

# Annual Report on Recurrent Funding for Knowledge Transfer 2018/19



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## 1. Executive Summary

Universities and other tertiary education establishments have a vital role in encouraging original research and innovation that benefit the educational sector and the wider community. Like most such institutions with a global perspective, The Education University of Hong Kong (EdUHK) expects its academic staff to be active in three core areas: teaching, research, and knowledge transfer. We are committed to developing inspiring and innovative research that will benefit the education community, the business sector, and society at large.

In 2018, the KT Sub-office highlighted its vital role in managing and coordinating KT activities by participating in three notable international innovation exhibitions, namely the International Exhibition of Inventions of Geneva, the International Invention Innovation Competition in Canada, and the International Trade Fair for Innovations in Germany. From these exhibitions, the University brought home 11 innovation awards, including three Gold Medals, five Silver Medals, and three Special Prizes/Awards. In April 2019, EdUHK received recognition once again at the International Exhibition of Inventions of Geneva, winning four Silver awards and one Bronze award for its five innovations. Apart from these laurels, three EdUHK innovations also won one Gold Medal, two Silver Medals, and one special award in the Silicon Valley International Invention Festival 2019.

Development, protection, and application of EdUHK's intellectual properties (IPs) are the focus of KT Sub-office. In addition to KT Funds to support development of EdUHK IPs, in June 2018, EdUHK set up a central fund to support patent applications for protecting inventions created by our staff, researchers, and inventors. The first application was received in September 2018 and filed for two patents in both Hong Kong and China by the second quarter of 2019. Since then, we have received more applications from our researchers in various disciplines. In addition to successfully initiating the protection of EdUHK's IPs, EdUHK also simplified its licensing policy with standard templates to facilitate researchers' discussions with potential licensees in January 2019. The first official licensing of EdUHK's IP to an educational business entity was signed in March 2019.

To encourage knowledge transfer and entrepreneurial culture, in June 2018 the KT Sub-office established the Educational And Social Entrepreneur Fund (EASE Fund). The EASE Fund, EdUHK's first entrepreneurship scheme, is a major milestone in cultivating a creative, entrepreneurial, and innovative ambiance within the EdUHK community. On 12 March 2019, a final presentation and award ceremony was held to celebrate three winning teams, each of which was awarded HK\$120,000 in seed funding to start up their venture. The KT Sub-office showcased the three EASE Fund winning projects in the HKTDC Entrepreneur Day 2019 held at the Hong Kong Convention and Exhibition Centre from 16 – 17 May 2019, and arranged a complementary series of networking opportunities with the local start-up community for the winning teams.

With the aim of nurturing entrepreneurial skills and innovations to our students, the University established the Entrepreneurship and Innovation Education Unit (EIEU) under the University Library in 2018. Through EIEU, EdUHK students can learn and develop entrepreneurial attributes and generic skills that form the basis of an innovative mindset and behaviour.

For the future, the University will continue to encourage its academic units in ownership, creativity and innovation, and in planning and implementing KT initiatives based on their strengths and medium- and long-term development needs. The University will also continue to develop its own entrepreneurship culture in education and social services.

## 2. Highlights of the Year

The University is very grateful for the support of the University Grants Committee (UGC) in the form of earmarked funding for our KT. Our KT activities continue to surge and diversify owing to funding from UGC and EdUHK. These financial resources have enabled EdUHK to continue supporting and promoting a wide range of KT activities at the University and academic unit levels within the reporting year. This report provides a summary of the University's KT developments in 2018/19.

### 2.1 Strategies in Supporting KT

EdUHK's enhanced capability allows it to create original, innovative, and effective initiatives that benefit the school sector, industries, and the wider community. EdUHK has formulated various strategies to drive KT by encouraging new research and development (R&D) initiatives, cross-department collaboration, and partnership with external parties. The following strategies were adopted in the reporting year to encourage and facilitate KT activities across the University.

**2.1.1 Knowledge Transfer Sub-office:** The KT Sub-office within the Research Development Office (RDO) is the central supporting unit for fostering KT in EdUHK. This Sub-office is delegated with the task of forging connections between the University and wider community to develop collaborations. Internally, the Sub-office provides advice and support to academics and research units on facilitating the development of IPs and applied research projects. Externally, the Sub-office reaches out proactively to potential partners to initiate KT collaborations and commercialisation of R&D projects.

The executive support of the KT Sub-office enables the KT Director and the Committee on Research and Development (CRD) to continue monitoring the overall implementation of KT activities in the University in the new triennium.

Its vital role in managing and coordinating KT activities was manifested in our participation in three notable international innovation exhibitions in 2018, namely the International Exhibition of Inventions of Geneva, the International Invention Innovation Competition in Canada, and the International Trade Fair for Innovations in Germany, from which the University brought home 11 innovation awards: three Gold Medals, five Silver Medals, and three Special Prizes/Awards. In April 2019, EdUHK received recognition once again at the International Exhibition of Inventions of Geneva, winning four Silver awards and one Bronze award for its five innovations. Apart from these laurels, three EdUHK innovations also won one Gold Medal, two Silver Medals, and one special award in the Silicon Valley International Invention Festival 2019.

**2.1.2 Building Up a Strategic KT Network:** The KT Sub-office has continued to map out strategies and models for KT in EdUHK. It has been starting a collaborative research network with external parties (e.g. business, R&D, social services and education sectors) to expand the University's KT capabilities and the KT spectrum on education and social innovation. The Sub-office initiates new ideas and allocates funds to develop market-driven research projects. Edging technology and educational application is the new strategic focus of KT in EdUHK. In the reporting year, more effort has been put on technology transfer for education technology development.



### 2.1.3 President's Award for Outstanding Performance in Knowledge Transfer 2018/19:

The President's Award for Outstanding Performance in KT was established in 2016 to recognise, encourage, and reward academics who successfully transferred university-owned knowledge to society or industry that has innovation and impact on education at the local, regional, and/or international community level. This year, one staff member received an individual award, and two teams received team awards at the presentation ceremony on 16 May 2019.



#### Team Award

Centre for Special Educational Needs and Inclusive Education  
*Professor Kenneth Sin Kuen-fung, Director*  
*Professor Lo Sing-kai, Co-Director*  
*Dr Elson Szeto Sing-ying, Co-Director*  
*Dr Yang Lan, Co-Director*  
*Dr Yan Zi, Associate Professor,*  
*Department of Curriculum and Instruction*

#### Team Award

Integrated Centre for Wellbeing  
*Dr Kevin Yuen Chi-pun, Director*  
*Professor Hue Ming-tak, Co-Director*  
*Dr Leung Chi-hung, Co-Director*

#### Individual Award

*Professor Lim Cher Ping, Chair Professor,*  
*Department of Curriculum and Instruction*

**2.1.4 KT Funds Scheme:** The University continued to provide a KT Funds Scheme in 2018/19 in support for academic units to pursue applied R&D, implement innovations, and develop KT initiatives and activities. This year, the scheme emphasises the development and application of EdUHK's IPs. Twenty-one proposals to the scheme were received. Nine were supported. A list of funded projects is at Annex II. Due to its demonstrated effectiveness, this scheme is to be continued. A working task group, composed of the CRD members and the KT Director, continues to coordinate grant applications.

**2.1.5 Central Funding for Patent Applications and Licensing of EdUHK Intellectual Properties:** While universities and other tertiary institutions see it as a vital part of their mission to share the results of their research with industry and wider society, they are also aware that without the protection of original ideas, academics and researchers may be less enthusiastic to explore new avenues of innovation. In June 2018, EdUHK set up a central fund to support the protection of inventions by our staff, researchers, and inventors via the patent application. This encourages them to reap the rewards of their own intellectual

works through patent. During the reporting period, this new funding scheme supported the filing of two patents related to cultural and creative arts. More will be coming in other disciplines. In addition to the success of our initiative in protecting EdUHK's IPs, EdUHK also simplified its licensing policy by creating standard templates to facilitate researchers' discussions with potential licensees in January 2019. The first official licensing of EdUHK's IP to an educational business entity was then signed in March 2019. One social enterprise also agreed to license and commercialise the "computational formula of the norm of BRIEF for Hong Kong in performance assessment of children with ADHD" of the Integrated Centre for Wellbeing (I-WELL). This licensing can generate projected income of over hundred thousand dollars (License Fee plus Royalties) for the University during the license period.

- 2.1.6 Internal KT Promotion and Training:** Professional and staff member development in KT has vastly improved through sharing sessions. The University has organised such sessions in 2018/19 for internal staff to share success stories and practical experiences. Also, all staff members are welcome to attend sharing sessions, and follow-up activities are conducted to promote KT projects. Seven sharing sessions were organised by KT Sub-office in the reporting period and well received by participants.

Apart from the above, two sessions of entrepreneurship training and sharing were organised in summer 2018 under the EASE Fund Scheme. The KT Sub-office conducted introductory entrepreneurship training for EdUHK staff, students, and alumni. External professionals from social ventures and NGOs were invited to share their experiences regarding business opportunities in the field of educational and social innovation.

## **2.2 Strategies in Disseminating KT**

### **2.2.1 KT Partnership and Marketing**

- 2.2.1.1 Collaboration on Technology Transfer (TT) and Knowledge Transfer (KT):** Education technology, education innovation, and social innovation are the strategic foci of KT in EdUHK. EdUHK has committed to integrate technology into education. Our scholars have brought value-added innovation and technology to education and society via TT/KT collaborations.

In the upstream, EdUHK has formed partnerships on collaborative research and educational technology development with outside companies. These projects include wearable electronics for emotion monitoring, a multi-media technology system for mindfulness training, an AI system for candidate assessment, a health education kit for an intelligent platform, and an AR VR kit for plastic resources education. Downstream, EdUHK has concluded the first official licensing with an educational business entity to commercialise EdUHK's IPs. Several others are under negotiation, including adopting our patented grid notation for e-music education in schools and music learning centres. Additionally, our scholars have developed one Chinese and one English corpus online portal for educators to promote the advancement of humanity digitisation and data-driven language education.

To encourage the university-industries collaboration, the KT Sub-office delivered a seminar in the Cyberport in September 2018 to share experience and tips with technology companies about establishing innovation technology collaborative research and application for related funding.

The KT Sub-office has also collaborated with organisations in community programmes focused on innovation, technology, and education, including the Building Research Innovation for Community Knowledge and Sustainability Program of the British Council, the Asia Social Innovation Award of the Social Venture Hong Kong, Startupweekend Education HK of Startupweekend, and the HKRMA Green Hackathon HK of the Hong Kong Retail Management Association, etc.

**2.2.1.2 EdUHK Showcased Educational Technologies on Cultural and Creative Arts Education through Innovation Festivals:** The University took part in the InnoCarnival (3 – 11 November 2018) and the Greater Bay Festival (29 June – 1 July 2019) to introduce our inventions and innovations to the public. The KT Sub-office set up the EdUHK pavilions with the theme: “Innovate for Cultural and Creative Arts Education” to showcase projects that use innovation and technology in music, visual arts, and Chinese culture education.

EdUHK has worked closely with local schools to design innovative curriculum and teaching materials for cultural and creative arts education. At these festivals, visitors experienced music and Chinese culture in a novel manner. They enjoyed creating their own musical instruments using electronic building blocks and composing and performing music using “virtual instruments”. Simultaneously, visitors experienced how technology integrates visual arts and Chinese culture education. Over 200,000 people visited the two festivals. The EdUHK booth and innovations were well covered in major mass media.

Educational Technologies on show at the EdUHK Pavilions included:

- **Mobile-performing & Composing in Music Education**, Dr Jason Chen Chi-wai (Department of Cultural and Creative Arts);
- **STEAM Education in Music**, Dr Michael Leung Chi-hin (Department of Cultural and Creative Arts);
- **A Digitalised-self: “Present” & “Past” and Interactive Chinese Characters**, Dr Hung Keung (Department of Cultural and Creative Arts); and
- **Animated Chinese History for Curious Minds**, Professor Leonard Chan Kwok-kou (Department of Literature and Cultural Studies), Professor Si Chung-mou (Department of Chinese Language Studies), and Dr Fung Chi-wang and Dr Hui Kwok-wai (Department of Literature and Cultural Studies)

**2.2.1.3 Promotion of Technology Transfer through Overseas Education Technology Business Events and China Hi-Tech Fair 2018:** To increase the reputation of EdUHK’s innovations and foster partnership with industries in

the international marketplace, the KT Sub-office set up an exhibition booth to highlight our educational technology research at the EdTechXEurope cum London EdTech Week London UK (17 – 24 July 2018). Complementing this, a KT Sub-office representative was invited as an honourable speaker in the Reimagine Education Conference (29 – 30 November 2018) in San Francisco USA to present numerous educational technologies and services that bring innovative ways of learning. Both events attracted thousands of international visitors, including investors, educational entrepreneurs, educators, educational organisations, and institutions.

EdUHK has also participated in national platforms. The KT Sub-office exhibited at the China Hi-Tech Fair (CHTF) 2018, which was hosted in Shenzhen from 14 – 18 November 2018 to showcase our environmental technology innovations. CHTF 2018 was not only a showcase of our achievements but also a platform to develop new research and KT partnerships in the PRC market. Each year CHTF occupies an exhibition area of over 100,000 m<sup>2</sup>, and attracts nearly 3,000 exhibitors from more than 50 countries and over 500,000 visitors.

**2.2.1.4 Learning & Teaching Expo:** The KT Sub-office set up a booth at the trade fair of the Learning & Teaching Expo (12 – 14 December 2018) held in the Hong Kong Convention and Exhibition Centre. During the event, we showed our professional training courses and services offering by the two research centres of EdUHK in the area of Special Educational Needs (SEN), STEM education schemes, and online language learning and teaching platforms. Apart from this, the EdUHK Centre for Special Educational Needs and Inclusive Education hosted the SEN Theatre to disseminate her latest development and practice in the field. Our scholars also delivered seminars in the area of early childhood education and coding education. The Expo drew over 13,000 visitors from around the world, including educators, scholars and government officials, academics, and school leaders.

#### **2.2.1.5 Recognition of EdUHK Innovations and Technologies**

**EdUHK Innovations Harvested International Awards:** EdUHK is dedicated to advancing knowledge and multi-disciplinary research to create innovations for the development of society. Throughout the year, the KT Sub-office pitched EdUHK innovations and technologies at numerous international invention exhibitions and received 16 awards.





## Award Winning Projects

Project Title	Principle Investigator(s)	Award(s)
<b>Silicon Valley International Invention Festival 2019</b>		
Data-driven Chinese Language Learning and Teaching with a Cantonese Corpus	Dr Andy Chin Chi-on Department of Linguistics and Modern Language Studies	Gold Medal, Special Award
An Automated System for Tracking Student Responses to Teacher Feedback	Dr Gary Cheng Kwok-shing Department of Mathematics and Information Technology	Silver Medal
Computerized Task-Switching Training for Enhancing Executive Functioning of Children Living in Poverty	Dr Kean Poon Kei-yan Department of Special Education and Counselling, Prof Chou Kee-lee, Dr Kelvin Cheung Chi-kin Department of Asian and Policy Studies	Silver Medal
<b>International Exhibition of Inventions of Geneva 2019</b>		
Education Linguistics 2.0 – The Use of Corpora in Language Teaching	Dr Angel Ma Qing, Dr Jackie Lee Fung-king, Dr Wang Lixun & Dr Rebecca Chen Hsueh-chu Department of Linguistics and Modern Language Studies	Silver Medal
Fuzzy Talent Assessment System Based on Educational Big Data	Dr Xie Haoran Department of Mathematics and Information Technology	Silver Medal
Fish Feeds from Food Wastes for Sustainable Fish Farming	Professor Wong Ming-hung Department of Science and Environmental Studies	Silver Medal
Using Heart Rate Variability (HRV) for Real-Time Emotion Assessment	Professor Joanne Chung Wai-yee Department of Health and Physical Education, <i>External partner:</i> <i>Professor Thomas K. S. Wong</i>	Silver Medal
Domestic Screening for Age-related Hearing Loss	Dr Anna Kam Chi-shan Department of Special Education and Counselling	Bronze Medal
<b>iENA - International Trade Fair “Ideas-Inventions-New Products” in Germany 2018</b>		
Interactive Chinese Characters as a New Learning Method	Dr Hung Keung Department of Cultural and Creative Arts	Silver Medal
<b>International Invention Innovation Competition in Canada 2018</b>		
An Innovative Method for Easy and Rapid Development of Online Experiments to Facilitate Effective STEM Education	Professor Yeung Yau-yuen Department of Science and Environmental Studies	Gold Medal, Special Prize
Innovative Grid Score for Electronic Orchestra (e-Orch)	Dr Michael Leung Chi-hin Department of Cultural and Creative Arts	Gold Medal, Special Prize
Novel Air Purifiers Using New LED Activated Graphitic Carbon Nitride Photocatalyst	Dr Ho Wing-kei Department of Science and Environmental Studies	Gold Medal
Aerobic Exercise Teaching Manual for Children with Autism Spectrum Disorder (ASD)	Dr Clare Yu Chung-wah Department of Health and Physical Education <i>External partners:</i> <i>Dorothy Chan Fung-ying, Simpson Wong Wai-lap</i>	Silver Medal

**Innovation for Change – EdUHK Award Winning Innovations Salon:** To reinforce our efforts to establish research development and knowledge transfer partnerships with government, industries and schools, the KT Sub-office held an “EdUHK Award Winning Innovations Salon” on 3 January 2019 to



highlight and celebrate EdUHK achievements in international innovation exhibitions throughout 2018. Ms Annie Choi Suk-han, JP, the Commissioner for Innovation and Technology of the Innovation and Technology Commission, joined the event as our special guest of honour. In parallel with the celebration ceremony, there was a mini-exhibition of the award-winning projects. This new initiative served as a platform to bolster EdUHK's image as an innovator and inspirer of educational and social good.

**2.2.1.6 Collaboration with i-Cable on Sharing with the Community about Knowledge Related to Science Education:** The University collaborated, once again, with i-Cable on sharing knowledge related to general science education with the community. Academics from the Department of Science and Environmental Studies shared their knowledge on a wide range of topics:

- Professor Rudolf Wu Shiu-sun on hypoxia and its implication to human;
- Professor Wong Ming-hung and his team on bioconversion of food wastes to fish pellets;
- Dr Chan Man-ho on dark matter in space/the universe;
- Dr Cheang Chi-chiu on seaweed and coral reef ecology;
- Dr Stephen Chow Cheuk-fai on conversion of plastic wastes to fuel gases; and
- Dr Lincoln Fok on microplastic pollution

TV filming took place in October/ November 2018 and EdUHK is in discussion with i-Cable regarding the on-air TV schedules.

**2.2.1.7 Publicity and Media Exposure of KT Activities:** We have continually disseminated good practices and advanced knowledge among staff members and the community through various channels, such as the University's websites and reports, press releases, intranet, and newsletters.



In the reporting year, several articles written by EdUHK staff members were submitted to the Beijing–Hong Kong Academic Exchange Centre for publication in its quarterly journal *Beijing–Hong Kong Academic Exchange* (京港學術交流) (<http://www.bhkaec.org.hk/>) to spread EdUHK news to a wider audience. One article was selected in Issue 120 (January 2019) of the publication.

**2.2.1.8 EdUHK Research and Scholarship Portal:** The website ([http://www.eduhk.hk/research\\_and\\_scholarship/](http://www.eduhk.hk/research_and_scholarship/)) offers free and convenient services to local education practitioners as a one-stop online portal for research information and resources. Primary and secondary schools, childcare centres, kindergartens, and other educational organisations have been invited to subscribe to the portal. The website attracted 3,512 unique visits and 4,906 page-views from 1 July 2018 to 30 June 2019.

This portal has considerably benefited local and international students, teachers, and scholars by making the research output of the University readily available on the Internet. The website disseminates the knowledge, effort, and academic research output of EdUHK staff members to potential users, thereby acting as a knowledge communication channel between the University and the public. We promote this website with a direct link on the website of the Hong Kong Professional Teachers' Union (<http://www.hkptu.org/links>).

**2.2.1.9 KT Website:**

The KT website (<http://www.eduhk.hk/rdo/KnowledgeTransfer/>) continues to function as a channel for promoting KT activities. The website demonstrates the breadth of the University's KT activities, publicises our KT policies and guidelines and highlights our excellence and shared good practices. This website is also a channel to network with internal and external stakeholders (e.g., researchers, experts, special interest groups, government, funding bodies, and education and business sectors) and to open the way for interaction and exchange of new ideas on KT.

**2.2.2 KT Dissemination Plan and Survey on the Nexus between Research and Teaching:**

As in previous years, all academic staff members were required to submit a KT Dissemination Plan so they could plan their dissemination activities for research findings at the proposal preparation stage. There was an encouraging increase in the dissemination of research during the reporting year. A survey collected data on individual academic staff members who applied research in their teaching or used teaching activities in their research. The results (see Table 1) indicate that University staff members have incorporated their research into their teaching and vice versa, facilitating the development of KT in the education sector.

**Table 1: Survey Findings on the Nexus between Research and Teaching**

	2017/18	2018/19
Academic staff members who use research in teaching/course activities	93.9%	96.8%
Academic staff members who use teaching in research	60.8%	58.3%

- 2.2.3 Research Publications:** Among the 727 refereed research outputs in 2017/18<sup>Note</sup>, 50.9% (370) were related to various sectors of school education. These research outputs included early childhood, primary, secondary, technical, and special education, and were disseminated across a range of sectors that focus on teacher education and education disciplines. A total of 49.1% (357) of outputs were related to complementary discipline areas, such as social sciences, humanities and languages, health and environmental studies, and other professional and vocational subjects. These refereed outputs, and those produced in past years, provided a substantial new knowledge base for KT to provide insight into practical improvement, professional innovation, and education development in Hong Kong and beyond.

*Note: The data on the number of publications for 2018/19 will be obtained through the CDCF exercise. The data will be provided to UGC by December 2019 in accordance with the normal CDCF work schedule.*

- 2.2.4 EdUHK Research Repository:** Apart from its use for extensive KT activities, the EdUHK Research Repository (<http://repository.lib.eduhk.hk>), an initiative coordinated and promoted by our University Library, has been part of a strategy to transform education and the teaching profession through research. The repository allows the knowledge, effort, and results of academic research conducted by University staff members to be transferred directly to potential users over the Internet. The repository also acts as a channel between the University and the public for sharing knowledge and ideas. As of 30 June 2019, the EdUHK Research Repository has collected 34,022 citation records dating back to 1994. Links to full texts were provided in 11,507 records, 4,074 of which can be accessed by the public. Materials in the database include scholarly books, book chapters, journal articles, and conference papers. A total of 80,174 visits were recorded from 1 July 2018 to 30 June 2019. The number of users was recorded at 58,947.

## **2.3 KT Outputs through Research Infrastructure**

EdUHK supports and encourages its staff members in academic departments, faculties, and research and resource centres to organise and conduct KT activities and/or projects based on their own capabilities and strengths in a creative manner. The ownership, creativity, and integration of KT activities into the corresponding R&D agenda of academic units and research centres are crucial to the sustainable development of KT.

- 2.3.1 Key Academic Units for Implementing KT:** Four university-level research centres and three Faculties, together with their constituent departments, research centres, and resource centres, continued to be key academic units in 2018/19, providing the community with comprehensive KT activities. Their projects cover education and non-education fields. In 2018/19, 13,963 schools, 101,083 teachers, 1,196,900 students, and 279,751 other stakeholders benefited from these activities.
- 2.3.2** In recent years, numerous KT projects have been organised by academic departments or education sector research centres. A few of these projects have already had long-term effects on professional innovation and the practical improvement of school education and demonstrated their relevance to social improvement and policy change. They include the following examples.

**Social Improvement and Policy Change:** *Income protection and poverty reduction in the aged population* is a project undertaken by Professor Chou Kee-lee from the Department of Asian and Policy Studies. Despite its relative prosperity, Hong Kong is a rapidly aging society with an exceptionally high rate of poverty in old age, due to an underdeveloped retirement income protection system. Addressing this has become a major priority for policymakers so that the well-being of elderly people can be improved while the burden on public finances can be managed in a sustainable manner. Professor Chou's research on poverty in old age has led to more understanding among policymakers and the general public of the limitations of the current official poverty line, by highlighting for example that it did not take assets into account, or consider other measures based on expenditure and standard of living. Moreover, his research findings on pension reform provide a more balanced view on the pros and cons of universal versus targeted pension schemes, and influenced the introduction of public annuity benefiting at least 9,140 older people in the first year and enhancing their retirement income security. (Annex I–A)

**Advancing Learning and Teaching:** *Building the Capacity of Higher Education Institutions in Asia-Pacific for Blended Learning to Enhance Student Engagement and Outcomes* was a project undertaken by Professor Lim Cher Ping of the Department of Curriculum and Instruction. An institutional framework, developed by Professor Lim Cher Ping and his team, has driven and supported blended learning for better access to quality teaching and student learning at higher education institutions (HEIs) in the Asia-Pacific region. The application of the framework at HEIs in Cambodia, South Korea, Mainland China, Mongolia, and Sri Lanka, has supported the UN's Sustainable Development Goal for inclusive quality education. In Hong Kong, Lim led and collaborated with four local universities to implement the Blended & Online Learning & Teaching project in enhancing student learning across different disciplinary programmes. Professor Lim received the President's Award for Outstanding Performance in Knowledge Transfer (Individual Award) in 2018/19. (Annex I–C)



### 2.3.3 EdUHK Joined HK SciFest 2019 (12 – 28 April 2019)

The HK SciFest, organised by Hong Kong Science Museum, this year brought to the public the theme – Science, Technology, Engineering and Mathematics (STEM). STEM education is vital for equipping us to meet the changes and challenges in our society brought about by rapid scientific and technological developments.



The Department of Science and Environmental Studies and the Department of Cultural and Creative Arts joined HK SciFest 2019 to provide a series of STEM exploration programmes (Annex III) to the public and help nurture a STEM culture in the community.

### 2.3.4 The University continued last year's effort to encourage academic departments and research centres to organise outreach activities to promote STEM education to school students and the public, including:

- **Provision of Training Service on Professional Development Programme to Support Teachers from Special Schools Implementing STEM Education in General Studies (2018/19)**, provided by the Centre for Education in Environmental Sustainability;
- **STEAM Education: 3D Chinese Cultural Architectural Design Competition** organised by the Department of Mathematics and Information Technology; for which the open ceremony was held on 13 January 2018. The first phase result was announced on 1 June 2018 and the Prize Presentation Ceremony was held in September 2018;
- **22<sup>nd</sup> Primary STEM Project Exhibition- Teacher Seminar** organised by the Centre for Education in Environmental Sustainability on 26 October 2018;
- **VAECD 1819 - Staff A - Master Workshop 4 - Let's Move with STEAM** organised by the Department of Cultural and Creative Arts on 2 December 2018;
- **Guangdong - Hong Kong - Macau STEM Triathlon 2019** organised by Department of Mathematics and Information Technology from October 2018 to June 2019.
- **“STEM-ing Sustainable Smart City” Day-Camp** organised by the Department of Science and Environmental Studies on 10 April 2019;
- **22<sup>nd</sup> Primary STEM Project Exhibition “Smart Toys”** co-organised by the Centre for Education in Environmental Sustainability and Department of Science and Environmental Studies at EdUHK and other organisations, was held on 16 May 2019 at Hong Kong Central Library. The exhibition, themed “Smart Toys”, was aimed at enhancing students’ STEM ability and promoting innovation and self-directed learning through observing, reasoning, and experimenting. Nearly 200 projects were displayed, and students shared their experience of integrating STEM elements to create or modify their smart toys. Over 1,000 primary students and teachers from local schools and others in the region, such as Zhongshan, Guangdong, Shenzhen, and Macau, participated.

### 2.3.5 Creating Impact beyond Hong Kong

In February 2019, our UNESCO Chair in Technical and Vocational Education and Training and Lifelong Learning was renewed for a period of four years under the new title “Regional Education Development and Lifelong Learning”. Led by Professor John Lee Chi-kin as Chairholder, EdUHK will continue to respond to education issues and needs, particularly in the areas of regional education development and lifelong learning, at regional and global levels.



In October 2017, the University was appointed by the World Bank to provide consultancy services for the Vietnamese Ministry of Education and training. Over a 10-month period, the University provided expert advice to eight Lead Teacher Training



Universities in Vietnam, through training workshops and university-based consultancy services and support to enhance the effectiveness of their teacher and principal education. In October 2018, the President led a delegation to meet Vietnam’s Vice Minister of Education and Training and other World Bank officials to discuss the roadmap and strategic development of Vietnam’s higher education sector in the context of the country’s fast-growing economy.

## 2.4 KT Outputs through Training Professionals

Immense improvements in the research capabilities and outputs of EdUHK over the years have enabled the University to disseminate and transfer new knowledge to professionals. This has transformed the training of educators and practitioners into a new generation of professionals equipped with novel research-based knowledge.

**2.4.1 Continuing Professional Development (CPD):** The academic departments and centres of the University have provided a wide range of self-funded development courses and training programmes, occasionally in collaboration with external parties. The aim is to transfer the research findings and knowledge of staff members to support the continuous development of the education profession in early childhood, primary, secondary, technical, and special education. These CPD courses have allowed the University to establish close relationships and networks with schools. Such relationships have led to significant professional improvements and innovations in the school sector and contributed to the development of high-quality education practitioners in Hong Kong and the region.

In this reporting year, we organised CPD courses to introduce the principles and practices of STEM education to secondary and primary teacher participants, with the ultimate goal of developing students’ STEM literacy. These courses not only traced the origin and background of STEM education, but also introduced various modes adopted to implement STEM education around the world (including the recent development of STEAM).

For example, **Provision of Training Service on Professional Development Programme to Support Teachers from Special Schools Implementing STEM Education in General Studies (2018/19)** organised by the Centre for Education in Environmental Sustainability.

A total of 331 principals and 1,633 teachers benefited from these CPD courses.

#### **2.4.2 10<sup>th</sup> Anniversary of the Asia Leadership Roundtable**

2019 is the tenth year since the first Asia Leadership Roundtable (ALR) was held in Hong Kong. Under the theme “The First Decade of Asian Research on School Leadership in a Global Context”, more than 60 international and regional researchers from 17 societies on five continents gathered in Guilin, Guangxi Province, on 10 – 12 March 2019. The participants reflected on how collective efforts flowing from the ALR have contributed to the international knowledge base of school leadership over the past 10 years and the major challenges facing regional researchers in the coming decade. The 2019 ALR was organised and sponsored by the Asia Pacific Centre for Leadership and Change (APCLC) and the Faculty of Education and Human Development of EdUHK, together with the Faculty of Education of Guangxi Normal University.

The ALR is now firmly established as the premier forum for research in school leadership in the Asia Pacific Region. Publications from projects initiated through the ALR have had a significant impact on knowledge production and dissemination throughout the region – particularly in Hong Kong, the Mainland China, Malaysia, Singapore, Taiwan, and Vietnam. Research output from the ALR network has enabled the APCLC to become the leading contributor to school leadership research in East and Southeast Asia and has positioned EdUHK as a key international player in the region.

#### **2.4.3 Experts Discussed School and Teacher Leadership in Time of Educational Change:**

More than 200 principals and teacher leaders from primary, secondary, and special schools, as well as officials from the School Leadership and Professional Development Section of the Education Bureau, participated in the Teacher and School Leadership in Educational Change Forum on 19 January 2019. Following the success of that event, the Teacher and School Development Special Interest Group of the Department of Education Policy and Leadership (EPL) and The Joseph Lau Luen Hung Charitable Trust Asia Pacific Centre for Leadership and Change jointly re-ran the forum on 4 May 2019. Again, it attracted more than 200 school leaders from primary, secondary, and special schools. Professor Chiu Chi-shing, Adjunct Professor, together with Dr Daphnee Lee Hui-lin, Assistant Professor at EPL, led the new forum which focused on the introduction of the T-Standard+, a teacher professional development framework developed by the Education Bureau. Scholars and practitioners from EPL presented their work on school and teacher leadership in a time of educational change with updated developments of the T-Standard+ and new research initiatives. 51 principals and 140 teachers from primary and secondary schools joined the forum where they were enhanced the leadership of the profession as a whole.

**2.4.4 Symposium on Internationalisation: from High School to University:** The Global Affairs Office held the second “Symposium on Internationalisation: from High School to University” on 7 May 2019. It was attended by over 40 principals, administrators, and counsellors from leading high schools and international schools in Asia and the Belt and Road region (including Indonesia, Kazakhstan, Kyrgyzstan, Macau, Malaysia, mainland China, Myanmar, Nepal, Qatar, South Korea, Taiwan, Thailand, Turkey, and Vietnam). Representatives of the three faculties of EdUHK also joined the Symposium and demonstrated the distinctiveness of the academic programmes and the diversified learning experience at EdUHK. Participants found the keynote speeches impressive, inspiring, and thought-provoking. Not only were the topics highly relevant to participants, but many questions and discussions were also generated. The Symposium, which was stimulating and well-organised, was a valuable platform for networking and sharing of practices.

**2.4.5 International Conference on Computational Thinking Education 2019 and Coding Fair & Press Conference on Opening Up of CoolThink@JC Educational Resources:**

The four-year CoolThink@JC programme was created and funded by The Hong Kong Jockey Club Charities Trust (The Trust) and co-created by EdUHK, Massachusetts Institute of Technology in the US (MIT) and City University of Hong Kong (CityU), with support from the Education Bureau. CoolThink@JC aims to inspire students to apply digital creativity in their daily lives and prepare them for future challenges in any fields. Promoting computational thinking (CT) education can move students beyond mere technology consumption and on to problem-solving, creation, and innovation. This 4-year initiative will train 100 teachers to help 16,500 upper primary students at 32 schools. Insights and curricular materials from this initiative will be shared openly with educators across the territory.



To showcase the achievements and outcomes of implementing computational thinking education in Hong Kong, the International Conference on CT Education 2019 and Coding Fair (CTE2019), organised by CoolThink@JC, was held on 13 – 15 June 2019 at EdUHK. Over 1,000 world-renowned academics, frontline education practitioners, IT professionals, and teachers and students from local primary schools attended.

The four-day event also included a Coding Fair at EdUHK, at which a series of coding/STEM workshops, parent seminars, and interactive exhibition booths promoted CT education. Over 800 primary school teachers and students took part. Over 2,000 parents and children aged 4 to 14 attended.



## 2.5 KT Outputs through Student Engagement

**2.5.1 Student Internships and Placements:** Student internship programmes were organised by our Student Affairs Office and Faculties to encourage students to engage in and serve the community. The students gained experiential learning for their holistic personal development. The University also arranged placements with local schools for all full-time students of education-related programmes. Opportunities for student placements and internships offer two-way knowledge transfer between the students, education sector, and industry. There were 3,243 student placements and internships in 2018/19 totalled.



*Student An Zheng interned at ALLT in South Korea.*



*Student Hung Lok-yi (2nd from the right) interned at the Beijing Museum of Natural History in Beijing.*

**2.5.2 Entrepreneurship and Social Innovation Culture:** EdUHK has started to develop its own entrepreneurship culture with implications for education and social services. Various units of the University have organised entrepreneurship-related activities ranging from introducing the startup concept and providing training and sharing, to granting seed funds to support students turning their aspirations into reality.

### 2.5.2.1 Entrepreneurship and Innovation Education (EIE) at EdUHK

With the aim of developing students with entrepreneurial and innovative minds, EdUHK set up a university-level unit, the Entrepreneurship and Innovation Education Unit (EIEU) in 2018 to conduct entrepreneurship and



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innovation education (EIE). Through EIE, EdUHK students will

develop personal attributes and transferable generic skills that form the basis of an entrepreneurial mindset and behaviour. Unlike other universities, EIE at EdUHK will use commercial business ventures as a departure point and focus more on education and education-related business (e.g. publishing), arts management, freelance services as well as NGOs and social enterprises.



**2.5.2.2 EdUHK Education And Social Entrepreneurs “EASE” Fund:** The EASE Fund, EdUHK’s first entrepreneurship scheme, is a major milestone in cultivating a creative, entrepreneurial, and innovative ambiance within the EdUHK community. The scheme, which features the themes of education technology, education innovation, and social innovation, received over 20 applications since its launch last summer. After months of idea development, consultation and mentoring by practitioners from related sectors, five teams pitched proposals in the final presentation to compete for the title of EASE Fund winner. During this period, 12 workshops were organised by the KT Sub-office, at which entrepreneurs, investment experts, non-governmental organisations, charity founders, and business consultants shared their practical business skills and the latest market information with participants. On 12 March 2019, a final presentation and award ceremony was held to determine three winning teams, each of which was awarded HK\$120,000 in seed funding to start up their venture.



KT Sub-office also showcased the three “EASE” fund winning projects in the HKTDC Entrepreneur Day 2019 held at Hong Kong Convention and Exhibition Centre from 15 – 17 May 2019.

### **2.5.2.3 Entrepreneurship and Innovation Hub – “EI Hub”**

This is an on-campus, co-working space opened in June 2019. EI HuB provides 24-hour office spaces for students who are carrying out projects or starting their own businesses. To create a cozy environment for students to work and mingle with their teammates, EI Hub is a discussion zone and a designated library area which allows snacks and drinks consumption.

**2.5.2.4 2019 Student Fair – EdUHK Lunar New Year Fair:** To create a platform for students to gain business experience, the University hosted the “2019 Student Fair – EdUHK Lunar New Year Fair” from 25 – 26 January 2019, giving EdUHK students an opportunity to develop their entrepreneurial spirit and gain hands-on experience in running businesses. Students developed their mini-businesses integrating creativity, profitability, and cultural transmission. The Fair also served to enhance connections between EdUHK and the Tai Po Community.



### 2.5.2.5 EdUHK-SCMP Innovation and Entrepreneurship Challenge 2019

Jointly organised by EIEU and the South China Morning Post, the Entrepreneurship Challenge is another entrepreneurial initiative to encourage EdUHK students and alumni to transform their innovative ideas into entrepreneurial start-ups. It comprises two phases:

#### Phase 1 (April 2019): Innovation and Entrepreneurship Certificate Workshop

#### Phase 2 (June 2019): Startup Competition

Participants formed teams to develop their business proposals.

The top three winning teams will be entitled to a one-year co-working space membership at Tencent Westart plus the marketing services of the SCMP.



## 3. Performance Measurement and Performance Indicators (PIs)

The outcomes of the KT activities conducted by the different units of the University are closely monitored using PIs. Faculties, university-level research centres, and relevant academic support units had to submit annual reports on the implementation of their KT activities, including data on the list of PIs specific to their key KT activities.

As the University has actively engaged in a wide range of KT activities and initiatives, the number of key stakeholders to have benefited from the University's KT activities has steadily increased. This progress can be seen in the PIs listed in [Annexes IV and V](#).

## 4. Looking Forward

Looking ahead, the University will continue to encourage ownership, creativity, and innovation within academic units in planning and implementing KT initiatives based on their strengths and medium- and long-term development needs.

In the near future, the University plans to upgrade the KT Sub-office to an independent office at University-level. With the elevation of the KT Sub-office within RDO into an independent KT Office, it will be able to adopt an even more proactive and outgoing approach towards the promotion of EdUHK's IPs, engagement in innovation, and KT. It is a vital part of our mission to share the results of our research and invention among industry, academia, and wider society while also ensuring, through protecting original ideas and research, that academics and researchers remain enthusiastic to explore new avenues of innovation.

The University will further develop its own entrepreneurship culture with implications for education and social services. We will also organise more entrepreneurship-related activities to further develop the start-up concept in the University and provide students with related funding, training, and support.

As we celebrate our 25<sup>th</sup> anniversary, we look forward to working with our stakeholders, local, and overseas, to make an even greater contribution to improving education in Hong Kong and beyond.

## Impact Case History



### (i) Project Title

Income Protection and Poverty Reduction in the Aged Population

### (ii) Name of Principal Investigator

Professor Chou Kee-lee, Chair Professor of Social Policy, Department of Asian and Policy Studies

### (iii) Summary

Despite its relative prosperity, Hong Kong is a rapidly aging society with an exceptionally high rate of poverty in old age due to an underdeveloped retirement income protection system. Addressing this so that the well-being of elderly people can be improved while the burden on public finances can be managed in a sustainable manner has become a major priority for policymakers. Professor Chou's research on poverty in old age has led to more understanding among policymakers and the general public of the limitations of the current official poverty line for example, by highlighting that it did not take assets into account, or consider other measures based on expenditure and standard of living. Moreover, his research findings on pension reform provide a balanced view on the debate on the pros and cons of universal and targeted pension schemes, and influenced the introduction of public annuity, benefiting at least 9,140 older persons in the first year so that their retirement income security may be enhanced.

### (iv) Underpinning research

World Bank figures in 2018 show Hong Kong has one of the highest per capita GDPs in the world – ahead of countries such as Finland and Canada. However, research led by Professor Chou, Chair Professor of Social Policy with APS, has highlighted a particularly high prevalence of poverty among its elderly. Specifically, in 2011 about 389,000 (41.4%) out of 0.94 million older persons were found to be living in poverty [R1]. His research has not only identified the scale of the problem [R1], but also points to more suitable ways to measure the poverty problem among the elderly [R2, R3, R4]. It also highlights the consequence of living in poverty on the psychological well-being of the aged population [R3, R4].

Using survey data and macro-simulation, in 2016, Professor Chou evaluated how the newly introduced Old Age Living Allowance (OALA) would reduce old-age poverty rates and be less financially sustainable [R5]. The team found that old-age poverty decreased from 32.5% to 27.1% after the introduction of OALA but that the expenditure of OALA would increase more than three times, from US\$1,258 million in 2020 to US\$3,974 million in 2064. Further research was based on a survey of more than 5,000 households and used a self-developed micro-simulation modelling computer program. From this, Professor Chou evaluated the poverty-reduction effect of three pension reform options: 1) universal pension (all adults aged 65 and older eligible to receive a monthly payment of HK\$3,000); 2) increasing the OALA Scheme to HK\$3,000; and 3) enhancing provisions under the old-age category of the Comprehensive Social Security Assistance (CSSA), by increasing its take-up rate (the percentage of eligible individuals receiving the benefit) to 80%. The team found that the cost-effectiveness in poverty-reduction effect is the greatest for the enhanced CSSA (option 3), followed by the improved OALA, and lowest for universal pension.

In both 2014 and 2016 Professor Chou and his team conducted further research on pension reform before and after the government's retirement income protection public engagement exercise, held from December 2015 to June 2016. Two phone surveys were used to measure public attitude to the reform before and after the public engagement. They found that 70% – 80% of participants supported the universal pension while about 50% supported the means-tested one. In further

research conducted in 2015 – 2016 Professor Chou and his colleagues conducted a discrete choice experiment involving 500 middle-aged adults and a survey of another 1,067 middle-aged adults. In the choice experiment, they found that the most popular annuity was one with a fixed annual income, without intra-year bonus payments, and with a 10-year guarantee period. Almost one-third of participants reported that they preferred to buy annuity rather than self-manage the MPF savings when they retired [R6]. Chou conducted the above research [R1 – R6] with Lee, Chan and Kuchner et al., mentoring junior scholars in his team to contribute as first authors.

#### (v) References to the Research

- [R1] Lee, S.Y. and Chou, K.L. (2016). Trends in elderly poverty in Hong Kong. *Social Research Indicators*, 129, 551-564.
- [R2] Chan, A.L.S., and Chou, K.L. (2018). Asset poverty: A study of Hong Kong older adults. *Social Indicators Research*, 138, 605-622.
- [R3] Lee, S.Y. and Chou, K.L. (in press). Assessing the relative contribution of social exclusion, income-poverty and financial strain on depressive symptoms in Hong Kong older adults. *Aging and Mental Health*.
- [R4] Cheung, K.C.K. and Chou, K.L. (2019). Poverty, deprivation and life satisfaction among Hong Kong older persons. *Ageing and Society*, 39, 703-721.
- [R5] Kuehner, S. and Chou, K.L. (2019). Poverty alleviation, coverage and fiscal sustainability: Investigating the effect of a new social pension in Hong Kong. *International Journal of Social Welfare*, 28, 89-99.
- [R6] Lee, S.Y., Chou, K.L., van Kippersluis, Hans, and Chan, W.S. (2019). Consumer preferences and demand for annuities: Evidence from Hong Kong. *Journal of Aging and Social Policy*, 31, 170-188.

#### (vi) Details of Local/Regional and International Impact or Benefit

Professor Chou's research has had impact in two main areas: (i) changing the nature of public debate and perceptions and (ii) impacts on policy and policy debates.

- (i) Changing the nature of the debate and perceptions: Professor Chou's 2014 research on policy options that would best alleviate poverty among the elderly population served to remind the public and policy makers that one of the most important functions of retirement income protection is to keep old-age poverty low. By prompting discussion in the media and more widely in Hong Kong he changed perceptions and improved the understanding of different pension schemes and income protection options, including annuities – a relatively new concept to Hong Kong. Before that, supporters of a universal pension argued that such a pension should be perceived as a basic human right and a due recognition of elderly persons' contributions to society but did not focus on one of major functions for a retirement income protection system: the alleviation of poverty in old age.

Professor Chou was invited to present his findings to the Commission on Poverty at a meeting in September 2014 and to a Legislative Council Subcommittee on Retirement Protection, Panel on Welfare Service, in October 2014 [C1]. Former Legislative Council member Peter Cheung Kwok-che affirmed that Professor Chou had provided "an important alternative perspective ... We cited his findings in our Legislative Council meetings because of the impartiality of his investigation on retirement income protection.... Professor Chou's effort to address poverty issues in Hong Kong is well-known and highly respected." [C2]. The findings were released to the public in a press conference held in August 2014 and were covered in primetime television news programmes, the radio and all major mass-circulation newspapers, by organisations that included TVB, RTHK, and Apple Daily, [C3], reaching TV audiences of more than 5 million, newspaper audiences of more than 4 million, and radio audiences of more than 1 million, based on the Nielsen Media Index for mid-2014.

The 2014 and 2016 survey findings, on Retirement Income Protection Reform, once again guided the pension reform debate by identifying the contrasting public view that the majority of the general

public supported the universal pension. The survey findings were quoted by Legislative Council member Mr Peter Cheung Kwok-che in a Council meeting on 18 February 2016 [C4] as well as another Council member Dr Fernando Cheung Chiu-Hung in his newspaper op-eds [C5]. In another Council meeting on 11 February 2015, Bill Tang Ka-piu mentioned Professor Chou as a scholar valued by the Government at that time [C6]. Throughout the period of review, Professor Chou has maintained a high profile in the mass media, as an expert on pension reform and poverty among the elderly. He has written 23 op-ed articles since 2013 (to be updated) including 10 for Mingpao; 8 for Hong Kong Economic Journal and 4 for Hong Kong Economic Times) and has been featured on the TV and radio discussing these issues. This was affirmed in testimony from H.M Tsui, editor of Now TV, who shared that Professor Chou's research "gave us insights on the influence of the different retirement schemes...Professor Chou helped us to see clearly the influence of the different models...the public received more information and analysis from Professor Chou's research... Now TV news and programme always cover the research done by Professor Chou" [C7]. Oxfam Hong Kong Programme Manager Wong Shek-hung affirmed the significance of this public influence: "Oxfam Hong Kong considered Professor Chou's researches contributed to the debate on universal and means-tested elderly poverty policy. Professor Chou's work has shown that elderly poverty has multi-facets, could be understood from income, asset, and consumption angle." [C8]

- (ii) Impacts on policy and policy debate: Professor Chou's work has been used as a key source of evidence to support policy change and to inform policy debate and discussion. This has occurred through three main avenues. Firstly, Professor Chou was invited to present his findings on the relative popularity of different types of annuity scheme to the Secretary for Labour and Welfare Bureau, HKSAR Government; the Managing Director of the Mandatory Provident Fund Authority; and the Chairman of the Elderly Commission in April 2017. This has influenced decision-making and policy development by making the policy formulation process more balanced by taking the views of the public into account. On 5 July 2018, the Hong Kong Mortgage Corporation Annuity Limited officially launched a public annuity plan with an initial issue limit of HK\$10 billion. Connie Law, Chief Manager (External Affairs) of the Hong Kong Mandatory Provident Fund Scheme, affirmed: "We are pleased to say that we have looked at some of your studies on retirement protection in the past and they were of good reference value to us" [C9]. By November 2018, at least 9,140 people had signed up to this new scheme so that their retirement income security could be enhanced.

Secondly, Professor Chou's research has influenced policy through his extensive media appearances, in print, TV and radio, publicising and disseminating his evidence in the public sphere. This influenced policy by changing the public perception of pension schemes regarding the best policy to reduce poverty in Hong Kong – thus putting pressure on the government to change direction. Mr Tsui, of Now TV, shared that Professor Chou's research "carried certain influence on the policy formation of the Government as it influenced the views of the public." [C7] These efforts resulted in pressure on the Government to implement change.

Thirdly, Professor Chou's work has been used by NGOs such as Oxfam to advocate for the rights of the poor and ensure that there is income protection, specifically for the aged, as affirmed by Oxfam's Ms Wong's testimony: "This contributes to our work in advocating a more targeting elderly poverty alleviation policy, by differentiating the real elderly poor (elderly with asset poor)." [C8] The former legislator Mr Cheung affirmed: "He has persistently advocated how to improve our official measurement of the poverty line and pushed the Government to refine it by considering both the asset and consumption patterns of older adults." [C2, C10] Moreover, Professor Chou also helped AIA Pension and Trust Co Ltd (AIA MPF) to develop the Retirement Quotient that has been used to annually measure the retirement readiness of working population in Hong Kong since 2015 [C11] so that the public is better financially prepared for their old age.

Most of the measures advocated by Professor Chou have indeed been adopted by the Government after being shared with and recognised by Government officials. In 2017, the Chief Executive of the



HKSAR announced in her Policy Address that the means-tested OALA will be enhanced by introducing a higher tier of assistance with higher benefits but with a stricter asset criteria, and the abolition of the need for family members to declare whether they provide financial support for their elderly family members applying for CSSA, which will increase the coverage of the old-age CSSA [C11]. At the end of 2017, 167,358 older adults aged 60 and older received CSSA, and 428,363 older adults received a higher tier of OALA. The outcome of the implementation of these measures is the alleviation of elderly poverty in Hong Kong.

**(vii) References to the Corroboration of Impact or Benefit**

- [C1] Panel on Welfare Services. Subcommittee on Retirement Protection, Meeting on Saturday, 11 October 2014 LC Paper No. CB(2)18/14-15(01) (submission) and LC Paper No. CB(2)56/14-15(01) (PowerPoint presentation)  
[https://www.legco.gov.hk/yr14-15/english/panels/ws/ws\\_rp/agenda/rp20141011.htm](https://www.legco.gov.hk/yr14-15/english/panels/ws/ws_rp/agenda/rp20141011.htm)
- [C2] Letter, Former Legislative Councilor Peter Cheung Kwok-che (on file)
- [C3] Media coverage, 19.08. 2014, e.g. TVB: RTHK Universal Pension Alternative Suggested. 19.08.2014; SCMP: Expand Social Security, Study Says; and Apple Daily; Sing Tao; the Sun, Ta Kung Pao; The Standard, Commercial Radio, Sina (cuttings and recordings on file)
- [C4] Legislative Council Official Record of Proceedings, February 18, 2016 [Page 5368].  
<https://www.legco.gov.hk/yr15-16/english/counmtg/hansard/cm20160218-translate-e.pdf>
- [C5] Dr Fernando Cheung, op-ed article, Sing Tao Newspaper. January 8, 2016.  
<http://cheungchiuhung.org.hk/chi/%E4%BD%9C%E7%82%BA%E7%A4%BE%E6%9C%83%E5%9F%BA%E5%BB%BA%E7%9A%84%E5%85%A8%E6%B0%91%E9%80%80%E4%BC%91%E4%BF%9D%E9%9A%9C/>
- [C6] Legislative Council Official Record of Proceedings, February 11, 2016. [Page 6305].  
<https://www.legco.gov.hk/yr14-15/english/counmtg/hansard/cm20150211-translate-e.pdf>
- [C7] Letter, H.M Tsui, Editor, NOW TV. [On file].
- [C8] Letter, Wong Shek-hung, Hong Kong Programme Manager, Oxfam Hong Kong. [On file]
- [C9] Testimonial from Mrs Connie Law, Mandatory Provident Fund Schemes Authority (on file)
- [C10] Supplementary Poverty Line Analysis: Expenditure Patterns of Poor Households in 2015 Information Paper. HKSAR Government. 2016 December.
- [C11] Media Release, AIA Pension and Trust Co Ltd, November 9, 2017.  
<http://www.aia-pt.com.hk/en/about-aia/media-centre/2017/aia-mpf-rq-release.html>
- [C12] Policy Address of Chief Executive of the HKSAR (Paragraph 175),  
[https://www.policyaddress.gov.hk/2017/eng/policy\\_ch05.html](https://www.policyaddress.gov.hk/2017/eng/policy_ch05.html)

## Impact Case History

### (i) Project Title

“Big Data” for School Improvement: Identifying and Analyzing Multiple Data Sources to Support Schools as Learning Communities

### (ii) Name of Principal Investigator

Professor Chiu Ming-ming, Chair Professor, Department of Special Education and Counselling; Director, Assessment Research Centre



### (iii) Summary

The project (i) identifies multiple sources of data (Big Data) with the potential to improve student learning and make that data available to school leaders and teachers in Hong Kong Schools; (ii) identifies researchable issues from big data and supports ongoing research that may result in significant knowledge-transfer initiatives; (iii) supports high quality research output based on research undertaken on big data; and (iv) provides research training for post-doctoral fellows working on the project and for Ph.D. students attracted to the project.

After downloading many large, public data sets (Big Data) from the internet, ARC offered analyses of them via supervising a post-doctoral fellow, both at department meetings and individually, as an incentive for EdUHK colleagues to test their research ideas on the data sets. As of today, the project team has produced 11 journal articles (5 published, 2 accepted, and 4 under review) and 10 conference presentations. It is expected that around 11 more journal articles on different topics will be produced in the next reporting period.

### (iv) Underpinning research

Previous research experience with secondary data analysis and using international databases:

Purdue University Instructional Innovation Grant “Automatic Analysis of Online Discussions” and Purdue Polytechnic Institute Seed Grant “Distinguishing Contact Child Sex Offenders vs. Non-Contact Solicitors: Developing a Digital Forensics Tool for Automatic Analysis of Their Chats with Minors” of Professor Chiu Ming-ming, using data from various online discussion forums.

GRF Project “The Role of Mathematics and Chinese Language in Driving Achievement Growth: What Drives What? A Latent Growth Curve Study” of Professor Magdalena Mok, using secondary data collected by the Territory-wide System Assessment.

GRF Project “Neither Immigrants nor Citizens: Constructing Citizenship Values in a Transnational Context for Hong Kong’s Ethnic Minority Students?” of Professor Kerry J. Kennedy, using secondary data from ICCS 2009.

Spencer Foundation Grants (US) “Inequality and Student Achievement in Mathematics, Reading, and Science” of Professor Chiu Ming-ming, using secondary data of OECD.

### (v) References to the Research

- Chiu, M. M, Seigfried-Spelling, K. C., & Ringenberg, T. R. (2018). Exploring detection of contact vs. fantasy child sex offenders in online chats: Statistical discourse analysis of self-disclosure and emotion words. *Child Abuse & Neglect*, 81, 128-138.
- Chiu, M. M., Chow, B. W. Y., & Joh, S. W. (2017). Streaming, tracking and reading achievement: A multilevel analysis of students in 40 countries. *Journal of Educational Psychology*, 109(7), 915-934.

- Chiu, M. M. (2017). Self-beliefs, metacognition and mathematics achievement: A comparison of US and East-Asian students. *International Journal of Psychology Research*, 11(1), 57-83.
- Lehmann-Willenbrock, N., Chiu, M. M., Lei, Z., & Kauffeld, S. (2017). Understanding positivity within dynamic team interactions: A statistical discourse analysis. *Group & Organisation Management*, 42(1), 39-78. DOI: 10.1177/1059601116628720 Best Empirical GOM article in 2017.
- Mok, M. M. C., Zhu, J., & Law, C. L. K. (2017). Cross-lagged cross-subject bidirectional predictions among achievements in mathematics, English language and Chinese language of school children. *Educational Psychology: An International Journal of Experimental Educational Psychology*, 37(10), 1259-1280.
- Chow, J. F. K. & Kennedy, K. J. (2015). Asian students' conceptions of future civic engagement: Comparing clusters using person-centered analysis. *Research in Comparative and International Education*, 10(1), 7-22.
- Chiu, M. M. (2013). Class inequality – Achievement. In J. Ainsworth & G. J. Golson's (Eds.) *Sociology of Education* (pp. 116-118). Thousand Oaks, CA: Sage.

#### (vi) Details of the Impact or Benefit

The project has identified 4 open databases which contain many open data sources, and 17 big data sets, from which we generated ideas for research topics. For examples, from the Trends in International Mathematics and Science Study (TIMSS 2011 & 2015; IEA), we found that factors like parenting practices and school governance affected students' learning outcomes (e.g. on mathematics and science); from the International Civic and Citizenship Education Study (ICCS 2009; IEA), we investigated the influence of school culture/classroom climate on local and/or immigrant students' sense of belonging to their schools. These big data sets were discussed and analysed, which yielded many research publications.

The project engaged 36 colleagues across 16 departments/centres of the University, and generated 26 research themes including (but not limited to) immigrant students' sense of belonging, student reflection, economic inequality, and test scores, parent-child relationships, and students and computer self-efficacy.

Colleagues worked together and produced fruitful research outputs, including 11 journal articles (5 published, 2 accepted, and 4 submitted) and 10 presentations at international conferences (details please refer to section vii). A learning brief on "Classroom Discipline" has also been disseminated to about 280 pre-service and in-service teachers, providing handy and practical advice to support teachers on classroom management, teaching, and learning.

#### (vii) References to the Corroboration of Impact or Benefit

- Journal articles published or accepted:
  - i. Kong, S. C., Chiu, M. M., & Lai, M. (2018). A study of primary school students' interest, collaboration attitude, and programming empowerment in computational thinking education. *Computers & Education*, 127, 178-189.
  - ii. Kuang, X., & Kennedy, K. J. (2018). Alienated and disaffected students: Exploring the civic capacity of 'outsiders' in Asian societies. *Pacific Education Review*, 19(1). doi:10.1007/s12564-018-9520-2.
  - iii. Zhu, J., Kuang, X., Kennedy, K. J., & Mok, M. M. C. (2018). Previous civic experience and Asian adolescents' intention of participating in legal protest: Mediating role of interest and self-efficacy. *Asia Pacific Journal of Education*.
  - iv. Kuang, X., Kennedy, K. J., & Mok, M. M. C. (2018). Creating democratic classrooms in Asian contexts: The influences of individual and school level factors on open classroom climate. *Journal of Social Science Education*, 17(1), 29-40.

- v. Chen, H.-F., & Zhu, J. (2017). Optimal items for assessing parental involvement across different groups during middle childhood. *Journal of Child and Family Studies*, 26(11), 2999-3012. doi:10.1007%2Fs10826-017-0809-2
  - vi. Lee, D. H. L., & Lee, W. O. (Accepted). Transformational change in instruction with professional learning communities? The influence of teacher cultural disposition in high power distance contexts. *Journal of Educational Change*.
  - vii. Zhu, J., Kennedy, K. J., Mok, M. M. C., & Halse, C. M. (Accepted). Immigrant status and civic learning: The role of antecedent, opportunity, and propensity factors. *PsyCH Journal*.
- Conference presentations:
- i. So, W. M. W., Chen, Y., Lim, K. M. L., Mun, K. J., Park, Y. S., Guo, C. J., ...Otsuji, H. (2018, August). *Examining student-and school-level factors affecting 4th graders' science achievement: Two-level multilevel path analyses of TIMSS 2015 in five Asian regions*. Paper presented at the WERA 2018 World Congress, 3-5 August 2018, The Westin Grand, Cape Town, South Africa.
  - ii. Zhu, J. (2018, June). *The use of the Center for Epidemiologic Studies Depression (CES-D) Scale in the Chinese population: A Rasch analysis*. Paper presented at the 2018 International Congress of Applied Psychology (ICAP 2018), 26 – 30 June, 2018, Palais des congrès, Montréal, Québec, Canada.
  - iii. Mok, M. M. C., Zhu, J., & Kuo, B.-C. (2017, November). *Predictors of test anxiety for students in Asia countries: Results from PISA2015*. Paper presented in the WERA Focal Meeting & HKERA International Conference, 30 November - 2 December 2017, The Education University of Hong Kong, Hong Kong.
  - iv. Zhu, J., & Mok, M. M. C. (2017, November). *Chinese students' participation in computer tutoring for additional instruction and its effect on academic achievement*. Paper presented in the WERA Focal Meeting & HKERA International Conference, 30 November - 2 December 2017, The Education University of Hong Kong, Hong Kong.
  - v. Chui, W. Y. (2017, November). *A cross-strait (Hong Kong and Taiwan) study on the school management and students' attitudes towards mathematics and science: By multilevel MIMIC-SEM*. Paper presented in the WERA Focal Meeting & HKERA International Conference, 30 November - 2 December 2017, The Education University of Hong Kong, Hong Kong.
  - vi. Kuang, X. (2017, November). *Predictor for students' computer information literacy*. Paper presented in the WERA Focal Meeting & HKERA International Conference, 30 November - 2 December 2017, The Education University of Hong Kong, Hong Kong.
  - vii. Kennedy, K. J. (2017, September). *Comparing "Asian Giants": Exploring factors that account for Singapore and Hong Kong students' academic achievement*. Paper presented at the meeting of The Human Capital & Education for Asian Development Foundation, Singapore.
  - viii. Kuang, X., & Mok, M. M. C. (2017, June). *How to provide an open classroom climate for students?* Paper presented at 13th CitizED International Conference, 29 June - 1 July 2017, Korea National Sport University, Seoul, Korea.
  - ix. Wong, K. L., Kuang, X. X., & Chiu, M. M. (2017, June). *Comparative study among Hong Kong, Taiwan, Korea: Teacher self-efficacy have affected student civic learning, participation in school activities, and intention to participation in future*. Paper presented at 13th CitizED International Conference, 29 June - 1 July 2017, Korea National Sport University, Seoul, Korea.
  - x. Kuang, X., Kennedy, K. J., & Mok, M. M. C. (2017, June). *Creating democratic classrooms in Asian contexts: The effects of open classroom climate on student learning and possible school facilitating conditions*. Paper presented at 13th CitizED International Conference 29 June - 1 July 2017, Korea National Sport University, Seoul, Korea.

### Impact Case History

#### (i) Project Title

Building the Capacity of Higher Education Institutions in Asia-Pacific for Blended Learning to Enhance Student Engagement and Outcomes

#### (ii) Name of Principal Investigator

Professor Lim Cher Ping, Chair Professor of Learning Technologies and Innovation, Department of Curriculum and Instruction

#### (iii) Summary

An institutional framework, developed by Professor Lim Cher Ping and his team, has driven and supported blended learning for better access to quality teaching and student learning at higher education institutions (HEIs) in the Asia-Pacific region. The application of the framework at HEIs in Cambodia, South Korea, Mainland China, Mongolia, and Sri Lanka, has supported the UN's Sustainable Development Goal for inclusive quality education. In Hong Kong, Lim has led and collaborated with four local universities to implement the Blended & Online Learning & Teaching (BOLT) project in enhancing student learning across different disciplinary programmes.



#### (iv) Underpinning research

Since joining EdUHK in late 2010, Lim, Chair Professor of Learning Technologies and Innovation, has worked with blended learning experts and education specialists in UNESCO, the Asian Development Bank, the World Bank, the International Development Research Centre, and partner universities worldwide. Lim's framework for the effective adoption of information and communication technologies (ICT) in education is situated in his two decades of research and knowledge transfer work with teachers, education leaders, and policymakers.

Despite the potential of ICT to enhance the learning process by providing access to marginalised communities, this potential has too often not been realised. Lim has sought to address this issue by focusing his research on the institutional drivers for effective use of ICT in education [R3, R6]. By employing a sociocultural-historical perspective for mixed-method case studies across different education settings and levels, his research revealed three key principles: (1) in ICT-enabled learning environments, activities have to be organised by teachers to take up the affordances of ICT for teaching and learning [R3, R4, R5]; (2) at the institutional or system level, a holistic approach has to be adopted by education leaders to drive and support ICT-enabled practices with the aim of improving access to quality education [R1, R6]; and (3) given the pivotal roles of teachers and institutions in ICT-enabled learning environments, the capacity of institutions, education leaders and teachers has to be built [R1, R6]. These outputs have generated about 4,000 citations since 2001.

The three principles above have laid the groundwork for his applied research, including the development of a framework for building the capacity of teacher education institutions for developing pre-service teachers' ICT in education competencies. The framework, adopted by The Australian Council of Education Deans for its national project to integrate ICT competencies development into its pre-service teacher curriculum, and by teacher education institutions worldwide, [R1], has been redeveloped to focus on capacity building of HEIs to drive, sustain, and scale up their blended learning practices. In 2015, supported by UNESCO, Lim led 17 leading international blended learning experts to adapt this framework to the unique sociocultural contexts of HEIs by drawing upon promising practices and lessons learnt [R6]. The framework includes eight strategic dimensions: vision and philosophy; curriculum; professional learning; learning support;



infrastructure, facilities, resources and support; policy and institutional structure; partnerships; and research and evaluation. A self-assessment tool consisting of all eight dimensions was then developed for HEIs to conduct a needs and situation analysis of their existing state of blended learning [R6], allowing them to identify gaps and set strategic targets for blended learning. HEIs are then more likely to formulate and implement strategies for sustaining and scaling of blended learning practices in their programmes.

Given the pivotal role of teachers in the blended learning environment, professional learning is also a focus of Professor Lim's current projects in Cambodia, Sri Lanka, Philippines, Indonesia, and Hong Kong. A grassroots approach is adopted towards professional learning based on the ideas of reflection and learning-by-doing of teachers, a blended learning culture, and peer-mentoring [R5, R6].

#### (v) Selected Research References to Support This KT Project

- [R1] Lim, C.P. & Chai, C.S. (2012). Special issue: Building the capacity of the new generation of teachers in Asia. *Australasian Journal of Educational Technology*, 28(6).
- [R2] Lim, C.P., Zhao, Y., Tondeur, J., Chai, C.S., & Tsai, C.C. (2013). Bridging the gap: Technology trends and use of technology in schools. *Journal of Educational Technology & Society*, 16(2), 59-68.
- [R3] Yang, M., Tai, M., & Lim, C.P. (2015). The role of e-portfolios in supporting productive learning. *British Journal of Educational Technology*, 47(6), 1276-1286.
- [R4] Lai, M., Lim, C.P., & Wang, L.X. (2016). Potentials of digital teaching portfolios for establishing a professional learning community in higher education. *Australasian Journal of Educational Technology*, 32(2), 1-14.
- [R5] Lai, M., Lam, K.M., & Lim, C.P. (2016). Design principles for the blend in blended learning: A collective case study. *Teaching in Higher Education*, 21(6), 716-729.
- [R6] Lim, C.P. & Wang, T.C. (2016). A framework and self-assessment tool for building the capacity of higher education institutions for blended learning (pp.1-38). In C.P., Lim & L.B., Wang (Eds.), *Blended Learning for Quality Higher Education: Selected Case Studies on Implementation from Asia-Pacific*. France (Paris): UNESCO.

Research funding: Australian Research Council (2007 to 2011) for earlier research on digital forms of assessment in secondary schools; UNESCO Asia-Pacific (Bangkok, Thailand; 2015/16, HK\$426,000), for Building the Capacity of Higher Education Institutions in Asia-Pacific for Blended Learning to Enhance Student Engagement and Outcomes; the HEAD Foundation (Singapore) and International Development Research Centre (Canada; 2016/17, HK\$530,000), for Building the Capacity of Cambodian Universities for Blended Learning to Enhance the Equity, Quality and Efficiency of Higher Education; University Grants Committee, Hong Kong (Grant No.: PolyU1/T&L/12-15, 2015-2016, HK\$8.77 million) for the Blended & Online Learning & Teaching (BOLT) Project; The Education University of Hong Kong (2016-2018, HK\$5 million; 2018-2020, HK\$7.43 million) for Cultivating a Blended Learning Environment and Harnessing Online Technologies for Quality Access to Education and Lifelong Learning.

#### (vi) Details of the Impact or Benefit

In 2015, Lim's framework was used as an analytical lens to examine and discuss how nine universities in the Asia-Pacific region drove and supported blended learning based on the framework's eight dimensions. The experiences of these universities were compiled into the book *Blended Learning for Quality Higher Education: Selected Case Studies on Implementation from Asia-Pacific*, published and disseminated by UNESCO in 2016 [S1]. To date, over 1,000 copies have been distributed to all 46 UNESCO member states in the Asia-Pacific region, serving as a policy advocacy tool for educational ministries, policy organisations, and selected universities. With about 6,000 online views and 900 downloads, it is supported by UNESCO for the third round of printing and distribution beyond the Asia-Pacific region. The late Dr Gwang-Jo Kim, Director UNESCO

(Asia-Pacific), describes the book as a “valuable approach” to achieving the UN’s Sustainable Development Goal Four, Education 2030, for inclusive quality education [S1, xiii].

The framework was adopted by UNESCO (Asia-Pacific) for its ICT in the education project *Seizing Digital Opportunities in Higher Education*, funded by the Shenzhen Municipal Government at US\$500,000. Working with HEIs in Cambodia and Sri Lanka, the flagship Royal University of Phnom Penh (RUPP) and Colombo University respectively, Lim facilitated the strategic planning for blended learning [S3, S4]. In 2016, RUPP adopted the framework to guide its senior management team as it revised and fine-tuned ICT in its education masterplan, which is estimated to influence 25,000 students. By building on Lim’s expertise to address all eight dimensions of the framework, the project won “full support” from Hang Chuon Naron, Cambodia’s Minister of Education, for its focus on staff professional development for ICT-driven innovations [S3]. Lim’s involvement with Colombo University, since 2017, has also led to him guiding the formulation of a similar masterplan [S4]. These two universities now act as Centres of Excellence and, with the support of UNESCO and Lim, will disseminate their practices and the lessons learnt on blended learning to other universities in their own countries to enhance access to quality education in both urban and rural areas.

The assessment tool [R6] has also enabled partnerships between the national RUPP and the provincial Syay Rieng University and the University of Battambang, estimated to influence around 4,100, and 2,600 students, respectively. The tool allowed senior managers to identify opportunities in closing the urban-rural quality gap, and together with Lim, developed a strategic action plan to implement blended learning in a university course across the three universities [S8]. With training provided by Lim, teachers saw how, as one acknowledged, “the introduction of blended learning has allowed me to rethink what is possible and how the use of it can benefit my students” [S8]. They observed more active, self-directed, and personalised learning, noting “students now [having]...self-motivation for learning”, and not “having to explain to students from A to Z...in the materials they have used, [helping] them move forward” [S8].

The framework has also been adopted by Dr Han Xibin at Tsinghua University for his education institute’s partners in more than 400 mainland-Chinese HEIs [S1]. Many HEIs have used a top-down approach. For instance, Yangzhou University has endorsed blended learning as the new mode of learning, setting annual target numbers of blended learning courses for each of its colleges [S1]. University-level policies, like awards and monetary incentives, have also been established to promote high quality blended learning courses. Professor Lim Cheolil, President of the Korean Society for Educational Technology at the Seoul National University (SNU), has also adopted the framework for use by Korean universities. Referring to an English writing course at SNU, a student wrote, “the best benefit of blended learning...was that I was able to learn something on a daily basis. The online café, available all the time, kept me alert on learning” [S7].

Lim’s grassroots approach, via the UGC-funded BOLT project, has also influenced student learning in Hong Kong. Since its inception at EdUHK in 2014, the project has been expanded, under Lim’s co-leadership, to collaborate with four other local universities. BOLT has enhanced student learning across numerous subjects. Recurring impactful themes among students include large improvements in motivation to learn and to participate in class activities [S6]. An instructor noted that such learning approaches “[changed]...my ideas about qualitative research completely in such a way that I am a bit scared of liking this approach so much that I may take it very seriously in my research career” [S6]. Students have also excelled academically; the use of blended learning resulted in twice as many students, from seven to 15, obtaining an A grade or higher in a human anatomy class [S6].



Institutional self-assessment and strategic planning of blended learning adoption in Cambodia



Student focus group discussion on their learning experience in blended learning environments in Cambodia

**(vii) References to the Corroboration of Impact or Benefit**

- [S1] Han, X.B., Wang, Y.P., Li, B.F., & Cheng, J.G. (2016). Case study of institutional implementation of blended learning at five universities in China (pp.265-296). In C.P., Lim & L.B., Wang (Eds.), *Blended Learning for Quality Higher Education: Selected Case Studies on Implementation from Asia-Pacific*. France (Paris): UNESCO.
- [S2] Royal University of Phnom Penh (2017). *Information and Communication Technology Policy and Master Plan 2017-2020*. Cambodia: Royal University of Phnom Penh.
- [S3] Royal University of Phnom Penh Information and Technology Center. (2017) News: “Seizing Digital Opportunities in Higher Education”. Cambodia: Royal University of Phnom Penh.
- [S4] University of Colombo, School of Computing. Workshop on “Seizing Digital Opportunities in Higher Education”, March 15 & 16, 2017.
- [S5] The BOLT Project: a collaborative approach to developing blended & online learning and teaching. Presentation, Polytechnic University of Hong Kong.
- [S6] BOLT stories. <https://www.bolt.edu.hk/bolt-stories/>
- [S7] Excerpt 88. Mijung Joyce Kim. Ph.D. Dissertation, Graduate School, Seoul National University. August 2014.
- [S8] Building the Capacity of Cambodian Universities for Blended Learning to Enhance the Equity, Quality, and Efficiency of Higher Education. Report to the HEAD Foundation. April 2019

President’s Award for *Outstanding Performance in Knowledge Transfer (Individual Award)*, The Education University of Hong Kong (2019)

<http://p-awards.eduhk.hk/ProfessorLimCherping.php>

### Impact Case History

**(i) Project Title**

Learning, Teaching and Researching Cantonese with a Data-driven Approach: A Corpus of Cantonese Movie Dialogues

**(ii) Name of Principal Investigator**

Dr Andy Chin Chi-on, Associate Professor,  
Department of Linguistics and Modern Language Studies;  
Associate Director, Centre for Research on Linguistics and  
Language Studies;  
Associate Dean (R&PS), Faculty of Humanities



**(iii) Summary**

Capitalizing on computer technology and the concept of big data, a Cantonese corpus was developed to offer a new perspective for teaching, learning, and researching Cantonese. The corpus has around 800,000 character tokens of speech data taken from 60 Hong Kong movies, whose dialogue is close to the variety of Cantonese spoken in daily life situations. Besides offering authentic and natural language data for Cantonese studies, this corpus can provide basic but important quantitative and qualitative information such as word frequency, contextual information and video segments to enhance the understanding of the use and development of Cantonese. Noticeable effort has been made to systemise the corpus, for instance, word segmentation and assignment of parts-of-speech (POS) and Cantonese romanization to the segmented data. Another innovative feature of this corpus is the linking of the search results to the video segments of the movies, allowing users to obtain multimodal information such as body language, speech rate and prosody in addition to the transcribed data.

The corpus data can be accessed through a flexible search engine (<http://hkcc.eduhk.hk/>) which can extract relevant and key linguistic information useful for learning and teaching Cantonese, such as high frequency words (of different parts-of-speech), word association / collocation, and multi-modal information of utterances (via the video segments of the movies).

With the integration of data mining and cloud computing technology, the system creates a new perspective for humanities and linguistics research. The corpus data and media technology can help users undertake Cantonese linguistic studies beyond the traditional approach such as discourse and pragmatics, multimodality, and ontology. All these elements are important for understanding the role that language plays in human communication. The experience of constructing this corpus involving collecting and processing huge amounts of textual material lays a solid foundation for the future development of Digital Humanities for Cantonese Studies.

**(iv) Underpinning research**

The corpus takes on a new perspective to study Cantonese by going beyond the traditional framework through which language data was collected mostly by interviewing informants. This traditional approach can provide a preliminary understanding of the language in terms of lexicon, grammar and pronunciations. Some deeper issues such as pragmatics, semantics and discourse however remain to be researched. To bridge this gap, a Cantonese corpus was constructed by collecting authentic speech data through which we can gain a better understanding on how the language is used for communication.

**(v) Selected Research References to Support This KT Project**

錢志安 (2013): 粵語研究新資源:《香港二十世紀中期粵語語料庫》,《中國語文通訊》, 92(1): 頁 7-16。

Chin, Andy Chi-on. (2019). Initiatives of digital humanities in Cantonese studies: A corpus of mid-twentieth-century Hong Kong Cantonese. In Anna Tso Wing Bo (Ed.), *Digital Humanities and New Ways of Teaching* (pp. 71-88). Singapore: Springer.

#### Media interviews:

1. 輸入 70 粵語長片百萬字對白 教大粵語庫增播片學例句, 2019-04-11, Ming Pao Daily News, A21, 教育
2. 教大語料庫更新查字兼睇電影片段 老片教粵語 老外都讚好, 2019-04-11, Wen Wei Po, A23, 新聞透視眼
3. 教大語庫輯 70 粵語片 學廣東話神髓, 2019-04-11, Metro Daily, P02, 新聞
4. 教大建語料庫 助外國人趣學廣東話, 2019-04-11, Sing Tao Daily, F01, 教育
5. 教大語料庫推電影對白學粵語, 2019-04-11, Lion Rock Daily, P09, 港聞
6. 對唔住呀對唔住啲意思大不同 教大新版語料庫助學粵語, 2019-04-11, am730, A21, NEWS, 本地

#### Screen Captures of the Project:

睇 fan3 (Verb)

Home / Words / 睇 fan3 (Verb)

BASIC STATISTICS	
Orth. Form	睇
Jyutping	fan3
Syn. Category	Verb
Frequency	381
No. Sentences	372
No. Films	56/60

DISTRIBUTION BY YEAR

BY GENRE

BY GENDER

SENTENCES

Film: Any

Year: Any

Genre: Any

Actor: Any

Gender: Any

Apply Clear

1. NCA 吳楚帆 Stubborn Lovers (1943) 00:26:40-00:26:41 Watch  
我想睇吓你咁瞓咗未。  
我 想 睇 吓 你 咁 瞓 咗 未  
ngo5 soeng2 tai2 haa5 nei5 dei6 fan3 zo2 mei6  
Pro Verb Verb Asp Pro Verb Asp Adv  
1SG WANT TO LOOK 2PL SLEEP PFV NOT YET
2. BJA 白燕 Stubborn Lovers (1943) 01:07:53-01:07:54 Watch  
你好好咁瞓！  
你 好 好 咁 瞓  
nei5 hou2 hou2 fan3  
Pro Adv Adj Part Verb  
2SG VERY GOOD SLEEP
3. BJA 白燕 Stubborn Lovers (1943) 01:41:58-01:42:01 Watch  
等你睇咗嘅時候我就離開你。



The Corpus of Mid-20th Century Hong Kong Cantonese

Home Search Actors Films Words My Profile Logout

Welcome to the **beta version** of the corpus! We are still in the process of annotating the corpus data. Please contact us if you have any comments.

## 刁蠻 (Unknown)

Home / Words / 刁蠻 (Unknown)

### BASIC STATISTICS

Orth. Form	刁蠻
Jyutping	
Syn. Category	Unknown
Frequency	33
No. Sentences	32
No. Films	4/60

### DISTRIBUTION BY YEAR

### BY GENRE

### BY GENDER

### SENTENCES

Film: Any

Year: Any

1. 先生, 人人都話我三妹刁蠻㗎。

00:04:17-00:04:19 [Watch](#)

The Corpus of Mid-20th Century Hong Kong Cantonese

Home Search Actors Films Words My Profile Logout

## Words

Home / Words

All Adjectives Adverbs Aspect Markers Classifiers Nouns **Verbs** Utterance Particles (SFP)

#	Frequency	Orth. Form	Jyutping	Syn. Category	Gloss
1	11574	係	hai6	Verb	BE
2	5937	嚟	lai4	Verb	COME
3	4971	去	heoi3	Verb	GO
4	3860	有	jau5	Verb	HAVE
5	2742	返	faan1	Verb	RETURN
6	2706	冇	mou5	Verb	NOT HAVE
7	2703	做	zou6	Verb	DO
8	2646	畀	bei2	Verb	GIVE
9	2228	喺	hai2	Verb	BE AT
10	2162	講	gong2	Verb	SPEAK

The Corpus of Mid-20th Century Hong Kong Cantonese

Home Search Actors Films Words My Profile Logout

## Words

Home / Words

All Adjectives Adverbs Aspect Markers Classifiers Nouns Verbs Utterance Particles (SFP)

Listed below are the 100 most frequently occurring words in the corpus.

#	Frequency	Orth. Form	Jyutping	Syn. Category	Gloss
1	19012	你	nei5	Pro-Form	2SG
2	18811	我	ngo5	Pro-Form	1SG
3	12336	唔	m4	Adverb	NOT
4	11574	係	hai6	Verb	BE
5	8917	呀	aa3	Utterance Particle	
6	6711	佢	keoi5	Pro-Form	3SG
7	6110	好	hou2	Adjective	GOOD
8	5937	嚟	lai4	Verb	COME
9	5685	嘅	gam2	Pro-Form	LIKE THIS
10	5245	個	go3	Classifier	

#### (vi) Details of the Impact or Benefit

As of the reporting time, there are over 3000 registered active users on the online portal for Cantonese corpus (Phase I) including applied linguistics researchers, school teachers, and educators, who are all dedicated to developing pedagogies and teaching and learning materials for Chinese language education. As a systematic database, the corpus provides a new resource for the development of effective Chinese (especially Cantonese) teaching and learning materials for learners and instructors of Cantonese especially those who learn Chinese (as well as Cantonese) as a secondary or foreign language. The dialogic nature of the corpus data is also useful for the development of Artificial intelligence (AI) products in the field of speech recognition, such as chatbox systems.

#### (vii) References to the Corroboration of Impact or Benefit

1. Number of registered users.
2. Media coverage of the corpus and its applications.
3. Organisations of workshops and survey with participants on the corpus as a tool for learning, teaching and researching Cantonese.
4. Use of the corpus for teaching, learning and researching Cantonese.



### Impact Case History

**(i) Project Title**

Innovative Grid Score for Electronic Orchestra (e-Orch)

**(ii) Name of Principal Investigator**

Dr Michael Leung Chi-hin, Assistant Professor,  
Department of Cultural and Creative Arts

**(iii) Summary**

Innovative Grid Notation is tailor-made for tablet music performance & creation, with specific instructions for the GarageBand setting, such as autoplay, sustain, arpeggiator, attack, release, etc., Unlike traditional staff notation, grid notation present music in boxes with solfa name and signs. The boxes represent the sub-divided basic beats. With the easy-to-read music score, players can sight-read and play music directly and easily with GarageBand.

**(iv) Underpinning research**

The PI has launched the knowledge project entitled “e-Orch Teaching Manual: Curriculum and Resources” to (1) to disseminate the research finding of his Early Career Scheme (ECS) to education sectors; (2) to provide practical electronic orchestra (e-Orch) teaching plans and resources to primary and secondary sectors and the community with the use of iOS GarageBand; (3) to demonstrate a comprehensive approach to e-Orch music notation – Grid Notation; (4) to provide a necessary technical setup plan of e-Orch; (5) to organise a professional seminar/workshop for in-service music teachers and community; and (6) to nurture a wider scope for future research.

The upcoming research entitled “Lowering the Barriers to Music-making: Investigating the Feasibility of Tablet Orchestra in the Teaching and Learning of Music Performance and Composition” will focus on the effectiveness of the Grid Notation.

**(v) Selected Research References to Support This KT Project**

The research is going to be presented in the 12<sup>th</sup> Asia-Pacific Symposium for Music Education Research and Apple Distinguished Educator Institute in July 2019.

**(vi) Details of the Impact or Benefit**

e-Orch makes use of the newly invented grid score and GarageBand for music playing in group settings. It reduces music learning and performing barrier to enable people from different musical backgrounds to enjoy music-making together immediately. It provides a short cut for ensemble and musicianship training, thus creates favourable conditions for electronic ensembles or orchestras in schools and society.

Owing to the advances of technology, digital devices like the computer, tablets, and smartphone have become affordable and widely available. There is great potential for schools and communities to set up e-Orch, and to learn and perform music with GarageBand. Currently, the PI has collaborated with the Hong Kong Association for Music Educators and the Leisure and Cultural Services Department to develop the e-Orch Music Creation and Performance in Practice Project since 2017. More than 12 schools are using the project to enable students to make music. Three public lecture-demonstrations “The Future Orchestra at Present: e-Orch” were held in Tai Kwun in April 2019 with very positive feedback.



e-Orch Music Creation and Performance in Practice Project Finale Performance in Collaboration with LCSD



e-Orch Lecture-Demonstration at Tai Kwun, Centre for Heritage & Arts

**(vii)References to the Corroboration of Impact or Benefit**

There are more than 300 beneficiaries who involved in learning music with grid score. They enjoyed less score reading time compared to the traditional staff notation.

## Annex II

## KT Fund Projects 2018/19

Project Title	Principal Investigator
Raising Awareness in Teachers and Parents in Mainland China in Support of High Functioning Students with Autism Spectrum Disorder: An Evidence-based Approach for Developing Positive Efficacy	Professor Lo Sing-kai
One Country Two Systems in Hong Kong: Historical to Comparative Perspectives	Dr Brian Fong Chi-hang
Promoting the Importance of Students' Sleep Health to School Administrators, Teachers, Counsellors and Parents	Dr Esther Lau Yuet-ying
Peek into Other People's Mind: Developing an Online Training System for Parents and Teachers to Facilitate Hong Kong Children's Theory of Mind (ToM) Development	Dr Wang Zhenlin
Supporting Kindergarteners' Learning English at Home through a Literacy Play Kit	Dr Yeung Siu-sze
Developing STEM Teaching Materials for Secondary Schools	Dr Sarah Lee Hoi-man
e-Orch Teaching Manual: Curriculum and Resources	Dr Michael Leung Chi-hin
Enhancing Teacher Orchestration in Students' Seamless Collaborative Science Inquiry Leveraged by m-Orchestrate Learning System	Dr Song Yanjie
Design of Picture Books in Learning Mathematics in Primary Mathematics Classrooms	Dr Zhang Qiaoping



## Annex III

## EdUHK Joined HK SciFest 2019

EdUHK joined HK SciFest 2019 (12 – 28 April 2019) to provide a series of STEM exploration programmes to the public.

<b>Booth Exhibition</b>	<b>STEM Education in SES, The Education University of Hong Kong</b>
<ul style="list-style-type: none"> <li>19 – 22/4/2019 (12:00nn – 5:00pm)</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	
<b>Workshop</b>	<b>Exploring Scientific Inquiry through Hands-on STEM Activities</b>
<ul style="list-style-type: none"> <li>21 – 22/4/2019 (3:00pm – 4:00pm)</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	
<b>Site Visit</b>	<b>Having Fun in Eco-garden</b>
<ul style="list-style-type: none"> <li>12 – 13, 26 – 27/4/2019 (10:00am – 1:00pm/ 2:00pm – 5:00pm)</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong</i></p>	
<b>Lecture</b>	<b>Resource Recovery from Organic Waste in Hong Kong</b>
<ul style="list-style-type: none"> <li>13/4/2019 (12:00nn – 1:00pm)</li> <li>Speaker: Dr Tsang Yiu-fai</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum, venue provided by Hong Kong Space Museum</i></p>	
<b>Lecture</b>	<b>Creative Environmental Practices (STEM) – QEF Project Sharing</b>
<ul style="list-style-type: none"> <li>19/4/2019 (2:00pm – 3:00pm)</li> <li>Speaker: Dr Vivian Cheng Mo-yin, Miss Jiji Chan Yin-chi and Miss Diana Wong Yuen-sam</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	
<b>Lecture</b>	<b>Enhancing Creativity Development through Cross-disciplinary STEM+A Learning (Music+VA+Science+Environment+Invention+Robotic...)</b>
<ul style="list-style-type: none"> <li>19/4/2019 (5:30pm – 6:30pm)</li> <li>Speakers: Dr Vivian Cheng Mo-yin, Dr Wong So-lan, Dr Leung Chi-hin, Mr Chan Ping-man and Dr Chan Man-ho</li> </ul> <p><i>Organised by Department of Science and Environmental Studies and Department of Cultural and Creative Arts, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	

<b>Lecture</b>	<b>STEAM and Structures of Organisms</b>
<ul style="list-style-type: none"> <li>• 20/4/2019 (2:00pm – 3:00pm)</li> <li>• Speaker: Dr Richard Wong Tai-choi</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	
<b>Lecture</b>	<b>STEAM and STSE in Hong Kong Western and Chinese Green Buildings</b>
<ul style="list-style-type: none"> <li>• 20/4/2019 (4:00pm – 5:00pm)</li> <li>• Speaker: Dr Richard Wong Tai-choi</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum</i></p>	
<b>Lecture</b>	<b>Use of Microorganisms in Environmental Engineering</b>
<ul style="list-style-type: none"> <li>• 28/4/2019 (5:30pm – 6:30pm)</li> <li>• Speaker: Dr Tsang Yiu-fai</li> </ul> <p><i>Organised by Department of Science and Environmental Studies, The Education University of Hong Kong, in association with Hong Kong Science Museum, venue provided by Hong Kong Space Museum</i></p>	

## Annex IV

Number of Beneficiaries <sup>Note 1</sup>

Key Beneficiary Item	Nature of KT Activities Involved <sup>Note 2</sup>	2016/17 <sup>Note 3</sup>	2017/18	2018/19
Number of schools benefited	Categories (4), (5) & (6)	26,348	7,299	13,963
Number of principals benefited	Categories (1), (3), (4),(5) & (6)	26,322	4,951	7,079
Number of teachers benefited	Categories (1), (3), (4),(5) & (6)	74,839	75,070	101,083
Number of students benefited	Categories (4) & (5)	1,472,243	1,208,398	1,196,900
Number of conference participants benefited	Category (2)	6,813	9,055	9,561
Number of organisations/ advisory bodies benefited	Category (6)	1,085	1,125	1,102

Notes:

- The number of beneficiaries is calculated according to the number of activities involved.  
Some beneficiaries and schools may have been involved in more than one activity.
- Categories of KT Activities include:
  - Continuing Professional Development (CPD) Courses
  - Local/International Professional Conferences
  - Professional Seminars/Workshops
  - Commissioned/Contract Projects
  - Partnership Projects for Change, Improvement, and Innovation
  - Consultancies
- UGC Block Grant Professional Development Programmes are not counted as CPD Courses starting from 2016/17. Relevant data was subsequently updated in blue.

## Annex V

## Summary of Performance Indicators

Performance Indicators for Knowledge Transfer Activities			2016/17 (1/7 - 30/6)	2017/18 (1/7 - 30/6)	2018/19 (1/7 - 30/6)
1	<b>Continuing Professional Development (CPD) Courses*</b>	Number of CPD courses	17	22	19
		Income from CPD courses	\$6,433,048	\$7,880,826	\$11,010,541
		Number of key partners	16	42	30
		Number of student contact hours	224	800	774
2	<b>Local/International Professional Conferences</b>	Number of local/international conferences	52	54	53
		Income from conferences	\$933,469	\$2,089,214	\$2,125,182
		Number of key partners	241	126	117
		Number of presentations	1,436	1,547	1,459
3	<b>Professional Seminars/Workshops</b>	Number of professional workshops/ seminars	426	427	434
		Income from seminars/workshops	\$546,977	\$1,245,950	\$739,937
		Number of key partners	413	1,005	1,355
4	<b>Commissioned/Contract Projects</b>	Number of commissioned/ contract projects	97	103	105
		Income from projects	\$48,132,401	\$60,262,647	\$91,967,611
		Number of key partners	238	254	282
5	<b>Partnership Projects</b>	Number of partnership projects	112	120	126
		Income from partnership projects	\$7,687,091	\$11,168,258	\$21,164,189
		Number of key partners	1,967	1,563	691
6	<b>Consultancies</b>	Number of consultancies	27	29	30
		Income from consultancies	\$2,111,890	\$7,189,653	\$2,673,883
7	<b>Professionals Engaged in Academic/ Professional Programmes</b>	Number of programmes involved	65	66	64
		Number of teachers engaged	11	49	21
		Number of principals engaged	24	23	19
		Number of other professionals engaged	89	141	198
8	<b>Commercialised R&amp;D Products and Intellectual Properties(IPs)</b>	Number of commercialised R&D products/ IPs	15	20	49
		Income from the R&D products/ IPs	\$160	\$233,424	\$40,200
9	<b>Social, Community and Cultural Engagement</b>	Number of public lectures/ symposiums/ exhibitions And speeches to a community audience	417	460	519
		Number of performances and exhibitions of creative works by staff or students	47	50	26
10	<b>Staff Engaged as Professional Consultants or Members of External Advisory Bodies</b>	Number of staff engaged	122	149	168
11	<b>Student Engagement</b>	Number of student internships/ placements	2,842	2,703	3,243
12	<b>Publicity or Media Exposure</b>	Number of publicity or media exposure related to KT, including print, on-line and electronic media	729	783	879
13	<b>Nexus between Research and Teaching</b>	Number of academic staff using research in teaching/course activities	296	275	269
		Percentage of academic staff using research in teaching/course activities	93.7%	93.9%	96.8%
		Number of academic staff using teaching as research	191	178	162
		Percentage of academic staff using teaching as research	60.4%	60.8%	58.3%
14	<b>Publications with Local and Regional Impacts</b> <sup>Note 2</sup>	Number of publications directly relevant to improvement, innovation and development of professional/educational practices/ policy development	836	847	(To be provided)

## Notes:

- \*UGC Block Grant Professional Development Programmes are not counted as CPD Courses starting from 2016/17. Relevant data was subsequently updated in blue.
- The data on item 14 (Publications) for 2018/19 will be captured in the 2018/19 Common Data Collection Format (CDCF) exercise. These data will be provided to the UGC in December 2019, in accordance with the normal CDCF work schedule.
- All the incomes generated are in HK\$.