THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Internationalization at Home 2.0 : Enhancing the Design and Implementation of the Home Curriculum**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

As an extension of the TDLEG (16-19) project entitled 'Supporting the development and implementation of internationalized curricula', this project aims at:

- promoting CUHK teachers' understanding of what Internationalization at Home (IaH) and what enabling strategies entail;
- enhancing the impact of IaH by involving more teachers in the journey of internationalizing curriculum;
- disseminating the good IaH practices in teaching and learning in the context of CUHK through co-developing discipline-specific courses by embedding international elements, innovative teaching methods, creative teaching and learning activities; and
- enhancing students' engagement in the curriculum design.

Activities, process and outcomes

Online and face-to-face sessions were organised to disseminate good practices of Internationalization of Curriculum (IoC) and IaH. A teacher survey was conducted to gauge CUHK teachers' understanding of IoC and their needs, expectations, common concerns, and practices in IoC. A designated webpage on IoC was enriched with more resources on IoC and IaH.

Deliverables and evaluation

The project objectives were achieved by an enhanced understanding of CUHK teachers' views about IoC for further support, sharing of good IoC practices currently adopted at CUHK and other universities and publishing of resources and information about internationalization.

A teacher questionnaire on IoC was developed.

A webpage with enriched content on IoC was launched.

Dissemination, diffusion and sharing of good practices

Good IoC practices at CUHK and overseas universities were disseminated via three sharing sessions and a designated webpage.

Impact on teaching and learning

The project has materialized the notion of IoC for CUHK teachers by providing teachers support of different kinds in IoC, hoping that teachers will buy in the idea, know what IoC entails, learn from other teachers in their IoC endeavours and try their hands at embedding internationalized elements in their courses.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Resources for Teachers on Student Emotional Wellness Issues**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

This project aims to develop resources for teachers who may encounter emotional wellness problems in students. It is to promote their awareness and understanding of students' well-being issues.

Activities, process and outcomes

Experiences in encountering with student' wellness issues and ways of coping were collected from six teachers in different faculties. Commonalities and major themes were identified to produce video clips and design the content on the online platform. Based on the collected experience, simulated cases were filmed as videos on four common emotional wellness issues (perfectionism, anxiety, academic stress, and depression). A teacher with expertise in counselling was invited to debrief these cases. A video presented by a teacher with professional training in suicidal prevention addressing the frequently asked questions by CUHK teachers on students' suicidal issues was also produced. All resources were housed on Open edX via KEEP for all teaching staff of CUHK, with the course code as "CLEARSEW."

Deliverables and evaluation

Major deliverables include: (1) video clips on four common emotional wellness issues, illustrating the issues students encountered and demonstrating some ways of coping in a teacher-student conversation; (2) video recordings by a teacher to debrief these cases; and (3) video recordings by a teacher, which answered questions on students' suicidal issues. A section will be involved in this platform to collect viewers' feedback on the relevancy and applicability of all these resources.

Dissemination, diffusion and sharing of good practices

This project was introduced to the audience in the Teaching and Learning Expo 2021, via online poster presentation and 3-minute video. All resources were housed on the project webpage on Open edX for all CUHK teaching staff.

Impact on teaching and learning

It is believed that this project will offer some resources supporting teachers in dealing with students' emotional problems, particularly under current moment of COVID-19.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Nurturing Innovation and Design Intelligence to Meet the Globalized Community**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

- Establishing a community of practice on promoting innovation among teachers who are interested in encouraging out of the box thinking and promoting curiosity, critical thinking, deep understanding, and creative brainstorming in their courses;
- Organising training workshops for teachers on design tools, creative tools and their application, curriculum design and pedagogies conducive to promoting innovative and creative minds; and
- Enriching the webpage built from the previous project for dissemination purposes.

Activities, process and outcomes

- 'Design Thinking for Education – The Fundamentals' – a three-hour hands-on workshop for CUHK teachers conducted by a certified trainer in Design Thinking – Participants were introduced some design and creative tools applicable in teaching and had hands-on experience in the applications.
- 'Appropriating Design Thinking for "Good" lesson Design – Opportunities and Challenges for University Lectures' – a sharing session delivered by Dr Joyce Koh. Participants were introduced design dispositions and lesson design practices, design consideration and applying design thinking in lesson design.
- Updating content of the project webpage

Deliverables and evaluation

- End of workshop surveys were conducted to collect participants' evaluation. Results indicated that both workshops were well received, and objectives were achieved.
- The enriched webpage carried useful information for teachers on application of design thinking in their course design and delivery.

Dissemination, diffusion and sharing of good practices

- The webpage enriched its content to provide key characteristics of design thinkers and factors of design thinking in education based on literature review.
- There are two videos of characteristics of design thinking in education showing teachers the uniqueness of design thinking in education.

Impact on teaching and learning

With enhanced understanding of what design thinking entails and how design thinking can be applied in curriculum design and delivery, teachers will be better equipped to adopt design thinking in their teaching in order to support their students in their development of an innovative mindset and creative thinking.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Developing a Database Management System (DBMS) for the Undergraduate Programme Review Reports to Support Academic Quality Assurance**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

The project has been designed to build up a database management system (DBMS) to streamline the quality assurance of the university by providing a platform to store the digitalised information and useful data collected from the second and third (and future) cycles of programme reviews. The DBMS is a user-friendly platform for the university stakeholders to search for information on different parameters of programme reviews, backing with examples of good practices and recommendations.

Activities, process and outcomes

The build-up of DBMS consisted of two main domains: (1) the management of the basket of data from the second and the third cycles of undergraduate programme review and; (2) the development of the database application. The work of these two main domains were carried out in a parallel and spontaneous manners.

Deliverables and evaluation

After going through the various parts of frontend and backend development as well as the security checking, the first version of the database system was developed and deployed. When launched, eligble users can go to the database website to register for an account. All the access right granted users will be able to login the system and use the basic function (https://uprdatabase.net/upr/).

A project website with the user manual, FAQ and different information of the system was also published (https://web.uprdatabase.net).

Dissemination, diffusion and sharing of good practices

As the project deliverables (end-product) can only be ready for demonstration and dissemination by the end of the project, no dissemination activities were organized. Experts in computer programming and some academic staff have been consulted for advice and comments.

Impact on teaching and learning

The DBMS will enable stakeholders (e.g., departments, faculties, administration unit (AQS) and senior management) to view the data drawn from the programme review reports. Programmes and faculties will be able to learn more about their own performance. The analysis will be very useful feedback for quality assurance at programme- and university-levels.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Enhancing the Assessment Literacy of CUHK Teachers on the Construction of Assessment Tools**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

The project objectives include (1) identifying teachers' concerns and challenges regarding criterion-referenced assessment; (2) enhancing their assessment literacy with a focus on relevant assessment tools, alternative assessment tools and practices; and (3) enriching the online resources on assessment on the CLEAR web page.

Activities, process and outcomes

To address the need of teachers in teaching and assessing students online, an online workshop on assessment and feedback conducted by an overseas scholar was organsied. It was themed on the paradigm shift towards effective feedback and incorporating digital devices in the feedback processes.

Work on enriching the content of the designated webpage on assessment was carried out.

Deliverables and evaluation

An end of workshop survey was conducted to collect participants' evaluation of the workshop. Positive feedback was received.

The online resources on assessment were enriched with additional content including the staff guide series, teaching module, micro-video series, exemplars of rubrics and grade descriptors, references, recommended readings, workshop materials, and useful links. The access number of the page and download number of the assessment materials will be the evidence of their effectiveness.

Dissemination, diffusion and sharing of good practices

The deliverables of the project will be made available in electronic form and uploaded to the assessment web page on the Centre for Learning Enhancement And Research (CLEAR) website for broader dissemination. The webpage is introduced to new teachers in the Professional Development Course. To address the needs of teachers in adopting online assessment, alternative assessment tools are added to the online resources.

Impact on teaching and learning

The project has introduced new developments in assessment, such as new assessment approaches and alternative assessment tools and practices, which will enhance teachers' assessment literacy. The project deliverables, such as staff guides and online resources via the CLEAR web page, will provide an introduction and reference guide for teachers in developing their assessment tools.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Review on Teaching Development Projects (2016-19 Triennium) – Identifying and Promoting Good Practices on Pedagogies**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

The project was designed

- to identify good practices in teaching pedagogies as reflected in the TDLEG (2016-2019) projects; and
- to disseminate these good practices by creating micro-modules to be housed in the website 'Exemplary TDLEG projects@CUHK'

Activities, process and outcomes

A review of the objectives and project deliverables of the 91 projects supported by TDLEG was conducted [https://www.cuhk.edu.hk/clear/tdg/1619.html]. A total of 17 projects was identified as exemplifying good practices. These outstanding pedagogical practices or aspects (e.g., Global Perspective; Adaptive Programme and Pedagogy; Ownership of Learning etc.) were further identified and categorized according to the University Strategic Plan [https://www.cuhk.edu.hk/strategicplan/cuhk2025/tc/].

The Principal Investigators (PIs) of these projects were requested to provide additional information and project materials (such as course materials, micro-module video, webpage hyperlinks) which would be used in developing video-based cases to disseminate the good practices. These cases would be housed in a designated webpage constructed to consolidate and showcase the good practices.

Deliverables and evaluation

The project webpage with the showcases on outstanding practices on pedagogies would be the main deliverable. Feedback on the content (e.g., choice of projects and applicability of the good practices) will be collected from teachers.

Dissemination, diffusion and sharing of good practices

The webpage could be accessed via CLEAR's homepage. The showcases would be useful reference for professional development and future projects. The showcases would be useful examples for illustration at grant writing workshops organised by CLEAR.

Impact on teaching and learning

The project has identified for teachers and shared with them pedagogical practices considered outstanding and exemplary. The webpage serves as a one-stop shop for teachers to get some information and inspiration about good practices which they may apply in their own curriculum design and teaching.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Promoting Good Practices and Pedagogies from the Third-cycle Undergraduate Programme Reviews**
Principal supervisor and unit:	**Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

This project is designed to identify good practices in teaching and learning and programme management identified from the third undergraduate programme review and to disseminate these practices. In addition, the project is to conduct a comparative analysis on the programme performance between the second cycle and the third cycle programme review.

Activities, process and outcomes

This project mainly consists of two parts.

For the first part, ten exemplary undergraduate programmes were identified from the third cycle programme review. These programmes were interviewed and requested to provide examples of good practices. Video clips were produced to showcase good practices. These video clips would be uploaded to the webpage on good practices – *UG Good Practices* website (https://www.cuhk.edu.hk/clear/ugprogreview) for dissemination purposes.

For the second part, a comparative analysis on the 131 programme review reports was conducted to find out the difference of programme performance between the 2nd and the 3rd cycle programme review. A final report, appended with a set of excel reports, documented the detailed analysis results in university-level, faculty-level and programme-level.

Deliverables and evaluation

1. Fifty-one good practices showcase videos were produced.
2. An upgraded website of *Good Practices from the UG Programme Review*.
3. A set of analysis reports of the comparative analysis on the second cycle and the third cycle review reports.

Dissemination, diffusion and sharing of good practices

The project deliverables would be shared at:

- University level meetings
- Faculty-based sessions on meta-analysis
- Professional Development Course for new teachers
- Workshops on preparation for programme review

Impact on teaching and learning

The project is for enhancement of the quality assurance mechanism of CUHK. The project deliverables will provide a useful reference for programmes and the University when devising and implementing future strategies for enhancement of and sustaining strengths in teaching and programme management.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Enhancement of the Process of Programme Review**

Principal supervisor and unit: **Professor CHUN Ka Wai Cecilia, Centre for Learning Enhancement And Research**

Project objectives

The project was designed to better prepare programme personnel and reviewers-to-be for the CUHK programme review cycles. Three specific objectives were intended –

1. to enhance the understanding of programme management personnel and reviewers-to-be regarding the responsibilities and tasks expected of their respective roles in the review exercise;
2. to present examples of good practices identified in previous programme reviews; and
3. to ensure consistency in assessing programme quality (for reviewers-to-be).

Activities, process and outcomes

1. Collecting and conducting content analysis of ten programme review documents including self-evaluation documents and programme review reports to identify both good and less desirable practices
2. Developing two web-based resources packages – one for programme personnel and one for reviewers
3. Conducting two workshops – one for programme personnel and one for reviewers (to be conducted when the next programme review cycle starts)

Deliverables and evaluation

1. Two web-based resources packages – one for programme personnel and one for reviewers – are developed. Good practices on both programme management and programme review exercise are included. Feedback on the packages will be collected via informal exchanges with users.
2. Two workshops will be organized for both programme personnel and reviewers. Feedback on the workshops will be collected via the feedback collection mechanism of the Centre for Learning Enhancement And Research (CLEAR).

Dissemination, diffusion and sharing of good practices

Good practices in programme management and programme review are disseminated via the web-based resources packages and workshops.

Impact on teaching and learning

Project outcomes will enhance the quality of the programme review exercise, which in turn, will impact on the teaching and learning and the quality of educational experiences to be provided to CUHK students.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Courseware Development and Evaluation of the Pilot Core Courses on Computational Thinking and Digital Literacy**
Principal supervisors and units:	**Professor CHUN Ka Wai, Cecilia, Centre for Learning Enhancement And Research** **Mr. FUNG Ping Fu, Department of Computer Science and Engineering** **Dr. LAW Yat Chiu, Department of Computer Science and Engineering**

Project objectives

This project aims to (1) develop the necessary courseware for the pilot core courses on computational thinking (CT) and digital literacy (DL), i.e., ENGG1003 and ENGG1004, which were offered twice in the first and second terms in 2021-22 before their full implementation in CUHK in 2022-23; and (2) evaluate the effectiveness of the two courses in terms of process and outcome during their pilot offering.

Activities, process and outcomes

Two sets of courseware were developed and piloted for ENGG1003 and ENGG1004 respectively in 2021-22 Term 1 and Term 2. A set of micro-modules on computational thinking using coding tools such as Python and R was produced.

To evaluate the effectiveness of the pilot courses, data were collected by student surveys, class observation, student focus groups and teacher interviews. Student performance and online course and teaching evaluation questionnaire data were collected.

Deliverables and evaluation

Deliverables included:

- Two sets of courseware for ENGG1003 and ENGG1004 “Digital Literacy and Computational Thinking”
- A set of micro-modules on computational thinking using Python
- Pre-course and post-course questionnaires
- Two semi-structured qualitative protocols and an information sheet for class observation
- Two student focus group interview protocols
- A teacher interview protocol

Dissemination, diffusion, impact and sharing of good practices

The findings were reported in the meetings of the University Task Force on Digital Literacy Core Requirement. The micro-modules will be made available online. Professional development activities on course evaluation will be organized by the Centre for Learning Enhancement And Research (CLEAR) or in collaboration with faculties.

Impact on teaching and learning

Students had significant improvements in DL and CT competence, self-efficacy and attitudes towards ICT for learning after taking the courses. Teachers made better use of instructional strategies and became more aware of individual differences among students.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Developing a Comprehensive Mechanism for Quality Assurance and Enhancement of eLearning Micro-Modules (MM)**
Principal supervisor and unit:	**Professor LAM Lai Chuen Paul, Centre for Learning Enhancement And Research**

Project objectives

The project aimed to set up a comprehensive university-wide mechanism to assure and enhance the quality of Micro-modules (MM). The mechanism was designed to cover the pedagogical, instructional, and technical component of MM, and was used to provide evaluation to all MM funded by the Micro-modules Courseware Development Grant Scheme (MMCDGS).

Activities, process and outcomes

A project's steering committee and three panels were formed to participate in the review service. Three rounds of MM review including summative evaluation and formative evaluation were conducted. Nearly 100 MM were reviewed. Detailed reports were provided to teachers to further enhance their productions.

Deliverables and evaluation

10 MM judged to be excellent were selected as "showcases" and were made available on the project webpage (https://www.elite.cuhk.edu.hk/mm-showcase). A quality assurance and enhancement guideline for MM development was published on the webpage too. 84 students from 3 courses participated in a survey on their learning experience with MM. Their feedbacks were summarized and compiled in reports to inform the course teachers to further improve the MM. Teacher survey was conducted to evaluate on the review service with the majority of the respondents considered the service "useful" or "very useful".

Dissemination, diffusion and sharing of good practices

A poster presentation was delivered in the Teaching and Learning Innovation Expo 2021 to introduce the MM review mechanism and the lessons learnt during the review process. Good practices collected from teacher interviews were shared in an online workshop.

Impact on teaching and learning

The project established a systematic review of MM production and provided good MM examples for the teachers to develop high-quality MM. The rubric developed would be used in other multimedia courseware production, including an inter-university collaboration on a small private online course on virtual teaching and learning.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**eLearning Pedagogical Support and Consultation**
Principal supervisor and unit:	**Professor LAM Lai Chuen Paul, Centre for Learning Enhancement And Research**

Project objectives

The project aimed to provide personalized one-on-one consultation and evaluation services to CUHK teachers and promote innovative pedagogical approaches.

Activities, process and outcomes

Between November 2019 and April 2022, 94 pedagogy consultation sessions were arranged for 43 individual teachers to support them to incorporate eLearning strategies or innovative approaches into their teaching. Also, 15 workshops were given to over 416 teachers and 41 students. These workshops covered a wide range of topics such as online learning and teaching, technology-enhanced learnings, proctored/non-proctored online assessment, eLearning tools, and video production.

Deliverables and evaluation

- Enhanced teaching effectiveness: Our pedagogical suggestions or advice, that were given in the nearly 100 consultation meetings, were adopted by teachers in their courses with positive student feedback.
- Improved teachers' readiness and capacities for adopting eLearning or innovative teaching approaches: Over 400 teachers participated in the training workshops and experience sharing sessions organized in the project. The workshops were well received by the teachers according to the after-event surveys.

Dissemination, diffusion and sharing of good practices

We encouraged teachers who received our consultation service or implement innovative teaching to share their experience with our CUHK community. The CUHK Teaching and Learning Innovation Expo was one of the important occasions for us to present good teaching practices and the consultation service we offered. Besides the Expo, we also encouraged them to disseminate good practices in the forum organized by the Teaching and Learning Community of Practice of CUHK and an inter-university project titled "Virtual Teaching and Learning".

Impact on teaching and learning

The increasing number of teachers came to our service and workshops states our contribution in pedagogical support to CUHK community and active response to teachers' needs and constraints. With ADDIE model as instructional design model, teachers are benefited from our suggested strategies, introduction of eLearning tools and platforms to re/design, organize/create, streamline their course production, as well as getting feedback from users for continuous improvement.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Teaching and Learning Community of Practice (CoP): Extension of the Existing eLearning CoP to Address a Wider Scope of Teaching Needs and Innovations**
Principal supervisor and unit:	**Professor LAM Lai Chuen Paul, Centre for Learning Enhancement And Research**

Project objectives

The project aims to further support the existing eLearning CoP, and to form new interest groups to facilitate teacher professional development ("PD") and the implementation of a broader range of teaching innovations.

Activities, process and outcomes

The CoP formed 11 interest groups to address different teaching and learning (T&L) innovations and teachers' needs, and 98 members from various faculties were recruited. Activities were arranged for members and staff in higher education, ranging from group-based/ community-based activities, public sharing sessions to cross-institutional events to facilitate the dissemination of teaching strategies and practices among members and to recruit CUHK members of similar interests.

Deliverables and evaluation

Almost all the expected outcomes and deliverables are met in accordance with the proposed schedules. The CoP organised 11 project briefing sessions and sharing sessions led by the members with invited speakers from sister universities. Several joint university/ scholarly society events, and a student competition and symposium were held. The CoP also provided consultation and support on the development of the quality assurance mechanism of micromodules, as well as the hybrid teaching and learning. Moreover, the CoP involved in the feedbacks collection for existing communal learning spaces in campus and the production of professional development resources facilitated the collaborations among the members. According to the post-event evaluation of the CoP activities, nearly 100% of the respondents commented that the knowledge delivered was useful and will recommend the sessions to their colleague(s), while at least 83% of the respondents found that the sessions were relevant to their needs.

Dissemination, diffusion and sharing of good practices

A project website was launched as a repository of the resources developed by the CoP and its members. The CoP was also engaged in university-level events to showcase good T&L practices of its members and beyond to a broader audience. Besides, the project team continuously organised workshops and sharing sessions for knowledge transfer within and outside CUHK communities.

Impact on teaching and learning

The CoP facilitated discussions and dissemination of good teaching practices. The sharing and the peer learning among teachers led to changes and enhancement in real teaching. Furthermore, the CoP led to new collaborations among CUHK teachers, enhanced interest in pedagogical exploration, as well as assisted in the development and improvement of the teaching and learning environment. In general, the project helps create a long-lasting impact on teachers' teaching practice by gathering more human effort and resources which in turn, benefited students' learning.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**uReply: Operation, Refinement and Further Development**
Principal supervisor and unit:	**Professor LAM Lai Chuen Paul, Centre for Learning Enhancement And Research**

Project objectives

The proposed project is for funding the operational and developmental work for uReply during the project years (a set of campus-wide mobile-ready tools developed for active learning). The system has not only attracted growing popularity among teachers at CUHK but has also been used by teachers in other sister institutions. Extra features have been implemented during the COVID-19 pandemic to further support online teaching and learning as well as hybrid teaching and learning.

Activities, process and outcomes

During the project period, the system recorded accumulated pageviews of over 14 million as of 31 March 2022 (due to some technical issue of google analytics, the number of pageviews was not recorded between Dec 2019 to March 2020 and staring from March 2020, the records were recorded by Matomo. The growth of usage comparing the semester of 2020-21 and 2021-22 (until 31 March 2022) is significant. The pageviews recorded in the first and second term of the academic year 2021-22, compared with the same period in 2020-21, has increased for more than 67.5%. Other increases in usage by comparing the growth in the recent year are observed too. And for the newly added feature (uReply Attendance) in response to the pandemic, we can see that teachers continuous to use it after changing back to face-to-face class in the term 2021-22 and significant growth has been spotted.

Deliverables and evaluation

The project has set a number of deliverables in the proposal.

Operationally, resources are needed to sustain the service for healthy running of uReply in the campus as well as the support/ promotion needed to enable teachers to use the system for the best learning outcomes. Developmentally, work is needed to refine the functions and features of the system – mostly based on requests collected from users. The deliverables and outcome that have been achieved are shown below:

Operational:

- Upgraded the system to meet updated security purposes
- Keep running of healthy service
- Teachers and students' user guide has been updated for the new features
- More than 4 workshops on zoom or hybrid mode have been held during year 2021
- Consultation services has been conducted to assist individual teachers to use the tools
- Three posters have been presented in the CUHK Teaching and Learning Innovation Expo

Developmental:

- further refinements that enhance usability has been done
- CUHK O365 SAML login implementation has been approved by the Information Technology Services Centre (ITSC) and tested in Dec 2021 and deployed in May 2022 without affecting the normal service period
- Attendance report has been updated for teachers enabling them to combine the records for further use
- Assessment has been upgraded supporting for large class
- System OS and platform structure upgraded during the Christmas break of 2021

Dissemination, diffusion and sharing of good practices

We have achieved the following dissemination and sharing of good practices actions in the period:

- Promotion and newsletter: at least 4 times a year announcing new features to CUHK teachers
- Workshops: uReply basic and uReply new features workshops run regularly
- Conferences: Presented posters in the Teaching and Learning Innovation Expo at CUHK

Impact on teaching and learning

We have conducted survey, meetings and interviews with teachers and students. Various features and improvement have been deployed to the system during the time. We will continue to receive comments and recommendations from users in the coming periods.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Evaluation on the Feasibility, Acceptance and Educational Values of Inter-professional Education at CUHK**
Principal supervisor and unit:	**Professor LEE Wing Yan Vivian, Centre for Learning Enhancement And Research**

Project objectives

The objectives were to investigate whether: (1) it was feasible to develop an Inter-professional Education (IPE) curriculum at the university level and (2) providing IPE to university students could increase their knowledge and improve their attitudes toward the needs of elders in the community.

Activities, process and outcomes

Phase 1 of the study was to identify students' awareness of IPE and understand the feasibility of IPE with a university-wide survey. Phase 2 was to conduct an IPE course for students in health care-related major and Phase 3 was to evaluate the efficacy of IPE on improving students' interprofessional skills.

Deliverables and evaluation

Quantitative and qualitative analyses were adopted for evaluating the project. Results from Phase 1 indicated that though students had low awareness on IPE, they had positive attitudes and high expectations towards IPE. Results from Phase 2 and 3 showed that students' self-report duty and responsibility was significantly improved. Our findings suggested the feasibility of IPE in higher education institute in Hong Kong.

Dissemination, diffusion and sharing of good practices

Two websites were construed to disseminate the findings of the project. Our findings were presented at local and international conferences. Six micro-modules on health & diseases topics were made to share students' learning outcomes from the project. A manuscript of Phase 1 was submitted to peer-review journal.

Impact on teaching and learning

Students engaged in the IPE program reported improvement in communication and better understanding of their professional roles. Our project thus shed light on higher education from surveying the feasibility of IPE project. Future direction of education may take IPE into consideration.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Evaluation of the Academic Advising System and Support to Teachers at CUHK**
Principal supervisor and unit:	**Professor LEE Wing Yan Vivian, Centre for Learning Enhancement And Research**

Project objectives

This project aimed at conducting a thorough and qualitative investigation on the current academic advising (AA) system in CUHK. The following five aspects of AA from both the university students' and teachers' perspectives when conducting the investigation were evaluated: (1) Definition; (2) Arrangement; (3) Content; (4) Barriers; and (5) Evaluation.

Activities, process and outcomes

We have conducted online questionnaires to academic staff and students during the project period. We also conducted focused group interviews to both staff and students to understand the current issues related to academic advisory system. According to the study results, we could provide suggestions and recommendations to the university to optimize the AA system.

Deliverables and evaluation

A total of 1203 students and 62 teachers completed the questionnaires and 33 undergraduates, and 7 teachers attended an interview in 2020. The utilization rate of the AA system was low as 64.3% (773 students) had experiences of meeting their academic advisors and 35.7% (430 students) never met with their academic advisors.

Dissemination, diffusion and sharing of good practices

We have shared the findings of the current project in both local and international conferences. We have organized workshops on AA workshop and are invited to present our project at the sharing session organised by the Pro-Vice-Chancellor Professor Nick Rawlins.

Impact on teaching and learning

This study provided new insight for the development of the AA system at our university. A good and efficient academic advisory system would not only impact on the students' experience on teaching and learning but also their whole person and career development in the future.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Students-as-partners Platform (SaP Platform)**
Principal supervisor and unit:	**Professor LEE Wing Yan Vivian, Centre for Learning Enhancement And Research**

Project objectives

This project aligned with *CUHK2025* Strategic Plan Goal 3 Students taking ownership of learning and stepping out of comfort zone. It aimed to help CUHK teachers to carry out students-as-partners (SaP) projects and (1) to increase awareness of SaP developments at the university level; and (2) to exchange ideas among academic staffs to facilitate SaP.

Activities, process and outcomes

The SaP package, including (a) an interactive webpage; (b) a handbook; and (c) series of workshops was prepared. The webpage and handbook were created under the new Centre for Learning Enhancement And Research (CLEAR) website to be launched in the near future. 4 workshops were held in June, July, and December 2021 respectively. Quantitative survey was conducted as baseline research on the current SaP development in CUHK from academic staff's perspective.

Deliverables and evaluation

The webpage and handbook were prepared to provide guidance on practicing SaP. Workshops were collaborated with local and overseas institutions to encourage ideas exchange. Quantitative survey was conducted. Results indicated that teachers mainly adopted SaP in lectures, tutorials, and projects. Most teachers welcomed the practice of SaP and CLEAR's support on SaP pedagogy design and funding opportunities.

Dissemination, diffusion, impact and sharing of good practices

Website with guidance and enquiry function was constructed for information dissemination and booking of consultation sessions. Workshops were held for sharing of good practices of SaP in local and overseas institutions.

Impact on teaching and learning

The platform and handbook will be the immediate resources for teachers to initiate their SaP projects from scratch. Backend data of the webpage to be collected in the future will serve as references to learn more about the needs of teachers on SaP. The workshops will provide insightful perspectives and encourage collaborations on developing SaP projects in different contexts.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Development of Experiential-learning Schemes for the General Education Foundation Programme**
Principal supervisors and unit:	**Dr. LI Ming Kenneth, Office of University General Education** **Dr. CHIU Chu Lee Julie, Office of University General Education**

Project objectives

This project has three objectives: (i) to produce micro-modules and upgrade eLearning instruments for experiential learning through permaculture, aquaculture, and meditation in the General Education Foundation (GEF) courses, namely *In Dialogue with Humanity* and *In Dialogue with Nature*; (ii) to implement experiential learning that enriches teaching and learning in the foundation courses and supports the Sustainable Development Goals (SDGs) concerned; and (iii) to develop viable experiential-learning schemes for the GEF Programme.

Activities, process and outcomes

In Phase I, three micro-modules with eight videos were developed to support a total of twelve online and face-to-face experiential-learning activities, which benefited 558 students in Phase II. The experience of developing experiential learning schemes was consolidated in an Experiential Learning Handbook and shared in an online GE seminar in Phase III. This project enhanced students' understanding of the course texts, and fostered their reflection on real-life situations and contemporary issues related to SDGs.

Deliverables and evaluation

The bilingual "Experiencing Classics" (EC) web platform was developed to integrate the three new micro-modules, activity records, and high-quality students' essays. A farming companion mobile App "Growing Edible 101" (GE101) was improved. This project also generated nine presentations in seven local and international seminars and conferences. The project was evaluated by questionnaire surveys, focus group studies, and students' reflective essays.

Dissemination, diffusion and sharing of good practices

The experience, good practices, eLearning instruments, and students' reflections were documented and disseminated in the EC web platform, which is publicly accessible. A student article was published in *UGE News* to promote the pedagogical approach to experiential learning. We also exchanged ideas with other educators in local and international seminars and conferences. An online seminar was organized in June 2022 to further exchange ideas on experiential learning schemes.

Impact on teaching and learning

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THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Engaging Students as Partners with Peer Assisted Study Session (PASS)**
Principal supervisors and units:	**Professor LEUNG Mei Yee, Office of University General Education** **Dr. SZETO Wai Man, Office of University General Education** **Dr. MUI Wai Ho Lancelot, The Jockey Club School of Public Health and Primary Care** **Dr. HWANG Shui Shan Isabel, School of Biomedical Sciences**

Project objectives

This collaborative project across four units aims at engaging students as partners with peer assisted study session (PASS) to promote peer-led active learning at the university level. It will implement PASS in a larger scale with a regular and systematic evaluation.

Activities, process and outcomes

(i) 18 PASS Leader Training Workshops (TWs), 3 Advanced TWs and 3 Senior Leader TWs have trained 107 Leaders
(ii) A PASS-SI Supervisor TW was organized with the International Center for Supplemental Instruction (SI) to train 23 staff members
(iii) The Advanced SI Supervisor TW and the Advanced SI Leader Workshop were participated by 2 PASS Supervisors and 2 Senior Leaders respectively
(iv) PASS has been implemented in 10 courses, with a total of about 4,000 voluntary student participants
(v) Online PASS has been successfully adapted under the pandemic
(vi) The Senior PASS Leader scheme in the General Education Foundation (GEF) Programme has been expanded
(vii) A depository was set up to record the good practices developed by the Leaders

Deliverables and evaluation

The evaluation data show that (i) PASS can enhance students' subject knowledge, study skills, confidence and motivation, and transition into university; (ii) with a doubled number of participants, online PASS has achieved results comparable with face-to-face one; and (iii) PASS can also enhance Leaders' communication and leadership skills.

Dissemination, diffusion and sharing of good practices

The findings and practices were disseminated in 7 local and international presentations. The GEF PASS Team was awarded the University Education Award (Teams) 2020-21.

Impact on teaching and learning

This project has taken the "Students as Partners" approach to re-envision students and staff as active collaborators in teaching and learning development.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Establishing an Online Learning Community for UGFN1000**
Principal supervisors and unit:	**Dr. KIANG Kai Ming, Office of University General Education** **Dr. SZETO Wai Man, Office of University General Education** **Dr. LAI Chi Wai Kevin, Office of University General Education**

Project objectives

This project aims to establish an online learning community that stimulates peer discussions extended from the tutorials of the course UGFN1000 "In Dialogue with Nature". Facilitated by student leaders, these online discussions provide opportunities for our students to further reflect on what they have learned and integrate it with their personal life. Two types of online discussions are provided: (i) verbal live discussions on Zoom, supported by newly developed micro-modules, and (ii) written discussion forums on Blackboard.

Activities, process and outcomes

Throughout the project period, 76 discussion sessions were organized on Zoom and over 400 topics were discussed on Blackboard. A total number of 1,680 students participated in the online discussions facilitated by 29 student leaders. Regarding the Zoom discussions, 17 discussion-based micro-modules, each within 5 minutes, have been produced to help students to discuss and reflect.

Deliverables and evaluation

The evaluation data show that the online discussions can (i) improve students' understanding of the course content and concepts, (ii) encourage students to extend their thoughts of the course content, and (iii) encourage students to appreciate alternative ideas.

Dissemination, diffusion and sharing of good practices

The micro-modules, along with other existing ones, can be found on the KEEP platform which is accessible by other teachers and students. The project findings and good practices were disseminated in two presentations delivered at the local conference and seminar.

Impact on teaching and learning

The post-tutorial online discussions in this project have enhanced the peer-learning experience by complementing the existing pre-tutorial student-led PASS (Peer Assisted Study Session) and teacher-led tutorial discussions. These learning activities have cultivated the culture of Students as Partners.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Enhancing Scientific Communication Through a Life Sciences and General Education Partnership**
Principal supervisors and units:	**Dr. CHEUNG Hang Cheong Derek, Office of University General Education** **Dr. LO Chun Yeung Edwin, Office of University General Education** **Dr. NG Ka Leung Andy, Office of University General Education** **Professor SHAW Pang Chui, School of Life Sciences**

Project objectives

The objective of this project is to set up a partnership programme between the School of Life Sciences (SLS) and the General Education Foundation (GEF) Programme. Senior SLS students, recruited as Science Communicators (SCs), can partner with GEF teachers to organize scientific experiential learning workshops for students taking "In Dialogue with Nature" (UGFN1000).

Activities, process and outcomes

This scheme consists of Science Communicator Training Scheme for senior SLS students and UGFN1000 Experiential Experience Training Workshops for GEF students. There are three distinct themes which correspond to three of the classics in the UGFN1000 course, including Theme 1: Antibiotics in action: Natural Selection and Antibiotic-Resistant Bacteria on SDG Good health and well-being; Theme 2: The Secret of Life: Adaptation of the Avery-MacLeod-McCarty experiment on SDG Zero hunger, Good health and well-being; Theme 3 on Life Below Water: Coral Adoption on SDG Life below water.

Deliverables and evaluation

The success of the project was evaluated both quantitatively and qualitatively. On the quantitative side, online surveys were introduced to both the SLS science communicators and GEF participants to measure the perceived effectiveness of the partnership programme in attaining the proposed aims. On the qualitative side, focus group interviews were conducted to investigate how the partnership programme brings about students' attainment of the proposed outcome.

Dissemination, diffusion and sharing of good practices

One oral presentation in a departmental conference in 2021, one external oral presentation at CUHK Teaching and Learning Innovation Expo 2021, and coming external oral presentation in Community of Practices Symposium of Education Innovation and Technology 2022.

Impact on teaching and learning

This activity allows teachers to partner with students in delivering knowledge. While UGFN1000 is a course on teaching science classics, this experiential activity can enrich students' textual understanding and learning experiences.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Development of a Blackboard-Integrated Knowledge Management Web Application for Fostering Students' Global Vision in General Education Foundation Programme**
Principal supervisors and unit:	**Dr. LO Chun Yeung Edwin, Office of University General Education** **Dr. CHEUNG Hang Cheong Derek, Office of University General Education** **Dr. NG Ka Leung Andy, Office of University General Education** **Dr. LEUNG Cheuk Hang, Office of University General Education**

Project objectives

This project aims at developing a Blackboard-integrated knowledge management web application for courses UGFN1000 "In Dialogue with Nature" and UGFH1000 "In Dialogue with Humanity" in the General Education Foundation (GEF) Programme. Students would be cultivated as responsible cyber citizens who are able to bridge classic texts with contemporary global issues, and thus have a keen sense of global awareness at home.

Activities, process and outcomes

The project created a knowledge management web application for students to share diversified format of content from trustworthy online sources. Concurrently, by viewing, commenting and rating other students' sharing, an interactive knowledge sharing community was built.

Deliverables and evaluation

A Blackboard web application used by 1,767 students in 2 courses, which has also been promoted to 22 GEF teachers, has been produced. The survey and textual analysis showed that the web application was well-received, and students could attain the intended learning outcomes.

Dissemination, diffusion and sharing of good practices

The project has been presented in two CUHK conferences and one departmental conference. Participants showed a great interest in the online platform. The logic design of this online experiential learning could be replicated in other courses at CUHK, especially for courses with core readings in their curriculum and high enrollment.

Impact on teaching and learning

According to the evaluation results, students had more exposure to both local and international news relevant to the core texts, broadening their global visions. They have also improved their understanding of the course material.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Engagement with the Sustainable Development Goals (SDGs) to Cultivate Global Citizens**
Principal supervisors and units:	**Professor LEUNG Mei Yee, Office of University General Education** **Dr. LI Ming Kenneth, Office of University General Education**

Project objectives

The project aims at developing an alternative General Education (GE) Study Scheme in CUHK to heighten students' understanding of the global challenges through the SDGs framework. It comprises three components: (i) A short online course provided by SDG Academy; (ii) three SDG-GE courses; and (iii) one Social Engagement (SDG-SE) course or one non-credit-bearing volunteer activity (SDG-VA) to address at least one SDG.

Activities, process and outcomes

Criteria for SDG-GE and SDG-SE courses, and also SDG-VA engagements were derived for the vetting of the SDG-GE/SE/VA components. A promotion campaign was developed to promote this scheme to students and faculty members. So far, 47 SDG-GE courses were approved (2,874 students enrolled) and 17 courses are under review. One College GE course was labeled as SDG-SE. The SDGs-related Experiential Learning Activities Fund was established to support eleven experiential learning SDG-GE courses. The Leung Hung Kee GE Scholarship for SDGs (LHKGE) was established to award students (three individuals and one team) who performed outstandingly in SDG-VA engagements.

Deliverables and evaluation

Apart from the SDG Study Scheme and the other deliverables mentioned above, a designated website, an Instagram page (84 posts) and three SDG forum series (ten talks) were produced. Nine articles, four teacher engagement workshops, and one presentation were delivered. This project was evaluated by surveys (students and teachers) and focus group studies (students). The evaluation results are positive in general.

Dissemination, diffusion and sharing of good practices

The SDG Study Scheme was disseminated within the local communities through the orientation activities, social media, websites, articles, workshops, SDG Forum Series, education conference and SDSN network. This project is a Finalist of the International Green Gown Award 2021, the most prestigious global recognition of sustainability best practice within the education sector supported by the United Nations Environment Programme (UNEP).

Impact on teaching and learning

The project has developed an alternative SDG Study Scheme which is incorporated into the University's GE Curriculum. The Scheme provides students who aspire to be an informed and active global citizen a purposeful pathway to learning about global challenges and SDGs. It has a significant contribution to the enhancement of University-wide Education for Sustainable Development (ESD). The development and achievement of the university-wide SDG Study Scheme by CUHK, being the co-host of the SDSN Hong Kong, contributes to promote and lead ESD in the higher education sector.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Strengthening Students Mental Wellness Through Microfilms**

Principal supervisor and unit: **Dr. CHIU Chi Ming Lawrence, S.H. Ho College**

Project objectives

This project aims at producing microfilms in stimulating students' self-reflection on life challenges and strengthen their positivity and resilience in life. We are going to equip students with video making skills and engage them in the production. In the long run, we hope after the project, the trained students could continue to develop new microfilms and/ or update old microfilms to support our general education.

Activities, process and outcomes

This project trained 13 students in video production through workshops, job attachment and practical training. Two microfilms were suggested and produced by our students based on their struggles concerned:

- Getting lost in future path
- People suffering from depression and their caregivers

Besides, to support a recent change in the College general education curriculum, another microfilm is being produced to introduce the new credit-bearing service-learning course. Given the COVID-19 fifth wave, this production would be handled by a production company yet students would be invited to join some parts of it.

Deliverables and evaluation

In the post-activity survey, students found this project "useful and worth joining" and they acquired certain practical filming skills. We also see a significant growth in their personal development like accountability, creativity, problem-solving, teamwork and time management.

Dissemination, diffusion and sharing of good practices

The microfilms are planned to be screened in sharing sessions hosted by College members, when face-to-face teaching resumes.

Impact on teaching and learning

During development of the microfilms, ideas of College general education, which focuses personal reflection and development, were explained to students. Students, in return, shared areas of their concern and common struggles they have faced in the university. This helps us to understand the latest learning needs of students, which are useful references for future enhancement of our education.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Pilot Test and Evaluation for Enhanced Hybrid Teaching Using Ceiling Microphone and Tracking Camera at Communal Classrooms**
Principal supervisors and units:	**Ms. YU Wai Hing Kitty, Registry** **Professor LAM Lai Chuen Paul, Centre for Learning Enhancement And Research**

Project objectives

Given the COVID-19 pandemic, the new normal for education is likely to be more virtual or a mix of online and in-person classes (known as hybrid teaching). To better support new teaching modes such as hybrid teaching during and after COVID-19, this project has upgraded 9 classrooms/ lecture theaters (LT) in CUHK for pilot and demonstration purposes.

Activities, process and outcomes

- 9 communal classrooms/LTs were identified to be suitable for the pilot test in April 2021.
- Ceiling microphones and tracking cameras were installed in these classrooms by August 2021.
- A demonstration of the upgraded facilities has been conducted by the Centre for Learning Enhancement And Research (CLEAR) in one of the upgraded classrooms in late August 2021.
- Workshops have been conducted in Term 1 & 2 of 2021-22 to share tips on hybrid and online teaching.
- Survey and interviews have been conducted with teachers to gather their feedback on hybrid teaching and the upgraded facilities.

Deliverables and evaluation

- 9 classrooms / LTs have been equipped with the upgraded facilities for supporting hybrid teaching.
- Evaluation reports have been drafted to evaluate teacher feedback on hybrid teaching and the upgraded facilities based on survey and interviews.

Dissemination, diffusion, impact and sharing of good practices

- An instruction manual of the new facilities and a brief introduction of the new AV systems have been created by the Audio Visual Services Unit (AVSU) on its website.
- Workshops have been conducted to demonstrate the new facilities and to share tips on hybrid and online teaching.
- One of the project's PI (Prof. Paul Lam) spoke at a joint-university seminar on Hybrid Teaching and Learning to share about the upgraded facilities provided by this project.

Impact on teaching and learning

It is likely that there will still be a demand for improved equipment such as ceiling microphone and tracking camera in the post-pandemic era to support new teaching modes and pedagogies. These facilities will improve CUHK's readiness to respond to future emergencies.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Fighting Fake News: Promoting Critical Digital Literacy Among CUHK Students to Address Disinformation Online**
Principal supervisor and unit:	**Professor DARVIN Ronald Perfecto, Department of English**

Project objectives

- To create a five-module KEEP course on critical digital literacy that will provide students with strategies to address recognize and address online disinformation.

Activities, process and outcomes

- CUHK students from seven sections of "Communications for English Majors II" (ENGE1320) accomplished the online course.
- A live YouTube talk on Fighting Fake News in October 2020 was conducted by the Principal Supervisor (PS).
- A webinar on critical digital literacy was conducted by the PS in October 2021, that was attended by over 200 teachers from different parts of the world.
- A paper on online disinformation and critical digital literacy was presented by the PS at the 2021 Conference of the American Educational Research Association (AERA).

Deliverables and evaluation

- The online course: https://moodle.cuhk.keep.edu.hk/course/view.php?id=80. Taken by more than 80 ENGE1320 students
- The YouTube talk: https://www.youtube.com/watch?v=UZhRBnYukPM. Viewed by more than 170 people, mostly a Hong Kong audience
- The webinar for teachers: https://cercll.arizona.edu/event/darvin/. Attended by over 200 teachers from different parts of the world.
- The international conference presentation: https://convention2.allacademic.com/one/aera/aera21/. American Educational Research Association

Dissemination, diffusion and sharing of good practices

- Insights and good practices shared through the webinar for teachers and the international conference presentation

Impact on teaching and learning

- Enabled a flipped classroom teaching approach where students learned concepts from the online course, which were later discussed in class
- Facilitated the learning of digital literacies necessary to discover legitimate knowledge

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Longitudinal Effects of Sport Education Intervention - Nurturing a Purposeful Unique Physical Literacy Journey**
Principal supervisor and unit:	**Professor SUM Kim Wai, Department of Sports Science and Physical Education**

Project objectives

To conduct further studies in Sport Education (SE); to promote and disseminate this new pedagogy to more professionals in the Physical Education Unit (PEU) and secondary schools; to promote global citizenship and entrepreneurial mindset of students; to enhance innovation and design abilities of students; to equip physical education lecturers with pedagogical understanding and skills required for the implementation of SE instructional model.

Activities, process and outcomes

Organized Greater China Region Physical Literacy Symposium; Conducted three-phase surveys on online and hybrid teaching modes; Measured students' outcomes of physical literacy-related correlates.

Deliverables and evaluation

Regardless whether online or hybrid teaching modes are utilized, physical education programmes could motivate students to participate in daily physical activities during the pandemic period.

Dissemination, diffusion and sharing of good practices

One workshop in PEU; one symposium with two workshops and 18 presentations; three manuscripts; one courseware; one oral presentation in international conference; one poster presentation in Teaching and Learning Innovation Expo. These disseminations could serve as a reference for other universities, secondary and primary schools in Hong Kong and Greater China Region.

Impact on teaching and learning

Teachers believed that SE could develop students' physical literacy but they indicate some issues relating to the implementation. Although they recognized the goal of physical literacy, their receptivity may affect the degree to which they apply the curriculum and offset any positive influence on the students' value and understanding of participating in lifelong physical activities.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Artificial Intelligence (AI) for Collaborative Learning**
Principal supervisor and unit:	**Professor KING Irwin Kuo Chin, Department of Computer Science and Engineering**

Project objectives

Dedicated to offering users a customized learning experience, KEEP, an open eLearning resource hub, provides learners with the best eLearning tools to facilitate **teaching and learning.** By adopting Artificial Intelligence (AI) for Collaborative Learning, KEEP seeks to **(1) enrich users' teaching and learning experience, and (2) provide personalized recommendations and learning plans to the students.** In this way, the KEEP's big data intelligent analytics system will be further enhanced with AI monitoring for finding skill gaps, planning personalized learning, and recommending course plans to users.

Activities, process and outcomes

To achieve the captioned objectives, activities included upgrading the KEEP dashboard and students' learning profile in all existing KEEP learning management systems (LMSs, including CUHKMoodle, KEEPMoodle, and KEEP Open edX) respectively, disseminating the new functions to students, and qualitatively surveying the students' usage.

Deliverables and evaluation

This project consists of three expected deliverables with details as follows:

1. Designing the recommendations for the eLearning personalization system
2. Upgrading the current learners' profile
3. Upgrading the current dashboard

Dissemination, diffusion and sharing of good practices

The project team has disseminated some good practices through different channels, from events to academics. We have actively (co)hosted and participated in different events, workshops, and seminars. During the project period, we have (co)hosted five events and participated in more than 10 events. The project team has put an emphasis on academic contribution. The article contributed by the KEEP Team, 'Rethinking Engineering Education: Policy, Pedagogy, and Assessment During Crises,' was published in the *IEEE Signal Processing Magazine* on 1 May 2021. It discusses the policy, pedagogy, and assessment for engineering education in times of crisis from diverse perspectives.

Impact on teaching and learning

This project has **raised teachers' and students' awareness** of the importance of upskilling in the labor force through education. Through the successful development and integration of these systems, we can not only enrich the overall educational experience and improve the accessibility of online learning resources for all educational stakeholders, especially the members of the CUHK, but also allow students to prepare themselves for better career prospects.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**eLearning Course on United Nations Sustainable Development Goals and Health**
Principal supervisors and units:	**Professor HUNG Kei Ching Kevin, Accident and Emergency Medicine Academic Unit** **Professor CHAN Ying Yang Emily, The Jockey Club School of Public Health and Primary Care**

Project objectives

The project developed a set of eLearning modules which provided students with the knowledge of health-related Sustainable Development Goals (SDGs). Comprising eight modules, the aim of promoting an understanding on how health is influenced by the environment, food, water, security, equity, poverty, gender equality, trade, and migration was successfully achieved. While enhancing the university teaching resources, the project also created a linkage with CUHK's university-wide SDG initiatives to provide optimal learning results.

Activities, process and outcomes

Student partners were engaged in collaborative learning through reviewing the literature, researching information, developing content, and identifying production materials. Academic advising through mutual exploration played an important role where tutors and students worked together to design the eLearning course that encompassed multimedia and technology-enhanced learning. It fostered the notion of student as partners and enhanced both teaching and learning outcomes.

Deliverables and evaluation

The eLearning project produced eight SDG eLearning modules with descriptions of associated targets, research findings, epidemiological data, local situation, expert interviews, and discussions of case studies. Upon official launching of the project website next month, we anticipate that staff and students will be invited to evaluate the project to confirm its relevancy and application. The overall complementary nature of the eLearning course ensures that its impact will be far reaching, replicable and sustainable.

Dissemination, diffusion and sharing of good practices

The process of dissemination is made through a public domain where students can access the SDG eLearning course on KEEP Open eDX. Identification of good practices and outcomes for replication includes hosting with support from the Information Technology Services Centre (ITSC) of CUHK. The project was first presented at the CUHK Teaching and Learning Innovation Expo 2021.

Impact on teaching and learning

The eLearning course project exposed students to various health-related SDGs with locally relevant learning materials. Teaching and learning with students as partners was implemented throughout the project. Overall, teaching had been improved and learning outcomes were better achieved as students learned to appreciate the positive impact of promoting good health and raising awareness of knowledge on SDGs.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Enhancing Students' Engagement and Teaching Effectiveness in Marine Environmental Education Using 360° Virtual Reality**

Principal supervisor and unit: **Professor CHUI Pui Yi Apple, School of Life Sciences**

Project objectives

This project aims to: (1) enhance students' awareness and knowledge of corals and coral communities in Hong Kong and deepens students' reflection on the United Nation's Sustainable Development Goals: SDG 14 "Life below Water" and SDG 13 "Climate action"; and to (2) promote students' pro-environmental attitude and behaviours to protect the marine environment.

Activities, process and outcomes

Four underwater 360^{o} Virtual Reality (VR) videos and one user manual have been produced. Experiential learning activities were designed based on the videos.

Deliverables and evaluation

A pre- and post- questionnaire were developed to evaluate the effectiveness of this exercise as well as adopting VR as an experiential education tool in enhancing students' environmental knowledge, attitude towards learning, environmental attitude, behavioural intentions to protect the marine environment. Overall, this underwater 360^{o} VR learning pack was very well received by students. Students enjoyed the activity and agreed that VR has created a close-to-realistic and immersive experience for them. Students also expressed their interest in having more VR exercise in future courses. They also enjoyed reading the manual as it provided concrete information related to marine conservation.

Dissemination, diffusion and sharing of good practices

The result of this project will be presented in the CUHK Community of Practice Symposium of Education Innovation and Technology 2022.

Impact on teaching and learning

The project has created further collaboration opportunities. Joining hands with Agriculture, Fisheries and Conservation Department (AFCD), a similar learning package will be developed to be used by local secondary school students.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Creative Technologies – A Heuristic Approach to Digital Design and Fabrication Tools in the Classroom**
Principal supervisor and unit:	**Professor FINGRUT Adam, School of Architecture**

Project objectives

A series of four credit-bearing elective workshops will be organized over a period of two academic years, open to students across the university. The workshops will introduce tools to: (1) SCAN the three-dimensional properties of buildings or spaces; (2) DESIGN by responding to data with creative interventions; and (3) BUILD using classroom friendly robotic fabrication devices.

Activities, process and outcomes

A series of learning workshops on technology integration were run through the School of Architecture (SOA) and the Centre for Learning Enhancement And Research (CLEAR) throughout the funding period. Consultations with participating staff and students on fine tuning course complexity, challenges, equipment relevance were organized.

Deliverables and evaluation

1. A series of four workshops on technology integration will be run through the SOA and CLEAR throughout the funding period.
2. Consultations with participating staff and students on fine tuning course complexity, challenge, equipment relevance.
3. Students post their experiences in 3 formats.
4. Production of a report discussing the successes, challenges, benefits, and drawbacks of the workshops as pertaining to critical and design thinking development in students.

Dissemination, diffusion and sharing of good practices

1. Final presentations of student output were publicly conducted via an open ZOOM session, where some members of the architecture and design community (mostly other students), staff and faculty could observe and ask questions through the online chat.
2. Academic Submissions.
3. Public Presentations pertaining to workshop materials

Impact on teaching and learning

Most of the students (45.45%) provided a negative perception, evaluating the learning experience as difficult, challenging, and unwilling to learn new tools. Only 36.36% of students provided a positive evaluation that the learning experience is inspiring and interesting.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Development of an Online Positive Psychology Course**

Principal supervisor and unit: **Professor LEUNG Wing Leung Patrick, Department of Psychology**

Project objectives

As an initiative to promote emotional resilience among our students via the knowledge and application of positive psychology, this one-unit online General Education (GE) course was proposed to be launched in the academic year 2021-22 in order to meet the demand from a bigger pool of students.

Activities, process and outcomes

An online course "Live to Flourish: the Science and Practice of Positive Psychology" (UGED1554)/"Positive Psychology in Everyday Life" (PSYC1020) was designed, developed and produced. Two trial runs with a total enrollment of 290 students were delivered in the academic year 2021-22.

Deliverables and evaluation

Eight online lessons with interactive elements, such as animated teaching videos and role play videos as well as online assessments were produced and run. Students found the course satisfactory and their subject knowledge enhanced. Results from the student survey also showed significant improvement in terms of Resilience, Positive Emotion, Cognitive Flexibility and Emotional Well-being, supporting the effectiveness of the course in achieving its aim of promoting students' emotional resilience.

Dissemination, diffusion and sharing of good practices

Focus had been placed on the design, development and production of the online course as well as fine-tuning of the course after the first trial run in Term 1, 2021-22. Upon completion of converting the kick-off live lecture in the beginning of the course to an online format, the course will be run fully online in the academic year 2022-23.

Impact on teaching and learning

The current e-self-learning design via animated videos, role-play demonstration, guided exercises, personal planning, and timely written feedback is well received by the students. They also welcome the flexibility allowed in the study schedule.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **One-credit Service Learning Online Course**

Principal supervisors and unit: **Professor CHAN Chi Ho Wallace, Department of Social Work**
Professor LEUNG Yuk Ki Timothy, Department of Social Work
Mr. IP Ki Yam David, Department of Social Work

Project objectives
The project planned to offer a self-paced one-credit Service-Learning (S-L) online course for the AY 2022-23. Training activities including workshops and sharing sessions will be offered to academic staff members in the University in the hope to facilitate the development of teaching and learning plans for service learnings.

Activities, process and outcomes
One sharing session was held for the S-L teacher and fieldwork supervisors, focusing on how to arrange remote S-L during the epidemic.

Deliverables and evaluation
- The content for 6 micro modules were prepared.
- At least 4 videos of outstanding student S-L projects.
- 1 sharing session conducted in February 2022; 4 training workshops for faculty members will be held in June 2022.
- L&T kit with teaching strategies and lesson plan will be formulated to enhance the pedagogical effectiveness in S-L course.
- One survey conducted to 78 students from existing S-L course to investigate their opinions and suggestions on S-L online course.

Dissemination, diffusion and sharing of good practices
- 1 sharing session conducted
- 4 workshops will be completed in June 2022.

Impact on teaching and learning
The teaching plans and worksheets developed could build up the capabilities of faculty members.
The participated faculty members will utilize the knowledge, experience, and insight in their own department(s) and unit(s) to promote and facilitate S-L in Department.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Enhancing and Sustaining the KEEP Platform for ELITE Advancement**
Principal supervisor and unit:	**Professor KING Irwin Kuo Chin, Department of Computer Science and Engineering**

Project objectives

This project aims to enhance the KEEP platform, an open eLearning platform where users can **access the best eLearning tools** and utilize such tools with **various innovative pedagogies**. Through KEEP's steadfast support of online education, teachers can streamline the use of technology in the classroom, students can have a better online learning experience, and all educational stakeholders can enjoy easier and quicker access to valuable resources. There were no changes to our original overall objectives. We sought to **improve the functionality of KEEP's key features** that teachers currently enjoy, covering the four major areas: **course hosting, assistive tools, learning analytics, and technology integration**.

Activities, process and outcomes

To achieve the captioned objectives, activities conducted included:

1. **Installing new plug-ins and updating the existing functions in all existing KEEP learning management systems** (LMSs, including CUHKMoodle, KEEPMoodle, and KEEP Open edX, respectively). These updates involve gamification plug-in, analytics, and dashboard function of the LMSs.
2. **Hosting different events and sharing the latest eLearning trend.** We planned to host online events on different scales (i.e., "Community of Practice" event, workshops, seminars) to share **new practices** for teaching and learning with educators, academics, and experts in the field of eLearning.
3. **Quantitatively and qualitatively surveying** usage at KEEP and its related functions using the online questionnaire.

Deliverables and evaluation

In general, this project has **completed deliverables in four areas** thus far. These deliverables cover:

1. **Course Hosting** – Platform enhancements for providing better services to learners
2. **Assistive Tools** – Additional, external tools for enhancing platform stability and performance
3. **Learning Analytics** – Metrics for providing educators with new insights on their courses
4. **Technology Integration** – Collaboration projects with core platforms for bringing new functionalities to learners and educators

Dissemination, diffusion and sharing of good practices

The plan to disseminate the best practices across CUHK and UGC-funded institutions in Hong Kong lie within the partnership with the Centre for eLearning Innovation and Technology (ELITE) at CUHK. Here is the plan for the identification of good practices and relevant outcomes:

1. **To promote** all of the new **enhancements** and **technologies** to teachers and course providers as a part of **ELITE's portfolio of services** and **support for the CUHK community**, KEEP will continue to host a wide variety of events, including but not limited to **seminars**, **meetings**, and **workshops** for users across all the faculties in CUHK.
2. KEEP will continue to share success stories and tips to **disseminate knowledge about online learning** and **teaching via social media channels** and **newsletters**. KEEP organized the **KEEP eLearning Community of Practice 2021**, which provided a platform for **educators and veterans in the eLearning field** to **exchange their views** on the eLearning experience for lifelong learning.

3. **To provide cutting-edge technology** for **supporting teachers** in **developing new pedagogy**, KEEP has introduced **gamification** to educational professionals so that they can best utilize this brand new tool to **enhance their teaching effectiveness through innovative pedagogy**.
4. We will also keep searching for teachers who are well-versed in gamification or using other advanced education technology and encourage them to share their experiences with counterparts in the education sector.

Impact on teaching and learning

In our experience, we foresee that "peer learning" will become a pedagogical trend in the future, the Project Team has emphasized the introduction of gamification in an eLearning setting. Compared to traditional settings in which teachers assume the leading role in guiding students, the launch of the gamification plugin in the **KEEP LMSs enables students to actively seek out more knowledge for themselves**. By analyzing the feedback we collected from teachers, gamification is shown to have exciting potential for sustaining educational effectiveness for educators and learners.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Heightening Undergraduate Educational Performance in the Arts by Means of Harnessing Hybrid Teaching**

Principal supervisor and unit: **Professor MORLEY Ian, Department of History**

Project objectives

The project was formed with the following pedagogical intentions: to enrich learner engagement and stimulate innovative instruction; to evaluate how students' core skills sets are acquired and can be expanded in the hybrid Teaching and Learning (T&L) environment; and, to ensure COVID-pandemic related online pedagogical challenges dissipate so as to stimulate late T&L occurrences re performance of learner engagement, performance of assembling and building core skills, and learner performance of self-confidence.

Activities, process and outcomes

In undertaking the project numerous activities have been carried out. These include handing out questionnaires to students, interviewing students, interviewing teachers, designing a website (and so liaising with the Information Technology Services Centre (ITSC)), undertaking independent research, etc.

Deliverables and evaluation

The core deliverable of the project is a webpage built around 10 fundamentals as to how hybrid teaching (HT) can work best. These 10 key issues were identified in student and teacher questionnaires and interviews, and will be available to both students and teachers ahead of the 2022-23 academic year.

Dissemination, diffusion and sharing of good practices

In June 2022 the Principal Supervisor and Co-Supervisor will give a talk arranged by the Arts Faculty. Also they have submitted an abstract so as to speak at the Community of Practice Symposium (to be held in June 2022). In addition, a short paper for a peer reviewed education journal is planned, it to be submitted in late-2022 ahead of publication in 2023.

Impact on teaching and learning

The project's impact will occur via a number of conduits. Principally, talks within CUHK are used to share the project findings and the generic sharing of pedagogical knowledge among Arts Faculty staff. However, to reiterate, the PS and Co-S are each open to meeting with Faculty teachers to discuss pedagogical affairs, and in this way aid them should they wish, for instance, to create hybrid tools to aid the development of either core or advanced skills.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Business for Social Good Education Program**
Principal supervisors and units:	**Dr. KU Kei Tat Fred, Department of Decision Sciences and Managerial Economics** **Dr. WONG Tik Lun Franko, Centre for Learning Enhancement And Research**

Project objectives

This Project focuses on three interrelated areas: social innovation, social enterprise, and business. ("**Focus Areas**"). Specifically, the project aims to (1) Raise student's awareness on various social needs and challenges; (2) Deepen student's understanding on Focus Areas, and how they address social needs and be a force for good; (3) Encourage students to participate in activities with positive social impacts; and (4) Serve as a platform to connect local and international partners to work together on the Focus Areas.

Activities, process and outcomes

The platform *Business Edcuation for Social Good (BESGO)* has been established. Project Activities include collaboration on the development of T&L materials, experiential learning activities and class meetings, plus complementary experiential learning activities co-led by faculty members from CUHK and practitioners.

Deliverables and evaluation

The deliverables include (1) 5 sets of T&L materials on social/business issues; (2) 6 seminars and workshops; (3) 4 visits to 3 communities and 6 social enterprises; (4) 10 studies on social enterprises and/or social impact projects; (5) 2 teaching cases; (6) 14 feature articles; (7) a project website; and (8) 4 presentations in workshops/talks/international conference. Student evaluation of the learning experience and outcomes has been excellent, suggesting that the project objectives have successfully been achieved.

Dissemination, diffusion and sharing of good practices

The project experience and deliverables have been shared in various workshops, talks and international conference. There is a project website (*https://besgo.asia/)* and the story was featured in CUHK Business School News: *Driving Social Purpose through Innovative Business Education.* (https://www.bschool.cuhk.edu.hk/featured-stories/driving-social-purpose-through-innovative-business-education/). Social media platforms, including LinkedIn, Facebook and Instagram, have been used to promote the Project, too.

LinkedIn: https://www.linkedin.com/company/besgo/
Facebook: https://www.facebook.com/besgo.asia
Instagram: https://www.instagram.com/besgo_asia/

A project booklet is to be published to share the project experience with wider audiences.

Impact on teaching and learning

The T&L materials and activities of the project have been very well-received by students as they gain a deep understanding about the social issues in Hong Kong and the associated business solutions and market development through our activities and their interaction with practitioners.

The project also successfully demonstrates how close collaboration with external partners can enhance experiential learning experience of students. This successful experience enhanced the confidence and capacity of Business School to conduct further projects and programs in Focus Areas.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**An eLearning Course to Improve the Teaching Quality for Teachers and Teaching Assistants in the Faculty of Engineering**
Principal supervisors and unit:	**Dr. HAN Dongkun, Department of Mechanical and Automation Engineering** **Professor LAU Tat Ming Darwin, Department of Mechanical and Automation Engineering**

Project objectives

(1) Disseminate excellent teaching practice of exemplary teachers; (2) Categorize and document different pedagogical approaches in engineering education; and (3) Enhance the interaction and teaching experience transfer from exemplary teachers/tutors to junior teachers and teaching assistants

Activities, process and outcomes

Activities: (1) Research assistant recruitment; (2) Facilities booking and interview; (3) Tapes documentation; (4) Video production and quiz questions development; and (5) Refinement and publicity

Process: (1) Topics of pedagogies scheduling; (2) Micro-modules development; (3) Website construction; and (4) Dissemination

Outcomes: (1) 20 micro-modules; (2) 2 online training courses; and (3) One project website

Deliverables and evaluation

Deliverables: (1) 20 micro-modules; (2) 2 online training courses; (3) One project website; (4) 4 poster presentations in local conferences; (5) 2 seminars; (6) 1 workshop; and (7) 1 leaflet and 1 guidebook

Evaluation:

- Survey on the experience towards the end of the eLearning training course for junior faculty members and new teaching assistants.
- Survey on the website for eLearning and micro-modules towards the end of the eLearning training course for junior faculty members and new teaching assistants.
- Focus group interview with a small group of volunteer trainees of the eLearning training courses.
- Feedbacks and discussions from the course website and small group forum on the eLearning training courses.
- Weekly reflection meetings with research assistant and technician to monitor the progress and propose future improvements.

Dissemination, diffusion and sharing of good practices

(1) 4 poster presentations in local conferences; (2) 1 seminar at the department level and 1 seminar at the university level; (3) 1 workshop with 60 people; and (4) 1 leaflet and 1 guidebook

Impact on teaching and learning

This project got two awards in the Teaching and Learning Innovation Expo 2021, CUHK:

- People's Prize
- Silver award in Pedagogical Innovation

The developed 20 micro-modules and 2 online courses will be used by teaching staffs and teaching assistants in the Faculty of Engineering each year (more than 10 new teachers and more than 100 fresh graduate students) in the future.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Augmented Reality Framework for Hands-On Learning in Engineering**
Principal supervisors and unit:	**Professor LAU Tat Ming Darwin, Department of Mechanical and Automation Engineering** **Dr. HAN Dongkun, Department of Mechanical and Automation Engineering**

Project objectives

This project aims to develop an augmented-reality (AR) framework that can aid in hands-on learning within engineering courses. AR allows additional information about the internal workings of physical systems to be visualized and can aid in showing more abstract concepts. The objectives of the project are:

- Develop a software framework to allow AR elements for physical systems to be conveniently developed
- Test the AR modules on both tablets and also AR glasses
- Employed in subjects to demonstrate the effectiveness of the proposed project

Activities, process and outcomes

- Development of AR software framework with 3 embodiments: (1) AR software for hands-on learning in robotics and electronics; (2) robotics AR/MR software framework for students to easily construct a mixed reality environment for a robot arm with virtual 3D objects through a graphical user interface (GUI); (3) AR system developed for telepresence robots.
- Exploration of AR on different devices, namely on a tablet, AR glasses and also VR glasses.
- Using the developed AR software modules within courses as part of hands-on learning, creative robotics development project and telepresence visiting.

Deliverables and evaluation

Summary of deliverables:

- Developed three different embodiments software platforms for AR in teaching engineering.
- Testing of the AR software within 2 engineering subjects.
- Initial student feedback indicate that the developed teaching modules/approaches increased their motivation and enthusiasm to their learning and project, particularly demonstrated by the hands-on project environments developed by the students.

Dissemination, diffusion and sharing of good practices

The project development and student learning experiences were presented at the CUHK Teaching and Learning Innovation Expo, UGC Teaching Award awardee sharing and other teaching-related sharing seminars both within and outside of CUHK.

Impact on teaching and learning

- Student's impression to the developed AR modules were positive. The project also allowed students to develop their own mixed-reality environment, and enriched their experiential learning experiences in using AR.
- The developed AR framework form foundations for future developments for interactive hands-on learning both within engineering subjects and beyond on physical systems.
- Teleoperated robots for learning with AR will bring significant impact to allow for learning at external/remote locations.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Experiential Learning in Bioethics**

Principal supervisors and units: **Professor WONG Wai Tat, Department of Anaesthesia and Intensive Care**
Dr. NGAN Miu Yung Olivia, CUHK Centre of Bioethics

Project objectives

A new teaching approach – narrative medicine using illustrating genuine local cases of bioethical issues in Hong Kong is created. In the regular teaching, documentary videos depicting the real patients' clinical situations are used to supplement the clinical ethics curriculum, followed by in-class small group interactive discussions and students' submission of reflective essays to explore their attitudes towards these ethical issues. This new approach to clinical teaching facilitates much needed experiential learning in ethical reasoning for final year medical students.

Activities, process and outcomes

We initially planned to produce 4 micro-modules in the format of documentary videos on the following topics: (1) Organ donation; (2) End-of-life care; (3) Confidentiality; and (4) Medical Error. We failed to find an appropriate real patient who experienced the effect of medical error during the project period. As a result, two end-of-life cases were produced, with one focusing on the ethical issue related to the communication with the patient and the other focusing on the communication with the patient's family.

Deliverables and evaluation

No.	Expected key activities/ deliverables/ outcomes	Evaluation
1	Four Micro-modules of bioethics education	The 4 micro-modules have been produced, however, the content of the material was only used in real time online teaching. The micro-modules can be further enhanced to suit the need for online self-learning purposes.
2.	Incorporation of the four micro-modules into the pre-clinical and clinical bioethics curriculum.	The bioethics curriculum in the pre-clinical years have been shifted to the CUHK Blackboard eLearning platform in the academic year of 2020-21. Some of the content of the 4 micro-modules can be used to illustrate important ethical concepts in the pre-clinical curriculum. The 4 micro-modules can give excellent guidance on ethical reasoning to medical students and prepare them to participate in the newly developed teaching activities of ethical debates for clinical year medical students.
3.	Evaluation of the new teaching approach in bioethics education	As face-to-face teaching is not allowed due to the COVID-19 pandemic, the quantitative and qualitative evaluation of the newly developed teaching material was delayed to the 2nd and 3rd quarters of 2022.
4.	Dissemination of the new teaching approach in bioethics education	The process and outcome of the project were presented at the four regional and international conferences: • Asia Pacific Medical Education Conference 2021 • Asia Pacific Bioethics Education Network (APBEN) Conference 2021 • Teaching and Learning Innovation EXPO 2021. • Asia Pacific Bioethics Education Network (APBEN) Conference 2022s

Dissemination, diffusion and sharing of good practices

Conference	Organizer	Format	Title of presentation
Asia Pacific Medical Education Conference 2021	Centre for Medical Education NUS Yong Loo Lin School of Medicine, Singapore	Oral Presentation	Experiential learning in bioethics: Using Documentary Video Depicting Clinical Encounters with real patients
Asia Pacific Bioethics Education Network 3rd Annual Conference 2021	Asia Pacific Bioethics Education Network, Deakin University, Australia	Oral Presentation	Experiential learning in bioethics: Using patient interview video
Teaching and Learning Innovation Expo 2021	The Chinese University of Hong Kong, Hong Kong SAR, China	Oral Presentation	Using Patient Case Video Vignettes to Explore Goad of Medicine and Value of life
Asia Pacific Bioethics Education Network 4th Annual Conference	Asia Pacific Bioethics Education Network, The Chinese University of Hong Kong, Hong Kong SAR, China	Conference Workshop	Ethical Issues arising from Culture in a clinical context

Impact on teaching and learning

Students who have tried out the newly developed teaching materials gave positive responses to the outcome of the project. They have requested additional case vignettes for teaching and learning. Qualitative and quantitative analysis of students' experience and satisfaction are postponed due to the COVID-19 pandemic. Similar to other clinical teachings, the element of experiential learning in bioethics teaching can engage students and enhance their interest and understanding of ethical issues in clinical practices.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Experiential Learning of End-of-Life Care through Immersive Virtual Reality**
Principal supervisor and unit:	**Professor CHAN Yue Lai Helen, The Nethersole School of Nursing**

Project objectives

- To heighten student awareness towards the care needs of patients with end-stage diseases
- To develop their ethical reasoning skills in end-of-life care

Activities, process and outcomes

The project was delivered through a total of 19 tutorials in five courses for approximately 565 undergraduate and postgraduate students in the Faculty of Medicine between May and November 2021. The results of an evaluation survey showed that students were generally satisfied with the learning activities in the project, with an average score of 7.9 out of 10. The qualitative comments showed that many of them appreciated the use of IVR technology for them to gain first-person experience.

Deliverables and evaluation

Four virtual reality videos are developed and available publicly at YouTube. These videos illustrate common ethical dilemmas regarding patient dignity, breaking bad news, feeding difficulties, and use of life-sustaining treatments in end-of-life care.

Dissemination, diffusion and sharing of good practices

This project is presented and awarded "Best Paper of Practice" at the International Conference on Community End-of-Life Care and a webinar for hospice/palliative care in Southeast Asian countries in 2021. The abstract is available at Chan HYL, Ngan OMY, Wong WT. Experiential learning of end-of-life care through immersive virtual reality. *J Palliat Med* 2021;24(7): A-27.

Impact on teaching and learning

The project deliverables help to ensure teachers in different clinical specialties and level of clinical or teaching experience can effectively engage students in reflecting and discussing the clinically complex issues.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Multi-disciplinary Collaboration of Augmented Reality and Virtual Reality on Human Anatomy Electronic Learning (MARVEL)**

Principal supervisor and unit: **Dr. HUNG Ming Wai Philip, The Nethersole School of Nursing**

Project objectives

In this project, we aim to develop a user-friendly and accessible mobile app to enhance the understanding in the organizations and functions of human cranial nerves under augmented reality (AR). Also we aimed to simulate the neurological assessment by virtual reality (VR) technology.

Activities, process and outcomes

- Lab activities with the use of the mobile apps in both Bachelor of Nursing and Master of Nursing Science (Pre-registration) programmes have been carried out.
- Two short quizzes have been distributed to students before and after the use of the mobile apps. The results of the quizzes have demonstrated that the use of the mobile apps have strengthened their knowledge on cranial nerves.
- Compared with the previous cohort, the mid-term exam and final exam results have demonstrated that students' knowledge on cranial nerves have improved with the use of the mobile apps.
- After the use of the mobile apps, a questionnaire has been distributed to students. According to the results of the questionnaire, students agreed that the mobile apps have aroused their learning interests.

Deliverables and evaluation

- Project deliverables: two mobile apps, with one VR apps focuses on the visual field and another focuses on the function of cranial nerves.
- The objective of this project has been accomplished with the production of mobile apps.

Dissemination, diffusion and sharing of good practices

- The mobile apps have not been shared with other units of CUHK for the time being.

Impact on teaching and learning

- The mobile apps have been used in the lab activities. The use of mobile apps in learning anatomy has been firstly attempted in the Bachelor of Nursing and Master of Nursing Science (Pre-registration) Programmes.
- The students' feedback demonstrated improved learning interest and teaching efficiency.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **STudent-led E-Learning in Applied Surgical Anatomy (STELA)**

Principal supervisor and unit: **Professor FUTABA Kaori, Department of Surgery**

Project objectives

To produce easy to understand clinically relevant applied anatomy online interactive learning material through anatomically annotated clinical examination and operations by collaborative work with students, surgeons, anatomists and IT team.

Activities, process and outcomes

Student focus groups were formed to assess the needs of the students. Literature review was performed on applied surgical anatomy and online learning for medical students. Essential clips were identified and key anatomical strictures were annotated. These were incorporated into interactive eLearning material to augment student's understanding.

Deliverables and evaluation

Annotated short video clips and images were used for eLearning modules on clinical examinations, Surgery: Thyroidectomy, right hemicolectomy, and Whipples procedure. It has also been used for teaching by surgeons. Different formats were used by different groups of students to suit the needs of the students from different years. Students found intergradation of relevant anatomy to real clinical scenarios relevant. It allowed them to appreciate the importance of applied anatomy in assessment of their symptoms, signs and possible complications of disease and surgery.

Dissemination, diffusion and sharing of good practices

eLearning modules were incorporated to surgical teaching in clinical years. It will be submitted for presentation at institutional and international conference for dissemination of good practice.

Impact on teaching and learning

Students often memorize list of symptoms, signs of various diseases and complications of surgery. This has allowed the students to revise their relevant anatomy and use applied anatomy to understand why they get certain symptoms and signs, and work out the possible complications of diseases and surgery.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Data-driven Urban Studies – A Computational Toolkit for Analysing Complex Urban Data and Processes**
Principal supervisor and unit:	**Professor VAN AMEIJDE Jeroen, School of Architecture**

Project objectives

This project has produced a set of teaching and learning resources that can enhance a wide range of existing study methods around urban data. The tools introduce students to methods of data analysis and mapping, using online databases, mobile apps, social media data and geographic information systems.

Activities, process and outcomes

A 'toolkit' of eLearning resources was developed and published online, and these were integrated within the "Urban Design Studio II" (URBD5720) curriculum, introducing a 3-week research phase based around data-driven research tools. The toolkit helped to expand the range and depth of the students' research, supporting new insights into the complex inner workings of cities.

Deliverables and evaluation

A website was created to host the toolkit (http://urbandesign.ud2.arch.cuhk.edu.hk/), which is now ready to support a wide range of courses and individual research work. The toolkit contains 15 specialised micro-modules focusing on a particular tool and/or methodology.

"Before and after" student surveys collected feedback on the usefulness and knowledge gains resulting from using the toolkit, and students' attitudes and confidence in computational tools for research and design.

Dissemination, diffusion and sharing of good practices

Our toolkit has been shared with students of URBD 5720 and "Urban Design Thesis" (URBD6701), as well as a parallel design studio in University of Queensland. Project staff have collected student project outcomes for future sharing of experiences.

Two full conference papers have been presented at the 2022 CAADRIA conference, and the Principal Supervisor will present the project in the Community of Practice Symposium of Education Innovation and Technology 2022.

Impact on teaching and learning

Through offering a toolkit of data-driven urban research methods to students and scholars engaged with various urban research projects, we offer academics and aspiring professionals the means to engage with contemporary practice and future challenges of increasingly digital societies. The 'easy to use' toolkit makes advanced urban research methods available to a wide range of learners, placing Information and Communication Technologies in the centre of a broad spectrum of specialised and interdisciplinary studies.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Database Construction of *Ci* Tune Names**

Principal supervisor and unit: **Professor SIU Chun Ho, Department of Chinese Language and Literature**

Project objectives

The supervisor aims at launching a database of conventional name of tune, or *cipai* (詞牌). The database will serve as development of professional and general skills among postgraduate and undergraduate students, as well as integral parts of teaching materials.

Activities, process and outcomes

The supervisor consulted professional advice from Professor Chia-yun Yu and launched a database with hyperlinks for *cipai* indices, including ancient indices of *cipai*, namely Shiyu Tupu (詩餘圖譜), Shiyu Pu (詩餘譜) and Cixue Quanti(詞學筌蹄).

Deliverables and evaluation

The research output has been disseminated in courses "Major Author(s) (*Ci* Poetry") (CHLL 3314) and "Seminar" (CHLL5013), and the supervisor gave a talk titled "Reunderstanding Chinese Versification: Digital Humanities Initiatives" in April 2022. The supervisor has also been invited to submit a chapter on "Technology and Chinese Literature" for *Routledge Encyclopedia of Technology and the Humanities.*

Dissemination, diffusion and sharing of good practices

We have merged the database with the database for Tang-Song Versification tunes for better illustration and comparison of prosodic patterns among different genres. We have also consulted professional advice of Digital Scholarship Librarians of the University Library System, for the feasibility of adopting OCR (Optical character recognition) in recognizing ancient *cipai* indices, including various symbols that are not included in the Unicode standard. The librarians suggested further collaboration with the Digital Analysis System for Humanities (DASH), Academia Sinica.

Impact on teaching and learning

The project encourages teachers and students to focus on the complexity and knowledge of *cipai*, as well as the composition of *ci* lyrics. They are encouraged to write *ci* lyrics with the aid of this database. We shall further evaluate the feasibility and satisfaction of the database at the end of the said course.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Shakespeare in Hong Kong Podcast**

Principal supervisor and unit: **Professor LAMB Julian Mark Cho Lim, Department of English**

(The project is withdrawn since the Principal Supervisor has left the University before commencement of the project)

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Digital Human Libraries: Education for Global Intercultural Citizenship**

Principal supervisor and unit: **Dr. CHAN Sin Yu Cherry, English Language Teaching Unit**

Project objectives

To support the University's desire to cultivate global citizenship, develop students' intercultural communicative competence in English and reflective learning, this project centres on the enhancement of two alternative communication-intensive courses offered by the English Language Teaching Unit (ELTU), "Intercultural Communication through English" and "English through Performing Arts" through a series of student-centered learning activities in a digital and multimedia format.

Activities, process and outcomes

Interactive-based activities, namely, The Human Library, were conducted to allow students to interact with students from different regions. External collaborations with three overseas universities were set up in the Human Library. In the Intercultural Communication through English course, the 29 course participants from diverse disciplines conducted interviews with individuals with different cultural backgrounds on a self-selected intercultural topic. The students also presented their findings and reflections in the course.

Deliverables and evaluation

All the data collected during and after the course (e.g., post-activity reflections, presentations, post-course questionnaires) were analyzed. The results pointed to meaningful growth in language enhancement and intercultural competence. Perceptions of the project were positive.

Dissemination, diffusion and sharing of good practices

A course website has been created for the course participants to access the learning materials. An online presentation will be given at an overseas symposium on English language teaching in May and a forum organized by the National Dong Hwa University in June 2022 respectively.

Impact on teaching and learning

Experiential learning, including regular guided critical reflection, is crucial to promote meaningful gains in language enhancement, intercultural sensitivity, and global citizenship. Interactive tasks and experiential learning activities (e.g., Human Library, Intercultural Global Citizenship Projects) can be devised to facilitate language and intercultural learning.

The short video:
https://gocuhk-my.sharepoint.com/:v:/g/personal/cherrychan_cuhk_edu_hk/EfDXKgk8_bREoim2FGHZ3qMB2ifkVdCQFXpFzKP-_ytsBA?e=Ht6W88

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Digital Humanities in the World History Curriculum: Language Analysis of Colonial Impacts in Asia**
Principal supervisor and unit:	**Professor MORLEY Ian, Department of History**

Project objectives

The project was designed to: cultivate learners' generic English ability; support students to decipher (in English) documents originally written in numerous European and Asian languages; enrich critical thinking and critical reading skills; and, mine large cultural data sets in order to deepen comprehension of Asia's past interaction with the West.

Activities, process and outcomes

Actions undertaken included: designing questionnaires; interviewing students; liaising with the Information Technology Services Centre (ITSC) and the University Library; gathering archives; undertaking digital humanities research; testing the online platform on students to garner feedback; and, giving presentations and composing papers so as to disseminate project findings.

Deliverables and evaluation

The core deliverable was a website, yet as the project unfolded a second web platform was built. More so, means were formed not just as project control but to ensure the project aligned to CUHK's strategic goals.

Dissemination, diffusion and sharing of good practices

The project built two websites, a presentation and short journal papers composed.

Impact on teaching and learning

The project has found use in about one dozen undergraduate courses, and also has been used in the composing of Graduation Theses. It has also, for History teachers, supplied an anchor from which they can build their own digital learning tools given that it is the first of its kind in the undergraduate History curriculum.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Revamping the Curriculum of HKSL III and IV Based on the Guidelines of the Common European Framework of Reference for Languages (CEFR)**
Principal supervisor and units:	**Professor SZE Yim Binh Felix, Department of Linguistics and Modern Languages**

Project objectives

i) Producing 32 video recordings with a diverse range of content for learning Hong Kong Sign Language (HKSL)
ii) Developing 16 sets of text-based materials to supplement the present video-based materials designed to teach HKSL grammar and Deaf culture
iii) Redesigning the interface of the eLearning platform to support students' self-learning

Activities, process and outcomes

The project team reviewed the curriculum of HKSL III and IV and identified gaps with reference to the Guidelines of the Common European Framework of Reference for Languages (CEFR) for CEFR Level B1 and B2. The project team took the following actions:

i) Design and produce 32 video materials for comprehension skills enhancement to be adopted by HKSL III and IV
ii) Prepare 16 sets of text-based materials to supplement the current video materials for teaching Deaf culture and HKSL grammar for HKSL III and IV
iii) Redesign the customized learning platform with all materials (text-based in Chinese & English & video-based materials in HKSL) to support structured self-learning in the form of comprehension activities for HKSL III and IV

Deliverables and evaluation

The project engaged students as partners in teaching and learning development by inviting students to comment and evaluate the deliverables via questionnaire and interview. Students' learning experiences as reported by themselves were taken into account when the team developed new content for the courses. Results from the questionnaire survey show that a large majority of students agree that learning with the new materials and redesigned eLearning platform become more effective. The students are particularly satisfied with enhancements made to the grammar and deaf culture components of the new curriculum.

Dissemination, diffusion and sharing of good practices

The team recruited 13 deaf signers from the community for video production of HKSL dialogues and monologues. Some of the deaf signers are teachers of community courses organized by NGOs in HK. We foresee that participation in delivering the project products will be an inspiration for the deaf signers who have a passion to teach HKSL. In May 2022, the project team presented at the 28th Annual Conference of the International Association of Chinese Linguistics (IACL-28) with the presentation title "Revamping the Hong Kong Sign Language Curriculum based on the Guidelines of Common European Framework of Reference for Languages (CEFR)".

Impact on teaching and learning

As reported in the questionnaire and interview, students are generally highly satisfied with the instructional materials. A large majority of them responded that the instructional materials help them learn effectively to achieve course learning outcomes. Teachers reported the new materials developed in the project increased the learning motivation in students.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Space Tourism Virtual Reality Learning Tool**

Principal supervisor and unit: **Professor WAN Chun Ying Lisa, School of Hotel and Tourism Management**

Project objectives

Because space travel is an innovative concept to the general public, this project aims to (1) develop a game-based Space Tourism Virtual Reality (VR) and to create a space tourism tour for students; (2) facilitate experiential learning of space tourism concepts; and (3) enable teachers and students to become co-learners in exploring new knowledge of consumer/tourist reactions to space tourism.

Activities, process and outcomes

In this learning tool, students will experience different space tours and game-based activities in the virtual environments. The game-based space tourism activities will be an interactive video with knowledge-teaching modules. For example, it will present different types of food in the space hotel and invite students to choose which type of space foods are appropriate to be served to customers. Space food, space hotel, space travel knowledge will be included in the activities. This game-based VR Learning Tool can motivate students to learn actively in classes.

Deliverables and evaluation

To collect students' direct feedback for teacher reflection, the Principal Supervisor will use 800 to 100 questionnaires asking students' overall attitude toward the space tourism VR tool.

Dissemination, diffusion and sharing of good practices

Teaching workshops will be conducted to demonstrate the successful cases of this VR Learning Tool. Project experience and student learning outcomes will be shared, and student representatives will be invited to share their user experiences in the workshops.

Impact on teaching and learning

Combining educational and entertainment content with the novelty of virtual environments, this game-based VR Learning Tool will facilitate experiential learning of space tourism concepts and enable teachers and students to become co-learners in exploring new knowledge of space tourism. It will also enhance students' creative thinking and problem-solving skills.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Establishing a Virtual Community of Practice for Undergraduate Language Education Researchers: Identifying Challenges and Sharing Solutions**
Principal supervisor and unit:	**Professor AUBREY Scott, Department of Curriculum and Instruction**

Project objectives

This project had the following objectives: (1) to document classroom-based research experiences of students and alumni from the BA (English Studies) and BEd (English Language Education) Programme (ELED programme); (2) to initiate an online community of practice involving ELED students in different cohorts and ELED alumni to share and develop knowledge, beliefs, and experiences focused on their classroom-based research practices; and (3) to improve Year 4 ELED students' research knowledge and skills and attitudes towards conducting research as pre-service language teachers. The online community of practice was initiated by designing and implementing eight online micro-modules.

Activities, process and outcomes

The modules included a shared repository of student-created materials, such as abstracts, PowerPoints and articles, video interviews with Year 5 ELED students and ELED alumni, and discussion forums to exchange research ideas and research experiences.

Deliverables and evaluation

The modules were completed in parallel with a lecture-based course on research methodology in second language classrooms ("Studying Second Language Learners and Classrooms" (ELED4850)). A questionnaire given to Year 4 students taking the course revealed that participating in the community of practice resulted in the development of positive attitudes towards research to a significantly greater extent than participation in the course lectures.

Dissemination, diffusion and sharing of good practices

Interviews with students revealed that modules provided them with awareness of the practical challenges of conducting research and with emotional support from their peers, which led to enhanced self-efficacy towards pre-service teacher research.

Impact on teaching and learning

Based on this project, a pedagogical-oriented paper was submitted to an academic journal and a presentation was made at a symposium on education and technology.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**When Student-Directed Flipped Classroom Meets Experimental Training: A New Pedagogy and a "Smart Garden" Teaching and Learning Platform**
Principal supervisor and unit:	**Dr. HAN Dongkun, Department of Mechanical and Automation Engineering**

Project objectives

Project objectives:

(1) A new eLearning pedagogical approach called *student-directed flipped classroom* is proposed and applied in teaching renewable energy technologies for the courses "Energy and Green Society" (UGEB1307) and "Renewable Energy Technologies" (EEEN2020).
(2) A Smart Garden teaching and learning platform is expected to be constructed, where kinds of teaching activities, including lab sessions of 2 courses, interest groups, and academic or non-academic visits, will be taken place.
(3) More than 24 sets of renewable energy devices and recycling facilities will be built through the proposed pedagogy with peer evaluation and peer competition.
(4) Develop 6 micro-modules for making solar cells, constructing wind turbines, building a solar-powered car, 3D printing through SolidWork, Laser cutting though Coreldraw, and building a hydro-generator.
(5) Create an interactive environment to generate multi-dimensional communications in sorts of levels including inner-group, inter-group, student-instructor, inside-outside the screen.

Activities, process and outcomes

The whole process of the project development can be generally divided into two parts: The first part focuses on the development of hardware. It includes: hardware selection, purchase; compatibility checking; hardware assembling; teaching assistant recruitment for software development; and Arduino software development. The second part is concerned with APP and micro-modules development, which involves: software development for 3D printing; and Dreamweaver software development. There are some extra activities and processes, like implementation of proposed pedagogy into courses; gathering feedback from students and visitors; final test, debugging; and refinement and publicity.

Deliverables and evaluation

The main deliverables include: 12 sets of renewable energy devices and 12 sets of recycling facilities; 1 Smart Garden teaching and exhibition platform; 6 micro-modules in developing renewable energy devices and recycling facilities; 1 mobile APP; 2 interest group training; 2 local seminars; 1 workshop; and 2 presentations at conferences.

The following evaluation methods are expected to be executed for this project:

(1) Survey on the student-directed flipped learning experience towards the end of 2 courses.
(2) Survey on the renewable energy devices and materials towards the end of 2 courses.
(3) Survey on the website for student-directed flipped classroom user-based experience towards the end of 2 courses.
(4) Survey on the renewable energy devices and website for student-directed flipped classroom user-based experience towards the end of every interest group training.
(5) Focus group interview with a small group of volunteer students of 2 courses.
(6) Weekly reflection meetings with technicians and tutors to monitor the progress and propose future developments and improvements.
(7) Presentation of the project and summarized feedbacks at seminars and conferences.

Dissemination, diffusion and sharing of good practices

Summary of dissemination: 5 workshops; 1 seminar; 2 presentations in 2 international conferences; 1 presentation in the Teaching and Learning Innovation Expo organized by the Centre for Learning Enhancement And Research (CLEAR).

Impact on teaching and learning

This project attempts to solve the common problem that students only concern with their own project, while less attention is casted into experimental procedures of other groups, leaving an undesired learning outcome and intellectual resources neglected.

This project proposed the pedagogical approach, *student-directed flipped classroom,* that students can learn from other groups with different projects. It also enables multi-dimensional communications and interactions in sorts of levels including inner-group, inter-group, student-instructor, inside-outside campus.

This pedagogical method also provided a way to exploit the potential of crowd resourcing for students, and it has been demonstrated to be very efficient in regards to engineering hands-on training.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Development of a System of Flipped Classroom, Problem-Based Learning and Outside Classroom Practice through Community Service to Enhance Ophthalmology Education**
Principal supervisor and unit:	**Professor CHAN Pui Man Poemen, Department of Ophthalmology and Visual Sciences**

Project objectives

To design, apply, and evaluate the effectiveness of a new system of teaching ophthalmology to undergraduate medication students (a flipped classroom problem-based learning [FC-PBL] system) that consisted of (1) pre-classroom eLearning (including teaching videos and gamified cases); (2) classroom PBL case discussion; and (3) outside classroom community service with a randomized controlled trial study design.

Activities, process and outcomes

Created a teaching website that consists of pre-classroom materials (14 teaching videos and 9 gamified e-learning cases). A total of 216 final year medical students were randomised to be taught with the new system (FC-PBL group) or the traditional system (control group) (108 students in each group). Students in the FC-PBL group showed a significantly higher satisfaction with their tutor-student communication, teaching materials, instructional methods, course outcomes, course workload, and the tutors in the FC-PBL group obtained higher Course and Teaching Evaluation (CTE) scores (all with $P \leq 0.003$). The FC-PBL showed non-inferior MCQs scores compared with the control group. The pre-classroom materials will be available on our departmental website and will be readily available for all CUHK medical students soon.

Deliverables and evaluation

We created the learning website and it will be available on our department website in June 2022 (https://master.d3fl8hc1jesi7p.amplifyapp.com/). Students and tutors find the teaching materials and new teaching system helpful and enjoyable. Apart from fulfilling the study objective and KPIs, the teaching materials proved helpful during the cancellation of clinical attachment and face-to-face teaching during the COVID-19 pandemic.

Dissemination, diffusion and sharing of good practices

One presentation in the CUHK Teaching and Learning Innovation Expo 2021 and one in a department retreat (19.5.2021). We are preparing two manuscripts for submission. We plan to share our practice in media once one of the submissions is accepted in index journal.

Impact on teaching and learning

(1) the teaching materials are reusable;
(2) the system enhances the students' and teachers' experience;
(3) the project team is now adding patient's experience in the PBL cases and this will be something that the students could not learn from textbooks; and
(4) the project inspired the development of other teaching projects, including enhancement of the new teaching system (UGC VTL: 3212131), development of an online surgical workshop (TDLEG: 4170744), and a teaching programme for postgraduate students (TDLEG: 4170879).

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**One-on-one Online Simulated Clinical Interview Skill Training with Professional Actors – A Proof-of-concept Pilot Program**
Principal supervisor and unit:	**Professor CHAU Steven Wai Ho, Department of Psychiatry**

Project objectives

(1) to develop a program to train professional actors to play the role of simulated psychiatric patients and to give feedback on the interview performance of students; and
(2) to test run and evaluate a novel method that uses one-on-one online training session with these trained actors to enhance students' clinical soft skills.

Activities, process and outcomes

We have created training materials and conducted training for a group of professional drama actor to simulate real-life clinical encounters in psychiatric settings. 85 Year 5 medical students enrolled in this pilot program, and 65 hours of online small group intensive clinical skill training was provided. We have collected pre- and post-session feedback via survey, and conducted two focus group evaluation sessions.

Deliverables and evaluation

The program has been executed according to original plan, except that the training was changed from one-to-one format to an intensive small group format after considering the suggestions from the actors. The enrollment rate was lower than expected, but the feedback from the participants were overwhelmingly positive. Majority of them had increased in self-perceived competence and confidence in their clinical interview skill.

Dissemination, diffusion and sharing of good practices

The result of the program will be disseminated by sharing session and submission to peer-reviewed journal.

Impact on teaching and learning

Students had very positive experience in the session. The program proved that clinical skill teaching can be done by non-medical theatrical professionals.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **3D Printing Magnetized Protein and Drug Models to Empower Medical Student's Navigation through the Abstract Molecular World**

Principal supervisor and unit: **Professor LAI Hei Ming, Department of Psychiatry**

Project objectives

- Through hands-on experiences with 3D printed protein models specially designed for teaching, this project aims to empower medical students to adapt to the abstract molecular understanding of how drugs work at the molecular level, as well as how to access the related information themselves in the future.

Activities, process and outcomes

- Some undergraduate students of various years were engaged in designing the protein models to be 3D printed as well as troubleshooting. After the preparatory phase in this project, the implementation phase will be conducted on 40 (tentative) Year 4 MBChB students to test whether a hands-on model will improve their understanding on molecular pharmacology.
- Unfortunately, due to underestimates in the time required for preparation, compounded by logistical issues during the 5th COVID wave in Hong Kong, the implementation phase has to be carried out after the writing of this report. Nonetheless, the implementation will be conducted as entirely planned as most troubleshooting has been done.

Deliverables and evaluation

- Dopamine D2 receptor, Muscarinic cholinergic receptor M1, and selective serotonin reuptake transporter has been built and optimized for 3D printing, along with the relevant ligands risperidone, quetiapine, haloperidol, amitriptyline and nortriptyline. Pilot tests were successful.
- Later implementation of the course to medical students were pending.

Dissemination, diffusion and sharing of good practices

- It is expected that this project, with the protein models given to participating students as souvenirs, will help their discussion on pharmacology knowledge with other students, or perhaps even to greater public and in their future explanations to patients.
- Upon completion of the implementation phase of the project, we plan to disseminate our findings via submission to a peer reviewed journal documenting the process and findings.

Impact on teaching and learning

It is expected that the course will enhance understanding beyond mere memorization of complicated and difficult pharmacology concepts.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Develop a Course Materials Storage Platform for Tracing Unauthorized Uploads of Course Materials to Third-party Online Learning Platforms and Suspected Cases of Plagiarism**

Principal supervisor and unit: **Dr. MAK Kin Wah, Department of Chemistry**

Project objectives

The objective of this project is to explore the design and implementation of a simple learning resources management system to make every downloaded course file identifiable and traceable, with the aim to prevent students from uploading the course files to third-party online learning platforms in exchange for assignments and exam answers and upholding academic integrity.

Activities, process and outcomes

An online file storage system with tagging function was developed and tested. Both invisible tags and visible tags are added to the files at the same time, as the 3rd party online learning platforms usually convert the uploaded files into other formats, and tags of certain formats might be removed during the format conversion. Pilot test of the system was carried out on four selected undergraduate courses. Course notes and assignments were dispatched to students as electronic files on the system. No course materials and completed assignments were found to have been uploaded to the mainstream 3rd party online learning platforms like Course Hero during the pilot period. To identify possible cases of plagiarism, students are required to complete and submit their homework using the same (invisibly tagged) file they downloaded from the system. When the students submitted their assignments, the files were checked for the invisible tags that carried their students' name and SID. No irregular acts of students were observed during the project pilot period.

Deliverables and evaluation

An online file storage system with tagging and tracing functions was developed. Students are required to register an account using their university student ID to access the course materials on the system. Important information about the download activity such as the student's real identity and the date and time of the download are recorded and encrypted automatically into machine-readable electronic tags, and the tags are added to the file when a course file is being downloaded. It was found that the tags remained intact, and the downloaders of the files can be identified for most of the usual operations that would be performed on a course material or assignment file. No case of unauthorized file sharing or act of plagiarism was observed in the pilot test period. The pilot test showed that the developed protocol and system is an effective tool for upholding academic integrity among undergraduate students.

Dissemination, diffusion and sharing of good practices

The project idea, deliverables and outcomes were shared informally over several occasions with some teachers within the Department of Chemistry, and also some other teachers of different teaching units in the Faculty of Science. They expressed strong interest in applying the online file tagging system for their courses to enhance academic honesty in the coming semesters.

Impact on teaching and learning

It is a recent and common situation that students making unauthorized uploads of course materials to 3rd party online learning platforms, and it happened almost to all courses of different departments and faculties. It gives rise to various undesirable issues of plagiarism and copyrights, and attacks the core values of academic integrity. Teachers may also have encountered cases that the assignments submitted by students

were actually done by someone else, or copied from a previous work. With the online file tagging system developed, students are discouraged to perform unauthorized uploads of course materials to third-party websites, and share completed assignment works as the course files are all traceable. It means that students will have to bear a greater risk when they upload the files in exchange for chances of cheating. This can contribute to the uphold of the core value of academic honesty among students.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Interactive Online Learning Gamification Platform to Enhance Student's Laboratory Safety Knowledge**

Principal supervisor and unit: **Dr. HAU Chun Kit Sam, Department of Chemistry**

Project objectives

This project is a collaboration between the Chemistry Department and the School of Pharmacy and aims to develop an effective and interactive teaching method for laboratory safety training sessions with the assistance of modern teaching technology to enhance students' safety awareness, provide the necessary knowledge of the hazards associated with chemicals and the proper steps to protect themselves in the lab. Through this teaching and learning approach, the increased incentive of learning under a more interactive atmosphere is expected to facilitate the training of their problem-solving skills. Furthermore, the provided safety videos/animations and interactive game-mode website will also attract student interests outside the traditional classroom. This project will serve as a "kickstarter" project for our future development on virtual undergraduate laboratory courses to provide training for all basic laboratory skills to assist them in experiential learning courses.

Activities, process and outcomes

We have purchased 350 student licenses from the Labster and implemented part of the licenses for the students who attend the courses of "Transition Metal Chemistry Laboratory" (CHEM3860) and "Fundamentals of Pharmaceutical Chemistry" PHAR1110 (around 120 students) in the 2nd semester of AY2021-22 to train students about the laboratory safety concepts through the simulation learning. We hired a company to develop an interactive webpage including the major concepts and descriptions about selected topics with questions and answers sections, which can help to evaluate students' understanding for each topic.

Deliverables and evaluation

The project has been implemented to two courses, which are CHEM3860 – Transition Metal Chemistry Laboratory (2nd term of AY2021/22) and PHAR1110 – Fundamentals of Pharmaceutical Chemistry (2nd term of AY2021/22), respectively. This implementation involves about 110 undergraduate students, who are either Year 1 (PHAR1110) or Year 3 (CHEM3860) students. Students showed great enthusiasm on the use of Labster on helping them to learn about the experimental science during the lockdown. Labster can also raise their interest about the experimental science and enhance their engagement on this course. Labster is demonstrated to be a good interactive learning platform to help students develop their self-learning skills. In general, most students agreed that Labster is a user-friendly learning platform and they admired more about the experimental concepts (ranked 1st), built-in quizzes (ranked 2nd) and multiple attempts (ranked 3rd), which is a surprising result. Students obviously cared much about the content of the experiment and they also welcomed challenges from the quizzes. The project team believed the multiple attempts is crucial for students to develop a good habit of continuous self-learning. Students showed a strong willingness to recommend Labster to their fellow classmates and agreed it is a worthwhile purchase as a learning tool to support their study.

Dissemination, diffusion and sharing of good practices

Owing to the pandemic and the project is still under implementation and data collection, this project is yet to be shared within the department or to the university. In 2022, the project team will look forward to joining the CUHK Teaching and Learning Innovation ExPo to share our project and receive comments and suggestions from the colleagues during the event.

Impact on teaching and learning

This project uses an interactive game-mode teaching approach to enhance critical thinking and problem-solving skills of the students. The usage of game-mode learning platform and virtual experimental simulation is demonstrated to provide wonderful opportunities for flipped classrooms and assist students in remote self-learning of practical skills in view of the restrictions of face-to-face experiential learning caused by the pandemic. The employment of interactive game-mode learning platform is shown to enhance students' self-learning and awareness on the laboratory safety issues and to strengthen the students' engagement in the corresponding courses. This project also leads to a more diverse assessment scheme, in addition to just traditional tests or quizzes, for gauging students' performance during the course.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Development of eLearning Teaching Aids, Geoscience Ambassador Scheme and Internship Network for Interdisciplinary Science Programme and the Community**

Principal supervisor and unit: **Dr. TAM Pui Yuk Tammy, Earth System Science Programme**

Project objectives

(A) To raise students' interest and awareness of the Earth System from a scientific perspective and provide support for intense field studies by **teaching and learning development in producing 10 Virtual Reality (VR) education apps, a series of Augmented Reality (AR) apps, one 3D printed teaching kit, and reforming Rocks and Minerals Gallery**; and

(B) To encourage students to self-equip with geoscience knowledge and acquire experiential learning **sustainable enrichment of student's experiential learning via (B-1) Geoscience Ambassador Scheme and (B-2) Internship Networking**.

Activities, process and outcomes

A1. 21 VR scenes in 6 different field locations
A2. 18 AR models of mineral products
A3. a new and user-friendly interface of the Rocks and Minerals Gallery (25 minerals and 41 rocks)
A4. one 3D model and printed geological structure
B1. trained 26 Geoscience Ambassadors
B2. established an Instagram page geoguy_HK
B3. initiated the Secondary Students Geology Pilot Programme (SSGPP)
B4. set up Geoambassador Outreach Programme (GOP)
B5. formed a Teaching Kit Production Team
B6. delivered 36 educational events and 5 public talks
B7. 3 Internship Networks, consisting 92 mentees, 20 student mentors and 4 ESSC staff
B8. 21 training and sharing activities in collaboration with internal and external professional parties

Deliverables and evaluation

The overall evaluation reflects that students are satisfied with the outcomes and our project is able to sustain continuous quality enhancement in teaching and learning. The new products and the student-initiated activities set up a platform to demonstrate the integration of Earth System Science and Environmental Sciences, which aligns with our Faculty's recent integration. Our team has been collaborating with both internal and external professional parties, setting up an example of diverse collaboration in education.

Dissemination, diffusion and sharing of good practices

Face-to-face and online meetings were held with other parties from time to time to provide updates of the development of our teaching kits and to gain first-hand user feedback. Overall, the project has been a collaborative effort among ESSC (the Earth System Science Programme), ELITE (the Centre for eLearning Innovation and Technology), and MoCC, leading to diverse cooperation among different units. Our project outcomes meets 6 Sustainable Development Goals (SDG) #4, 7, 11, 13, 15, 17, raising the public awareness in urgent actions to combat climate change and being responsible for global environmental changes, as well as connecting with environmental sustainability industries by building partnerships with professional units.

Impact on teaching and learning

Application of our projects to public outreach and class delivery sets a breakthrough in pedagogy as they

enhance teaching and learning under the impact of COVID-19. 70-85% of the responding students agreed or strongly agreed that the materials are academically helpful. Comments and suggestions from both the students and the professional parties could be the key factors to reform the pedagogy, best fitting the needs of the current globe.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Mixed Reality Simulation: A New Pedagogy for Learning High-risk Cell Culture Techniques and Biosafety**
Principal supervisors and unit:	**Dr. NGAI Hung Kui Patrick, School of Life Sciences** **Dr. LO Fai Hang, School of Life Sciences**

Project objectives

This project is designed to develop a set of risk-free mixed-reality (MR) training modules to help students learn about the principles of cell culture and acquire the experimental skills in working with biohazardous specimen; and to study the pedagogical effectiveness of MR-simulation for technical skills acquisition.

Activities, process and outcomes

The activities of this project include (i) content development & design of MR software; (ii) installation of the software and testing; (iii) implementation and improvement for the E-platform. It involves the process of content development, pedagogical design and workshops. This project has benefited students by increasing their learning opportunities, facilitating interactive learning among peers, providing a risk-free virtual laboratory training tool. It also offers a transferable pedagogy for teachers in other science subjects.

Deliverables and evaluation

The deliverables of this project include (i) a set of MR mobile app for training cell-culture techniques; (ii) a pedagogy to help teachers deliver their classes using MR mobile apps and equipment; (iii) a set of dissemination materials for educational conference. The project is evaluated with reference to the key performance indicators (KPIs) that reflect the quality of MR learning modules, delivery of learning materials and the effectiveness of students' learning.

Dissemination, diffusion and sharing of good practices

The application of MR technology for laboratory classes was shared among teaching staff in life sciences and the good practices derived from this project were disseminated in education conference.

Impact on teaching and learning

This project offered an exemplary use of VR technologies for the teaching and learning of practical skills in biochemistry and cell biology.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Virtual Reality Trail of Plant Learning in CUHK**

Principal supervisor and unit: **Dr. LAU Tai Wai David, School of Life Sciences**

Project objectives

- To provide an interactive and safe plant learning experience during field study;
- To promote flipped classroom and popular science;
- To provide training of plant identification skills for students; and
- To promote self-learning and flipped classroom.

Activities, process and outcomes

Three nature trails of VR learning database (**VR Trail of Plant Learning in CUHK**) were created, and their interfaces could be easily operated in desktop computers and cell phone systems. These trails demonstrated different habitats of urban vegetation, Fung Shui Forest and horticultural landscape.

A total of 1,544 completions of VR Trail of Plant Learning were recorded. The students' ability in identifying plant species of education need and their features had been enhanced. Students could identify 7.95 out of 10 plant species included in the VR trails, and were 81.5% accurate about the plant morphology and relevant knowledge. An average increase in identifying 2-3 plant species and 5 important plant morphological features was resulted when compared with the previous teaching without the VR learning platform. In general, the participating students agreed that VR Trail of Plant Learning provided a more realistic environment to the experience of plant identification.

Deliverables and evaluation

VR Trail of Plant Learning: http://syhuherbarium.sls.cuhk.edu.hk/vr/
3 VR Plant Learning Trails:

- United College trail (urban vegetation): https://cuhk-static-content.s3.ap-southeast-1.amazonaws.com/vr/uc/index.html
- Tai Wan trail (Fung Shui Forest): https://cuhk-static-content.s3.ap-southeast-1.amazonaws.com/vr/tw/index.html
- Lake Ad Excellentiam trail (horticultural landscape): https://cuhk-static-content.s3.ap-southeast-1.amazonaws.com/vr/lake/index.html

All the students of the three courses "Biodiversity Laboratory II" (BIOL3022), "Biology of Vascular Plants" (BIOL3570) and "Hong Kong Flora and Vegetation" (BIOL4510) have tried the VR Trail of Plant Learning

- Students could identify on average 7.95 plant species upon completion of the VR Trail of Plant Learning, which exceeds 3 plant species in the proposal.
- A 81.5% accuracy about the plant morphology and relevant knowledge question was resulted, exceeding the 50% accuracy in the proposal.
- 10,393 page views were recorded since the launch of the VR trails to the public, exceeding the 5,000 page views in the proposal
- The application of VR in teaching was promoted in Teaching and Learning Innovation Expo 2021.

Dissemination, diffusion and sharing of good practices

Promotion of the application of VR in teaching in Teaching and Learning Innovation Expo 2021: https://www.cuhk.edu.hk/eLearning/expo2021/submissions/img-fullsize/P12.jpg

Sharing to 150 teachers from primary and secondary schools about the preliminary test of VR Trail of Plant Learning in a STEM seminar by Education Bureau:
https://www.facebook.com/permalink.php?story_fbid=4207884405943416&id=1692006740864541

Impact on teaching and learning

The eLearning platform created in this project provided CUHK students, especially students in courses of plant and biodiversity, a helpful self-learning tool in plant identification. The three VR trails provided students with immersive experience in observing the actual growing forms and morphologies of the 30 targeted plant species. This would enable them to better identify the plant species when encountered in real life.

The VR platform would appeal to students, from primary school to university students, with its video game-like VR interface. Thus, the students' motivation in learning about plant species would be significantly enhanced. During lesson preparation or revision, students were encouraged to use the platform repeatedly to reinforce the lesson materials.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title: **Peer-Assisted Learning (PAL) in Bioscience**

Principal supervisor and unit: **Professor AU Wing Ngor Shannon, School of Life Sciences**

Project objectives

This project aims to develop a Peer-Assisted Learning (PAL) platform to enhance teaching and learning in 5 bioscience courses with large class size and to develop teaching tools through engaging senior year life science students as peer teaching assistants (pTAs).

Activities, process and outcomes

Each cycle of PAL worked on 2-3 specific sets of courses (LSCI1002 "Introduction to Biological Sciences", LSCI2002 "Basic Laboratory Techniques in Life Sciences", BCHE2030 "Fundamentals of Biochemistry", BCHE3070 "Recombinant DNA Techniques" and BCHE3650 "Molecular Biology and Recombinant DNA Laboratory"), and commonly consisting of 4 phases: recruitment & training of pTAs, compilation of teaching materials, tutorials and evaluation. Question pools were generated to better understand the learning curve of the students. A taskforce was formed for the development of teaching tools.

Deliverables and evaluation

- 57 senior year life science students were recruited to organize 265 small group tutorials
- Relevant sets of tutorial materials are compiled and available on Blackboard
- Two question pools were collected and analyzed based on Bloom's Taxonomy
- Development of 12 animated videos for self-study (in progress)

As reflected from the evaluations, PAL plays a critical role in driving knowledge acquisition and motivation in learning. Experiential learning of pTAs reinforces their knowledge and strengthens their generic skills, especially skills in organization, presentation and communication.

Dissemination, diffusion and sharing of good practices

We have presented our work in one local and two overseas education symposiums.

Impact on teaching and learning

PAL has provided a student-oriented out-class channel to enhance teaching and learning. This is essential for junior students who commonly find difficulties to adapt to university study.

THE CHINESE UNIVERSITY OF HONG KONG

General Teaching Development Projects
Supported by the Teaching Development and Language Enhancement Grant for 2019-22

Project title:	**Developing Modules and Case Studies for Urban (Big) Data Analytics and Smart City Governance**
Principal supervisor and unit:	**Professor HE Ying Sylvia, Department of Geography and Resource Management**

Project objectives

This project aims to improve the overall analytical skills for students, especially for social science students who are interested in urban planning and governance in the new era of smart cities and urban big data.

Activities, process and outcomes

In the project, the project team produced 11 micro-modules (including three e-modules and case studies related to smart cities and big urban data analytics), organised one seminar and one workshop related to smart cities, and developed a pedagogy. The curriculum design and Course and Teaching Evaluation (CTE) scores of GRMD2501 "Theory and Practice of Smart Cities", a foundation course of the new Area of Concentration on Smart Sustainable Cities, have improved significantly.

Deliverables and evaluation

The 11 micro-modules have helped improve the curriculum design and course evaluation. The Principal Supervisor (PS) has reflected the pedagogy of how to teach smart cities and how to encourage students to understand the value of urban (big) data for urban governance. The project team organised two online events (one seminar and one workshop) with about 100 participants in total.

Dissemination, diffusion and sharing of good practices

The project team has disseminated good practices in various venues, including the CUHK Teaching and Learning Innovation Expo, CUHK Department of Geography and Resource Management annual teaching sharing session, and CUHK Exploration Day. An e-module shared by the PS on social media has been re-shared by researchers from other universities.

Impact on teaching and learning

This project has impacted the teaching and learning as reflected in the CTE score. According to the course evaluation, the CTE scores suggested that the teaching has been improved and the student learning outcomes have been better achieved.