Ella LEUNG	English Language Teaching Unit
Steven YEUNG	English Language Teaching Unit
Arlynn ALARCON	English Language Teaching Unit
Katheleen CHOI	English Language Teaching Unit
Carmen LI	English Language Teaching Unit
Paul PAN	English Language Teaching Unit

The English Across the Curriculum (EAC) project, funded by the Teaching Development and Language Enhancement Grant (TDLEG), was formally launched in 2016 as an institutional movement at The Chinese University of Hong Kong. This three-year project includes but extends the acquisition and use of English in formal English course settings to other subjects and disciplines by setting up Communities of Practice (CoP) collaborative projects with content teachers.

The aims of this EAC project are threefold: 1) explore different academic literacies and help to develop among both content teachers and students a heightened awareness of language use in different disciplines; 2) support content teachers in implementing an assessment approach that encourages a dual attention to content and language; and 3) encourage content teachers to assume a stronger ownership of language education in an English as a second language (ESL) setting.

Supported by six co-supervisors, 25 ELTU teachers, and four project staff, more than 16 CoP projects reaching out to nearly 3,000 students have been launched with some 35 content professors from eight faculties and one college to date. This poster will describe the different requests from collaborators, introduce the different implementation models adopted to cater to the diverse needs and settings of each programme, detail the processes of intervention, and report on the initial outcomes of this large-scale project.

P03. Enhancing English Language and Culture Learning in Short-term Study Abroad

Dr. Sin Yu Cherry CHAN	English Language Teaching Unit
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Recently, short-term study abroad programs have become more popular among university students with an emphasis on second language enhancement and cultural development. There is a pressing need to for further research on programs of this nature (Allen, 2010, 2013; Benson, Barkhuizen, Bodycott, & Brown, 2013; Jackson, 2008, 2010, 2012, 2018). This poster presentation focuses on a small group of English Language Education students who participated in an eight-week English language and cultural immersion program in the United Kingdom. This study adopted a multi-method, multiple case study design to investigate the students' English language and culture learning experience for a period of nine months. To better understand students' developmental trajectories, data was collected in four main phases: pre-sojourn, sojourn, immediate post-sojourn, and four months post-sojourn. A triangulation of data including participants' pre-and post- immersion reflective essays, semi-structured interviews, sojourn reflective journals, questionnaire surveys, and reports on each participant provided by the host institution provided insight into the students' learning experience. Practical suggestions will be offered to enhance the language and culture learning of short-term study abroad students from Greater China. The findings have pedagogical implications in preparation of student sojourners and educators which facilitate programs of this nature.

P04. Blog-based and 'Clickolage' Learning

Prof. Hok Bun Isaac LEUNG	Cultural Management Programme, Faculty of Arts
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In the course 'Entrepreneurship in Creative Industries', I created a blog-based course website and attempted to initiate blog-based e-learning activities for my students. Apart from being an effective way to make my course materials available online, the blog-based course website is a viable platform for me to post relevant third-party materials for my students to conduct further research on the assigned topics in art and design. To encourage students to adapt problem-solving skills through online research, I also used new visual-based social media platforms, such as Pinterest, in my course. By using both website and mobile app, I attempted to adapt 'clickolage leaning' (Pearce, 2012) and provide students with a collaborative learning experience through self-directed research, curation and linkage of multimedia content online.

The open-source movement has created a paradigm shift in which e-learning is greatly benefited by the exponential growth of user-generated videos, design products and apps in the past couple years. Learning, in the fields of creative industry, has been honed towards more active and creation-oriented activities. Through the use of blog-based and visual-based social media apps, students are given a greater opportunity to gain a deeper understanding of culture by working together in global online platforms and experiencing real-world projects.

Pearce, N. (2012). Clickolage: Encouraging the Student Bricoleur through Social Media. *Teaching Anthology*, 2(1), 14-21. Retrieved January 5, 2016, from http://www.teachinganthropology.org/index.php/teach_anth/article/view/284/470

P05. eLearning and English-medium Instruction: Inbound Exchange Student Perspectives

Prof. Jane JACKSON	Department of English
Tongle SUN	Department of English

As Asian institutions of higher education seek to internationalize and offer more courses in English, the number of inbound non-local students on campus is on the rise. To better understand the challenges facing international exchange students who are second-language (L2) speakers of English and unfamiliar with Cantonese, a mixed-method study has been conducted at a bilingual (Chinese-English) Hong Kong university that welcomes 1,000+ semester and year-long international exchange students annually. As interactive learning and eLearning (e.g., online Forums, flipped classrooms, group projects) are promoted at the host institution, the study investigated the ways new arrivals are coping with the demands that are placed on them in the academic arena. Through pre- and post-questionnaire surveys, 92 inbound semester-long international exchange students (EFL speakers who do not know Cantonese) shared their experiences and perspectives. Additionally, a sampling of participants expanded on their views in in-depth, semi-structured interviews. The analysis of the mixed-method data pointed to the need for pedagogical interventions to better support their language/eLearning and academic integration (e.g., focused English for Academic Purposes courses, e-learning workshops, orientations). This needs analysis also offered direction for non-academic support (e.g., social activities that better integrate local and non-local students, a 'buddy system' or language partner scheme that links local and non-local students). (This project has generously been supported by a Teaching Development and Language Enhancement Grant (TDLEG) from CUHK.)

P06. Intercultural Interventions in International Education

Prof. Jane JACKSON	Department of English
Tongle SUN	Department of English

It is not unusual for students, parents, educators, and administrators to expect study abroad participants to become fully immersed in the host environment and experience significant gains in host language proficiency, global-mindedness, and intercultural competence. Contemporary study abroad researchers, however, have found that multifarious internal elements (e.g., motivation, investment) and external factors (e.g., access to local communities of practice, host receptivity) can lead to strikingly different learning paths and outcomes. Meaningful advances in intercultural learning, global citizenship identities, and second language proficiency may not take place without a pedagogical intervention. Accordingly, many study abroad researchers now recommend theory-driven, research-based pedagogical interventions at all stages of the study abroad cycle: pre-sojourn, sojourn, post-sojourn. Drawing on intercultural competence theories and research findings, intercultural educators are devising innovative pedagogical interventions to support and enrich the language and intercultural development of student sojourners. This presentation highlights several of these interventions, including a fully online intercultural communication course for outbound international exchange students from CUHK. The poster also identifies readily-available, web-based/print resources that can facilitate the design and delivery of intercultural interventions in international education.

P07. Reinforcement of Language Map of CUHK 2.0

Dr. Pit Shun LAI	Department of Chinese Language and Literature
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“CUHK Literary Walk” (中大文學散步) is an important teaching and learning activity proposed in the University Chinese Core “CHLT 1100 University Chinese I”, which students are guided by the teacher to appreciate the beauty of the campus by visit the scenic and historical spots on its campus described in the literary works by famous writers. “Language Map of CUHK 2.0” (中大語文地圖 2.0) is an mobile application which designs as an assisting tool for this learning activity which was supported by the Courseware Development Grant Scheme(2016-17) and Teaching Development and Language Enhancement Grant(2016-19).

The home page of the “Language Map of CUHK 2.0” is a CUHK cartoon map indicated with major landmarks. Users click on the landmarks will show the following three buttons:

1. Introduction(地景掌故): A descriptive record of the CUHK landmarks.
2. Writer’ s works(山城筆跡): Compile the works of famous authors and students.
3. Write your words(舞文弄墨): Users may submit their work through Blackboard, Facebook and google form which will be periodically updated on the app after the works being screened by our team.

As CHLT 1100 University Chinese I focusing on develop the ability of observation and expressiveness of the student as the learning outcomes. We believe that the map can cultivate students’ observation skills and improve their Chinese writing skills through appreciating excellent works from both the famous writers and other students. In addition to this point, we also believe that our app can encourage students to write for their beautiful campus by posting their works on this co-construction eLearning tool. During 01-06/2018, “Language Map of CUHK 2.0” had been downloaded by 269 CUHK users and 169 creative works submitted by CUHK students had been received.

In this year, several interactive functions (Q&A functions, smart tips for literacy appreciation) have been enhanced to further reinforce “Language Map of CUHK 2.0”. Apart from the description of new functions of the map, we would like to interpret the practical values of the map in facilitating “CUHK Literary Walk” and explain how to integrate this app into the assessment of CHLT 1100 in the poster. We will take reference to the comments and opinions from the guests and other participants for further amendment of the app.

P08. Learning Chinese outside the Classroom

Prof. Sze Wing TANG	Department of Chinese Language and Literature
Dr. Wing Mui CHEUNG	Department of Chinese Language and Literature
Dr. Pit Shun LAI	Department of Chinese Language and Literature

TDLEG- 'Learning Chinese Outside the Classroom' aims at providing a further Chinese-learning opportunity for students taking the University Chinese courses to broaden their horizons in the process of Chinese learning, as well as to enhance their language awareness and self-learning ability. Four major components of the project include: 1. CAC (Chinese Across Curriculum) To cater for students' learning needs, CAC organized 42 workshops, 7 colloquiums and 4 cultural talks on different topics related to the Chinese language and culture in 2017/18. The wide range of activities cover the linguistics knowledge which is not discussed in the University Chinese language courses, focusing on how the Chinese language knowledge can be used in different academic settings. 2. Literary CUHK A popular writing competition, "Literary CUHK", has been organized since 2015/16, which aims at arousing students' interests in creative writing in Chinese, and enhancing their observation and expression skills. More than 1000 people have participated in the competitions; several book exhibitions and creative writing sharing seminars have also been organized for the past three years. 3. eLearning With the purpose of facilitating students' self-learning of Chinese, several eLearning tools have been launched, including "Language Map of CUHK 2.0", self-assessment test of foundational linguistic knowledge, and Cantonese and Putonghua proficiency mock tests, etc. The Facebook fan-page of "University Chinese" has been established to share the language knowledge and details of the events with students. 4. Heritage Walk In order to encourage students to obtain a first-hand experience in the use of Yue dialects in different regions of Guangdong, experiential learning activities are promoted. A tour to Zhongshan, organized by the Department in November 2018, was open for application to students taking the University Chinese courses. With the implementation of the project and introduction of new concepts, we would like to study how these components work alongside with the University Chinese courses. We will take reference of the comments and opinions from the Expo participants to enhance the efficacy of the project, in a bid to ultimately bring the greatest benefit to the students

P09. Collaborative Learning: Co-creating Innovative Materials for an Innovative Law Course

Prof. Angela DALY	Faculty of Law
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This presentation will set the scene for the speaker's upcoming project, funded by a CUHK Courseware Development Grant 2018-2019, which will involve Law students co-producing open access learning materials on Hong Kong Internet Law. The project was inspired by the speaker's participation in collaboratively co-creating open access Internet Law teaching materials in her previous institution, Queensland University of Technology Faculty of Law, as part of an open access Australian Internet Law textbook and course led by QUT Associate Professor Nicolas Suzor. This presentation will give an overview of how that project worked, what it produced, and how it has guided the speaker's new project here at CUHK.

P10. Flipped Learning and Business Competition Simulation Game

Dr. K.T. Fred KU	Department of Decision Sciences and Managerial Economics
Yun Kuan William LIN	Student of School of Accountancy
Yi Hung Hank CHOU	Student of Department of Computer Science and Engineering

The project aims to enhance students' understanding of competition between firms using the flipped classroom approach. No doubt, eLearning is an effective teaching and learning approach, especially in courses with large enrolment and students from diverse background who have different learning needs. With the advancement of information technology, students can learn the basic content by watching video lectures and the precious class time can be used for activities that foster interaction and higher-order thinking. While it is important to support student's self-learning, it is equally important to facilitate high quality learning in the face-to-face class time. Thus, an interactive simulation game which can be played during class time is developed. Guided by the lecturer, students are provided with a perfect opportunity to 'live' the strategy that they learnt in the mini video lectures. Students apply the knowledge on strategic interactions between firms during the game when playing against each other, including forming expectation on each other's strategy choice, deriving optimal strategy, engaging in collusive behaviors, and considering other possible strategic moves, etc. After the in-class game, there is a debriefing session led by the lecturer to summarize and highlight the key take-away points. Through the videos and interactive simulation game under the guidance of the lecturer, students not only understand the core concepts in market competition; but also learn how to apply the knowledge to analyze related issues in the real world. In our presentation we will also share the feedback that we collect from students. (246)

P11. Flipped Teaching of Real Estate Concepts: The Use of Videos to Enhance Students' Understanding through Visual Learning

Dr. Ervi LIUSMAN	School of Hotel and Tourism
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The project aims to enhance students' understanding on real estate concepts by developing demonstration and animation videos to facilitate flipped teaching and towards the end to encourage student-centered learning.

In the traditional classroom teaching, the instructor explains the real estate concepts by providing different examples to the students, spending about 20-30 minutes on each concept. Despite the examples being provided and the time spent, the learning outcomes are not very ideal. A number of students still find the concepts difficult to comprehend as they are relatively abstract in nature. The majority of them cannot even remember the concepts after the exam. Moreover, it is very time consuming to explain the concepts with examples. This results in limited time for class discussion, only 5 minutes for 45 minutes class.

This project produces several demonstration and animation videos. The former explains the real estate concepts by showing its application in the real city like Hong Kong. The latter explains concepts that may not be observable in the real world, but can be shown through animation images. Research shows that visual learning can help students to better understand difficult concepts and ultimately engraved on their memory. The students are required to watch the videos before the class. Each video is approximately 4-6 minutes to effectively capture students' attention. During the class, the explanation can be shortened and more time can be spared for class discussion. Towards the end, the student-centered learning can be achieved through the flipped classroom.

P12. Knowledge Transfer in Project-Based Learning

Dr. Yan Chi Vinci CHOW	Department of Economics
Dr. Chor Wing Linda YUNG	Department of Economics

Project-based learning has become an integral part of many academic programmes. While it is not uncommon to see high-quality student work out of such learning experience, in many academic disciplines these work are rarely known to the public. To tackle this issue in our department, starting four years ago we have organized an annual public exhibition of student work. Each year, over half of students in the department participates in the exhibition, demonstrating their work on a variety of current economic issues. The exhibition has also become a major event locally, attended by hundreds of secondary school students each year. We believe other academic units can also benefit from a programme similar to ours, and we will be sharing our experience organizing this exhibition in our submission.

P13. Using #Hashtags in Facebook to Facilitate Teaching and Learning of "Research Methods"

Dr. Chun-Sing Johnson CHEUNG	Department of Social Work
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Teaching and/or learning “research methods” have sometimes (always) been a strenuous task for faculties and torturous experience for students respectively, regardless of the academic discipline one belongs to. In an ordinary course that aims to provide students with an introduction to research methods and to produce an appreciation of the research process, an extraordinary approach was adopted to arouse students’ interest in reading research papers, talking about research methods, disseminating research findings, and connecting with audiences outside the context of traditional classroom. Students were invited to pick three research articles that they found important and interesting from reputable journals and then share a very brief summary or commentary (using not only plain text, but also image or video) via Facebook. By using the same #hashtag (i.e. #SOWK6940), students and their critical friends can respond to the posts and discuss with each other immediately and transparently via the social media platform. For both teachers and students, no prior knowledge of IT is required and this approach can be applied directly to different academic disciplines. #Hashtag is free-of-charge and easy-to-use online tool in many social media platforms. It provides a time-saving and hassle-free option especially for faculties who might have little frustrations in encouraging students to read and talk about research papers. Students’ feedback regarding the pros and cons of this approach will be discussed. Some of their creative applications will also be shared.

P14. An Ecotourism Scenario Game for Tripartite (Teaching, Learning and Research) Enhancement in Tourism Study

Prof. Chung-Shing CHAN	Department of Geography and Resource Management
Yat-Hang CHAN	Department of Geography and Resource Management
Tsz-Heung Agnes FONG	Centre for Learning Enhancement And Research

With the rapid development of information and communication technology and e-learning, the conventional lecturing and knowledge transfer also have to incorporate innovative ways of teaching and technological advancements. Game-based learning is not new and has widely applied to various academic disciplines. Tourism studies often integrate field visit and classroom lecturing but a virtual and scenario-based experience in some real-life cases benefit both instructors and learners to stimulate discussions about circumstances of tourism planning and management.

The Ecotourism Scenario Game is an educational platform which simulates an indigenous community in the Amazon rainforest in Peru. Combining conceptual/theoretical knowledge, real world information and hypothetical storyline, this game allows students to make decisions in different scenarios in the development process. Instructors may deliver knowledge of ecotourism such as tourism impact assessment, destination planning and visitor management at certain stages of the game. Some common dilemmas between different parties are designed along the storyline and the students are encouraged to critically think and justify their decisions in attempt to balancing the multi-stakeholders' interests and achieving sustainable tourism development.

This game significantly integrates conventional lecturing, class interactions and e-learning application to tourism classes. The platform also allows students to experience the scenarios outside classroom, either individually or group-based, which would enhance the learning effectiveness. A survey about the students' satisfaction towards the learning experience has been conducted in formal lecture sessions.

P15. Learning about African Arts and Cultures in Hong Kong

Prof. Sealing CHENG	Department of Anthropology
Lai WO	Department of Anthropology

The course African Arts and Cultures (offered by the Department of Anthropology and Department of Journalism and Communications at CUHK, African Studies Program at HKU) combines academic learning, arts and music workshops, and community outreach to educate students about intercultural communication and active cross-ethnic and community engagement. It was the first ever undergraduate course offered by both the Chinese University of Hong Kong and the University of Hong Kong.

In light of expanding China-African relations, and the increasing presence of people of African heritage in Hong Kong, the course is a pioneering effort to promote community knowledge of the creative and artistic heritage of Africans in Hong Kong, as well as the cultural textures and social diversity of African societies, and what Hong Kong may gain from a more inclusive understanding of diverse cultures.

The course has 3 main parts: 1) An interdisciplinary introductory course on African arts and cultures taught by a team of academics from different universities (CUHK, HKU, Lingnan U); 2) Workshops on African drums and dance; 3) Outreach and Performance.

All students have to participate in all three parts, and engage with African instructors of drum and dance to teach secondary school students in Yuen Long, and to participate in public performances (at the World Cultures Festival Carnival at the Cultural Center, Free Space at West Kowloon, and the finale Africa in Hong Kong Carnival In Yuen Long). They also have to conduct independent research on a topic of their choice: religions, masks, food, graffiti etc - knowledge of which they had to translate into an exhibition banner at the Africa in Hong Kong Carnival. They also needed to run the stall in an interactive way such that the public could learn through participation.

Students in particular appreciate the interactive dimension and the cross-ethnic collaboration involved in the course. Evaluations of the creative approach of the course raised questions about how university education could go beyond the lecture theatre into the theatre of the community.

P16. An Integrated Experiential Learning and Alumni Engagement Co-Curriculum: Connect Real-world Experiences with Online Collaboration and Sharing

Dr. Wai Ting Jacqueline WONG	Department of Decision Sciences and Managerial Economics
Gentiana CHEUNG	School of Hotel & Tourism Management
Dr. Jenny TIAN	School of Hotel & Tourism Management

This project aims to create a structured co-curriculum that facilitates students' experiential learning and alumni's engagement in teaching & learning (T&L) at the School of Hotel and Tourism Management (SHTM or the School). The co-curriculum includes three independent and correlated modules linked to different major required courses (or T&L programs), featuring different learning activities, and targeting different student cohorts. The three modules adopt the same structure but can be implemented along separate timelines systematically and regularly.

P17. Applying Computer-Supported Collaborative Learning (CSCL) Pedagogy in Developing Student Teachers' Global Citizenship

Dr. Wai-Yan Sally WAN	Department of Curriculum and Instruction
Dr. Janet ORCHARD	University of Bristol
Michael LEUNG	Student of Faculty of Education

This proposal mainly presents a project idea about constructing our student teachers' awareness and understanding of global citizenship through "real" learning experiences via the application of computer-supported collaborative learning (CSCL) pedagogy that combines the uses of both videoconferences and online discussion with other university students from the University of Bristol (UK) and the University of Cape Town (South Africa) through participating in a global partnership scheme called Generation Global. The project uses Generation Global (<https://generation.global/>) as a platform for our student teachers to engage in video conferences and online discussion for discussing and sharing curricular issues through international partnerships with other university student teachers around the world. Generation Global is an exciting and innovative scheme that over the past ten years has expanded rapidly to prepare and bring together school students from over 30 different countries to engage in dialogue through video-conferencing and online discussion to give them the skills and experiences they need to navigate these differences in a peaceful way. The key inquiry question is one of proof of concept: can a model of dialogical teaching that has proved successful in the context of schooling be translated successfully to the context of teaching and learning in Higher Education (HE).

P18. Proposing the Use of Photovoice for Collaborative Action Research in Teacher Education

Dr. Wai-Yan Sally WAN	Department of Curriculum and Instruction
Hoi-Wik Howard YU	Student of Faculty of Education
Sein-Yue Elim HUI	Student of Faculty of Education
Wai-Man Angela LAM	Student of Faculty of Education
Ki-Wing Carson CHU	Student of Faculty of Education
Koon-Leung HO	Student of Faculty of Education
Chun-Kit Ken FUNG	Student of Faculty of Education
Ho-Hei Angus CHENG	Student of Faculty of Education

This poster focuses on sharing the idea of applying photovoice as research methodology in a collaborative action research during the journey of teacher education. Photovoice is regarded as a powerful tool in serving as a bridge between teacher educators and student teachers in creating and documenting their reflective dialogues in their learning experiences in teacher education. Participants (i.e. teacher educators and student teachers) are engaged in different phases of action research collectively - from action planning to implementation to reflection - where photos are collected at different stages to developing emergent themes for generating and igniting constructive discussion and critical reflection. Implications for the development of employing photovoice in teacher education and professional learning will then be discussed.

P19. Science at Peace with Religion? – Creating a Dialogue between the Dialogues

Dr. Chu Lee Julie CHIU	Office of University General Education
Tsz Chun CHOY	Office of University General Education
Dr. Wai Ming HO	Department of Social Work
Dr. Kam Moon PANG	Office of University General Education
Dr. Wing Hung WONG	Office of University General Education

The “More In-depth Reading” (MOIRE) platform for the General Education Foundation Programme (GEFP) has various interactive features, including micro-modules and online discussion questions. It aims to establish a connection between the two compulsory courses of GEFP, In Dialogue with Nature and In Dialogue with Humanity, so that students’ learning of the two courses becomes a truly integrative, inter-disciplinary experience. Specifically, the project offers the opportunity for in-depth reflection on the compatibility between science and religion from the perspectives of four different groups of people, namely, “giants” in Western science, contemporary religious leaders, Judeo-Christian theologians, and Chinese and German philosophers. Four themes will be addressed: “God’s Existence in a Clockwork Universe”, “Evolutionism or Creationism?”, “Creation in the Judeo-Christian Tradition”, and “The Need of Morality-from Kant to Confucius”. This poster presentation will demonstrate how the above-named interactive features can be used for a flipped-classroom mode of teaching to inspire in-depth reflection on the issues in question.

P20. Classics in Motion

Dr. Wai Ming HO	Office of University General Education
Dr. Chu Lee Julie CHIU	Office of University General Education
Dr. Wai Pang Damian CHENG	Office of University General Education
Tsz Chun CHOY	Office of University General Education

The syllabus of In Dialogue with Humanity covers a wide range of classics from the Western and Eastern traditions. Experience tells us that they also have difficulties in comprehending texts from the East. On the one hand, most of the students know little about the conceptual and historical background of Confucius; on the other hand, the Buddhist concept of emptiness is difficult to understand. With the MMCDG grant, we produced three brief explainer videos and corresponding PowerPoint presentations. The developed courseware aims at enhance students' understanding of the classics, and it is designed as flipped-classroom activities to enable students to learn at home or wherever they have access to internet. In the poster session, we are going to present the explainer videos and PowerPoint presentations, and share the experience we made and difficulties we met with other participants.

P21. Criterion Referencing in General Education Foundation Programme: Practice, Review, and Vision

Dr. Kam Moon PANG	Office of University General Education
Dr. Derek Hang Cheong CHEUNG	Office of University General Education
Dr. Julie Chu Lee CHIU	Office of University General Education
Dr. Xin GAO	Office of University General Education
Dr. Shelly Liang LIAO	Office of University General Education
Dr. Baldwin Bon Wah WONG	Office of University General Education
Dr. Wing Hung WONG	Office of University General Education

Criterion-referenced assessment means to measure students' performance against a set of prescribed criteria and standards, which are the sole considerations in grading (i.e., not subject to subsequent grade-distribution adjustment) and made known to students well in advance. Ideally, this provides clear goals for student achievement in a course of studies—what knowledge, skills, and attitudes to achieve (criteria prescribed); where each stands in achieving them (standards met); and how one may move up the “ladder” of achievements.

General Education Foundation Programme (GEFP) comprises two compulsory, seminar-based, reading-intensive courses, *In Dialogue with Humanity* and *In Dialogue with Nature*. Assessment in both courses involves the evaluation of students' ability to read classics, to discuss with classmates issues of timely and timeless concerns, to collate intricate information, and to convey personal views on good life, good society, and humans' place in nature in academic papers. In other words, GEFP demands students of a wide range of capabilities, spelt out as five intended learning outcomes (ILOs) for each of the two courses. To incorporate the ILOs into the grade descriptors of the course, and further to translate them into criteria and standards in the rubric for each assessment component, pose a big challenge. Added to it is the vexation of converting grades obtained from various assessment components into the course grade.

In the first part of this presentation, the design and implementation of criterion-referencing in GEFP will be reviewed by examining the difficulties encountered and foreseen, and by exploring ways to address them. In the second part, findings from interviews with teachers and students will be reported. Conclusions will be drawn on how, in the long run, to improve the effectiveness of criterion-referencing in informing teaching and learning.

P22. Experiential Learning in the GEF Programme: Understanding classics through Farming

Dr. Ming LI	Office of University General Education
Dr. Wai Pang CHENG	Office of University General Education
Dr. Chu Lee CHIU	Office of University General Education
Dr. To Kam LAM	Office of University General Education
Hoi Lung LAU	Office of University General Education
Dr. Wing Sing LUI	Office of University General Education
Wing Yu WONG	Office of University General Education

General Education Foundation (GEF) Programme requires all students in CUHK to read and discuss the classics in humanity and nature. One of the missions is to help students cultivate “an intellectual inquisitiveness in addressing issues related to their life and society” through the study of classics. Yet, without concrete experience, students may find it difficult to fully understand the ideas, problems, and dilemmas in the classics, and therefore their relevance to contemporary situations. The GEF Programme has implemented a pilot project to employ experiential learning through farming in 2018/19. Students are guided by a series of tailor-made lecture videos hosted in the newly developed website “Experiencing Classics” to ponder on the issues related to farming and the classics. Through field-trips to farmlands and hands-on practices, students are expected to gain a better understanding and appreciation of the classics, and to reflect on their personal lifestyles, social system, and the ethics behind food production. Students are guided to reflect on issues including the environmental impact of agricultural technology, justice and land use, the influence of capitalism on consumption, and the attitude and ways of living with nature. This presentation aims to review the experience and feedback gained from the trial run of the project.

P23. Development of the App “Growing Edibles 101” for the experiential learning in the GEF Programme

Dr. Ming LI	Office of University General Education
Dr. Chu Lee CHIU	Office of University General Education
Tsz Heung FONG	Centre for Learning Enhancement And Research
Dr. Paula HODGSON	Centre for Learning Enhancement And Research
Hoi Lung LAU	Office of University General Education
Sze Ho PONG	Office of University General Education
Sin Yee TANG	Centre for Learning Enhancement And Research

The General Education Foundation (GEF) Programme is a common core programme which engages students in reflecting on humanity and nature through the reading of classics. Experiential learning in farming-discussion sessions has been introduced to enrich students’ learning experience and foster their reflection through direct experience and consideration of real-life situations since 2015/16. Much time was spent on explaining basic agriculture knowledge and farming techniques in each session with limited time for in-depth class discussion. Meanwhile, students might have low satisfaction in growing plants because many of them paid inadequate attention to the growing process and subsequent crops withered as a lack of water or nutrients. To address the problem, we are developing the mobile App, Growing Edibles 101 (GE101), to flip the classrooms of experiential learning, facilitate the farming sessions, and strengthen the blended learning in the GEF Programme. This App is designed to help connecting between knowledge, attitudes, and values taught in the GEF Programme with farming practices. It equips students with essential knowledge and basic farming skills by tailor-made videos, and facilitates the selection and planting of crops based on the input of selection criteria. It also issues reminders of daily farming tasks for student groups, and serves as a communication platform among students and between teachers and students. With the help of this App, teaching and learning of the experiential learning sessions in the GEF Programme can be improved.

P24. GEF-animated: Flipping the Classrooms with Fun

Dr. Ming Kenneth LI	Office of University General Education
Dr. Chi Wai Kevin LAI	Office of University General Education
Dr. Wai Man SZETO	Office of University General Education
Dr. Bon Wah Baldwin WONG	Office of University General Education

The General Education Foundation (GEF) Programme consists of two foundation courses, namely In Dialogue with Humanity (UGFH) and In Dialogue with Nature (UGFN). These courses require all undergraduates to read classics in humanity and science before interactive tutorials. Although students are interested in reflecting on the classics, the discussion is sometimes slowed due to the inadequacy of prerequisite knowledge and concepts. Much time in tutorial classes is thus used to explain the knowledge and clarify the concepts. Consequently, our team has initiated a pilot work to develop whiteboard animations to flip the classrooms in UGFN in 2016 and subsequently expanded to UGFH in 2017. Whiteboard animations enable step-by-step illustrations with voiceover narrations to explain complicated and abstract ideas in an engaging and enjoyable way. In 2018, we have made four new whiteboard animations, including two on Newton's mathematical worldview, one on Plato's theory of forms, and one on Jesus and Paul in history, to flip the GEF classrooms. Currently, the GEF-animated project has produced 24 whiteboard animations (twelve storyboards, two languages each) tailor-made for the GEF Programme. This poster presentation gives an overview of the production and the use of whiteboard animations for teaching and learning in the two GEF courses.

P25. What We Have PASSed Through: The Development of PASS in the General Education Foundation Programme from 2010 to 2018

Dr. Wai Man SZETO	Office of University General Education
Ka Tai Isaac WONG	Office of University General Education
Dr. Ming Kenneth LI	Office of University General Education
Dr. Jun Vivian WU	Office of University General Education
Dr. Lo Ming Amber YIP	Office of University General Education
Ka Yu Ann LAI	Office of University General Education
Dr. Chi Chung Andy YU	Office of University General Education
Dr. Ka Leung Andy NG	Office of University General Education
Prof. Mei Yee LEUNG	Office of University General Education

The General Education Foundation Programme (GEFP), a common core programme fully launched in 2012, consists of two courses, namely In Dialogue with Humanity and In Dialogue with Nature, which engage students in dialogues with the classics in the humanities and sciences respectively. The courses require students to read selected texts prior to seminar discussions. Many students reveal that reading classic texts is challenging due to the lack of relevant knowledge background and reading skills. In view of this, Peer Assisted Study Session (PASS), a widely-adopted peer learning model, has been implemented to help students to meet these challenges since the pilot stage of GEFP in 2010. Students can voluntarily participate in the weekly PASS sessions held by PASS Leaders who are students previously excelled in the same course. Informed by the regular evaluations on its effectiveness, PASS in GEFP is steadily evolving and expanding to help students read and discuss classic texts. In this poster, we will give a chronological account of the development of PASS in GEFP, including the expansion of the PASS Leader team and the PASS Supervisor team, the involvement of Senior PASS Leaders who provide peer support to their juniors, the implementation of PASS as reading workshops to emphasize both reading skills and understanding of the texts, and the application of the Socratic method by PASS Leaders to deepen discussions in PASS. Such development in GEFP can serve as a case study to illustrate how the general PASS model can be successfully adapted to target courses.

P26. Integration and Enhancement of the Existing Micro-Modules Platforms for UGFN1000 Classroom Flipping

Dr. Kai Ming KIANG	Office of University General Education
Dr. Vivian Jun WU	Office of University General Education
Dr. Derek Hang Cheong CHEUNG	Office of University General Education
Dr. Andy Ka Leung NG	Office of University General Education

Funded by MMCDGS over the 4 years, we have developed almost 200 micro-modules to facilitate the classroom flipping pedagogy for the general education foundation course, In Dialogue with Nature. These micro-modules are now structured as a supplementary courseware website on KEEP. To supplement and extend the course content, micro-modules in our platform cover wide-ranging topics as well as various formats including short lectures recorded in studios, edited seminars and talks given by field experts, and students sharing in discussion and presentation format. This diversity of micro-modules aims to serve different students for their different needs. The website served as an integrated platform for students to provide a more convenient way of accessing all these different micro-modules developed under different projects. So far, this platform has been used by over 1000 students and has increasingly more users since its full launch this year. Recently, featured videos are added to introduce the micro-modules for each part of the course. With them, students will be more aware of what to look for before they go on to further explore the platform on their own. In this poster, we would like to introduce our micro-modules website as well as to share some of our tips for developing and managing such a large-scale micro-modules project.

P27. Explanation of Difficult Concepts in Science Classics Using Virtual Reality (VR) Technology

Dr. Chun-Yeung LO	Office of University General Education
Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Kenneth Ming LI	Office of University General Education
Dr. Andy Ka-Leung NG	Office of University General Education
Dr. Wai-Man SZETO	Office of University General Education

The use of VR technology in education has become prominent in recent years. Furthermore, technological advancement in mobile technologies has also made VR much more accessible to students than before. A VR mobile application has been developed to assist students' learning in the General Education Foundation Programme – In Dialogue with Nature (UGFN1000). It aims to provide immersive visual experiences that help students grasp abstract concepts present in the classics. In UGFN1000, the cosmological model of Aristotle and Newtonian mechanics are two of the more difficult concepts in the course. Therefore four modules have been developed to enhance students' understanding of these concepts. The first two modules allow students to visualize the relationship between the empirical observations of heavenly bodies from the earth and the cosmological model proposed by Aristotle. This enables students to appreciate the credibility of Aristotle's idea and the significance of the emergence of the modern sun-centered model. The remaining two modules show the trajectories of cannonballs shot vertically upward from both a moving train and a stationary train. This helps them understand better Newton's Laws of Motion and appreciate the conceptual change in the explanation of projectile motion from Aristotle to Newton. This VR app was used in tutorial classes, where students learnt the concerned concepts together under the guidance of the teacher, followed by discussions on relevant concepts. In this presentation, we focus on the process of development and the actual implementation of this VR mobile app.

P28. Virtual Experiential Learning for Science Classics

Dr. Andy Ka-Leung NG	Office of University General Education
Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Chun-Yeung LO	Office of University General Education
Chi-Tat LI	Office of University General Education

Virtual experiential learning is an emerging pedagogy in higher education all over the world. The rapid development of mobile technologies has opened up many new possibilities of using mobile applications in experiential learning. A mobile application has been developed to enrich student learning experience in the General Education Foundation Programme – In Dialogue with Nature (UGFN) and In Dialogue with Humanity (UGFH). The app consists of a total of five modules; each corresponds to three to four classics in the courses. In each module, students will play the role of a protagonist to engage in a challenging life scenario or dilemma to deal with essential issues and debates arising from the classics. The thoughts of various thinkers are introduced to them through interactive mini-games, animations, short conversation, slideshows and videos. Students are guided by those thinkers to approach the problem in different perspectives and are expected to make informed judgements at the end of each module. In this presentation, we focus on the process of development of two modules related to science classics in UGFN.

P29. An Evaluation of Micro-modules Coupled Online Discussion in UGFN1000

Dr. Andy Ka-Leung NG	Office of University General Education
Dr. Derek Hang-Cheong CHEUNG	Office of University General Education
Dr. Kai-Ming KIANG	Office of University General Education
Isaac Ka-Tai WONG	Office of University General Education

Online micro-module aided teaching is a rapidly developing pedagogy in the universities worldwide. Studies in evaluating the synergies between micro-modules and course assessment items could better inform the teaching practice. The present study aims to address this question in the context of a compulsory science general education course, “In Dialogue with Nature”, in The Chinese University of Hong Kong. A set of micro-modules has been produced to supplement basic science knowledge, as well as historical and technical background related to the required readings. In 2017-18 term 1, the micro-modules set was coupled with an assessment item, an online discussion forum, thereby making the micro-modules compulsory. In 2017-19 term 2, the micro-modules were decoupled from the discussion forum so that viewing the videos became voluntary. This study aims to give a comprehensive evaluation of the aforementioned micro-modules aided teaching from both teachers’ and students’ perspectives. The entries in the discussion forum were analyzed in two dimensions. First, the quality of students’ attainment of learning outcomes was assessed. Second, students’ cognitive achievement was analyzed according to the Community of Inquiry Framework. On the other hand, students evaluated the effectiveness of micro-modules using an online survey. It was found that more students have displayed a good reflection towards at least one of the intended learning outcomes in the coupled setting. They were also found slightly enhanced regarding cognitive presence. Besides, significantly more students felt that micro-modules had increased their understanding of scientific inquiry, prompted their reflection and helped them in written assignments.

P30. Cognitive and Affective Influences on Science Anxiety in a Science Core-text General Education Course in Hong Kong

Dr. Wan Heng Sandy HOI	Office of University General Education
Dr. Wing Hung WONG	Office of University General Education
Dr. Kam Moon PANG	Office of University General Education
Dr. Vitrierat Sophia NG	School of General Education and Languages, Technological and Higher Education Institute of Hong Kong

Science anxiety hinders students from effective scientific literacy and confident application of scientific knowledge to solve problems in life and academic situations. Science anxiety commonly arises when students take science or science-related general education courses. “In Dialogue with Nature” is a compulsory general education course for undergraduates of The Chinese University of Hong Kong. It encourages students to engage in reading science classics and discussion about science-related issues, aiming at building up confidence in seeing things from scientific perspectives. Individuals’ cognitive competencies and perceptual sets could both affect the information to which they attend. Teachers should thus pay as much attention to students’ perception of competence as to actual competence. Their perception of competence may more accurately predict students’ motivation and future academic choices. A tailor-made questionnaire was developed to evaluate how science anxiety is related to students’ understanding of Nature of Science (NOS) (cognitive) and their self-efficacy towards this course (affective). The preliminary results of pre- and post-course surveys showed that students’ understanding of NOS and their self-efficacy towards the course increased significantly after taking the course, while their anxiety towards science had no significant change. In addition, regression analysis revealed that students’ science anxiety is correlated to course self-efficacy and their number of science courses studied in secondary school, but not correlated to understanding of NOS. This study thus provides insights into an effective teaching and learning strategy in general education courses.

P31. Effective Implementation of the Flipped Classroom Approach in Hong Kong Higher Education for Enhanced Learning Outcomes

Prof. Paul LAM	Centre for Learning Enhancement And Research
Carmen LAU	Centre for Learning Enhancement And Research
Man TSANG	Centre for Learning Enhancement And Research
Dr. Crusher WONG	Office of the Chief Information Officer, City University of Hong Kong
Dr. Theresa KWONG	Centre for Holistic Teaching and Learning, Hong Kong Baptist University
Dr. Ka Luen CHEUNG	Department of Mathematics and Information Technology, The Education University of Hong Kong
Dr. Kevin CHAN	Department of Applied Social Sciences, The Polytechnic University of Hong Kong

The notion of ‘flipped classroom’ has received increasing attention across educational institutions as it is regarded to have a strong theoretical basis for learning enhancement. However, teachers may find it challenging to implement this new teaching approach. For example, they are required to produce new learning materials and redesign class activities. Therefore, this UGC-funded project has gathered members from five universities in Hong Kong - CUHK, CityU, HKBU, EdUHK and PolyU, to provide essential support to teachers in implementing and maximizing the flipped classroom approach in Hong Kong higher education.

This project introduces five components that are deemed crucial to a successful flipped classroom: Exposure, Incentive, Assess, Activities, and Evaluations. Based on these components, participating universities develop strategies and tips to help teachers to implement the teaching approach effectively. This project has also held a number of talks, workshops and community meetings inviting professionals and practitioners of this field to share their experiences in flipping the class. In addition, our team has recruited about 20 teachers from the universities to participate in teaching trials. We have discussed course designs with the teachers and provided different kinds of support to them, such as evaluation, documentation, technical support in courseware development, etc. In the future, this project will further investigate whether and how the flipped classroom approach enhances teaching and learning outcomes through the teaching trials and in-depth studies. It is hoped that good practices can be collected from these trials and studies, and we will disseminate the results soon.

To learn more about this project, please visit: www.flippedclasshk.net.

P32. Teaching with Technology - Pedagogical Support in the Form of Micro-Module Resources

Prof. Paul LAM	Centre for Learning Enhancement And Research
Judy LO	Information Technology Services Centre
Daisy LAU	Information Technology Services Centre
Carmen LAU	Centre for Learning Enhancement And Research
Man TSANG	Centre for Learning Enhancement And Research
Hazel LI	Centre for Learning Enhancement And Research

Integrating technology into teaching is challenging in various ways. For example, teachers may not see the linkage between the new technology and their teaching needs. Some teachers may have difficulties in locating the right technology to achieve their desired learning outcomes. Even when the teachers find the right tool, they still need to invest considerable time and efforts to put it into practice.

In view of this, CLEAR and ITSC produced different types of self-accessible video resources to help teachers meet the challenges. First, we created a series of animations to provide quick and relevant technological and pedagogical advice. Through these short but meaty videos, teachers will learn how to effectively combine technologies with instructional strategies such as inquiry-based learning and location-based learning. We also collected real examples of innovative teaching from local and foreign faculties for teachers to spark ideas of their own teaching. Moreover, practical guides on campus-wide eLearning tools such as uReply have been updated with addition of demonstration videos. These resources are now available on the eLearning@CUHK website (www.elearning.cuhk.edu.hk) for the purpose of teacher professional development and self-learning.

P33. Blackboard - Accessible content is better content

Information Technology Services Centre
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P34. Video Learning Made Easy – Panopto

Information Technology Services Centre
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P35. Use of Augmented Reality in Education

Chi Fai Eddie KWOK	Centre for eLearning Innovation and Technology
Timothy HUI	Centre for eLearning Innovation and Technology

Nowadays most of the student own smartphones. Augmented Reality changing the way we view the world.

Our goal is to combining smartphone and Augmented Reality technology for education purpose. In this presentation, we will demonstrate our works that implemented for different subjects such as Science and Social Science. Augmented Reality technology has the ability to render objects that are hard to imagine and turn them into 3D model, in real time. By incorporating Augmented Reality into the lesson, Augmented Reality helps the students achieve better results through visualization and full immersion in the subject matter. Moreover, we will also share our experiences on how to choose the AR app for the development of their courses.

P36. The Ultimate Guide to Blended Learning on KEEP

Eddy YET	Knowledge & Education Exchange Platform
Bo ZHU	Knowledge & Education Exchange Platform
Antonio CHEUNG	Knowledge & Education Exchange Platform

KEEP (Knowledge & Education Exchange Platform) is a UGC-funded project for empowering educators and learners with impactful resources and innovative technologies for lifelong education. KEEP comprises several educational tools for enhancing learning inside and outside your classroom:

KEEPCourse: Browse existing online courses and see the world's best examples of blended and online learning experiences.

Open edX / moodle: Choose a platform to host your course and use the latest question types, discussions, and video players to create interactive experiences for your learners.

Dashboard: Review and track your learners' engagement with high-quality visualizations to help you tailor your teaching and improve your content.

KEEPPoll: Check in-class learners' comprehension real-time with short questions using their mobile phones.

Since the launch of KEEP in 2015, instructors of 219 courses are practicing different innovative teaching methods on the platform, such as blended learning, flipped classroom and peer instruction. Teachers and e-learning support units are welcomed to our presentation to exchange observations and experience in applying new technology in education. We also welcome inquiries at info@keep.edu.hk.

P37. Job Search DIY

Dr. Ocean SIU	Independent Learning Centre
Dr. Vivian CHAN	Independent Learning Centre

There are increasing demands of Chinese cover letter and résumé in job search, however, it is difficult to find up-to-date reference that meet local needs. The Job Search and Interview Skills Website of ILC aims to fill the gap. Its comprehensive contents and user-friendly design make job search an easier task for students to accomplish. Interactive exercises on the format, structure, content of Chinese cover letter and résumé are provided. Each question is followed with answer analysis to provide explanation and clarify misunderstanding. A FAQ section is also available to answer some puzzling issues on writing Chinese cover letter and résumé. Besides, interview video clips are there to show good and bad examples. Commonly asked interview questions are analysed and suggestions given in details. Videos of job talks by senior management with useful summaries are provided to give students practical suggestions in the job market. Examples of cover letter and résumé and other references are included to enhance self-learning.

P38. Chinese Citation Style Website

Dr. Ocean SIU	Independent Learning Centre
Dr. Vivian CHAN	Independent Learning Centre
Dr. Felix CHAO	Independent Learning Centre
Dr. Benson LEE	Independent Learning Centre

Since there are no common citation styles in Chinese academic writing in the Greater China area, each Chinese scholarly journal has its own requirements which is followed by the contributors. In contrast to this, most of the departments in the university may not have specific instructions for the format of the student works written in Chinese. In order to provide a set of Chinese citation style for students' reference, we have developed the "Chinese Citation Style Website", which aims to help students to write a Chinese essay that meets academic norms. The various Chinese citation styles, with reference to different Western citation styles, are provided in the website. Each part of a citation style, such as paper format, in-text citations, quotation formats, endnotes, footnotes, work cited page, tables and figures will be introduced to students with detailed explanation. Students can find examples by clicking different links while they need to write Chinese essays in a consistent format. Hyperlinks of selected relevant websites and reference books in the CUHK library are also included in our design to facilitating students' self-learning. In addition, information on relevant workshops and consultation services are provided to students, which allow them to seek advices on writing Chinese essays, or having a face-to-face discussion with the ILC teachers.

P39. Ping Che Evolving: Understanding Its Community in Response to “City Development”

Ka Po WONG	CUHK in Communities
Dr. Yin Ha CHAN	Independent Learning Centre
Prof. Sin Piu FAN	Department of Chinese Language and Literature
Dr. Ka Wing YIP	Department of Chinese Language and Literature
Dr. Muk Chi MA	Department of History
Prof. Yiu Tung SUEN	Gender Studies Programme
Dr. Wai Pang CHENG	General Education Foundation Programme
Fai Hung MA	New Asia College Ch'ien Mu Library & United College Wu Chung Multimedia Library
Dr. Ka Lun AU	School of Journalism and Communication
Prof. Tat Pui POON	School of Journalism and Communication
Siu Mui CHUNG	The Office of the Arts Administrator

Ping Che (坪輦), a rural area consists of six villages, was brought into the spotlight when North East New Territories New Development Areas Planning (新界東北發展計劃) was announced and resisted by the non-indigenous inhabitants. Though the government reviewed and replanned the Ping Che/Ta Kwu Ling New Development Area in the New Territories North Study (新界北研究) in 2015, the threat of land redemption remains. Since then, several locals and social activists have been organizing community engagement activities there, including community tours, art festivals and the establishment of Ping Che Mural Village. These not only revive rural cultures and empower villagers with strong identity, but also unite participants as a growing resistance to the Planning.

The stories of Ping Che are worth our attention to rethink “city development”. Starting from September 2018, 21 CUHK students of the Teaching Development and Language Enhancement Grant (TDLEG) project “CUHK in Communities” led by independent curator and urbanist Dr. Sampson Wong have engaged in the festive events and community activities there. It is hoped that, through the eight-month participatory learning and doings, students will have firsthand experience and understanding of the intertwined facets of the people’s living, especially under the threats posed by city development.

The Ping Che community is an exemplary case to rethink the legitimacy of the global trend of urbanization caused by developmentalism. In response to a top-down urban planning, how can we advocate and practice a community-initiated development with land justice and equal participation, hence constructing a civil society? Through on-site participatory learning at Ping Che, students will have first-hand observation and also chances to test the concepts learnt in class: the pursuit of good life, land justice, community-initiated development, and equal participation in a civil society, some of the core components of general education.

P40. Supporting Outgoing Students for Overseas Academic Exchange via Online Micro Modules Interacting Across Cultures (IAC)

Dr. Yvonne LOONG	Independent Learning Centre
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In response to the global higher education trend of internationalisation and an increasing number of CUHK students going on for overseas academic exchange programmes, the Independent Learning Centre (ILC), in 2016, developed a series of online micro modules titled “International Across Cultures” (IAC) with an aim to enhance outgoing students’ intercultural competence so they can maximize their learning outcomes when interacting with people of different nationalities. Apart from discussing the quantitative and qualitative data collected via the online feedback forms through a pilot study conducted in 2017, this presentation will also show how the micro modules provided independent learning opportunities outside classroom before students’ departure and upon their return to Hong Kong in various contexts. Ideas about further expanding and extending the IAC to serve an even bigger number of CUHK students will be shared in the presentation as well.

P41. Introducing an English Language Reflective Journal Writing Micro-Module

Dr. Karl HOLM	Independent Learning Centre
Dr. Yvonne LOONG	Independent Learning Centre
Dr. Felix CHAO	Independent Learning Centre

Reflective journal writing is an important genre of academic writing in which students are not only asked to think critically about any given experience, topic, or question, but also to be able to monitor their own development as learners. Here, we introduce an English language micro-module for self-directed learning of reflective journal writing skills aimed specifically at students taking the General Education courses In Dialogue with Nature and In Dialogue with Humanity. This micro-module is complementary to Chinese language versions, and supports regular workshops. In the design of this platform, we have tried to reach multiple aims: for example, while we suggest a linear progress throughout the module, we also provide several points of entry in order to satisfy different learning needs and individual preferences. Furthermore, we provide multiple types of exercises generated from authentic student texts in order for the students to monitor their progress. In terms of content, we found it important not only to explain in detail the process of reflective thinking, but also to exemplify and practice the language features of reflective journal writing. Thus, we include detailed sections on how to analyse writing prompts, generate ideas and arguments, and finally outline and compose the writing. Therefore, we believe that core parts of this micro-module are also useful for learning general academic writing.

P42. MakerSpace in the CUHK Library: A Co-Learning Space for ALL to Support Innovation and Design

Lily KO	CUHK Library
Dominic CHAN	CUHK Library

CUHK Library is committed to supporting the University-wide theme Innovation & Design. It has been partnering with faculties and support units to advocate a maker culture in the 24x7 Learning Garden to provide 3D printing and scanning equipment, and a collaborative working space alongside with high-performance multimedia workstations. To move forward, CUHK Library is planning to expand this space to a full-fledged innovation generator to support:

- Augmented Reality (AR) and Virtual Reality (VR) concept applications and development
- Creative media production of digital content
- A flexible prototyping and digital fabrication workspace with hot benches, laser cutter, 3D printers and scanners for hands-on workshops and classes

This MakerSpace is open to all members of the CUHK community, and services as an entry point for staff and students to explore the maker's culture. It will adopt a maker-oriented service model by

- providing hands-on workshops and technical support to operate the high-end machines
- encouraging self-service, environmental-friendly activities
- Engaging students to assist in daily equipment operation and space management
- Serving as a coordinator between makers and communities

The Library's MakerSpace will be built in two phases, with the targeted completion dates in March 2019 and Summer 2019 respectively. The 24x 7 collaborative Learning Garden will continue to support creative learning experiences.

P43. A new Information Literacy MOOC: InfoLit for U

Lily KO	CUHK Library
Doris CHAN	CUHK Library

As part of the “Enhancing information literacy in Hong Kong higher education through the development and implementation of shared interactive multimedia courseware” – a University Grants Committee (UGC) Teaching and Learning funding project, the CUHK Library and the other UGC-funded university libraries jointly created an innovative Massive Open Online Course (MOOC) on information literacy, InfoLit for U. The poster presentation will focus on show casing the MOOC: InfoLit for U and to explore the possibilities of embedding it into the curriculum for further collaboration with interested parties; departments and faculties.

InfoLit for U is a self-paced, non-credit bearing MOOC. It aims at enhancing information literacy among students and fostering their capacity to use information to learn, and to build students’ awareness of themselves as informed learners. It is currently hosted on the Knowledge & Education Exchange Platform (KEEP), so that users can have free, open and easy cloud based access.

The design of the MOOC is based on the findings from two studies about the information literacy needs of local undergraduate students: Assessment of information literacy educational needs of undergraduate students and Research Readiness Self Assessment Hong Kong (RRSA-HK).

The course includes two main parts: "Inquiry & Research" Module and 8 Discipline related elective Modules which help students to find, evaluate, and create high-quality outputs for tasks relating to the following disciplines:

- Arts & Humanities
- Business & Economics
- Education
- Engineering
- Health Sciences
- Law
- Science
- Social Sciences

P44. 3D Plant Cell Organelles via Virtual Reality (VR) Experience

Jenny LAI	School of Life Sciences
Prof. Liwen JIANG	School of Life Sciences

In this project, we have developed 3 micro-modules using the latest technique VR to enhance students' learning experience in new models of plant cell biology. A VR mobile application "3D Plant Cell Organelles in VR" is generated, in which students could explore and interact with 3D plant cell organelles in a stimulating cell environment.

To achieve the aim of the project, we first constructed 3D models of selected plant cell organelles (e.g. the autophagosome and the vacuole) based on real research data derived from our RGC-AoE- and CRF-funded research projects using the most advanced 3D Tomography TEM (transmission electron microscopy) system and the image processing, modeling and display program IMOD. Base on the models, we developed a mobile VR application for both iOS and android operating systems in which students can visualize the real appearances of 3D plant cell organelles at the nm resolution in person. In addition, VR googles are purchased for students to view the VR application in the lectures using their own mobile phones. The application and googles have been put into use for teaching the course CMBI4001 Protein Trafficking and LSCI5012 Advanced Topics in Biological Electron Microscopy and Live Cell Imaging in September 2018. This is the first such attempt to translate the latest research development into teaching materials for University education, which will be further refined and promoted.

P45. Using Flipped Classroom with Recent Research Discovery to Enhance Interactive Teaching and Learning in Protein Trafficking

Jenny LAI	School of Life Sciences
Dr. Vivian CHAN	School of Life Sciences
Prof. Liwen JIANG	School of Life Sciences

Our project has developed 18 micro-modules that comprised of online videos which introduce selected scientific publications derived from RGC-funded CUHK research that are related to the course contents of CMBI4001 Protein Trafficking.

This course covers the general principles of protein trafficking and has a pedagogical goal to share with students the current developments in protein trafficking research via discussions and presentations. Students are expected to develop lifetime knowledge, critical thinking ability and skills in scientific methodology and problem solving. While the general principles of protein trafficking can be taught in lectures, the knowledge related to recent scientific discoveries in this area are much richer and more challenging. In this project, we developed micro-modules from our recent research findings published in prestigious international journals that are related to protein trafficking in both animal and plant cells. The micro-modules comprised of online videos explaining the details of the background information and research data of the publications. Students can learn by themselves via watching the videos and have basic understanding of the related publications before the lectures for discussion. As a result, they can have more intensive and deep discussion about the latest research development during valuable lecture time. The micro-modules-based learning mode also allows students to have the most up-to-date knowledge on the latest research findings in this field.

P46. Learning Biology with “Science Mobile”: Promoting Ubiquitous Learning and Knowledge Integration in Biology

Dr. Cheung-Ming CHOW	School of Life Sciences
Dr. Pui-Yi CHUI	School of Life Sciences
Siu-Kwan WONG	School of Life Sciences
Ka-Man Carmen CHENG	School of Life Sciences

To fully appreciate the amazing power of evolution and the magnificent adaptation strategies of different kinds of organisms, Biology students need to integrate their observations on specimen features with knowledge from various lectures. To promote knowledge integration, we make use of “Science Mobile” apps to implement ubiquitous learning in Biology under three main themes, namely (1) Plant Biodiversity and Ecology, (2) Animal Biodiversity and Conservation, and (3) Fungal Biodiversity and Diseases. To achieve this, we target to create more than 400 learning objects. With “Science Mobile”, students can scan the QR code of a specimen in the laboratory setting and then be directed to a learning object in Science Mobile which includes description, related information, schematic diagrams, photos and/or videos of the specimen to aid in the demonstration of the life cycle, adaptive features, reproductive and survival strategies, etc. In this way, the learning of specimens is no longer confined to the laboratory course syllabus. Outside the laboratory, students can also preview or revise the learning objects anytime and anywhere. To further promote integration at a higher level, each learning object is linked to a number of related learning objects in different aspects, including (1) associated biological principles and phenomena, (2) relevant chemical knowledge or/and (3) affiliated culture, history and current issues, and a number of learning pathways/modules consisting of knowledge within Biology, in Chemistry and beyond Science will be created. The learning across courses and disciplines paints a more comprehensive picture for students and promotes integration of knowledge.

P47. VisualNarrative, An integrated E-Learning Platform for Eight University General Education Courses

Dr. Cheung-Ming CHOW	School of Life Sciences
Dr. Hung-Kui NGAI	School of Life Sciences
Dr. Lawrence Chi-Ming CHIU	School of Life Sciences
Dr. Lam SIOW	School of Life Sciences
Dr. Fai-Hang LO	School of Life Sciences
Dr. Pui-Yi CHUI	School of Life Sciences
Pui-Sze YIP	School of Life Sciences
Kin-Kan CHU	School of Life Sciences

An integrated e-learning platform, VisualNarrative, has been developed based on the principle of a modified social science research method called “photo-elicitation” for the eight University General Education courses offered by the School of Life Sciences. It is designed to enhance the coherence of UGEB courses with various aspects of life science fields, foster the critical and creative thinking of students with multiple perspectives and encourage students’ unique personal interpretations on real-life situations. In this poster presentation, we would like to introduce the features of our e-learning platform and share the feedbacks from teachers and students based on our implementation trials. The pedagogical perspectives of the e-learning platform and its implementation will also be discussed.

P48. VR Biomolecules for Learning Molecular Biology

Prof. P.C. SHAW	School of Life Sciences
Queenie LAU	School of Life Sciences

A collection of virtual biomolecules are generated for Molecular Biology course aiming to help students understand the three-dimensional structures and the molecular interactions of some important biomolecules. While the traditional classroom uses diagrams and models to represent the biomolecules, student engagement in learning molecular biology can be enhanced by application of virtual-reality technologies such that students can manipulate molecules, see the molecular structures in three-dimensional space interactively. This serves to increase their motivation and engagement of learning. 22 virtual biomolecules are labeled for important atoms and dimensions. There is a brief description followed by revision MC questions for each molecule. A mobile app (named VR Biomolecules) is developed which allows students to get access to the molecules through Mobile device, in both Android or iOS, and VR head-mounted display sets. A focus group was formed in Feb 2018 to evaluate the virtual molecules and accompanied exercises. Most of the students agreed that VR biomolecules increase their motivation and engagement of learning and VR biomolecules provide them a fast and flexible way to understand biomolecules. The finished mobile app (VR Biomolecules) is uploaded to Apps Store and Google Play for download and install. Information of these virtual molecules are centralized in e-learning website of the Biochemistry Programme (www.bch.cuhk.edu.hk/learnbiochem) In 2018/19, CUHK Students taking Molecular Biology course (BCHE3050) and Molecular Biology and Recombinant DNA Laboratory (BCHE3650) will be asked to use the app to supplement their studies.

P49. Development of a Virtual Laboratory for the Teaching of Immunohistochemistry

Prof. Siu Kai KONG	School of Life Sciences
Dr. Fai-Hang LO	School of Life Sciences
Prof. P.C. SHAW	School of Life Sciences
Ray LEE	Information Technology Services Center

Virtual Reality (VR) is a technology allowing the users to enter an artificial environment that cannot be reached in the real world easily. In this project, we aims at applying VR to create a virtual laboratory, such that our students are able to get access to and try using some advanced machine that is not normally available to them. In this virtual laboratory, students can try to practise the procedures of immunohistochemistry (IHC) for the study of cellular pathology.

P50. Application of Virtual Reality on the Teaching and Learning of Mass Spectrometry

Dr. Hung Kui Patrick NGAI	School of Life Sciences
Dr. Fai Hang LO	School of Life Sciences
Prof. Shannon Au	School of Life Sciences
Prof. S.K. KONG	School of Life Sciences
Prof. P.C. SHAW	School of Life Sciences
Prof. K.B. WONG	School of Life Sciences
Ray LEE	Information Technology Services Centre

Mass spectrometry (MS) is a commonly used technique to analyze biochemical samples such as peptides, cellular metabolites and other organic compounds. The properties of biomolecules or their fragments can be revealed by ionization and separation processes according to their mass-to-charge ratios. With different machine designs, MS has become one of the important methods for protein characterization and peptide sequencing. Not only can mass spectrometers be used in different research fields, but they can also be employed to study both pure samples and cellular mixtures. Despite its powerful functions, operation of a large mass spectrometer can only be conducted under the supervision of skilled technicians and in a specialized lab facility. Both of which, however, may not be readily available for a large undergraduate class. Furthermore, life science students are often daunted by abstract physical concepts of mass spectrometry. It could also be difficult for some students to acquire the skills to handle a sophisticated mass spectrometer and to prepare biological specimens for analysis. In light of the immersive nature of virtual reality (VR) technology, an interactive e-learning module has been developed to help students overcome these learning difficulties. In the poster presentation session, the design of our VR learning module and its implementation in classroom will be discussed.

P51. Stepping Forward: Teaching Human Anatomy Practical with Articulate Storyline

Dr. Sen Mun Maria WAI	School of Biomedical Sciences
Dr. Shi Ying Joyce LAM	School of Biomedical Sciences
Yuet Wa Chara WAN	Faculty of Medicine
Hoi Ki Kiko CHEUNG	Department of Statistics
Hon Chung Edmond CHU	Faculty of Medicine

Traditional face-to-face instruction and viewing of human specimens during anatomy practical classes has been considered as the most effective way of teaching and learning in pre-clinical training. However, resources, time, and teacher-to-student ratio are often the critical factors that influence outcome. With the growing number of students admitted to the MBChB program in recent years, it has become increasingly difficult to adopt this mode of teaching due to crowdedness and restricted time frame for learning and understanding. To improve the learning condition, a series of six interactive practical preview videos, accompanied with narrations, were developed with Articulate Storyline software and used in conjunction with the practical classes. Each video is tailor-made to contain high quality human specimen photos and key concepts of the topic. Detailed structures not well demonstrated in class could be easily illustrated with magnified photos. The videos are put on Blackboard for viewing at students' own learning pace. Students can also attempt the self-test quizzes to test their understanding. The number of viewers of each practical preview video retrieved from Blackboard was well over 60%. While no direct statistical correlation between video viewing and grade awarded is observed, students were positive about the videos and gave a high score of 5.22/6 in the CTE for their usefulness. Most students expressed that the videos had a valuable role in providing a study guideline and solidifying their knowledge. Based on the encouraging feedback, it is worthwhile to develop similar videos for practical classes of other biomedical science subjects.

P52. Micro-module for Dietary Fats Metabolism

Dr. Po YEUNG	School of Biomedical Sciences
Dr. Florence TANG	School of Biomedical Sciences
Taylor TANG	Information Technology Services Centre

Introduction:

There are increasing studies to show that excessive intake of dietary fats particularly saturated fats and trans fats will increase the risks of getting cardiovascular diseases. It is important to provide clear concepts and basic knowledge of dietary fats to the medical/non-medical students. While studying the dietary fat metabolism, students may feel frustrated as the mechanism is not easy to pick up. Also, there is no e-learning courseware to support the blended learning in this teaching. The aims of this project were focusing on the understanding of dietary fats metabolism including the classifications, absorption, mobilization and storage of dietary fats.

Methodology:

4 micro-modules were developed with 5-8 minutes in animations. The roles of different micro-modules were providing general concepts for flipped classroom (pre-lecture learning) and recalling what they learnt after face-to-face lectures (post-lecture learning) reflected by online assessments. Those videos were uploaded at CUHK blackboard system for students to access during the semester of the course launched. Students clicked or downloaded the micro-modules before/after the lectures given by the teaching staff and completed the online assessment anytime.

Findings:

To determine whether the developed micro-modules were supportive for the students' learning, the student surveys were incorporated at the end of the module to obtain feedback on the core material, web interface and ease of use. Students found those micro-modules were useful and enhanced their confidence in independent studying.

Conclusions:

For the further development, an eLearning pedagogy research can be conducted based on this micro-module project to investigate the development and implementation of micro-modules for flipped classroom teaching, the consolidation of basic pre-clinical knowledge and self-evaluation of understanding certain topics based on face-to-face lectures.

P53. An Integration of Immersive Virtual Reality Technology in Teaching the Laboratory Skill for the Usage of Gamma Irradiator

Dr. Florence M.K. TANG	School of Biomedical Sciences
Prof. Ellis K.M. FOK	School of Biomedical Sciences
Ray M.F. LEE	Information Technology Services Centre
Dr. Po H.M. YEUNG	School of Biomedical Sciences
Taylor L.H. TANG	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics

The core knowledge of course content of Techniques of Biomedical Research in the Biomedical Sciences Programme, students are required to learn the principal of radiation sources that are related to the radioactive chemicals; also need to know how to handle and use them in a proper way under the government ordinance, which are still adopted in the protocols of biomedical research and healthcare occupational settings. Concerning the laboratory safety, training the skills in handling of the radioactive chemicals causes difficulty as they are hazardous and harmful to health causing the potential problem with high-risks and impacts. The students may be threatened with fatal if the handling procedures are improper during the practical training. Nonetheless, the concept of “experiential learning” has become hostable to the undergraduates who must be well-trained for good laboratory practice and etiquettes.

The primary objective of the proposed project is to build up innovative courseware using immersive VR technology for handling chemicals that are harmful to health, entitled in as VR-Handling Radioactive material (VHand). We also aim to investigate whether virtual reality (VR) technology is helpful in stimulating students with limited laboratory experience in managing radioactive chemicals, preventing unpredictable accidental issues, and supporting active and constructive educational sector.

The outcome of the VHand is three-fold: (1) the innovative teaching courseware enhance study motivation via e-learning medium and equip their necessities in the future career path; (2) stimulation higher-order critical thinking by discussing clinical scenario case studies among students; (3) reinforce cognitive and foundational knowledge and clinical skills through online quizzes and case scenarios studies exercise. If the feedback is positive, our project team will further disseminate the courseware to other tertiary institution for the practical training for the usage of the radioactive related instruments.

P54. An Innovative Mobile eLearning Platform: Integration of Basic Histology, Physiology and Histopathology for Health Professional Blending Learning

Dr. Florence M.K. TANG	School of Biomedical Sciences
Dr. Aden K.Y. CHAN	Department of Anatomical and Cellular Pathology
Dr. Leung Fu CHENG	Department of Mathematics
Dr. Sam H.K. POON	School of Biomedical Sciences
Dr. Molly P.M. WONG	School of Biomedical Sciences
Dr. Po H.M. YEUNG	School of Biomedical Sciences
Taylor L.H. TANG	Information Technology Services Centre
Ray M. F. LEE	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics

Regarding the teaching of basic clinical knowledge of the Faculty of Medicine, lectures and practicums in Histology, Physiology and Histopathology are often delivered too hastily, leaving insufficient time for students to digest the teaching materials. The primary objective of this project is to facilitate the students' learning of skills for retention of the knowledge. Moreover, our team has designed the innovative mobile learning platform, entitled electronic Histology Guide (eHisGuide), which aim to enhance cellular level education including histology, physiology and pathology and health professional students can learn actively anywhere and at any time.

This proposed project is collaborative with expertise from different disciplines. Our team had analyzed the teaching and learning needs of the health professional students. We, therefore, built-up the contents and divided into four micro-modules, ie. Cell-cell Junction, Basic Tissue, Respiratory System and Histology of Cartilage and Bone. Our team invited the colleague of the ITSC to participate in the computer information technology support to develop the platform of the eHisGuide. All the micro-modules have been gradually launched in the Blackboard CUHK for the trial run issue.

After completion of the project, the outcomes of our team's study are able to:

- increase mobile learning in teaching Histology, Physiology and Pathology;
- implement eHisGuide in other subject related areas for blended learning;
- share experience and make the eHisGuide available to other institutions; and
- use the eHisGuide as a prototype to promote the innovative concept of teaching and learning pedagogy to Hong Kong and international tertiary institutions for health professional students teaching.

P55. Clinical Skills Training in Medical Clerkships: The Effectiveness of Integration of Mobile Learning

Dr. Heyson C.H. CHAN	Prince of Wales Hospital
Taylor L.H. TANG	Information Technology Services Centre
Dr. Olivia M.Y. NGAN	CUHK Centre for Bioethics
Dr. Florence M.K. TANG	School of Biomedical Sciences

Current MBChB programme integrates the concept of the flipped classroom in the teaching curriculum, where students receive the exposure of basic knowledge before the didactic practicums. There are plenty of teaching tools in the learning of science but lack a cognitive integration in critical connections to clinical signs and symptoms for differential diagnosis of the diseases.

Our team has been built up an interactive mobile application entitled mPACS (mobile Pass A+ in Clinical Studies) to facilitate the development of critical thinking in clinical practice among clerkship training. The pilot study of the project aims to develop micro-modules related to bedside physical examination, chronic liver diseases and its clinical signs for training the ability to think critically, where students acquire skills in the differential diagnosis as such logistic connection is no rules or textbook to define, quantity or teach. It is helpful in preparing students' competence in clinical clerkship training and reinforcing students' commitment to professional principles on health care teams.

Project outcome has been evaluated by an anonymous survey and focus group among students. Overall, there were 87.5% of students who liked and rated the mPACS at 5 out of 5-point Likert Scale. According to the data analysis, our team concluded that the mPACS is the innovative and interactive courseware that can engage students learning experience via mobile devices in combination of traditional face-to-face delivery learning, reinforce their cognitive connections in foundational knowledge and clinical skills through case scenarios studies exercise for differential diagnosis of the diseases for experiential learning; and deepen the clinical skill by on-line formative assessment by personalized instruction study approach in the sophistication of professional knowledge.

P56. How to Make a “Most Suitable” Courseware for Students? Let Them Design!

Dr. Rebecca Kit Ying LEE	School of Biomedical Sciences
Daisy Minghui CHEN	Information Technology Services Centre
Bernard Yat Nam NG	Information Technology Services Centre

Students always encounter difficulties in studying biochemical pathways. They are especially weak in understanding the relationships between metabolic pathways and their integration because these pathways are always taught one by one in class. The Metabolism Metro is a self-learning tool which aims to arouse students' interest in exploring human metabolic pathways. We have finished the first two phases of the courseware with satisfactory feedback, including Phase 1: L-aminolegoland (urea cycle) and Phase 2: AG City (nucleotide metabolism).

Before we moved on to design our next courseware, feedback were collected from students in order to understand the users' experience. In conventional courseware development, teachers always play a major role in the courseware content design. In this project (Phase 3: Sweetieland), besides inviting a student helper (who has knowledge about the area) to work with the teacher as a team to design the courseware in a student perspective, we also collected suggestions of previous phases from the end-users. New components would be considered to add in this project according to their comments such that this courseware was designed according to the needs of the end-users.

This teacher-student co-working project is a novel idea that adopts a student-centered approach so that students can participate actively in the design of the courseware. Through exchanging ideas with students, the teacher can have a better understanding of the difficulties that students might encounter in their studies, and can design a learning tool that is most suitable for them. This interactive self-learning tool will be packaged as a courseware using the Articulate Storyline eLearning authoring software.

P57. A Design of Bioethics Curriculum Specific for the New Biomedical Sciences Undergraduate Programme

Dr. Yuen-Keng NG	School of Biomedical Sciences
Dr. Maria Sen-Mun WAI	School of Biomedical Sciences

Biomedical scientists are expected to be socially responsible while pursuing scientific advancements. To develop professionalism, bioethics training is included in year 2 curriculum of the latest BSc in Biomedical Sciences Programme. Our faculty has already incorporated bioethics teaching in the MBChB curriculum, the current teaching contents are targeting for medical professional trainees. Hence, a direct adoption of the current curriculum into the biomedical sciences programme may not be suitable for our research-oriented trainees. Furthermore, novel biomedical technologies are rapidly emerging, there is a pressing need to teach our students how to cope with the evolvement of controversial biomedical issues. In light of this, we have designed a new bioethics curriculum with emphasis on training critical thinking and decision-making skills.

Our curriculum is designed to compose of 2 major components. First is a series of lectures conducted by experienced and active research members of our School, who manage to share the front-line view on the ethical landscape together with potential frauds, conflicts, or violations that commonly encountered in routine biomedical research. Second is another series of lectures conducted by other School members who are currently involving in bioethics teachings. The goal of these lectures is to nurture the student's skill in applying the Ethical Decision Making Model for tackling ethical dilemmas. By the end of the course, the students are assessed for their ethical decision-making skills through 1) responses in the interactive discussion in class and 2) presentation of decision rationales in individual write-up on given scenarios of recent biomedical advancements.

P58. ARAcupoint - Illustrating Acupoints on Own Face with Augmented Reality Technology

Dr. Michael Wai Yeung CHUNG	School of Chinese Medicine
Lilian Ka Yin LO	School of Chinese Medicine
Dr. Wai Kai WONG	School of Biomedical Sciences
Dr. Rebecca Kit Ying LEE	School of Biomedical Sciences
Dr. Sam Hong Kit POON	School of Biomedical Sciences

Face acupoints are the specific sites where needles or finger pressures could be applied for health-keeping or therapeutic purposes as proposed in the Chinese Medicine Theory. While teaching of these acupoints are usually demonstrated with student models limitedly in classroom, our team explored the use of Real-time Face Augmented Reality (Face AR) technology to allow self-learning of face acupoint with the own face of the learner. In this pilot study we have created the prototype of a digital face mask with learning contents including face meridian and acupoint are produced with Lens Studio and shared in Snapchat, a free social media app. Two groups of students, including secondary school students with no prior knowledge in acupuncture, and Chinese Medicine major students who are practicing acupuncture, were invited for product trial. It is found that (1) Most of the secondary school students enjoyed and found it easier to learn the location of acupoints by taking selfie (2) Chinese Medicine students found it possible to check site of needling insertion matches the point as in the face mask. It is reveal that the learning content based on Face AR technique could enhance self-learning of both public and professional education. The team is exploring further possibility to include more face related learning content in terms of various disciplines.

Acknowledgement: This pilot study is sponsored by EdVant (edvant.net). Thanks to students from STFA Seaward Woo College and School of Chinese Medicine for participation.

P59. An Online Demonstration of Identification Skills on Chinese Materia Medica

Dr. Chi Sun NG	School of Chinese Medicine
Prof. Yuanan JIANG	School of Chinese Medicine
Wai Yeung Michael CHUNG	School of Chinese Medicine
Dr. Ho Kee Katy KOON	School of Chinese Medicine
Yiu Ming LAM	School of Chinese Medicine

Background:

Conventionally, Chinese medicine students are only required to understand the functions of Chinese materia medica (CMM). However, the learning of the knowledge and skills to identify the differential quality of herbal plants in the private markets by the physical appearance and morphology is also essential. Students are unlikely to get familiar with the practical skills in current learning environment due to the time and space limitation.

Objectives:

This project aims at provides simple, concise and clear hands-on and practical skills for the students to identify the differential quality and varieties of the commonly used or easily confused Chinese herbal medicine in Hong Kong. The experience and knowledge of those traditional methods for CMM identification could also be inherited.

Methods:

We are honored to have invited Mr. HO Fat Yee, a local expert in CMM identification and herb marketing to demonstrate the practical knowledge and skills of identification of 15-20 commonly used CMM products including Ginseng, Cordyceps and Honeysuckle. The main features of each herbs and the ways of identification such as inspection and simple testing methods were covered in micro-module video clips.

Outcomes:

The project has been welcomed by the Chinese Medicine students. They found the teaching materials and assessment tools are useful for self-learning. They also expressed their willingness of using such learning materials in their study. The video clips will be launched at LMS platform (blackboard) and released according to the teaching schedule.

(The project is supported by Micro-Module Courseware Development Grant 2017-18)

P60. Emergency General Surgery Micro-module: Operations Made Easy

Prof. Kaori FUTABA	Department of Surgery
Carol M.S. LAI	Department of Surgery
Arthur K.H. WONG	Department of Surgery
Nicole M.Y. CHEUNG	Department of Surgery
Jenny S.Y. CHAN	Department of Surgery
Sandy L.Y. LEUNG	Department of Surgery
Prudence T.H. TAM	Department of Surgery
Emmy S.F. TANG	Department of Surgery
Dr. Man Fung HO	Department of Surgery
Prof. Charing C.N. CHONG	Department of Surgery
Prof. James Y.W. LAU	Department of Surgery
Prof. Paul B.S. LAI	Department of Surgery
Prof. Enders K.W. NG	Department of Surgery
Prof. Simon S.M. NG	Department of Surgery
Prof. Tony W.C. MAK	Department of Surgery

Final year medical students are only allocated to 5 weeks attachment in General Surgery. Exposure to surgery during their attachment is therefore limited and variable depending on the case mix availability. When the students attend the surgery in the operating theatre, the views of the surgical field is often limited and it is difficult for the operating surgeon to explain every step of the surgery and teach them whilst carrying out a difficult procedure in a timely manner. Emergency general surgical operations are even more unpredictable, with very sick patients requiring challenging surgery and are often carried out at night. Therefore, students rarely get a chance to see them during their surgical block. Therefore, we have produced good quality general surgical micromodules on six common emergency general surgery operations.

Each module contains comprehensive information on pathophysiology, patient presentation, relevant investigations with examples and management – including narrated short operative videos on the emergency general surgical procedure. Each module is 10-20 minutes long which can be accessed by the students online 24/7 on any platform via the CUHK blackboard.

Pre- and post- MCQs has shown that all students has shown an improvement in their score (mean 54.2% to 83.3%). All students reported that the topics covered were relevant and 96% reported the content was just right for their level. 82.3% said they would definitely use the micromodules in the future when available.

In conclusion, this surgical micro-modules will allow students to have access to good quality learning material at their fingertips to gain basic knowledge on the topic, allowing them to have higher order thinking and deeper learning experience on the ward.

P61. E-Learning and Flipped Classroom in Medical Undergraduate Trauma Teaching

Ronson Sze Long LO	Accident and Emergency Medicine Academic Unit, Faculty of Medicine
Prof. Colin GRAHAM	Accident and Emergency Medicine Academic Unit, Faculty of Medicine
Dr. Kevin Kei Ching HUNG	Accident and Emergency Medicine Academic Unit, Faculty of Medicine

Background:

E-learning and the flipped classroom approach is a growing trend in medical education.

It enhances learning opportunities, boosts teaching efficiency and allows other forms of teaching to take place during contact time.

Knowledge acquisition may occur outside of lecture hall and hospital ward, and contact time will be left for analytical exercises, clinical skills practice and constructive discussions to aid understanding.

Aim:

To investigate if undergraduate emergency medicine trauma teaching may be covered using e-learning material and the flipped classroom approach.

Methods:

The e-learning course was designed for final year medical students.

Five interactive narrated slides were constructed:

Trauma Calls and Trauma Team;

Reception and Initial Resuscitation;

Investigations in Trauma;

Spinal Immobilisation

Splinting

Quizzes were implemented at the end for self-assessment.

Teaching activities include: discussions, scenario simulation training and practical sessions.

Data Collection:

Questionnaire feedback from participants were collected to evaluate:

Time spent, Understanding of the material, Usefulness of the material, Usefulness of the teaching activities, Overall satisfaction.

Students responded to the questionnaire by using a 6-point Likert scale, with a qualitative free-text question included at the end for "any other comments".

Results:

45 students completed the questionnaire.

Students reported spending 10-20 minutes on each topic.

the eLearning material useful (40/45) and the teaching activities useful (38/41).

The modules were well received and students found the modules “interesting and interactive”.

Negative comments from students were taken into consideration when updating the course e.g. narration speed was increased, question format adjusted, and smaller groups for practical scenarios were arranged.

Conclusion & perspectives :

Undergraduate emergency medicine trauma teaching may be covered using e-learning material and the flipped classroom approach. It appears to enhance both teaching and learning efficiency, facilitates self-learning, whilst keeping the topic interesting for students. This paradigm shift of learning should be supported.

P62. Flipped Classroom Teaching in Clinical Medicine Teaching

Dr. Wai-Tat WONG	Department of Anaesthesia and Intensive Care
Prof. Mamie HUI	Department of Microbiology
Dr. Lowel LING	Department of Anaesthesia and Intensive Care
Prof. Kaori FUTABA	Department of Surgery

We have developed e-learning based flipped classroom modules to improve the learning environment for medical students in their clinical years. The flipped classroom modules include web-based interactive tutorials and brief lectures. The original didactic lectures are replaced by interactive face-to-face case scenario-based teaching. All participating students are required to response to the case scenario-based questions using the U-reply system. All incorrect response to the system will be logged and feedback will be sent to them to remind them to revise the e-learning material again. Microbiology modules for the fifth year medical students, surgery and anaesthesia modules for the final year medical students are developed. All components of the flipped classroom modules (web-based e-lectures, interactive tutorial, interactive face-to-face teaching and the feedback system) will be evaluated by the participating students in November. Teaching material and students' evaluation will be presented.

P63. Meeting Safety Needs through Virtual Reality Apps

Prof. Cho Lee WONG	The Nethersole School of Nursing
Anna Hau Yi NGAN	The Nethersole School of Nursing
Kelvin Hai Kiu CHENG	The Nethersole School of Nursing
Ray Mau Fung LEE	Information Technology Services Centre

With support from the Micro-module Courseware Development Grant, four micro-modules that covered two major topics in a first-year nursing course were developed. The two topics were “Meeting safety needs” and “Ensuring a safe and comfortable environment for care”. Contents of the micro-modules were presented as animations or scenarios in the virtual reality application.

The micro-modules aimed at facilitating students to gain preliminary concepts in the topics before class and support flipped classroom implementation. Besides, the VR application provided students with the opportunity to be an active participant in the simulated home and hospital environment. These experiences were difficult to be presented and described in the lectures. With the developed micro-modules, the course teachers could make use of the class time to revisit the important concepts described in the micro-modules. At the same time, students were expected to participate in various in-class activities to consolidate what they learned in the micro-modules.

To date, the project has been evaluated by student surveys and qualitative interviews. The surveys indicated that 88.6% of the students agreed that the micro-modules helped them to gain a better understanding of nursing knowledge and skills on the designated topics. Majority of students agreed that more micro-modules should be produced in the future. The qualitative interviews indicated that many students liked the developed micro-modules because these micro-modules made learning more engaging and interesting. The evaluation revealed the project has achieved its objectives effectively and completely.

P64. Holistic Patient and Psychiatric Drug Therapy Assessment with Virtual Pharmacy Simulation

Dr. Chui Ping LEE	School of Pharmacy
Dr. Celeste EWIG	School of Pharmacy
Dr. Keary ZHOU	School of Pharmacy
Prof. Ge LIN	School of Biomedical Sciences
Dr. Yuen Keng NG	School of Biomedical Sciences
Dr. Paula HODGSON	Centre for Learning Enhancement And Research
Taylor TANG	Information Technology Services Centre

Background:

For pharmacist to evaluate patients for potential drug-related problems, asking the right questions to obtain relevant information and properly assess them with clinical knowledge and holistic mindset is crucial. This process needs to be repeatedly practiced and reinforced with real-life scenarios to solidify critical thinking and knowledge application abilities.

Objectives:

An interactive pharmacy virtual simulation programme with animation characteristics was developed to cultivate student's ability to conduct holistic patient and drug therapy assessment using psychiatric patient cases.

Methods:

Six simulated videos featuring scenarios on screening/initial patient interview, therapy assessment and adverse effect management were developed. To portray patient experience, two Virtual-Reality videos featuring patient symptoms were created. Students can participate in hands-on patient assessment by, entering in free-text, the questions they shall ask the patient in various scenarios. They will also be prompted to choose from pull-down menu the responses they shall give after assessing the relevant information collected from the virtual psychiatric patients. The modules will be used as part of the flipped classroom strategies of the course PHAR 3414 Pharmacology and therapeutics 3 in Spring semester.

Benefits:

The described interactive pharmacy virtual simulation programme allows students to visualize the real life situations, interview patients with specific questions and generate responses accordingly. Student's observational skills for clinical signs could also be enhanced with the animations and videos. Based on preliminary student feedback, student can see knowledge application to real life scenarios involving patient assessment and counseling. They also appreciated the free-text entry which forced them to think independently on how to solve problems.

P65. Integrated Learning: Utilizing a Virtual Pharmacy Platform to Build Students' Knowledge Base

Dr. Celeste L.Y. EWIG	School of Pharmacy
Dr. Chui Ping LEE	School of Pharmacy
Dr. Isabel HWANG	School of Biomedical Sciences
Dr. Paula HODGSON	Centre for Learning Enhancement And Research
Taylor TANG	Information Technology Services Centre

Background:

Dispensing medications to patients requires adoption of structured processes, logical thinking skills and patient counselling techniques. Pharmacy students often lack opportunities to practice dispensing medications prior to their graduation.

Project Objectives:

In this project, we developed a CUHK version of a virtual pharmacy (MyDispense) currently used in overseas institutions. Our goal was to develop interactive dispensing exercises reflective of actual prescriptions, demonstrate vertical integration of knowledge learned across courses, internationalize the students' learning and allow more class time for case discussions.

Strategies:

Thirty interactive exercises were developed and incorporated into MyDispense CUHK. Of these exercises, 25 basic prescriptions were designed for second year students and 5 more advanced prescriptions were developed for third year students. Students could access the platform through blackboard or through the project website.

Benefits:

The use of virtual eLearning platforms provides additional opportunities for students to practice the application of knowledge learned and practical issues in a simulated work environment. The immediate feedback provided allows students to identify the areas they missed and reinforces learning. Teachers are able to track the performance of students and better understand the weak areas of students.

P66. Flipped Micro-Module for Professional Sports Skills Courses (Phase II)

Daniel LEE	Department of Sports Science and Physical Education
Dr. Isabel HWANG	School of Biomedical Sciences
Dr. Yan JIN	Office of Medical Education Department
Alex YUNG	Office of Medical Education Department
Ray LEE	Information Technology Services Centre
Tsz Ming TANG	Physical Education Unit

The Department of Sports Science and Physical Education (SSPE) is dedicated to training physical education (PE) teachers and sports-related professionals. The program includes courses in Exercise Science, Health, PE, and Professional Skills (PSCs). Consistent with the University's education strategies, SSPE promotes critical thinking and independent learning skills. However, there has been a lack of flipped teaching and eLearning strategies for PSCs.

We aimed to produce effective flipped teaching and eLearning micro-modules (MMs) for PSCs.

The project was designed to produce MMs for teaching Field Events (SPED 2133), Individual Sports (SPED 2110) and Tennis: (Men: PHED 1031/Women: PHED 1032). SSPE student athletes and instructors demonstrated the skills associated with specific sports, and experienced editors designed and produced the MMs to meet the needs of students seeking to acquire these skills.

Eleven short interactive and self-directed bilingual MMs were developed in field events (Long Jump, Triple Jump, High Jump, Javelin Throw, Shot Put and Discus Throw), cycling (Cycling Hand Signals and Skills & Assessments) and tennis (Ball Sense, Ground Stroke and Serve). Each MM includes a 2–4-minute video featuring a specific sport's skills with bilingual narration and descriptions, supplemented by interactive questions to improve the students' learning. The MMs have been uploaded to Blackboard for students to reference before and after class.

Based on our team's experience in MM production and application, we anticipate that the MMs will provide learning flexibility and will serve as a reliable source of flipped teaching and eLearning materials for our students in the designated PSCs.

P67. Micro-Modules Production & Management Sharing Session

Prof. Irwin KING	Department of Computer Science and Engineering
Prof. Yi-Chun LU	Department of Mechanical and Automation Engineering
Rudi CHOW	Faculty of Engineering Media Studio

CUHK CLEAR and ITSC eLearning Team of the Chinese University of Hong Kong define micro-module as a part of micro-learning*. It is a way of teaching and delivering content to students in small and very specific bursts that is used to support blended learning and encourage teacher-student discussion in the form of flipped classroom. In this sharing session, Mr. Rudi Chow from the Faculty of Engineering Media Studio will share the strategies and the process on how to create an effective micro-module for your course. In addition, he will present the ADDIE development model through each production stages - from pre-production, production to post-production. Together with Prof. Yi-Chun Lu from Mechanical and Automation Engineering Department, he will also share some examples from TDLEG Micro-Modules Production and Management project funded by Teaching Development and Language Enhancement Grant (2017/2018) to produce a series of micro-modules for foundation courses at the Faculty of Engineering. The project works with nine faculty members with the goal to encourage personalized learning through micro-modules and to enhance the teaching and learning quality by providing a knowledge and content repository which leads to better engagement and interaction between teachers and students during flipped-classes.

* <http://elearning.itsc.cuhk.edu.hk/tdgcd/?cat=4>

P68. Mobile eLearning and Manipulating for Making the Students' First Robot

Dr. Dongkun HAN	Department of Mechanical and Automation Engineering
Martin Yun-Yee LEUNG	Department of Mechanical and Automation Engineering

This project is expected to develop a wireless wheeled robot, and a mobile application for helping the students with no background in technology to make and test their first robot in a flexible way.

This project is based on the teaching and learning experience of general education course UGEB2303: Robots in Action. Previously, this course is taught by lectures and followed by lab sessions, where students can only write their codes on desktops in the lab. Via the new wireless robot and mobile application, students could cherish the benefits that fundamental knowledge and tutorial of robots can be learned by mobile phones or tablets, and programming becomes an easy thing that coding and compiling can be done by simply using the proposed mobile application. To the best knowledge of authors, it is the first attempt to develop a mobile application of teaching purpose for programming, and coding in wireless robot control.

The whole process of the project development can be generally divided into two parts: The first part focuses on the development of hardware, while the second part is concerned with software development. For the first part, key technology and skills include Arduino board selection and compatibility checking, designing skills for the interface Printed Circuit Board for microcontroller, assembling skills for VEX mechanical hardware, assembling skills for robotic arms, assembling skills for interface printed circuit board, knowledge of robotics & Mechatronics, designing skills for the controller housing and other mechanical parts, 3D printing technology for the holder of robotic arms and controller housing. For the second part, key technology and skills include Arduino software development for robotic arms, wheels, and wireless communication and control, Android studio-based software development for tablet application, knowledge of robotics and Mechatronics.

P69. Simulation-based Learning to Strengthen Interprofessional Collaborative Practice in Gerontology Students

Prof. Janita Pak Chun CHAU	The Nethersole School of Nursing
Prof. Suzanne Hoi Shan LO	The Nethersole School of Nursing
Prof. Vivian Wing Yan LEE	School of Pharmacy
Prof. Alexander Yuk Lun LAU	Department of Medicine and Therapeutics

Introduction

The Bachelor of Science in Gerontology Programme is the first University Grants Committee-funded gerontology programme in Hong Kong to address population ageing and the associated workforce shortage. Students' higher-order cognitive skills are required to apply the interdisciplinary care principles in planning health and social care for older persons and their caregivers.

Aim

To develop the means to further enhance students' capability to achieve higher-level learning outcomes in interprofessional collaborative practice.

Methods

We developed 10 video-taped simulated interdisciplinary case conferences and critical-thinking exercises about managing older persons with complex life situations and challenges in community, rehabilitative and residential care settings. Essential topics including high-impact communication skills and leadership skills in care coordination are covered. The activities include case presentation, care planning, communicating with older persons, caregivers, and members of the interdisciplinary care team. The simulated case conferences will be uploaded on the Blackboard. A pretest posttest study will be conducted to determine the impact on preparing gerontology students for successful collaborative practice. The outcomes include willingness to work in interprofessional relationships in teams and perceptions about the usefulness of the simulated-based learning materials. Three focus group interviews will also be conducted to elicit students' feedback.

Conclusion

This is a unit-level project integrating expertise from various healthcare disciplines including nursing, pharmacy, medicine, and social work. The collaboration between departments in the Faculty in producing the simulated interdisciplinary case conferences facilitates the development of students' competence and confidence in interdisciplinary team-based care, and hence facilitates the students' professional development.

P70. Developing a Technology-enhanced Enquiry-based Learning Programme on Management of Intravenous Therapies for Baccalaureate Nursing Students

Prof. Janita Pak Chun CHAU	The Nethersole School of Nursing
Prof. Suzanne Hoi Shan LO	The Nethersole School of Nursing
Prof. Vivian Wing Yan LEE	School of Pharmacy
Dr. Kam Ming CHAN	Paediatrics and Adolescent Medicine, United Christian Hospital
Man Yi CHAN	Paediatrics and Adolescent Medicine, Princess Margaret Hospital
Crystal Hoi Yue TAO	The Nethersole School of Nursing
Simon Kwun Yu LAM	The Nethersole School of Nursing

Introduction

Administration of intravenous therapy for providing fluids, medications and nutrition is a critical component of infant care in special care and neonatal intensive care units. Extravasation injury, efflux of solutions from a vessel into surrounding tissue spaces, is a serious iatrogenic injury of newborn babies receiving intravenous therapy. Enquiry-based learning is conducive to create a motivating learning environment which develops nursing students' higher-order thinking skills in preventing and managing extravasation injury.

Objectives

The objectives of this project are to: (1) develop high quality e-learning resources to facilitate students' learning of prevention and management of extravasation injury, and (2) determine its impact on students' knowledge, focus of learning, and satisfaction with the learning resources.

Methods

A total of 10 interactive games covering essential topics about neonatal extravasation injuries and related care were produced. Critical-thinking exercises involving anticipating possible complications, initiating therapeutic interventions, and critically examining healthcare providers' actions that contribute to problems with administration of intravenous therapy were developed. An e-learning platform was created to embed all learning resources and share among the two institutions that offer baccalaureate nursing programmes in Hong Kong. A pretest posttest study will be conducted to determine students' knowledge on care of extravasation injury, effects on focus of students' learning, and their satisfaction with using the learning resources. Qualitative comments on enhancement of the resources will be collected.

Conclusion

This project adopting new pedagogical approaches of enquiry-based learning will sustain students' active engagement in their studies, promote deep learning, and enhance critical enquiry and synthesis.

P71. Challenges and Barriers in Interprofessional Education in University – A Six Years Journey

Prof. Vivian W.Y. LEE	School of Pharmacy
Prof. Pak Chun Janita CHAU	The Nethersole School of Nursing
Dr. Sin Nga Ann LAU	School of Biomedical Sciences
Prof. Bo San Paul LAI	Office of Medical Education
Prof. Yeung Shan Samuel WONG	The Jockey Club School of Public Health and Primary Care
Prof. Wan Ting Wendy WONG	School of Chinese Medicine
Wai Yeung Michael CHUNG	School of Chinese Medicine
Prof. Chi Ho Wallace CHAN	Department of Social Work
Kar Choi CHAN	Department of Social Work
E Nok Enoch NG	School of Pharmacy
Yan Hin Felix FONG	School of Pharmacy
Shuk Man Amy LAM	School of Pharmacy
Yee Shan Livia NGAI	School of Pharmacy
Lok Him Laadan LO	School of Pharmacy
Wing Kit Marco LEUNG	The Nethersole School of Nursing
Wing Tung Artemis CHAN	School of Pharmacy
Hiu Yung Hubert CHAU	The Nethersole School of Nursing
Hui Lam Tammy YU	School of Pharmacy
Chak Yee Anna LO	School of Pharmacy
CU CHAMPION Core Team	Student leaders of Faculty of Medicine, School of Pharmacy, The Nethersole School of Nursing and School of Chinese Medicine

This year marks the 6th year of our inter-professional service learning program – CU CHAMPION. As a global trend in tertiary education, it's always been our team's passion to strive for improving inter-professional education (IPE) and enhancing students' involvement in the community.

This year we scaled up our IPE program and organized an one unit bearing summer elective course – PHAR2018, which attracted Faculty of Medicine students of different majors. Furthermore, we also expanded our yearly summer community outreach program which involved 206 Faculty of Medicine and Department of Social Work. On the other hand, we organized 48 sessions of community outreach service, produced 28 micro modules for self learning purpose, and organized 4 workshops for university student volunteers. In short, our program involved university students, healthcare professionals and high school student volunteers, each party played a crucial role in the IPE program. Their satisfaction and change in knowledge level were well perceived as expected.

IPE development has never been easy for us. Our team has met various challenges and barriers over the years such as lacking secured funding sources, understaff, logistic, and short of professional academic staff as front line facilitators. However, we are still able to overcome these barriers and make favorable outcomes every year. We will present and sum up our IPE experience in this year's CLEAR Expo.

P72. Caring Workshop of Nursing Students: Assimilation of Caring Values through Reflective Writing

Dr. Fiona Wing-Ki TANG	The Nethersole School of Nursing
Gigi Cheuk-Chi LING	The Nethersole School of Nursing
Prof. Winnie Kwok-Wei SO	The Nethersole School of Nursing
Adela Shuet-Fun LAI	CUHK Medical Centre Planning Office
Prof. Sek-Ying CHAIR	The Nethersole School of Nursing

Introduction

The value of caring is extensively recognised as the essence of nursing. However, nursing students are observed to experience a loss of the caring ideal because of socialisation and exposure to clinical reality during clinical placement. An intensive caring workshop is piloted to strengthen the caring characters of nursing students.

Methods

Thirteen second-year nursing students participated in the caring workshop. The half-day caring workshop provided cognitive inputs of caring knowledge, practice of caring behaviours, and reflection on caring perceptions. Teaching modalities included didactic teaching, video viewing, scenario-based discussions, and role playing. After completion of the workshop, the students wrote a reflective journal on the caring issues that they learned from the activities.

Results

The reflective writing activity shows that students assimilated caring values of the nursing profession. They were concerned that a hasty clinical environment would undermine their caring character. They emphasised affirmation of the original motive to pursue the nursing profession for sustaining the caring passion. Students learned that caring behaviours begins with caring for oneself. They also realised that acknowledgment of the feelings and emotions of care recipients is fundamental in caring practice.

Discussion

Reflection is a key component to introduce the abstract concept of caring to nursing students. Journal writing enables them to reflect on their learning experience, thereby stimulating their affective responses and prompting them to internalise caring attitudes.

P73. Micro-modules for Interactive Learning and Flipped Classroom Learning of Physiology

Dr. Philip HUNG	The Nethersole school of Nursing
Dr. Sally LO	The Nethersole school of Nursing
Dr. Fiona TANG	The Nethersole school of Nursing
Prof. Sek Ying CHAIR	The Nethersole school of Nursing
Taylor TANG	Information Technology Services Centre

In the nursing curriculum, our students need to study physiology for understanding the mechanisms of normal body function and the human response and adaptation to either internal and external changes. Indeed, being equipped with the physiological knowledge will help our students to study pathology, nursing care, health care and layout the care planning based on the physiological changes of patients. However, current eLearning materials have not been available commercially. This project aims to develop tailor-made micro-modules for explaining the complicated concepts and showing how the knowledge can be applied in some clinical examples. Four micro-modules were produced in the format of animated presentation with annotation and narration and applied in the flipped classroom learning and post-lecture learning material. The micro-modules were evaluated mainly by the scores in each interactive exercise, the survey and the focus-group interviews. The evaluation was focused on the acceptability of the micro-modules. A quantitative survey has been conducted to evaluate users' satisfaction. Participants were invited to complete eleven 6-point Likert-type item for assessing their perception of those micromodules including the clarity, depth and length of the content. The results of the quantitative survey have demonstrated that they are satisfied with the clarity, depth and length of the content. They believed that those micro-modules are important in facilitating their learning in physiology. Moreover, they appreciated the interactive exercises in each micro-module. Physiology is a core subject in nursing and covers essential yet complex contents. The present micro-modules were helpful to support student learning. Moreover, those micro-modules can also be used by other courses offered in the Faculty of Medicine at The Chinese University of Hong Kong.

P74. Interactive Micro-Modules for Gerontology Students

Dr. Sally W.S. LO	The Nethersole school of Nursing
Dr. Philip HUNG	The Nethersole school of Nursing
Zoe KWOK	The Nethersole school of Nursing
Dr. Fiona TANG	The Nethersole school of Nursing

This project aims to develop micro-modules for the topics in the Basic Care in Gerontology course offered to Year 1 students in the Gerontology Programme, of which is a special 2-year-articulated Programme for sub-degree graduates. The objectives of the project are: (1) to enhance students' understanding of the human body system; (2) to apply the knowledge learnt in micro-modules into basic care practice; and (3) to support the flipped-classroom implementation.

The 4 topics selected for developing the micro-modules are: "Basic principles of Human Anatomy"; "Essential Human Physiology: Understanding Blood pressure"; "Physical changes in the aging process" and "Mobility care". It was believed that using micro-modules would help gerontology students to gain a better understanding of these fundamental concepts hence enhanced their ability to provide mobility care for older-adults. With the support from MMCDG, four micro-modules were produced and published using the Articulate Storyline 360 software package.

Micro-modules produced were uploaded and logged to the LMS of CUHK (Blackboard) under the course. To complement with flipped classroom, students were asked to go through the micro-modules and complete the self-check questions before class. During class time, course teachers revisited the important concepts in the micro-modules and encouraged active learning through in-class activities.

With the innovative use of the micro-modules, it is our hope that the teaching and learning process could be enhanced. In the mean time, the evaluation of users' experience in using the micro-modules is pending.

P75. A Self-learning Platform of Statistical Programming for Public Health Students Outside Classroom

Dr. Ka Chun CHONG	School of Public Health and Primary Care
Katherine Min JIA	School of Public Health and Primary Care

A number of the courses in Public Health is spent on teaching the basic theory supplemented with several tutorials, and there is a lack of demonstrations and discussions on applying statistical tools in healthcare science evaluations. Our teaching team has recently developed a self-learning platform of statistical programming for public health students i.e. <http://micromodule17.comuf.com/>. The platform aims to introduce the basic knowledge of using statistical software on students' research and to introduce the principles of health policy and healthcare management.

The platform includes teachings for two major programs: Statistical Analysis System (SAS) software and Vensim which are freely available to every students. Each of the flipped classrooms consists of five to seven micro-modules. The micro-module first describes the concepts, uses as well as the syntax of each statistical theory. This is followed by the respective programming demonstration as a practical application on the software.

Interim and final evaluations have been conducted for the flipped classrooms. Overall, students indicated the contents are simple and easy to understand, with a clear layout. After watching the online video, they can understand statistical concepts and how to apply the skills using the software. Yet weaknesses include some diagrams being too vague and some examples being difficult. It is expected that students can learn the materials outside classroom and leave more time for in-class discussions, thus to bridge the gap between disciplines of statistics and public health practice.

P76. #Mentalhealth: Promoting Public Mental Health outside the Classroom through Student-created Social-media Messages

Prof. C.Y. Nelson YEUNG	The Jockey Club School of Public Health and Primary Care
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Using social media to raise public awareness about mental health issues becomes increasingly important. To provide hands-on experience in this aspect, two cohorts of students enrolled in the class CHPR4012 (N= 48) were asked to create three short mental health-related promotional messages (including a 1-minute video) and post/share them through social media (including Facebook, Instagram) publicly for two weeks. They also applied the theories, empirical evidence, and health communication techniques learned from the class to create the messages.

For easier identifications of students' messages in the social media platforms, they were also asked to hashtag the course code and other relevant phrases in their messages. After two weeks, students elaborated their rationales behind the messages, the skills they used in creating the messages, the feedback they received from people on social media, and reflected on their project experience in the group presentation.

Students felt rewarded when their efforts/ideas were recognized by people (even strangers) on the social media. Learning was also enriched as students could choose a topic that was not fully discussed in the lectures (e.g., specific mental health problems, challenges of a specific at-risk population). Excellent feedbacks were received from the students, with a significant increment in course evaluation in the second year running the course.

Adding social media-based learning experience not only increases students' sensitivities over what they should take note of when designing mental health promotional messages for the public, but also provides them opportunities to reflect on strategies to promote health using more cost-effective means.

P77. Development of Virtual Labs on Frontiers in Biochemistry

Prof. Wing Ngor Shannon AU	School of Life Sciences
Prof. Pang Chui SHAW	School of Life Sciences
Wai Ling Wendy LAM	School of Life Sciences
Wai Lam William CHAN	School of Life Sciences
Sau Shan CHENG	School of Life Sciences
Chun Sing CHOW	School of Life Sciences
Cheuk Chee Cynthia LAM	School of Life Sciences
Tin Chung LI	School of Life Sciences
Hoi Sin TONG	School of Life Sciences
Hiu Yuen Josiah WONG	School of Life Sciences
Hoi Yin WONG	School of Life Sciences
Nga Ting WONG	School of Life Sciences
Sze Ming WONG	School of Life Sciences

Research training is one of the key elements in biochemistry education. However, it is often a challenge to conduct laboratory classes due to the constraint of resources for large classes. This project aims to develop a micro-module to provide a channel for students to understand the principles and technical know-how behind various frontier topics in biochemistry. This project is a joint effort with 10 senior undergraduate biochemistry students grouped to work on a specific topic. Therefore, the design of the micro-module integrates their learning experience in both lecture and laboratory practical courses. Each micro-module consists of background introduction, timeline of major discoveries, virtual laboratory and a self-test. Through this elearning platform, we hope to enhance students' ability in self-learning, especially on the logic of experimental design and analysis. In addition, in-class activities that stimulate students' capacity in innovation and design, and their social awareness can be promoted.

P78. Student-centred Learning in an Invertebrate Diversity Lab

Kwan Mei YAM	School of Life Sciences
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Learning invertebrate diversity using brute force memorisation can be painful. Getting students to explore what they want to learn beforehand and share their findings with one another during class, may help motivate them to take ownership of their own learnings.

In an invertebrate diversity lab, manuals for the whole semester are made available at the beginning and supplementary materials with pictures, links to selected online videos and guiding questions were made available several days before each class. Students are divided into groups and each group is assigned a group of organisms to study every time. During class, each group is to give a presentation highlighting the common characteristics as well as unique features of particular group(s) of organisms using preserved/live specimens available in the lab, as well as pictures and/or videos they have prepared. After each presentation, presenters will be challenged with questions from the floor. Teacher and teaching assistants will be clearing misconceptions and providing missing links whenever appropriate. Using this approach, we want students to know that each and every one of them will be responsible to make the class an informative, interesting and engaging one. Apart from gaining knowledge, students will have ample opportunities to develop various soft skills.

Following the presentations, students will have some free time to further study various specimens on the spot. The session will be ended with a post-lab quiz using Kahoot. Follow-up questions/discussions after each question will be in place to clear misconceptions and help consolidation of knowledge.

P79. Laboratory Safety e-Learning Platform (LabSafe Platform) and Virtual Reality to Teach Laboratory Safety

Dr. George Fai WONG	Department of Chemistry
Dr. Wing Fat CHAN	Department of Chemistry
Dr. Yu San CHEUNG	Department of Chemistry

Experimentation is important in science curriculum where students apply the abstract concepts through doing experiments. In Chemistry Department, laboratory classes account for around 40% of the curriculum. However, there is no single course on laboratory safety. In the past, there were fatal accidents due to burning or inhalation of very toxic gases. To this end, we take an initiative to develop an online e-Learning platform to teach laboratory safety. Laboratory Safety e-Learning Platform (LabSafe Platform) is an online interactive platform developed by Articulate Storyline 2 which includes narrated lectures, case studies, animations, videos and virtual reality. In this EXPO, we are going to share our progress on the work.

P80. “Science Mobile” - Learning Science Ubiquitously with a Smartphone

Dr. Kendrew MAK	Department of Chemistry
Dr. Cherry CHOW	School of Life Sciences

“Science Mobile” is developed as a portable learning platform to facilitate students learning science concepts across different science disciplines in real life. The learning materials are hosted in a Learning Management System which also allow teachers and students to track their learning progresses. Physical items related to those learning materials are selected from teaching facilitates and daily-life situations. QR code and RFID (radio-frequency identification) tags readable by mobile device are put on these objects to let students accessing the relevant information instantly.

Students can access the learning objects by scanning the corresponding barcodes, QR codes and RFID, or by searching with relevant keywords. Learning objects are sorted into different themes so that students can reach the objects by their interests. Videos, images and textual description of the learning objects are displayed when reaching the pages of the objects. Assessments and learning modules will be available for students to test their understanding on the topics and explore more about the objects. Teachers can upload the learning materials and the related assessment items through the teacher panels, and keeping track on students’ performance in their learning.

P81. Self-learning Modules in Daily Life Chemistry

Prof. Michael KWONG	Department of Chemistry
Dr. Wing Fat CHAN	Department of Chemistry
Dr. Yu San CHEUNG	Department of Chemistry
Dr. George WONG	Department of Chemistry

Science and non-science students always encounter different learning needs about science in daily-life situation. For example, when people are choosing packaged food in a supermarket or taking some drugs, they may want to know something about compositions and safety of the constituents in the food or drugs. On the other hand, when science students encounter some materials, no matter whether they are traditional materials or very advanced ones, they may want to know more about their chemical compositions, properties and applications. Furthermore, when chemistry students encounter a situation in which chemical analysis is needed, they may wish to know about the principles and operations of the relevant instruments.

To satisfy their learning needs, a vast number of learning objects in the formats of videos, digital photos, textual descriptions, and animations are produced under three important themes in Chemistry: (i) food, drugs and organic chemistry, (ii) traditional and modern materials, and (iii) chemical analytic methods and their applications in society. The learning objects cover a wide spectrum of contents, ranging from the basic information about common food and drug ingredients, to the operation guides of advanced analytical instruments.

The learning objects are grouped into different learning modules. It allows students to appreciate the connections between different concepts and topics in science. Collections of self-assessment items (e.g. MCQs and matching) are also included, so as to help students to consolidate their understanding.

To implement ubiquitous learning in chemistry courses of various level, and also in the chemistry-related university general education courses, these learning objects will be uploaded to “Science Mobile” so that student can access the relevant information instantly and keep track of their learning progress.

P82. First Year's Practice and Outcomes of the Peer Mentoring Scheme in Earth System Science Programme

Dr. Wenzhu HOU	Earth System Science Programme
Pui Yuk TAM	Earth System Science Programme

A peer mentoring scheme has been initiated from September 2017 in Earth System Science Programme in order to nurture academic excellence from our first year students. ESSC-major students from Year-3 and -4 obtaining GPAs greater than 3.0 were recruited to mentor the Year-1 students by organising regular group meetings. Each group consists of one mentor and four to five mentees. After the first year's practice, a brief survey was conducted on participants to evaluate the effectiveness of this scheme. Survey questions are designed to measure mentee's satisfaction from four aspects, which include (1) the academic support, (2) the support on the transition from high school study to university study, (3) the psychosocial support and (4) opportunities for developing other career-related skills. The survey also aims to identify opportunities for improvement. Our preliminary result shows that greater than 80% surveyed participants agree on the first and second aspects, which indicates that our peer mentoring scheme is relatively effective on enhancing our students' conception and ability on critical thinking as well as helping them to adapt to the diversified curriculum and the interdisciplinary subject of the Earth system science. Although comparatively less satisfaction was obtained from the third and fourth aspects, still, greater than 65% surveyed participants agree on the psychosocial support and opportunities for developing soft skills. This result purveys new insights on the potential functions of our peer mentoring practice.

P83. u-STEM

Dr. Leung Fu CHEUNG	Department of Mathematics
Kevin WONG	Centre for Learning Enhancement And Research

The u-STEM website aims at providing technical resources to help the teaching of STEM subjects in universities. The first tool that is available (launched November 2018) is the WeBWork platform – an open-source platform specialized in delivering interactive online exercises on mathematics. The service is provided to all UGC-funded universities free because of support from the collaborative project ‘Flipped Classroom Approach in Hong Kong Higher Education’. In the poster, we will demonstrate the use of WeBWork and explain how it has helped the teaching of Maths at CUHK in the previous year.

P84. uConnect for Medical Practicum Communications

Kevin WONG	Centre for Learning Enhancement And Research
Dr. Carmen WONG	The Jockey Club School of Public Health and Primary Care
Prof. Paul LAM	Centre for Learning Enhancement And Research

Medical students undergoing practicum are in need of a very flexible communication tool for them to constantly connect with their supervisors/ teachers for various consultation as well as teaching and learning purposes. The uConnect is a tool recently developed to facilitate these small-group communications on the Programme level. Whatsapp-like groups are centrally created to support communications between students and their supervisors. Communications are also facilitated between teachers/students with the programme coordinator and administrators.

P85. Lingua – Oral Drilling Assisted

Prof. Paul LAM	Centre for Learning Enhancement And Research
Kevin WONG	Centre for Learning Enhancement And Research
Andy WAN	Centre for Learning Enhancement And Research
Joe TSANG	Centre for Learning Enhancement And Research
Dr. Kelvin CHAN	Yale-China Chinese Language Centre
Dr. Ronald LAI	Department of Chinese Language and Literature
Miranda LEE	English Language Teaching Unit
Dr. Ho Put WONG	Yale-China Chinese Language Centre

Computer-assisted oral drilling of a language needs not be limited to a language laboratory or a computer room any more. Lingua is developed to enable teachers to easily build oral drilling exercises for students to complete any time and any where on mobile devices. Students then choose to submit their best performance (recording) to the system for grading. As a self-learning tool, Lingua provides automatic computer-estimated scores on students' recordings, which act as reference points for students to further practice. As a teaching tool, the system has a convenient grading area for teachers to easily listen to all submitted recordings and then give grades.

P86. uReply Updates

Kevin WONG	Centre for Learning Enhancement And Research
Marco TANG	Centre for Learning Enhancement And Research
Yuki LAI	Centre for Learning Enhancement And Research
Prof. Paul LAM	Centre for Learning Enhancement And Research

uReply has a number of important updates over the last year. In June 2018, we started the uReply Research Group for the discussion and implementation of studies related to technology-enhanced classroom interactions. In July 2018 we upgraded the backbone to meet 'high-availability (HA)' standards. In August 2018 we launched the new user-interface as well as strengthened the integration across sub-functions. In December 2018 we launched the new student-version uReply service.

We will also present the 2019 developmental plan in the poster and we look forward to conversing with the participants for further suggestions and comments.

P87. CUHK Learning Map

Dr. Frankie WONG	Department of Geography and Resource Management
Dr. Ronald LAI	Department of Chinese Language and Literature
Dr. Kent LEE	Department of Sociology
Dr. Siu Lun LAU	Department of Sociology
Cherry TSOI	Centre for Learning Enhancement And Research

The Location-based Learning interest group in the eLearning Community of Practice has developed the 'CUHK Learning Map' using the uReply GO as the supporting backbone. Three trips are available now, Chinese Language Tour, Geography Tour and Sociology Tour. We have prepared these trips for students and the public to learn about our Campus while touring around – facts about famous writers of CUHK, and spots in the Campus with geographical and social significance. To play the trips, trip-goers simply go to the uReply GO website and enter the session number associated with each of this trip.

P88. Fabulearn for Fabulous Flipped Learning

Prof. Paul LAM	Centre for Learning Enhancement And Research
Kevin WONG	Centre for Learning Enhancement And Research

The 'Flipped Classroom Approach in Hong Kong Higher Education' Project has initiated the development of a new Learning Management System that is tailor-made to maximize the flipped classroom teaching and learning experience. The platform has the name 'Fabulearn', which stands for 'Flipped And Blended University Learning'. We think that traditional LMSs do not fully support of needs of the flipped classroom method mainly because these systems do not focus enough on students' learning processes.

Thus, the monitoring and time-keeping functions are strong design elements in the platform to help teachers understand students' preparations and performance in activities at various stages of the flipped learning process.



Posters from Sister Universities

U01. Launching the Expert Learner Seminar Series

City University of Hong Kong

Dr. Paul CORRIGAN

Office of Education Development and Gateway Education

Presenter

The Expert Learner Seminar Series (ELSS) was piloted in 2017 at CityU to help new university students achieve their academic potential. At that time, 30 students registered for the series and 12 students completed a pre- and post- Learning and Study Strategies Inventory (LASSI) survey; they showed an average increase of 11% in their LASSI scores. These pilot results were reported at CUHK's Teaching and Learning Innovation Expo 2017.

In 2018, the ELSS was launched in the first six weeks of Semester A. One-hundred seventy students registered for the series and 57 Year One students completed a pre- and post- LASSI survey; they showed an average increase of 12% in their LASSI score. The results have almost identically mimicked the results from the much smaller pilot study of the year before.

The series was held over the first six weeks of Semester A, 2018. A one-hour session was held each week and students could register for one of 12 sections available for that session each week. The first and sixth sessions served as introductions and summaries, respectively, of learning and study strategies as well as administration of the pre- and post- LASSI. Sessions two through five addressed the four LASSI areas that research has previously shown Year One students at CityU needed the most improvement.

U02. Throwing Questions to Students in a Large Class: How Throwable Wireless Microphone Enhances Classroom Interaction

City University of Hong Kong

Dr. Patrio CHIU	Office of Education Development and Gateway Education	Presenter
Angel LU	Office of the Chief Information Officer	Co-presenter
Dr. Crusher WONG	Office of the Chief Information Officer	Co-presenter
Tarloff IM	Office of Education Development and Gateway Education	Co-presenter

In a traditional classroom setting, the passing of a regular microphone may discourage students to voice out and participate as moments of silence are often created. Throwable wireless microphone is an emerging technology to promote classroom interaction, participation and discussion in a large class setting at higher education level. Although the principles of adopting the throwable wireless microphone technology are well established, there is a lack of empirical evidence on the actual impact on participants.

A total of 187 graduate students from a research oriented university in Hong Kong participated in the experiment. In this study, we examined students' learning experience and their perceptions regarding participation and interaction when adopted the technology in a large class setting at higher education level. The findings of this study suggested that the use of throwable wireless microphone technology indeed enhanced learning experience and classroom interaction in a large class environment. However, these positive impacts were not evenly effecting all participants.

U03. Active Learning through Virtual Reality Contents Production

City University of Hong Kong

Lin LI	Department of Chinese and History	Presenter
Chan Hong LEUNG	Student of Architectural Studies	Co-presenter
Chi Keung CHAN	Student of Architectural Studies	Co-presenter
Frankie FAN	Office of Education Development and Gateway Education	Co-presenter
Long Chai Marjorie CHEUNG	Student of Architectural Studies	Co-presenter
Michelle NG	Office of Education Development and Gateway Education	Co-presenter
Paul YIP	Office of Education Development and Gateway Education	Co-presenter
Tarloff IM	Office of Education Development and Gateway Education	Co-presenter
Yiu Wa WONG	Student of Construction Engineering and Management	Co-presenter

Virtual Reality (VR) projects in education are easily found in various disciplines, as researchers find that VR contents can trigger the learners' engagement in the learning process effectively. With more and more VR production gears providing user-friendly workflows for creating VR contents, educators could be able to design active learning activities through VR contents production.

This project reports a General Education (GE) module - Architecture and Space in Chinese Culture, offered by Department of Chinese and History was selected to design active learning activities to enhance the learning experiences of undergraduate studies in Arts and Humanities GE area, during the Shanxi field trip to the thousand-year-old and 67-meter-high Yingxian Wooden Pagoda. In general, participants report that the active learning approaches have stimulated their learning interests to investigate more architectural knowledge related to Chinese architecture. In addition, they are pleased the way of implementing VR technologies to support the GE module.

U04. Facilitating the use of interactive video to support active and collaborative learning

The Hong Kong Polytechnic University

Dr. K.P. MARK	Educational Development Centre	Presenter
Birley CHAN	Educational Development Centre	Co-presenter
Mitesh PATEL	Educational Development Centre	Co-presenter

Extensive use of video to support teaching and learning has become a trend. Unlike traditional ways to disseminate subject content from teacher to students, video technology is now used to support active and collaborative learning. Students and teachers can both create and share content online, add interactive elements, personalise the video with annotations and bookmarks, and to initiate asynchronous discussion inside video clips. At The Hong Kong Polytechnic University, resources and efforts are dedicated to facilitate and support the use of video extensively in teaching and learning. A series of workshops is provided to academic and support staff on the pedagogical and operational aspects of adopting video to enhance learning and teaching, complemented by intensive instructional and technical support for pilot runs. Advanced applications of video are being reported by teaching staff members, e.g., the use of databanalytics to track student engagement and behaviour, and to implement contingency plans to tackle unexpected class cancellation.

U05. Student Active Learning in Large STEM Related Classes through Writing Equations and Drawing Diagrams using YoTeach! and Badaboom!

The Hong Kong Polytechnic University

Dr. Sze Thou Fridolin TING	Department of Applied Mathematics	Presenter
Dr. Ronnie Homi SHROFF	Department of Applied Mathematics	Co-presenter
Lok WONG	Department of Applied Mathematics	Co-presenter
Ndudi EZEAMUZIE	Department of Applied Mathematics	Co-presenter
Wai Hung Carter LAM	Department of Applied Mathematics	Co-presenter
Yu Jane LU	Department of Applied Mathematics	Co-presenter

It well known that scientists and engineers communicate with each other, with not just the oral and written language, but with equations and diagrams. It is no wonder that STEM related subject teachers and students rely heavily on equations and diagrams when they teach and learn their subject, respectively. However, due to the multitude of problems encountered when teaching large STEM related classes (e.g., low student engagement, limited options for checking student understanding and feedback (in real-time), diversity of students), there is a stark absence of students communicating and engaging with their instructor (or with other students), in class, through the writing of equations and the drawing of diagrams. In this presentation, we will describe two new e-tools that will help the teacher and student actively teach and learn in a large STEM related subjects through writing equations and drawing diagrams called YoTeach! and Badaboom! YoTeach! is a web-based online backchannel with drawing functionalities (yoteach.hk) and Badaboom! is a Kahoot! like web-based game learning platform with math/symbol/writing recognition functionality (badaboom.hk). We will show how to use YoTeach! to enhance the simple "question and answer" active teaching strategy; and how to use Badaboom! to increase "problem based collaborative learning" active pedagogy in a large classroom.

U06. Development and Validation of an Instrument to Measure Students' Perceptions of Technology-enabled Active Learning

The Hong Kong Polytechnic University

Dr. Ronnie Homi SHROFF
Dr. Sze Thou Fridolin TING
Wai Hung LAM

Department of Applied Mathematics
Department of Applied Mathematics
Department of Applied Mathematics

Presenter
Co-presenter
Co-presenter

This article reports on the design, development, and validation of a new instrument, the Technology-Enabled Active Learning Inventory (TEAL), to measure students' perceptions of active learning in a technology-enabled learning context. By laying the theoretical foundation, a conceptual framework for technology-enabled active learning was developed. The conceptual framework formed the basis of the instrument development process including the design, development and validation of TEAL to measure students' perceptions of active learning in a technology-enabled learning context. The self-reporting questionnaire consisted of four scales: interactive engagement, problem-solving skills, interest and feedback. All scales were assessed on a 7-point Likert scale. The survey items were designed to measure the four aspects of technology-enabled active learning and were verified by two panels using a formalised card sorting procedure as well as confirmatory factor analysis of a small-scale ($n = 61$) pilot survey. The TEAL questionnaire demonstrated internal consistency. Reliability as measured by Cronbach's coefficient alpha ranged from 0.83 to 0.88 indicating good reliability and internal consistency of the items. The resultant instrument is a valid and reliable instrument that can be used in future research to gather and represent data on students' perceptions of active learning in a technology-enabled learning context.

U07. Foster Active Learning through Flipped Classroom

Lingnan University

Prof. Eugenia M.W. NG	Teaching and Learning Centre	Presenter
Dr. Wing Yin Albert KO	Office of Service-Learning	Co-presenter
Prof. Wing Kuen SEE-TO	Department of Computing and Decision Sciences	Co-presenter
Prof. Gregory William WHITTEN	Department of Economics	Co-presenter
Prof. Miu Chi Vivian LUN	Department of Applied Psychology	Co-presenter
Prof. Nga Man HO	Department of English	Co-presenter
Prof. Pui Yun Paulina WONG	Science Unit	Co-presenter
Wai Yi Zoie SO	Department of Visual Studies	Co-presenter

Flipped classroom is a new pedagogical method which consists of assigned materials that students learn at their own time prior to attending classes when they participate in group activities which is reverse from traditional teaching and learning approaches. Participating students will learn from online materials prepared by their teachers and assisted by a research assistant for one topic as a pilot study. To consolidate students' knowledge and to promote interactions, students would also apply their recent acquired knowledge to solve problems in groups in classes so that they could learn from each other and to seek support from the teacher if necessary. This project involves colleagues across faculties and units. The initial results show the very encouraging feedback from students. 60% of them agreed that flipped classroom has enhanced their problem-solving and planning capabilities, as they could devote more time to the active class discussion after learning from assigned online materials outside of the classroom.

U08. Discipline Based Mini Lectures for English Enhancement (MiLEE)

Lingnan University

Marc C. LEBANE

Centre for English and Additional Languages

Presenter

Technology has radically affected students' attention span, especially when it comes to language learning. From our experience of developing various online interactive learning materials and systems, in order to ensure a captive audience, the online lessons have to be accessible, limited in length; and fresh and modern in their design and content. The type of materials they are interested in/what engages them may include a blend of video and a variety of question sets such as drag and drop, mix and match, multiple choice and short answer.

The project aims to develop a range of videos to equip students with key language skills they will have to utilise in order to competently complete the tasks set out in discipline-based course syllabi. Designed and conducted by language professionals and discipline instructors to introduce key terminology and concepts at the beginning of each unit throughout the course that are discipline specific. These videos, three to five minutes long, will be available online via video channel, Moodle, EDX, etc. students may access and re-visit them whenever and wherever they are, as many times as they need to in order to grasp the lesson content.

U09. Entrepreneurship 1001: Building Your Own Future

Hong Kong University of Science and Technology

Prof. Erwin HUANG	Center for Education Innovation	Presenter
Aki LEUNG	Center for Education Innovation	Co-presenter
Derek LAM	Center for Education Innovation	Co-presenter
Dr. Beatrice CHU	Center for Education Innovation	Co-presenter
Jonathan MA	Center for Education Innovation	Co-presenter

Everyone can and should be an entrepreneur. Entrepreneurship in this context does not necessarily equate to owning a business or startup, but ownership of one's academic, professional and personal development in this ever changing world. With this belief, HKUST put together one of the first undergraduate level entrepreneurship courses in Asia - ENTR 1001: Building Your Own Future.

As a common core class, this course welcomes all students from different levels and majors. This course is also a required course for those minoring in Entrepreneurship. Teaching is hard. Teaching entrepreneurship may even be harder. Therefore, an innovative student-centered course design is developed to meet this unique challenge. A learning environment is strategically curated to enable students to experience and learn through experiences. To instill entrepreneurial mindset and skill sets, weekly workshops and speaker series are an integral part of this course. Similar to real life entrepreneurs, students are the drivers of their own learning journey. They are required to start and run an online shop for the semester, and close deals with real customers and real money. They are guided to reflect purposefully when a milestone is reached. Reflective journaling is critical in encouraging students make sense of their learning experience through looking retrospectively and inwardly. As a result, students are reported to find this class practical and enjoyable. Most importantly, they "get a taste of the real entrepreneurship."

U10. Augmented Reality Teaching and Learning in a Laboratory Course

Hong Kong University of Science and Technology

Dr. Cindy LAM	Department of Ocean Science	Presenter
Prof. Stanley LAU	Department of Ocean Science	Co-presenter
Zoe YEUNG	Department of Ocean Science	Co-presenter

This project develops a mobile app integrating augmented reality (AR) simulation aids with multi-modal learning resources to enhance students' learning and their engagement in different learning activities of a laboratory course with various class activities such as field trips, laboratory sessions and report writing. We select a marine biology laboratory course as the pilot run to evaluate the effectiveness of the interactive mobile app and AR simulation in enhancing students' engagement activities and instructors' teaching performance. Information available on the app can achieve multi purposes: (i) increasing students' understanding of course content; (ii) stimulating students' participation and communication in the course; (iii) incorporating experiential learning in course group project. The key deliverables of the project include (i) an interactive mobile app; (ii) the template and source codes for the building of an educational app that are not only applicable to this laboratory course, but also transferrable to other science-related laboratory courses; (iii) an interactive field guide incorporating species identification using uReply Go and AR technology. Our project takes the leading role to develop learning and assessment tools using AR technology for HKUST students.

U11. Enhancement of English Learning for a Laboratory Course Using Interactive Apps

Hong Kong University of Science and Technology

Dr. Elza TSANG	Center for Language Education	Presenter
Alex WANG	(blank)	Co-presenter
Dr. Cindy LAM	Department of Ocean Science	Co-presenter

This project develops an interactive mobile app entitled “Marine Biology (HKUST)”. Integrating augmented reality (AR) simulation aids with multi-modal learning resources, this educational app aims to enhance students’ learning and their engagement in different learning activities of a laboratory course, including the essential language skills for presenting lab reports in writing and presentations. The app includes a variety of user-friendly and key English learning materials to enhance students’ abilities in scientific writing and speaking: report writing skills, presentation tips, vocabulary quizzes, scientific writing samples, a glossary of vocabulary for describing marine species, and core grammar for report writing.

U12. Using Video Capture Technology to Improve Public Speaking Skills – A Confidence Builder and Motivator for Student Learning

Hong Kong Baptist University

Dr. Kimmy CHENG

Department of Communication Studies, School of Communication

Presenter

Hong Kong Baptist University includes public speaking as a core component in its General Education Curriculum. This ensures each student gains, keeps up and improves his/her public speaking skills. Despite perhaps subdued enthusiasm from students, most recognize that public speaking is an essential skill in any personal, social and work context. Indeed, public speaking focuses on the sharing of thoughts and ideas, while communication is, of course, the backbone of society

To help improve presenting and communication skills, video capture technology has been adopted in the public speaking component. Students are required to present three graded speeches in a semester. Deploying the video capture system en bloc, all speeches are recorded and uploaded onto the learning management system (LMS), facilitating students to review their own performance. To further enhance the effectiveness of using video as part of the learning process, a proper feedback process is in place. Students are required to arrange a one-on-one consultation with their lecturer. During this consultation, the lecturer reviews the clip along with the student and provides highly individualized comments and suggestions.

This teaching and learning method is deemed effective as the entire team of lecturers in the public speaking component observed that students gained confidence with themselves and their speeches got better as they progressed through their assessment tasks. On average a student improves his/her grade by 15% (approximately a full grade up) from the first to the third speech. Students have also provided favorable feedback in the teaching evaluation as well as in a deliberately setup focus group interview conducted in 2015. Students found the review and feedback process to be highly valuable in helping to improve their public speaking skills, alleviate their anxieties so that they become more confident with themselves, and most importantly, as they see their speeches getting better, they are motivated to do and learn more to achieve higher standards.

U13. Evidence for the Effectiveness of Learning Technologies in Improving Student Engagement and Learning

Hong Kong Baptist University

Dr. Archimedes David GUERRA

Department of Marketing, School of Business

Presenter

This study presents lesson- and course-level evidence for the effectiveness of learning technologies in enhancing student engagement and learning. E-learning tools such as Google Classroom, Google Slides, Kahoot!, and Edpuzzle were used to design and facilitate blended learning and flipped classroom activities in four undergraduate marketing courses. For each activity, information such as participation rates and on-time submissions were collected to illustrate the level of engagement of the students. In addition, an analysis of the students' performance data in flipped classroom activities showed that watching a particular flipped video before class had a small to medium positive effect on the performance of students in a related in-class e-learning activity. At the course level, qualitative data for engagement and performance was collected using focus groups at the end of a particular course. In these focus groups, the informants mentioned that they found the teaching and learning activities to be convenient and that they felt it allowed them to have more meaningful interactions and to learn more effectively. These findings were supported by how students used words such as "interactive," "encourage," "interesting," and "better understanding" in the teaching evaluation questionnaire to describe their level of engagement and learning in the course. Finally, analyzing the teaching evaluation scores provided by students in items related to engagement and learning were found to be significantly higher (and with effect sizes between medium and high) for the cohort that extensively used learning technologies compared to the previous cohort that did not use these tools.

U14. Making Toxicology Course More Fun and Interactive

Hong Kong Baptist University

Dr. Patrick Y.K. YUE	Department of Biology, Faculty of Science	Presenter
Dr. Theresa KWONG	Centre for Holistic Teaching and Learning	Presenter
Jennifer GU	Information Service Section, Library	Presenter
Prof. Ricky Y.K. LEUNG	Department of Environmental Health	Presenter

The 3-3-4 scheme for Hong Kong's senior secondary education and higher education has been implemented for some years. On one hand, subjects are now more diversified to nurture a broader scope of views and life-long learning abilities for students, and the traditional division of "arts stream subjects" and "science stream subjects" no longer exists. On the other hand, such heterogeneity poses a problem for science education at higher education level, as some university students majoring in science do not have sufficient prior knowledge in science at all.

Another major problem faced by science educators nowadays is that many students are unmotivated and not persistent to acquire the required scientific knowledge and skills. Educators have had a hard time addressing questions like "How to motivate students for self-learning?", "How to arouse students' interests in studying science?", "How to keep their studying momentum?" and "How to correlate the lecture contents to our daily life?"

In 2016 and 2017, the course "BIOL3016 Environmental Health and Toxicology" at HKBU was supported by the Course Enhancement Fund from UGC and the internal seed funding at HKBU for the projects entitled "Enhancing Information Literacy in Hong Kong Higher Education" and "Developing Online Courses/Blended Learning Initiatives with FutureLearn", respectively. These projects not only pinpointed the above-mentioned teaching and learning challenges, but also fostered internationalisation, aligning with the global trend and HKBU's Institutional Strategic Plan 2018-2028.

U15. Bilingual Text-mining for Group Reflection

The Education University of Hong Kong

Prof. Siu Cheung KONG

Centre for Learning, Teaching and Technology

The bilingual text-mining system is developed and implemented to address the educational goal in the 21st century for learners' active, constructive and interactive learning of domain knowledge in technology-enhanced environments. The system adopts the bilingual text-mining technique for analyzing learner-generated text on the learning management systems. It incorporates a bilingual taxonomy of domain-specific keywords for an automatic identification and counting of matching keywords in learner-generated text, and provides hierarchical visualization for an informative and interactive display of counting results of matching keywords.

U16. Effective Implementation of the Flipped Classroom Approach in Hong Kong Higher Education for Enhanced Learning Outcomes: Make Good Use of Classroom Time for Science Experiments

The Education University of Hong Kong

Dr. Wai Chin LI

Department of Science and Environmental Studies

Presenter

Laboratory work is considered to be important in students' learning of science because it is able to facilitate the understanding of scientific concepts and the nature of science, provide opportunities to learn inquiry skills and problem solving, and cultivate scientific habits of mind. However, time in the laboratory has been the most pressing concern, due to the fact that there are many other tasks that need to be done during the very same period of time in class, such as the introduction or revision of the concepts, checking the exercises with students, experiment demonstrations by the teacher or from online videos, etc. What students usually experiment in class, therefore, is the "necessary minimum".

To deal with this negative vibe in the classroom, I have tried flipped classroom approach in one microbiology laboratory activity lesson. Students were expected to complete the online learning activities at home to gain a basic understanding of the concepts and technical terms, so that more group cooperation and discussions, peer instruction and differentiated instruction were triggered and facilitated in class to cater to different learning styles and learning paces and learning needs.

U17. Effective Implementation of the Flipped Classroom Approach in Hong Kong Higher Education for Enhanced Learning Outcomes: The Flipped Classroom in Mathematics of the Financial Markets

The Education University of Hong Kong

Dr. Hiu Fai Kell CHENG

Mathematics and Information Technology

Presenter

The flipped classroom approach makes me reevaluate the way I teach and ponder over an important question:

❑ Where in the learning cycle do my students most need me face-to-face? When I am introducing the subject matter in a lecture, or after they've taken in this information and are struggling to understand and apply it?

In this presentation, I will demonstrate a flipped lesson I recently conducted about the introduction to a particular mathematic formula and Binomial model. The rationale of employing the flipped classroom approach is to enable more classroom time for students to work in groups and work with the teacher to calculate and infer from a smaller/simpler scale of Binomial branch model to a bigger/more complex scale of Binomial tree model. I will also explore the challenges I have encountered while employing this approach in the discipline of Mathematics.

U18. Flip the Practical Chinese Classroom

The University of Hong Kong

Dr. Wai Chi Vichy HO

School of Chinese, Faculty of Arts

Presenter

"Flipped Classroom" is not piles of video only. Both students and teachers are unsatisfied with dull, repeated videos. It is a combination of interactive group learning activities inside the classroom and direct computer-based individual instruction outside the classroom. The project "Flip, not Flop" aims to create high-quality, interactive and innovative teaching materials for practical Chinese courses. Videos were filmed to raise students' interests, deal with learning difference, offer tailor-made comments to students' presentation and enhance teaching efficiency. Results of student surveys proved "Flipped Classroom" is helpful to their learning.

U19. Enhancing Teaching and Learning for a Large Class with Students of Diverse Science Background through a Peer Assist System

The University of Hong Kong

Dr. Chi Wang CHAN	Faculty of Science	Presenter
Dr. Chun Shing Jason PUN	Department of Physics	Co-presenter
Dr. Kar Man Edmond LEUNG	Faculty of Science	Co-presenter

We report the design and implementation of a peer assist study system for a large interdisciplinary science foundation course taken by all science students (annual enrolment 650) from 2016-17 academic year to now. The system aims to provide an interactive and flexible learning environment for students with different needs in learning science, and help the teachers to identify the major learning hurdles in the course. Undergraduate peer-learning leaders who had recently finished the course are trained to facilitate group discussion sessions and individual/small-group drop-in hours so that they can help students by (i) sharing learning experience, (ii) stimulating group intelligence to overcome learning hurdles, and (iii) reflecting the most accurate information to the course teachers about the students' needs in the learning of the course. In essence, these peer-learning leaders provide an invaluable middle layer of academic support between students and teachers.

In the poster, we report on the opportunities and challenges of incorporating peer learning into formal university teaching activities. We would also report the evolution of the system over time, highlighting the increasing influence of and contributions from the experienced senior peer leaders. Thoughts on how to develop long-term sustainable peer assisted learning in university science education will also be discussed. This work is partially supported by a HKU Teaching Development Grant.

U20. Pioneering the First Course Worldwide on Text Analytics in Finance and Fintech

The University of Hong Kong

Dr. Matthias BUEHLMAIER

Faculty of Business and Economics

Presenter

This project describes the development and implementation of the first course worldwide on text analytics and natural language processing (NLP) in finance and fintech. This is a cutting-edge topic that is gaining an increasing amount of attention both in academia as well as the industry and with regulators. People often ask me what this is all about. An example I often give is to analyze the words in the written statements by central banks to determine whether they are going to raise interest rates in the future. This is a trillion-dollar question and the techniques learned in this course can provide at least partial answers to this important topic. Another example is to analyze the text in company filings such as annual reports to learn more about the company and to ultimately make more profitable investment decisions. While a lot of work has been done before in fields such as computer science and statistics, there is relatively little prior information available on how this knowledge can be transferred to and applied in fields such as finance and fintech. Based on my own research expertise, this course has been developed to fill this gap and has been successfully taught for the first time worldwide at The University of Hong Kong from January to March 2018 in the Master of Finance Program of the Faculty of Business and Economics. This poster details the development and implementation of this course, which is the first of its kind worldwide.



Short Paper

Criterion Referencing in GEFP: Practice, Review, and Vision

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Abstract

Norm referencing measures a student's performance in an assessed work by comparing it with the performance of other students. By contrast, criterion referencing evaluates a student's performance against a predetermined set of goals and standards, which are the sole considerations in grading, and can be made known to students well in advance to enhance learning. The two grading systems are fundamentally different, so the transition from norm referencing to criterion referencing is bound to meet with bumps and hurdles. This paper reviews the mission, challenge and actual practice of criterion referencing in the General Education Foundation Programme (GEFP), with specific focus on its implementation in Term 1, 2018-19. A conceptual model will be introduced to align the programme's intended learning outcomes (ILOs), and the grade descriptors and grading rubrics adopted in its two courses. Preliminary findings from interviews with a small number of teachers and students of GEFP will also be reported, which were conducted in November 2018 to understand the initial response to criterion referencing in the third month after its implementation.

Challenges and Mission

Norm-referenced assessment has historically been adopted, in public examinations as well as within schools and colleges, where there is a need to distinguish differences in student performance and rank them on a scale. Representing student performance in relative terms, such a system offers little information about what each student has actually learnt and how such learning has taken place. On the contrary, criterion-referenced assessment measures student performance against a set of predetermined goals and standards which are the sole considerations in grading. The grades thus awarded are not subject to "curving," or adjustments to fit a prescribed grade distribution. Ideally, the goals and standards are made known to students well in advance to offer a good sense of purpose and self-understanding — what knowledge, skills, and attitudes the student may aim to achieve (goals intended); where the student is standing in achieving them (standards met); and how the student may move up the "ladder" of achievements.

General Education Foundation Programme (GEFP) comprises two compulsory, seminar-based, reading-intensive courses, *In Dialogue with Humanity* and *In Dialogue with*

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Nature. Assessment in both courses involves the evaluation of students' ability to *read* classics; to *discuss* with classmates issues of timely and timeless concerns; to *collate* intricate information; and to *convey* in academic essays *critical views* on good life, good society, and humans' place in nature. In other words, GEFP demands students of a wide range of capabilities, which are spelt out as five intended learning outcomes (ILOs) for each of the two courses. Appendix A shows the ILOs of the two *Dialogue* courses. To incorporate the ILOs into the grade descriptors of the course, and further to translate them into criteria and standards in the rubric for each assessment component, pose a big challenge. Added to it is the vexation of converting grades obtained from various assessment components into the course grade.

Each *Dialogue* course of GEFP has multiple assessment components, including quizzes, seminar discussions, on-line discussions, reflective journal(s), and term paper. Some GEFP teachers have included additional tasks under the above assessment components, for examples, presentations on assigned topics, and experiential learning through rooftop farming. Each assessment component, therefore, calls for a different cluster of attributes described in the ILOs. It may be less a challenge to incorporate the ILOs into the grade descriptors, but to further compile a grading rubric for each assessment component in alignment with the grade descriptors, and above all, with the ILOs, is a complicated task. Meanwhile, there are 28 full-time teachers and 12 part-time teachers teaching the 2 *Dialogue* courses in Term 1, 2018-19. Achieving consensus among the teachers on the goals (which ILOs, or which particular attributes in the ILOs) and the standards involved (what are the "cut scores" for division into grades of A, B, C, etc., or categories such as "advanced," "proficient," "basic," etc.), is a real challenge.

Since the GEFP teachers were informed that criterion referencing would be adopted in Term 1, 2018-19, there were a lot of discussions among teachers. Queries and concerns were expressed, in private conversations and meetings of departmental committees such as the Programme Assessment Committee. Such queries and concerns can be generalized into three kinds:

- a. *Alignment of grading rubrics with the ILOs*. In view of the diversity of assessment criteria adopted by the 40 GEFP teachers, some teachers were worried if we could reach a general consensus on the design of the grading rubrics, and on how to align each rubric with the ILOs.
- b. *Transition from norm referencing to criterion referencing*. Some worried if they had to adjust their regular grading practice and if the changes would cause grade inflation or deflation. The latter case, in particular, would probably bring about student complaints. In other words, they feared that the changes would be so drastic that unpredictable consequences might result.
- c. *Review of ILOs*. Criterion referencing might provide a good chance to review some fundamental issues in GEFP such as the adequacy of the ILOs. For example, some believed that curiosity and creativity are essential characteristics for students to acquire a broad intellectual perspective for dealing with the unfamiliar; others opined

that “student effort and attitudes” are worthy of encouragement. The above attributes are not presently included in the ILOs, but should they be included? The ILOs should be revisited when preparing for the transition.

The Task Force on Criterion Referencing in GEFP, formed of the authors of the present paper, took up these challenges.¹ Table 1 shows the timeline of the Task Force’s work to facilitate the launching of criterion referencing the programme in September 2018.

Dates (2018)	Details
June 22	First meeting to clarify mission and tasks.
August 9	Meeting with all GEFP teachers to share (1) results of researches on criterion referencing; (2) the grade descriptors and rubrics compiled; (3) findings from a trial application of the rubrics; and (4) recommendations.
August 10 -16	Collection of feedback and comments from GEFP teachers via emails.
August 17	Compilation of feedbacks and comments collected; revision of the grading rubrics and grade descriptors; and preparation of a report to the Director of University General Education.
August 22	Submission of final report to the Director for consideration and action.

Table 1: The working timeline of the Task Force on Criterion Referencing in GEFP.

As early as the first meeting of the Task Force, members realized that some of the above-mentioned queries and concerns (e.g., difficulties in reaching a consensus among teachers on the contents of the rubrics) arose not from the switch to criterion-referencing, but had already existed before the switch. As a matter of fact, criterion referencing should not be taken as a magic wand that can solve all the problems in one go. Meanwhile, the grading rubrics, however they are designed, are not meant to be used as mechanical measurement of students’ abilities. Reasonable room should be given to individual teachers to exercise their professional judgement when applying the rubrics in grading. After clarifying what we could do and could not do with criterion referencing, the mission of the Task Force became clear—to develop grade descriptors and grading rubrics that will:

1. align with the ILOs of the GEFP courses;
2. enhance (a) students’ awareness of their strengths and weaknesses so as to promote active learning; and (b) teachers’ insights of the effectiveness of teaching and learning; and
3. provide evidence to review the ILOs, if necessary.

To evaluate the effectiveness of the mission, we have carried out an initial research

¹The members included CHIU Chu Lee (convenor), CHEUNG Hang Cheong, GAO Xin, LIAO Liang, PANG Kam Moon, and WONG Bon Wah. WONG Wing Hung contributed a lot of valuable ideas in the latter stage of the Task Force’s work.

through interviews with some of the teachers and students of GEFP in Term 1, 2018-19, two-thirds of the way into the term, to find out about their views and reception. The preliminary findings will be reported in a later part of this paper.

Design and Implementation

Lok et al. (2016) provided an insightful analysis of the compatibility and complementarity of criterion referencing and norm referencing. The definition of the criteria in a grading rubric is implicitly based on norms derived from a cohort or group (considered to be at the same stage of learning for taking the same course, undergoing the same training, being in the same age group, etc.); their interpretation is also made in the context of the cohort or group. For instance, high-level thinking defined as “an ability to construct informed personal views” is the fourth ILO of both *Dialogue* courses, and is increasingly emphasized in most universities; when applied to high-school students, however, this definition might be too demanding. Furthermore, if “an ability to construct informed personal views” is adopted as a grading criterion, its interpretation should not be the same when this criterion is applied to a PhD thesis compared with that when applied to an undergraduate paper. It is because the intellectual competences of a PhD candidate and an undergraduate are generally not similar. Thus, a 3-step iterative “feedback loop” model may come in useful:²

- Step 1:* Derive a set of grading criteria based on assumptions about students’ abilities of recent cohorts;
- Step 2:* Apply the criteria to grade assessments (bearing in mind students’ performance of recent cohorts); and
- Step 3:* If the actual grade distribution of student performance deviates from the previous cohorts, moderation or adjustment of the grades might be required, or one might go back to Step 1 and revise the grading criteria.

The Task Force basically adopted this conceptual “feedback loop” model to make recommendations about the design and implementation of criterion referencing in GEFP. Meanwhile, we do not expect to see a rampant change in grade distribution in the transition to criterion referencing. Under the old system of norm-referenced assessment, about 50% of all grades in the *Dialogue* courses are bundled to grade B, and a great deviation from this pattern does not seem likely after switching to criterion referencing.

Below, we will represent the conceptual feedback loop, with alignment of ILOs, overall grade descriptors, and grading rubrics, in a figure.

² Beatrice Lok, Carmel McNaught & Kenneth Young, “Criterion-referenced and norm-referenced assessments: compatibility and complementarity”, *Assessment & Evaluation in Higher Education*, 2016, Vol. 41, No. 3, 450-465, Figure 3.

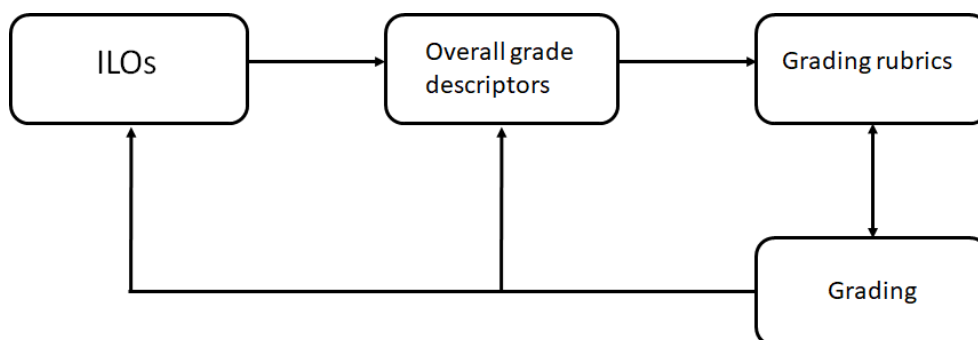


Figure 1: Relationship among the ILOs, overall grade descriptors, and grading rubrics.

Now, with reference to the above figure, we may take a close look at how the three steps may actually be taken.

Our first step is to construct a table of overall grade descriptors. In so doing, we describe students' performance in previous cohorts (norm) with respect to the ILOs, spanning into different levels of sophistication (criteria), each corresponding to a letter grade. The criteria should be set in such a way that most students are categorized as B; some criteria that are likely to be met by relatively competent students should also be included. This procedure serves two purposes. First, it more or less sets up a grade distribution to be expected from criterion referencing, so that a chance of a rampant grade inflation or deflation is reduced even without a final adjustment process as in norm-referencing. Second, being assessment-type-independent, the criteria help teachers get an overall picture of the course expectations, and form the basis for development of the grading rubrics. This takes us to the next step.

Our second step is to develop a grading rubric for each assessment component. The task is to decide on a specific set of criteria applicable to the assessment component in question while also traceable to some of the broader criteria (in close alignment with the ILOs) laid out in the overall grade descriptors. After the initial set of criteria is compiled, we may check to see if there are further attributes that we expect students to demonstrate in the assessment component, which are missing from the rubric. For instance, "organization" and "accuracy of expression" may not be listed under the course's ILOs but are often expected of a term paper, and can be listed as grading criteria in the rubric. Then we need to describe different levels of performance regarding each criterion, setting the standard for "A" performance, "B" performance, and so on. Bloom's taxonomy provides plenty of descriptive words or phrases for classifying educational learning objectives into levels of complexity and specificity.³ We have made good use of it in both Steps 1 and 2.

Our third step is to apply the grading rubrics. When using a rubric to grade, we highlight the skills and abilities which are manifested in the student's work, and then assign a letter grade. When using a rubric for essay-type assessment components such as reflective journal and term paper, it is advisable to do a holistic judgement of the essay across the

³ "Bloom's Taxonomy." *Wikipedia*. <https://en.wikipedia.org/wiki/Bloom%27s_taxonomy>. Accessed 1 December 2018.

various criteria listed, before evaluating the essay analytically (i.e., considering the criteria one by one). The reason is that the criteria usually involve elements of high-order cognitive skills such as critical thinking, and the process of exercising the skills may involve a simultaneous use of multiple elements of those skills. (Nightingale et al. 1996) Furthermore, when evaluating a student writing analytically, the teacher's professional judgment is very important. This is because the essay questions may vary substantially year by year and can also differ from teacher to teacher. With an essay question asking for a comparison of excerpts from two or more classics, students' "understanding" and "interpretation" of the excerpts are more important than "decision making." With a question about problem solving, however, a process of "decision making" may be essential for getting a better grade. Here, we can see that how to weigh various criteria in the same rubric is a matter of thoughtful choice. The teacher needs to explain to students how the essay topic concerned is related to the rubrics, so that students will have a clear picture how their performance will be reflected in the rubrics.

After all the assessment work is done, a grade distribution of the class is obtained, which might deviate significantly from our expectation (norm). It might be due to overly harsh or lenient interpretations of some criteria by an individual teacher. The teacher concerned should first revisit the students' work to see if s/he should adjust interpretations of the criteria or moderate the grades. If the deviation remains, or if deviation is a widespread phenomenon among other GEFP classes, it might reflect that there are valuable attributes demonstrated by the students that are missing from the grading rubrics. To take this further, it might imply that the overall grade descriptors, on which the rubrics are based, are insufficient to fully explain the ILOs, or that the ILOs themselves are inadequate and need rewriting. In this way, the practice of criterion-referenced assessment may provide valuable evidence for review of the ILOs.

Just now, we have been considering the case of having only one assessment component. A typical course, however, has different assessment components. For example, the assessment scheme for *In Dialogue with Nature* includes quizzes (24 %), reflective journal writing (15 %), term paper writing (35 %), and participation in discussion (26 %). Mark-grade conversion seems inevitable, and along with it come challenges that we have not considered up to this point. We shall illustrate with the following scenarios to show what a tricky business it may be, thereby showing the need perhaps for unity of mark range for each grade.

Scenario 1

Suppose there are two assessment components, each contributing to 50% of the final grade. Three students X, Y, Z, from Classes A, B, and C, respectively, all get mid-A and mid-B in the two assessment components. Their performance, according to the same rubric, is considered the same. However, their teachers do not apply the same set of mark ranges for the grades. This is what may happen:

	Grade A	Grade B	Assign. 1	Assign. 2	Final score	Final grade
Teacher A	85-100	60-84	92.5	72	82.25	B

Teacher B	5, 5.5, 6	3.5, 4, 4.5	5.5	4	4.75	A or B
Teacher C	80-100	69-79	90	74	82	A

Table 2: 3 teachers teaching the same course but each adopts a different set of mark ranges.

From the table, it is clear that the 3 students of similar competence will end up getting different final grades due only to their teachers' adopting different sets of mark ranges. An even greater consideration for unifying the grade ranges is that a change in a grade-boundary is equivalent to a change in the assessment scheme. In other words, the weighting of each assessment component is changed. (See the mathematical proof in Appendix B.) Hence, for a course with multiple sections, teachers of the same course such as *In Dialogue with Nature* should adopt *the same set of mark ranges*. Otherwise, students taking the same course and getting the same grades in all components might end up getting different final grades. Students are likely to feel unfairly treated if they are aware of the situation.

Scenario 2

Again, there are two assessment components (each contributing to 50% of the final grade), in which assessment component 1 measures students' competence C_1 , and component 2 measures competence C_2 .

Student X performed excellently and got an A in component 1, but did fairly and got a C in component 2. On the contrary, Student Y did excellently and got an A in component 2 but did fairly and got a C in component 1. Since the two components carry equal weights, both student X and Y got the same final grade.

From this case, we see that the same grade awarded to different students does not imply the same competences. From another angle, we may see that the overall grade descriptors are not sufficient to reflect the performance of individual students in the course. There is no easy solution to the problem, but at least we can make up by releasing to each student the completed rubric sheet for each assessment component (highlighting boxes most applicable to the student's performance), so that each of them could learn more about their strengths and weaknesses.

Findings from Interviews with GEFP Teachers and Students

At the writing of the present paper, criterion-referencing has only been launched in GEFP for three months. The whole set of related documents, including the grade descriptors and a separate grading rubric for each of tutorial participation, essay writing (including reflective journal and term paper), quizzes, and presentation, have only been partially applied. For the above "feedback loop" to work, regular reviews of teachers' and students' use of the documents and of their reception of criterion referencing on the whole are necessary. It is with this in mind that a small-scale study was conducted during the first term when criterion referencing was implemented in GEFP. The following is a report on teachers' and students' feedback on the implementation in Term 1, 2018-19. The following questions were investigated:

How do teachers understand criterion-referenced assessment? What strategies have

they taken to negotiate the switch from norm-referencing to criterion-referencing? Do they perceive a big change or challenge in the process?

What do students think of the new mode of assessment? Have they gained a better understanding of what is expected of them through the explications in intended learning outcomes, grade descriptors and rubrics for various assessment components? Does this understanding help?

The investigation was conducted through interviews with a small sample of GEPF teachers and students, held from October 12 to November 9. Totally, 7 teachers of the Programme (4 from *In Dialogue with Humanity* and 3 from *In Dialogue with Nature*) and 8 students of different majors were interviewed. The teachers were interviewed one-to-one, each interview lasting for about an hour. The student interviews took two formats due to difficulties in bringing them all together in one go. There was a focus-group interview of about 1.5 hours for 3 students, and one-to-one interviews for the other 5 students, each lasting 30 to 60 minutes.

Teachers' perception of the meaning of criterion-referenced assessment

All the teachers interviewed were able to name certain features of criterion-referenced assessment as opposed to the previously adopted norm-referenced assessment. One of the features highlighted was “standard,” or “explicit standard.” With criterion-referencing, the basis of judgment on student performance is to be explicitly stated and elaborated: “The standard may have existed in the old assessment system, but it was implicit. Each teacher knew his/her standard, but it was not shared as a common understanding across the teaching team.” By contrast, “explicit standard” means that all teachers and students have access to the criteria for judgment on student performance.

Another feature highlighted was “the change in the learning atmosphere from competition to cooperation.” Some of the teachers pointed out that with norm-referenced assessment, students had to be compared with each other, thus fermenting a culture of competition. With criterion-referencing, as one teacher pointed out, “students would no longer be subject to the external constraint of grade-percentages.” The change would encourage students to learn for themselves, and foster better cooperation among them.

Alignment of ILOs, grade descriptors and grading rubrics: In Teachers' Eyes

Three patterns of relationship among the ILOs, overall grade descriptors and grading rubrics were identified by the teachers interviewed. The first one can be generalized as goal-interpretation-action. The ILOs of a course are seen as the learning goals for students to achieve. The grade descriptors then serve to explain how these goals are gradated into different levels of performance, with the target achievements at each level clearly spelt out. Rubrics are the final action teachers would take to realize the learning outcomes. The second pattern generalized is: goal-result. Here, ILOs are also considered as the learning goals, as in

the first pattern, but the functions of grade descriptors and rubrics are merged and simplified as “the result.” The third pattern is: whole-parts, defining the relationship of grade descriptors and the rubrics as “whole and part.” As one teacher pointed out, “grade descriptors are the general determination on students’ performance while the rubrics are used to assess different parts of the whole learning experience. The final version of the grade descriptors is decided by the results of the rubrics.”

From the above patterns in teachers’ understanding of the relationship among the three(ILOs, grade descriptors and rubrics), it is found that teachers could independently explain the function of each item. However, they did not see the three items as an interactive structure. Few teachers cared about whether the contents of the rubrics or the descriptions of grades are aligned with the learning outcomes. Among the 7 teachers, most did not deny there exists certain relationship between the ILOs and the rubrics or the grade descriptors, but few clearly explained how the three work together to form a viable set of assessment criteria. Only one teacher mentioned that grade descriptors are based on the intended learning outcomes; none of them clearly identified how many ILOs are echoed in each assessment rubric.

Teachers’ reception and adaptation of the rubrics

1. Identification of the grade

All teachers gave positive feedback on whether the grading rubrics could help determine what grades to award to students. They all agreed the rubrics could help them identify different aspects and levels of student performance. One teacher mentioned that “the rubrics could help me categorize students’ different learning dimensions.” However, 6 of them emphasized that there were still small problems in the rubrics, and 5 of them clearly listed their strategies in adapting the rubrics and incorporating their own preferences:

- To *adjust* (lower) the standards set for each grade to better match their idea of desirable performance for an assessment task. For example, one teacher mentioned that the reflective journal generally sets lower expectations on students than the term paper, so its grading criteria should be less demanding.
- To adopt *self-interpretation*, allowing themselves freedom in interpreting criteria and standards in the rubrics to make them more acceptable.
- To add or delete some items in the rubric to make it better suited for a specific assessment task. For example, one teacher deleted certain items in the essay rubric which the teacher thought to be a bit too demanding for a reflective journal.
- To adopt alternative assessments, which means the teacher introduced an additional assessment task—say, an oral presentation—to supplement the writing assignment, as the latter might not work to fully demonstrate the abilities of certain students.

2. Grading or scoring method

Overall speaking, there were two ways of grading adopted by the 7 teachers. One was to apply each criterion listed in the rubric, while the other was to apply only some of the criteria or merge several into one for an overall consideration. For example, one teacher mentioned that in the essay rubric, though there were 5 criteria listed under “thinking,” the teacher would

consider only the criteria of “understanding” and “higher level thinking”; for this teacher, a few other criteria listed under “thinking” (e.g., evaluate and integrate information, conceptualize original ideas etc.) were simply sub-categories of “higher level thinking” and needed not be considered separately. One teacher said he would not consider each listed criterion one by one, but would give an overall grade instead.

3. Return of the rubrics

In terms of whether the rubric (with applicable items highlighted) should be returned to students after an assessment task is done, 4 teachers said they would not do so, 2 teachers said that they would, and one teacher said he would need time to think about it.

4. Main problems encountered

The main problems teachers had in using the rubrics were of two kinds, namely, those regarding the contents, and those regarding the grading process. One teacher pointed out that the criteria listed in the rubric might not cover the full range of capacities students might demonstrate in their learning. An example cited was that students’ efforts and attitudes, being important parts of the learning process, could not be assessed with the rubrics because these attributes were not included. As for the grading process, one teacher was worried if the final grade a student receives would be consistent with the grades gained from each assessment component, and also if the final grade would be consistent with the grade descriptors. One teacher wondered if there were any criteria for aligning particular mark ranges with the grades, for instance, why the recommended range of 80-100 for grade A but not 75-100 or 85-100.

Teachers’ perception of grade inflation and corresponding strategies

None of the teachers interviewed were too worried about grade inflation. Facing the issue of extensive concern in criterion-referenced assessment, the teachers seemed confident in avoiding or resolving the problem. Some teachers indicated that experience told them that grade inflation would not be a widespread phenomenon. Others pointed out that if the rubrics were well developed and could truly reflect students’ actual performance, then a class of “too many” A-s would simply be a reflection of reality and not a case of grade inflation.

Some strategies and actions were also mentioned by teachers if grade inflation really happened and even got out of control. One strategy suggested was to use the reflective journal as a pilot study to test whether the grading is acceptable. The other strategy would be to consider the percentage of each grade in the process of grading. Teachers also mentioned that they would re-examine the rubrics to identify the problem should the final grades look abnormal. Grade descriptors could be the other reexamination tool to consider if there is unjustified grade inflation.

Students’ reception of criterion-referenced assessment

Of the 8 students interviewed, just one had heard of criterion-referenced assessment.

However, all had heard of “curving,” which is a common way of referring to the application of a bell curve (i.e., a prescribed set of percentages) to monitor grade distribution. Comparing criterion-referencing and “curving,” 6 students preferred criterion-referencing, which they described as “fair assessment,” “more motivated,” “standard clearly stated,” and “more authentic assessment.” Meanwhile, the other 2 students agreed to “curving,” stating that teachers tended to vary in personal preferences, which determined what final grade one might get, while the grade would no longer be adjusted in accordance with a normal distribution.

Students’ understanding of learning outcomes and grade descriptors

Among the 8 students, 6 said they had skimmed through the ILOs and grade descriptors when their teachers showed these documents to them in class. The other 2 indicated they had never noticed them. It seems that whether students cared about the ILOs and grade descriptors depended on how their teachers had handled them. If the teacher referred to them in class and explained their meaning, students would accordingly pay attention to them.

Some students said they had read the ILOs and understood their literal meaning, but that did not help them see what was actually expected of them in the course; the latter understanding could only be acquired through exchanges with fellow students and explanations given by teachers. For some, the ILOs seemed rather “abstract.” As one pointed out, “You could see ‘good life’ and ‘good society’ in the learning outcomes, but what we most care about is their meaning in concrete terms. What do you mean by ‘good life’ and ‘good society’? How have people described them and what are the ethical concerns? It’s hard to figure these questions out simply by reading the intended learning outcomes. Therefore, we prefer a course outline with an introduction of the contents instead of the intended learning outcomes.”

Students’ perception of rubrics and whether they could facilitate learning

Regarding the grading rubrics, all of the students interviewed said they had read them, and 5 said they would refer to the rubrics before writing an essay (including the reflective journal) or after getting it back from the teacher. Students pointed out that the rubric could help them understand the requirements of the assessment task. For example, one student said that in the rubric he saw that “relevance to the topic” is necessary in writing. “This reminds me to pay attention to how to organize ideas in the essay,” he said.

However, not all students agreed that the rubric could help them see clearly where they did well and where they did poorly. One student said, “It’s hard for me to form a judgment about my own work simply by reading the rubric. I could not figure what is “excellent understanding” or “critical thinking.” Some students pointed out that scrutinizing those boxes in the rubrics should not be their job, but the teacher’s. “You developed the tool, so you should decide how to use it.”

Of the 8 students, 3 said that the rubric had been helpful for them when writing the

reflective journal, the shorter essay to submit midway through the term. “While writing, I often put more efforts on some of the requirements while omitting the others, and the rubric would remind me of what I have neglected,” observed one student. “If I find that I am not doing well in one or more are as listed in the rubric, I would focus on improving it,” said another student.

Between the copy of a rubric, in which comments applicable to the student’s writing were highlighted, and the teacher’s direct comments on the student’s writing, almost all students preferred the latter. For them, teachers’ comments written specifically for individual essays were more “actual” feedback from which they could learn of their problems. As for how to do better in learning or writing, many of the interviewees chose to use more “convenient” methods, such as “reading an exemplar article,” “asking the teacher about my weakness,” and “asking peers about the writing strategy.” Some students attributed improvements in learning to “good attitude”: “I believe I will do well if I simply follow the teacher’s instructions and discuss with my classmates.” They rarely took the initiative to make judgment about their own learning (and take remedial actions accordingly), asking, for example, “what are my strengths and weaknesses?” “am I making progress in my learning?” “in which areas am I making progress?” “how can I do better?” Similarly, they also rarely reflected at meta-cognition level, asking, for instance: “am I developing multiple perspectives after learning the topic?” “what perspectives have I developed”? All in all, students preferred to use the rubrics as tools to identify pitfalls and problems, but seldom did they use them as reflective learning materials.

Conclusion

To conclude, let us go back to the very basis of criterion-referenced assessment—the outcome-based approach to teaching and learning. The approach calls for the articulation of what we *expect* our students to learn, and the gathering of evidence to determine whether they have *attained* it. An alignment of the ILOs (*expectations*) of a course with the grading rubrics (*attainments*) of the course is always emphasized. Here we encounter two obstacles. Firstly, how the alignment is guaranteed is a question because it probably varies course by course. Second, the transition from norm-referenced assessment to criteria-referenced assessment—so that attainments of the expectations are assessed—poses another challenge given that the two assessment systems are fundamentally different. The latter obstacle may be resolved if we take a new perspective, seeing norm-referencing and criterion-referencing as complementary instead of an “either-or”. In this short paper, a working scheme on how to do the transition has been proposed. Although our discussions have focused on the two *Dialogue* courses, we assume that the scheme is applicable to any other courses, including a new course. Starting from the ILOs, we can construct a table of grade descriptors, and thereby derive a set of grading rubrics for the different assessment components in alignment with the ILOs and based on performance of previous cohorts. Not only will this working scheme reduce a chance of a rampant grade inflation or deflation, but also could provide evidences to review the ILOs, if necessary.

Moreover, recommendations have been made to teachers for assessing essay-type questions

such as reflective journal writings or term paper writings: (1) a holistic judgment across various criteria is advisable before doing it analytically; (2) when using the grading rubric, the weights of individual criterion in a grading rubric is always topic-dependent, and the teacher's professional judgement is called for.

Recommendations for mark-grade conversion in a multiple assessment components are also made: (1) for course with multiple sections such as the two *Dialogue* courses, teachers should adopt the same set of mark ranges; (2) the completed grading rubrics of individual assessment component should be released to each student, so that s/he could understand more about his/her strengths and weaknesses.

According to the interviews reported above, both teachers and students have perceived positive aspects of criterion-referenced assessment, including its provision of explicit standards for fair assessment, promotion of cooperative learning, and enhancement of motivation. For the "feedback loop" to work and the rubrics to serve fully their intended functions, however, further work is necessary on a few fronts. First, the teachers need to understand how the ILOs, grade descriptors and rubrics can and shall continuously be aligned following the three-step approach detailed above, so that each will be a potential contributor to reviewing existing ILOs on the one hand, and to ensuring that they are well reflected in the grade descriptors and rubrics on the other hand. Second, the teachers need to work with each other to clarify where they are within their rights to exercise professional judgment in adapting the rubrics. It seems that re-interpreting the criteria, lowering the standards, applying only some criteria and neglecting the others may all be legitimate given that the decision is thoughtfully made in accordance with the nature of the assignment (e.g., reflective journal or term paper) and of the assignment question concerned (e.g., comparison of two texts or formulation of a solution to a problem). Third, to help students make better use of the rubrics, the teacher should explain to students the adaptations that will be made—which criteria will weigh more on which assignment and/or which assignment question, and what these criteria mean. Adding new criteria, however, seems inappropriate as this goes against the three-step approach where everything should begin with the ILOs. We have noticed above that the students interviewed found it hard or not their job to understand criteria in the rubrics, with the interesting remark that "you [the teacher] developed the tool, so you should decide how to use it." They found it hard to understand certain phrases in the ILOs and in the rubrics, could not easily form a judgment about their own learning, and had not acquired a habit of active learning. The above being the case, much rests on the teacher to guide students to see the significance and relevance of the rubrics, and explain the criteria and where and how they may apply. The students may have a long way to go to become truly active learners, but some have at least used the rubrics to remind themselves of important expectations and avoid pitfalls. Fourth, teachers who think that students' "efforts and attitudes" should count as a grading criterion in the rubric may do three things: to study clearly the rubric to see if it can be inferred from an existing criterion and therefore also an existing ILO; if not, to review the ILOs and decide if "efforts and attitudes" should be added; if not, to decide if "efforts and attitude" is a tacit expectation on students in some tasks, which should be given extra credits even though not listed as a grading criterion. For example, "address a thesis and create relevant conclusions" is not mentioned in the ILOs explicitly, but is definitely a criterion

in the grading rubric for essay writing.

It is encouraging to see that the teachers interviewed already had some ideas about how to tackle grade inflation, and further investigation can be carried out on the effectiveness of the three methods suggested. The teachers were also aware of a problem discussed earlier in the paper—the consistence a student's final grade and the grades received from individual assessment components. Queries were also raised about the justification for adopting a particular mark range for each of the assessment grades. This is a major problem yet to be resolved in criterion-referenced assessment for a course with multiple assessment components. In the earlier discussion of this paper, we have tried to demonstrate that a change in the grade-boundary in effect will change the weightings in the assessment scheme, and thus making some recommendations on mark-grade conversion. Further research is necessary to determine if these recommendations will lead to satisfactory results.

All in all, the transition from norm referencing to criterion referencing is a challenging task partially because many teachers in the multi-section courses are involved, and in addition it inevitably changes one's marking practice. But criterion referencing could provide students with better understanding of their strengths and weaknesses, and teachers with insights into the effectiveness of teaching and learning. Doubtless, the launching of criterion referencing is the beginning of a new attempt, and there must be much room for improvement; hopefully, this new attempt will lead us to better teaching and learning.

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Appendix A: The ILOs of the Two *Dialogue* Courses

<i>In Dialogue with Humanity</i>	<i>In Dialogue with Nature</i>
By the end of the course, students are expected to be able to:	By the end of the course, students are expected to be able to:
1. RECOGNIZE major ideas that shape c. views of good life/ society	1. IDENTIFY essential characteristics of how human beings view Nature
2. READ & DISCUSS with CONFIDENCE primary texts of the humanities	2. COMPREHEND & DISCUSS science-related texts
3. EVALUATE <u>validity</u> of different approaches to good life & good society from <u>multiple perspectives</u>	3. EVALUATE <u>scopes</u> of application, achievement & limitations of highlighted scientific methods using <u>multiple perspectives</u>
4. RELATE arguments and views expressed in the selected texts to contemporary <u>human conditions</u>	4. RELATE development in natural sciences highlighted in the course to contemporary <u>human condition</u>
5. APPRECIATE diverse values and MAKE INFORMED JUDGMENT on good life and good society	5. FORMULATE INFORMED VIEWS on the societal implications of scientific explorations

Appendix B: Grade Boundary and Adherence to Weighting of Assessment Components

We consider a simple case where there are two assessment components. Below is a proof for mathematics amateurs.

Let A range be 80-100 and B range be 60-80.

Suppose there are two assessment components, one of weight x and the other $(1-x)$. [Hence the total weight is 1, that is, 100%. As a special case, if $x = 0.5 = 50\%$, the two components are of equal weight.]

Assignment 1: x

Assignment 2: $1-x$

We suppose a student gets Mid-A and Mid-B in Assignment 1 and Assignment 2, respectively. The final score (S) is therefore:

$$S = x (100 + 80)/2 + (1-x) (80+60)/2 = 70 + 20x. \quad \text{Eq. (1)}$$

If $x = 50\%$, the final score $S = 80$. To explain why a shift of a grade boundary would be equivalent to a change in the assessment scheme, we introduce a shift of the A/B boundary:

A range: from $80+2p$ to 100.

B range: from 60 to $80+2p$, where p is a variable.

For example, if A ranges from 85 to 100, p is 2.5 The final score now becomes

$$S = x(100 + 80 + 2p)/2 + (1-x)(80+2p+60)/2 = 70 + 20x + p.$$

We rewrite it as $S = 70 + 20(x+p/20)$. Eq. (2)

S in Eq. (2) is the total score the student gets if A ranges from 80 to 100 and B from 60 to 80, with the following assessment scheme:

Assignment 1: $x + p/20$

Assignment 2: $1 - (x + p/20)$

Comparing it with Eq.(1), one will see the difference:

	Weighting of Assignment 1	Weighting of Assignment 2
Eq. (1)	x	$1-x$
Eq. (2)	$x+p/20$	$1-(x+p/20)$



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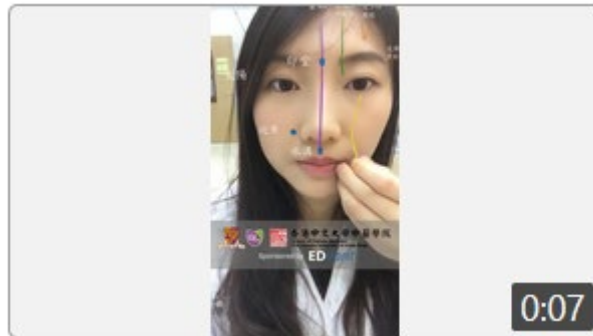
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