

Annual Report on Recurrent Funding for Knowledge Transfer 2019/20



Submitted to
University Grants Committee



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1. EXECUTIVE SUMMARY

Throughout the reporting period of 2019/20, the COVID-19 pandemic has impacted the activities and plans of The Education University of Hong Kong (EdUHK). Despite those constraints, which significantly restricted face-to-face teaching and other face-to-face activities, and which pose particular problems for the interactions that promote Knowledge Transfer (KT), the University has continued to develop, promote and encourage teaching education, research and knowledge transfer.

Universities and other tertiary education establishments play a vital role in encouraging original research and innovation. EdUHK remains committed to nurturing innovation and entrepreneurial culture within its own academic and research community, and to developing inspiring and innovative research that will benefit society as a whole. Our commitment has been reaffirmed and rewarded by the achievements and the recognition received, from a wide range of sources, both local and international, during the 2019/20 academic year.

In 2018, the KT Sub-office of the University launched the Education and Social Entrepreneurs Fund (EASE Fund) Scheme to foster innovation and entrepreneurial culture in the EdUHK community. To enrich the scheme, not only has the KT Sub-office, throughout the reporting period, sought funding support from the HKSAR government/ NGOs, it has also organized entrepreneur workshops, and created many networking/ marketing opportunities for EASE Fund teams.

In this period, the University has received international recognition through its participation in two notable international innovation exhibitions, the International Trade Fair for Innovations in Germany and the International Invention Innovation Competition in Canada. At these exhibitions, the University won 8 innovation awards: 1 Gold Medal, 3 Silver Medals, 2 Bronze Medals and 2 Special Awards.

Apart from earning these and other external laurels, the University has continued to recognize, encourage and reward its staff who demonstrate outstanding KT activities by establishing its own awards/ prizes, including the President's Award for Outstanding Performance in KT, the Research Impact Prize by the Faculty of Liberal Arts and Social Sciences, and the Dean's Research Award: Research Engagement and Impact by the Faculty of Education and Human Development.

The coming year will likely also be challenging. We cannot yet see when the COVID-19 pandemic will be brought under control. Nevertheless, the University's dedication to its goals is unwavering. EdUHK will continue to encourage its students, teachers, and administrators to prioritize the University's intellectual property ownership, creativity and innovation. It will continue to encourage its academic and research units to plan and implement KT initiatives, based on their strengths and medium- and long-term development needs, that will enrich not only the world of education, but also the communities of which we are a part.

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 both University and academic unit levels within the reporting year. This report provides a summary of the University's KT developments in 2019/20.

2.1 Driving Innovation

2.1.1 Knowledge Transfer Sub-office's Roles in Driving Innovation

The KT Sub-office within the Research and Development Office is the central support unit for fostering KT in EdUHK. This sub-office forges connections and collaborations between the University and the wider community. Internally, the KT Sub-office supports academics and applied research units and advises them on developing intellectual property and research with widespread applications. Externally, it reaches out to potential partners to initiate KT collaborations and commercialisation of R&D projects.

Over the years, the KT Sub-office has played a crucial role in reinforcing the University's KT activities. It has made notable contributions to establish a solid infrastructure for the development, protection, and licensing of EdUHK intellectual properties (IPs), cultivating outside recognition of research efforts, and, ultimately, forging a new KT culture in the community. All these contributions have helped KT move forward.

As a recognition of the KT Sub-office's role in promoting education technology, in January 2019, the Legislative Council Panel on Commerce and Industry endorsed the Government's proposal to add EdUHK to the designated list (previously made up of HKU, CUHK, CityU, PolyU, HKUST, and HKBU only) to receive a recurrent HK\$8M funding support through the Innovation and Technology Fund to enhance the office's capabilities in technology transfer. In this regard, the KT Sub-office was expanded in the 2019/20 academic year to facilitate the growth of KT activities within the EdUHK community. It now consists of three teams: "Project and Information Management", "Innovation Development and Marketing", and "IP Management and Entrepreneurship". The expansion of the KT Sub-office is an essential step towards extending EdUHK's capacity for innovation and maximizing the social impact of its research. Executive support for the KT Sub-office enables the KT Director and the Committee of Research and Development (CRD) to continue monitoring the implementation of KT activities from the University over the next three years.

One of the KT Sub-office's vital roles in innovation development and marketing was underlined by our participation in notable international innovation events. These included two exhibitions, namely the International Invention Innovation Competition in Canada and the International Trade Fair for Innovations in Germany, from which the University brought home one Gold Medal, three Silver Medals, two Bronze Medals, and two Special

Awards. The flagship event of KT in EdUHK, the EdUHK Award-winning Innovations Salon, was organized in January 2020 as a showcase for 17 outstanding innovations, which benefit the local community due to their stimulation of government-industry-school-university collaboration.

As technology drives innovation and KT advancement, the KT Sub-office launched a new funding scheme, the Innovation & Technology Fund (iTech Fund), in 2020 to support academics in turning ideas into reality. Researchers can use the funding to turn ideas and findings based on research into technological inventions. One example of the essential support for innovation and entrepreneurship provided by the KT Sub-office is its successful securing of the recommendation from the Youth Development Fund (YDF) vetting panel for EdUHK to be one of the 16 NGOs/ universities to receive the second round of the YDF. A sum of HK\$7.5M, comprising a HK\$4.5M matching fund for 10 start-ups plus HK\$1M/year, will be awarded for the KT Sub-office to provide incubation and professional services to start-ups founded by the EdUHK community for three years.

2.1.2 Funding Schemes

The additional resources allow EdUHK to further drive innovative, original, and effective initiatives that benefit the school sector, industries, and the wider community. The KT Sub-office has formulated various funding schemes to develop KT in EdUHK.

2.1.2.1 KT Funds Scheme

Due to the demonstrated effectiveness of the KT Funds Scheme in the 2018/19 academic year, the University has continued to provide the KT Funds Scheme in 2019/20 academic year to support academic units' pursuit of applied R&D, implementation of innovations, and development of KT initiatives and activities. This year, the scheme emphasises the development and application of EdUHK's IPs. A working task group, composed of the CRD members and the KT Director, continues to coordinate grant applications. As a result, a total of nineteen applications were received of which eight were supported. A list of funded projects is set out in Annex II. The scheme is to continue in the next academic year.

2.1.2.2 Innovation & Technology Fund

As technology drives innovation and KT advancement, the KT Sub-office launched a new funding scheme, namely the Innovation & Technology Fund (iTech Fund), in May 2020 to support the academic/ teaching staff in transferring ideas (research results) into reality (technological innovations).

2.1.3 Intellectual Properties (IPs)

2.1.3.1 KT Partnership and Licensing

Education technology, education innovation, and social innovation are the strategic foci of KT in EdUHK. In the upstream, EdUHK has formed partnerships by collaborating with outside companies. These projects include a portable interactive mirror for meditation, a computerized test for drug abuse, health education kits for e-platforms, and automated hearing test systems.

Downstream, EdUHK has concluded three IP licenses with educational business entities to commercialise EdUHK's IPs. These licensed IPs are the "Health Education Kits for Young Adolescence at Puberty" and "透過繪本教學提升幼兒的品格". Meanwhile, the "Using Heart Rate Variability for Real-Time Emotion Assessment" was licensed to a foundation's charity program to inspire innovation by pupils in Hong Kong. These IP licenses have generated over HK\$100,000 income in this financial year. Some other licensing requests are under negotiation, including adopting our patented mouthpiece design for musical instruments and productizing a literacy play kit for English learning.

The licensee of "Behaviour Rating Inventory for Executive Function in Performance Assessment of Children with Attention Deficit Hyperactivity Disorder" (one of the IPs licensed in the previous reporting year) has been endorsed to the Cyberport Incubation Program. They will further collaborate with the Principal Investigator and develop the licensed algorithm into a computerized evaluation system for the social services sector.

2.1.3.2 Patents

The Central Funding for Patent Application (CFPA) was set up in 2018 to support academics and researchers in protecting their valuable inventions through patent application. Patent application is not just a means to properly protect EdUHK's invention, it can also be considered a means to capitalize on EdUHK's knowledge, and later, transfer such knowledge to society via patent licensing. In 2019, the KT Sub-office also obtained funding support from the Innovation and Technology Commission (ITC) for enhancing the capability of technology transfer, including patent application. During the reporting period, the filing of patent applications for three inventions from the various departments was supported and two of those patents were granted. A list of patent applications/ patents granted is set out in Annex III.

2.2 Fostering Entrepreneurship

The setting up of the EdUHK Education and Social Entrepreneurs Fund (EASE Fund) Scheme in 2018 was a milestone in nurturing innovation and entrepreneurship within the EdUHK community. On the basis of the gratifying responses from last year, the KT Sub-office official launched the EASE Fund Scheme 2019/20 by October 2019. By the deadline of 30 May 2020, a total of 38 applications, from 143 students, alumni, staff and their team members, was received.

During the reporting period, the KT Sub-office has allocated extra resources to enrich the scheme, including seeking funding support from the HKSAR government/ NGOs, organizing entrepreneur workshops by engaging different guest speakers from the local start-up community/ NGOs, and creating networking/ marketing opportunities for EASE Fund teams as follow:

2.2.1 Application of Extra Funding for EASE Fund Program – Youth Development Fund from Home Affairs Bureau

The KT Sub-office successfully obtained the Youth Development Fund (YDF) vetting panel's recommendation to be one of the 16 NGOs/ universities eligible for the 2nd round of the YDF by December 2019. This is the first time the KT Sub-office has submitted a full project proposal to an HKSAR government bureau for funding support. EdUHK is one of five universities (the others are HKU/ CUHK/ HKUST/ PolyU) to receive this grant. YDF will allocate total funds of HK\$7,500,000 which will be used for providing 3-year incubation services and a 1:3 matching fund for EASE fund teams. Due to the unanticipated outbreak of COVID-19, the HKSAR government's official announcement of the matching fund will be delayed until further notice from the Home Affairs Bureau (HAB).

2.2.2 EASE Fund 2019/20 – Wofoo Climate Action Award

The KT Sub-office also collaborated with Wofoo Social Enterprises' Climate Action Recognition Scheme, a platform dedicated to finding solutions for climate change issues and also promoting entrepreneurship. To encourage the EdUHK community to come up with sustainable development goals (SDG)-related start-ups/ solutions, Wofoo provides prize money of HK\$10,000 to teams with the best ideas.

2.2.3 EASE Fund Workshops

Since the launch of EASE Fund 2019/20 in October 2019, the KT Sub-office has organized workshops suitable for members and groups within the EdUHK community at different stages of their entrepreneur journey. By June 2020, a total of 6 workshops, 8 business clinics and 55 consultation sessions had been held:

◆ The Entrepreneur Experience Sharing Workshop Series

This is a series of 3 workshops in which experienced entrepreneurs in the education technology, education innovation, and social innovation areas were invited to share their entrepreneurship journeys, discuss some challenges to be faced by start-ups, and give insights across the industry in the related areas. Participation near 80 were recorded, and we received very positive feedback from the attendees with over 80% rating the topic and the speakers as “Excellent”/ “Very Good”.

◆ The Entrepreneur Skills Development Series

This series of 3 workshops with 8 business clinics aimed to equip (potential) EASE Fund applicants with essential skills as entrepreneurs. Industry veterans were invited as guest speakers/ instructors in their areas of expertise. The first two workshops on turning ideas into business plans attracted close to 60 EdUHK students, alumni, and staff as participants, and over 20 of these participants chose to attend the following clinic sessions. Around 80% of participants rated the topic and the speaker as “Excellent”/ “Very Good”. Another workshop, about practical considerations in setting up a social enterprise and the latest trends in social innovation, attracted 50 participants from the EdUHK community. Around 90% of participants rated the topic and the speaker “Excellent”/ “Very Good”.

◆ Consultation Sessions

To provide support for application, business planning, team formation, funding opportunities, and etc., the KT Sub-office ran a total of 55 consultation sessions supporting 32 teams. The KT Sub-office successfully linked EdUHK staff up to 13 teams as their advisors.

2.2.4 Support for EASE Fund Teams

The KT Sub-office supported the three EASE Fund 2018/19 winning teams in their efforts to join the Good Seed, a social innovation training and funding programme funded by the HKSAR Government’s Social Innovation and Entrepreneur Development Fund (SIE Fund). Project LEARNT, one of the EASE Fund 2018/19 winning teams, was selected as one of 8 teams, out of 103 applications, to receive the Good Seed Money of HK\$200,000.

2.3 Making Differences

2.3.1 Create Impacts in the Community and beyond Hong Kong

The University aims to use our fundamental research results to create significant educational development impacts and enhance access to quality education in the community. The following is a highlight KT example.

2.3.1.1 Educational Innovation Leadership Project

Educational Innovation Leadership Project (EdILP) was established in 2019. It is one of the initiatives of the KT Sub-office under the Vice President (Research and Development), aiming at integrating the academic theories, field experiences in the school sector, and knowledge of the University in teacher training for the promotion of innovative educational development through in-depth collaboration programmes. These include

1. provision of school development and consultancy services,
2. organization of school leadership training programmes, and
3. conduction of research and knowledge transfer activities.

EdILP supported Project WeCan Company Limited (PWCL) to provide Education Support Services for Participating Schools at a fixed total amount of HK\$15,000,000 contributed by PWCL.

In the 2019/20 academic year, to maximize programme impact, EdILP built up the capacity of the teaching team of the 76 schools participating in the project via school management development, teacher empowerment programmes, and knowledge transfer activities. Such training and activities were conducted via ZOOM because of COVID-19. A total of 76 schools, 76 principals, about 4,200 teachers, and 12 other stakeholders benefited from EdILP's KT activities (Annex I–C).



Professional Learning Cluster in Progress

2.3.2 Disseminate Research Outputs

The University supports staff members working in partnerships with external organizations to reinforce EdUHK's research and KT. Individual academic or teaching staff members may, as part of their work portfolio at the University, undertake research and KT projects funded by outside organizations through tender/ contract research and consultancy.

2.3.2.1 Tenders/ Contract Research and Consultancies

In the 2019/20 academic year, the KT Sub-office supported 32 tender applications and received a total award amount of HK\$7,082,172 and EUR6,300 for 12 tender projects.

2.3.2.2 Research Publications

Amongst the 797 refereed research outputs in 2019/20, 45% (342) were related to the various sectors of school education. These research outputs included early childhood, primary, secondary, technical and special education and were disseminated across different sectors focussing on teacher education and education disciplines. A total of 55% (425) of the outputs were related to complementary discipline areas, such as the social sciences, humanities and languages, health and environmental studies, and other professional and vocational subjects. These refereed outputs, and those produced in earlier years, provided a substantial new knowledge base for KT to provide insights into practical improvement, professional innovation and education development in Hong Kong and beyond.

2.3.2.3 EdUHK Research Repository

Apart from its use for extensive KT activities, the EdUHK Research Repository (<https://repository.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 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.

Materials deposited in the database include scholarly books, book chapters, journal articles, conference papers, and TDG reports. As of 30 June 2020, the repository has collected 35,749 records of citations dating back to 1994, all of which have been validated by the Library. Links to full-text are provided in 13,677 records, 4,814 of which can be accessed by the public. In addition, 52% of the records are provided with abstracts. A total of 215,538 visits were recorded from July 2019 to June 2020, and 160,445 users were recorded.

2.3.3 Train 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 to create a new generation of professionals equipped with novel research-based knowledge.

2.3.3.1 Continuing Professional Development (CPD) Courses

The academic departments and centres of the University have long provided a wide range of self-funded development courses and training programmes, occasionally in collaboration with external parties. The aim is to transfer the new 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 trace the origin and background of STEM education, but also introduce various modes adopted to implement STEM education around the world (including the recent development of STEAM).

For example, Provision of Advisory Service on the Development of Learning and Teaching Guide of Implementing STEM Education Through General Studies in Special Schools (2019/20 school year) and Provision of Training Service on Professional Development Programme to Support Teachers from Special Schools Implementing STEM Education in General Studies (2018/19) were organised by the Centre for Education in Environmental Sustainability.

A total of 534 principals and 658 teachers benefited from these CPD courses.

2.3.4 Students Engagement

2.3.4.1 Students Internship and Placements

Student internship programmes are organised by our Student Affairs Office and Faculties to encourage students to engage in and serve the community. The students gain experiential learning for their holistic personal development. The University also arranges 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, the education sector, and industry. There were 2,783 student placements and internships in 2019/20 in total.

2.3.4.2 Entrepreneurship and Social Innovation Culture

EdUHK has started to develop its own entrepreneurship culture, with implications for education and social services. Various units within the University have organised entrepreneurship-related activities ranging from introducing the startup concept and providing training and sharing, to supporting students in turning their aspirations into reality.

2.3.4.2.1 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 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 uses commercial business ventures as a departure point and focuses more on education and education-related business (e.g. publishing), arts management, and freelance services, as well as NGOs and social enterprises.



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EdUHK Library



2.3.4.2.2 EI Marketplace

“EI Marketplace” is an online-offline business consignment event organised by the University to encourage EdUHK students to develop their innovative and entrepreneurial spirit through actual business operation.

This learning activity, initiated in May 2020, and continuing online, includes showcases business, online promotion, and Mini Markets. 17 EdUHK student teams participate in this activity, providing a wide variety of products including 3D printed decorative flower sets, brain training games for dementia, mobile phone cases, custom-made knit products, handcrafted jewellery, handmade bags and cases, environment friendly products, and many more.



2.3.4.2.3 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 consumption of snacks and drinks.

2.4 Empowering KT Marketing

2.4.1 Promotion of Technology Transfer through Overseas Education Technology Business Events

To increase the reputation of EdUHK's innovations and foster partnership with industries in the international marketplace, the KT Sub-office delivered a keynote speech at the Global Education Technology Summit cum EdTech X Asia 2019 (4-7 November 2019) in Beijing China to highlight our educational technology research. Complementing this, a KT Sub-office representative was invited as an honoured guest to the Reimagine Education Conference (8-10 December 2019) in London UK to share perspectives on educational technology development and how education universities can initiate and disseminate innovative ways of teaching and learning. Both events attracted over 10,000 international visitors, including investors, educational entrepreneurs, educators, educational organisations, and other institutions.

2.4.2 Learning & Teaching Expo

The KT Sub-office organized the EdUHK pavilion at the trade fair of the Learning & Teaching Expo (11-13 December 2019) at the Hong Kong Convention and Exhibition Centre. During the event, we presented various EdUHK innovations including an AR+VR plastics education kit, music education technology, and an e-learning platform for Chinese language. An



intelligent vending machine that we have licensed was also showcased, incorporating an EdUHK health education kit. This demonstrated how educational value can be added to a commercial platform. Apart from this, the EdUHK Centre for Special Educational Needs and Inclusive Education hosted the SEN Theatre to disseminate its latest developments and practices 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.

2.4.3 Publicity and Media Exposure of KT Activities

Reaching out and informing the community of the significance of EdUHK's KT projects, the KT Sub-office has arranged media interviews on 20 selected KT impact projects, which cover award-winning innovations and cases of IP licensing. The articles have been published in education magazines 《教育專業》, 《香港教育雜誌》 and the "Good School" e-magazine since May 2020.

2.4.4 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 commitment to excellence and shared good practices. This website is also a channel for networking with internal and external stakeholders (e.g. researchers, experts, special interest groups, government, funding bodies, and education and business sectors) and for opening the way for interaction and exchange of new ideas on KT.

The KT Sub-office is currently working on the website revamp project. The target is to launch the new website by October 2021.

2.4.5 Instagram

The KT Sub-office opened an Instagram account in May 2020. This is our official social media channel to promote the KT Sub-office and EdUHK innovations to the public.

The account contains the latest information about KT in EdUHK such as the updates of KT activities, highlights/ side-stories of KT events, announcements and EdUHK innovations.

2.5 Awards and Achievements

2.5.1 Recognition of EdUHK Outstanding KT Activities/ Projects, Innovations and Technologies through Internal Awards

The University has established different awards/ prizes to recognize, encourage, and reward staff who demonstrate the transfer of University-owned knowledge to society through outstanding KT activities. These awards/ prizes include the President's Award for Outstanding Performance in KT, Research Impact Prize by the Faculty of Liberal Arts and Social Sciences, and the Dean's Research Award: Research Engagement and Impact by Faculty of Education and Human Development. A list of award/ prize recipients of 2019/20 is at Annex IV.

2.5.2 Recognition of EdUHK Outstanding KT Activities/ Projects, Innovations and Technologies through International Awards



EdUHK's innovations have also harvested international awards. Throughout the year, the KT Sub-office pitched EdUHK innovations and technologies at numerous international invention exhibitions and received 8 awards. A list of award-winning projects in 2019/20 is set out at Annex V.

2.5.3 EdUHK Award-Winning Innovations Salon 2019

The EdUHK Award-Winning Innovations Salon 2019 was held on 3 January 2020. It was the flagship KT event in EdUHK. Themed as intended to “co-create value for education”, the event is a showcase of awarding winning innovations of EdUHK as well as a fusion of forums, exhibitions, and business matching opportunities to stimulate government-industry-school-university collaboration. Seventeen projects were highlighted. These innovations covered a wide spectrum of applications, from educational technology for languages and music education, learning monitoring and assessment technology, to AI for education and environmental technology, etc. More than 100 guests attended the salon, including government officials, business executives, social entrepreneurs, school management, and educators.



2.5.4 President's Award for Outstanding Performance in Knowledge Transfer 2019/20

The President's Award for Outstanding Performance in KT was established in 2016 to recognise, encourage, and reward academics who have successfully transferred university-owned knowledge that has innovation and impact on education at the local, regional, and/ or international community level to society or industry. This year, two teams received team awards. In view of the COVID-19 situation, the Presentation Ceremony may be deferred or combined with the one in 2020/21.

Team Award

CoolThink@JC Project Team	Department of Early Childhood Education
<ul style="list-style-type: none"> Professor Kong Siu-cheung, Director, Centre for Learning, Teaching and Technology Professor Chiu Ming Ming, Chair Professor, Department of Special Education and Counselling Dr Sun Daner, Assistant Professor, Department of Mathematics and Information Technology 	<ul style="list-style-type: none"> Professor Chung Kevin Kien-hoa, Chair Professor, Department of Early Childhood Education Dr Lam Chun-bun, Associate Professor, Department of Early Childhood Education

3. PERFORMANCE MEASUREMENT AND PERFORMANCE INDICATORS (PIs)

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

In short, compared with 2017/18 the University has seen gradual progress and improvement in different domains in 2018/19. This can be seen from the steadily increasing trend in the number of key stakeholders benefited from the University's KT activities and in most of the PIs. However, there has been some reduction in terms of the number of PIs and beneficiaries in 2019/20 as they have been impacted by the unforeseeable outbreak of the COVID-19 pandemic. Please refer to [Annexes VI and VII](#) respectively for the number of beneficiaries and the summary of PIs.

4. LOOKING FORWARD

This year has been very challenging, as the COVID-19 pandemic has had an unprecedented effect on our lives and plans. As the situation remains volatile, the near future may be just as full of challenges and difficulties. Given the latest developments of the COVID-19 pandemic, the opportunities for large-scale face-to-face marketing and promotion events/ meetings may remain limited. Therefore, the University will continue to make its best efforts to use online and virtual communication to encourage ownership, creativity, and innovation.

EdUHK 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. It will also continue to nurture its own entrepreneurship culture, with particular focus on education and social services. We will organize more entrepreneurship-related activities to further develop the start-up concept in the University and to provide students with related funding, training, and support.

The University will further continue to emphasise commissioned/ contract research projects, which have a sustainable impact on social progress and human betterment.

The University recently received a grant from the Jockey Club to run a 5-year project on Career and Life Development (CLD). The project began in September 2020 and is an initiative of the KT Sub-office under the Vice President (Research and Development) to promote students' CLD in Hong Kong secondary schools.

Although we may be facing headwinds as a result of the COVID-19 pandemic, we are committed and confident that our devotion and tenacity will bolster our capabilities not only in the coming year, but also far into the future. We are committed to maintaining and closely monitoring the quality of KT activities/ events in the coming years.

Annex I–A**Impact Case History****(i) Project Title**

Computational Thinking and Coding Education

(ii) Name of Principal Investigator

Professor Kong Siu-cheung

Director,

Centre for Learning, Teaching and Technology

*International Conference on
Computational Thinking Education 2019*

(iii) Summary

EdUHK promotes computational thinking education and digital creativity in primary schools of Hong Kong through the CoolThink@JC Programme. The project, initiated in 2016, runs for 4 years in its pilot phase and another 4 years in the second phase, with funding support from the Hong Kong Jockey Club Charities Trust. The project is in partnership with the Massachusetts Institute of Technology in the US and the City University of Hong Kong. EdUHK develops the curriculum for students, offers professional development for teachers, provides support to schools for school-based development, and organizes an international conference and Coding Fair to reach out to the public. Since 2016, the Programme has developed more than 110 teachers from 32 pilot schools and benefited over 20,000 primary students with CT lessons. The second phase of CoolThink launched in September 2020, with the aim of extending support to 40% of local primary schools in Hong Kong.

(iv) Underpinning Research

In the past four years, the project team in EdUHK has published a substantial number of journal articles and conference papers to disseminate the project learning. The team has also actively shared knowledge to the educational research field via book publications. In mid-2019, Professor Kong Siu-cheung and the Massachusetts Institute of Technology respectively, co-edited and published a book entitled “Computational Thinking Education.” The book was published by Singapore SpringerOpen. A second book, “Computation Thinking Education in K-12: Artificial Intelligence Literacy and Physical Computing”, will be published by MIT Press in late 2020. The two authors have signed a contract with MIT Press to work on a third book, to be entitled “Computational Thinking Curriculum in K-12: International Implementations”.

(v) References to the Research**List of Publications**

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

EdUHK leads CoolThink's curriculum design, which encompasses three levels of instruction for primary 4-6. Our curricular materials are based on the visual programming languages Scratch and App Inventor. On top of the formal curriculum, two levels of co-curricular activities (named as "Programmable Robotics" and "Design Thinking") have been developed for primary 5 and 6 students who are keen to explore further outside of regular class hours. Each level consists of 14 hours of lessons. Through the hands-on, minds-on, and joyful learning approach, the programme has benefited 32 primary schools in its pilot phase and will directly benefit 200 primary schools by the end of the

project in 2024.

EdUHK has been organizing the International Conference on Computational Thinking Education since 2017. The purposes are to keep abreast of the latest development in computational thinking education and to disseminate the findings and learnings of the programme. Over 2,500 participants from 25 countries, representing different universities and schools, joined the conference in 2017, 2018, 2019, and 2020. The conference papers have been published, and ISBN and ISSN indexed in conference proceedings for worldwide sharing of ideas. All the conference proceedings are indexed in Scopus.

The EdUHK project team has been pioneering a 4-day Coding Fair on campus to reach out to the general public since 2018. The Fair features CoolThink sample lessons, booth exhibitions from network schools, parent seminars, and various games with coding elements. The Education Bureau also joined hands with the programme at the booth exhibition on the event dates. The Fair attracted over 9,000 parents and students in 2018 and 2019.

(vii) References to the Corroboration of Impact or Benefit

Conference Proceedings

[1] CTE2020: <https://www.eduhk.hk/cte2020/doc/CTE2020%20Proceedings.pdf>

[2] CTE2019:

[https://www.eduhk.hk/cte2019/doc/CTE2019_Proceedings%20\(ISSN%202664-035X%20and%202664-5661\).pdf](https://www.eduhk.hk/cte2019/doc/CTE2019_Proceedings%20(ISSN%202664-035X%20and%202664-5661).pdf)

[3] CTE2018: https://www.eduhk.hk/cte2018/doc/CTE2018%20Proceeding_Full.pdf

[4] CTE2017: <https://www.eduhk.hk/cte2017/doc/CTE2017%20Proceedings.pdf>

President's Award for *Outstanding Performance in Knowledge Transfer (Team Award)* (2019/20),
The Education University of Hong Kong

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



Coding Fair 2019

Annex I-B**Impact Case History****(i) Project Title**

3Es – Early Prevention, Early Identification, and Early Intervention: A School-Based Support Model of Social-Emotional Development for Kindergarten Children

(ii) Name of Principal Investigator

Professor Chung Kevin Kien-hoa
Chair Professor, Department of Early Childhood Education

Dr Lam Chun-bun

Associate Professor, Department of Early Childhood Education



*Left: Dr Lam Chun-bun
Right: Professor Chung Kevin Kien-hoa*

(iii) Summary

The Simon K. Y. Lee Foundation donated HK\$19 million to the University in 2015 to support a four-year project titled, “3Es – Early Prevention, Early Identification, and Early Intervention: A School-Based Support Model of Social-Emotional Development for Kindergarten Children.” The project sought to develop an evidence-based, culturally responsive intervention programme that promoted the socioemotional competence of kindergarteners in Hong Kong. The project made a real difference in the field of early childhood and special education with impressive outcomes. More than 160 kindergartens in Hong Kong were recruited. In total, 4,722 kindergarten-aged children, as well as their parents and teachers, participated in the project. Additionally, the project has so far trained up 422 kindergarten teachers and 4,024 parents through training workshops and seminars. Based on the longitudinal studies, an evidenced-based programme has been developed and evaluated, and has been shown to be effective in promoting children’s cognitive control, emotion understanding, emotion expressivity, and empathy and other prosocial behaviours – soft skills crucial for subsistence and success in the 21st century.

(iv) Underpinning research

As a clustered, randomized wait-list control study, the project adopted the response-to-intervention (RTI) framework. A two-tiered model was developed to support children’s social and emotional needs through a comprehensive, ecologically framed approach. Particular focus has been placed on the developmental milestones, potential protective and risk factors, and specific strategies to support children through formal school lessons and home-school collaborations. The three-pronged strategy includes:

- Children – For “Tier 1”, trainings were provided for all K2 and K3 children to enhance their social-emotional competency (early prevention). A screening tool (The Chinese Inventory of Children’s Socioemotional Competence, CICSEC; Li et al., 2020) was designed and validated for teachers to identify children who do not respond well in Tier 1 (early identification). Children at risk of socio-emotional difficulties entered “Tier 1+” and received intensive and tailored training in small group settings (early intervention). These components were referenced to the Education

Bureau (EDB)'s Kindergarten Education Curriculum Guide 2017.

- Teachers – They were trained to deliver the above intervention and screening. The topics covered children's socioemotional development, stress management, classroom management, and teacher-parent communication. The screening tool CICSEC (Li et al., 2020) is a teacher-reported inventory that allows for quick and easy evaluation of the social and emotional development of Chinese children. Importantly, this locally-normed inventory covers four domains of social-emotional competence (cognitive control, emotion expressivity, empathy and prosocial, and emotion regulation) with 30 items. It helps to screen children with social-emotional difficulties and informs teaching and curriculum planning.
- Parents – Parents were provided with seminars to enhance their knowledge and skills in assisting their children. The topics covered positive parent-child communication, positive emotion development, and stress management skills.

The project team believes in the value of evidence-based, psycho-educational intervention in promoting whole-child development. Therefore, the programme will take an integrated approach, targeting not only the hard skills of children (e.g., Chinese word reading and arithmetic abilities), but also their soft skills (e.g., social-emotional competence and behavioural self-regulation). Research indicates that both hard and soft skills are crucial in preparing children for formal learning in classrooms. Together, these pieces of training create a concrete foundation for the whole person development and lifelong learning of the children. The impact is long-term and multi-dimensional, affecting child learning and development, teacher-child relationships, and parent-child relationships. The findings from the project will push the frontier of understanding concerning the effective integration of early identification and preventive intervention in education research, as well as supporting Chinese children at risk for social-emotional difficulties in the Hong Kong context.

(v) References to the Research

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- Kwong, S. C., Lam, C. B., Li, X., Chung, K. K. H., Cheung, R. Y. M., & Leung, M. (2018). Fit in but stand out: A qualitative study of parents' and teachers' conceptualization of child socioemotional competence. *Early Childhood Research Quarterly*, 44, 275-287.
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(vi) Details of the Impact or Benefit

The impact of the project outcomes can be summarized into four levels:

- a. Individual level
 - fosters social-emotional competence in children;
 - empowers teachers developed the efficacy and skills in supporting social-emotional development of children; and
 - enhances the awareness of parents in identifying children's social-emotional problems, and the skills in supporting children's growth of social-emotional competence.
- b. School level
 - develops standard protocols for prevention, identification, and intervention of children with social-emotional difficulties;
 - supports kindergartens in blending social-emotional elements into the school curriculum; and
 - promotes the cultivation of emotion-friendly climates in schools, which is directly associated with children's learning and development.
- c. Territory-wide level
 - establishes a localized Tiered Model for early prevention/ identification/ intervention of social-emotional problems in young children;
 - instils social-emotional elements into three in-service teacher training programmes in EdUHK;
 - develops the professional development programme (PDP) on Promoting Socioemotional Competence: Family and School Practices for kindergarten teachers;
 - increases public awareness of the importance of social-emotional competence in child development, and the roles of schools and parents in supporting children develop the skills; and
 - informs policies about the importance of social-emotional competence in child adjustment, and the strategies to address the needs of schools and families in this aspect.
- d. Regional/ international level
 - develops and validates locally derived norms, and teacher-reported assessment tool that allows for quick and easy evaluation of the social and emotional development of children in the Chinese context;
 - publicizes project findings in journal articles, academic conferences, and online media; and
 - engages in knowledge transfer and knowledge exchange to promote social impact of social-emotional competence in child development across the regional and global levels.

(vii) References to the Corroboration of Impact or Benefit

- [1] 《情+社同行計劃：執行指南》
- [2] 《情+社教師工作坊 (K2 低班) 教學手冊》及《情+社教師工作坊 (K3 高班) 教學手冊》
- [3] 《情+社親職教育講座 (K3 高班) 教學手冊》及《情+社親職教育講座 (K3 高班) 教學手冊》

- [4] 《情+社 (K2 低班全班式) 小花園課程》、《情+社 (K3 高班全班式) 小田園課程》及《情+社 (K3 高班小組式) 小溫室課程》
- [5] 3Es elements were instilled into the curriculum of EdUHK teacher education programmes (in a mandatory Education Studies course “Current Trends in Child Development and Assessment”)
 - a. Bachelor of Education (Honours) (Early Childhood Education) (Three-year Part-time)
 - b. Bachelor of Education (Honours) (Early Childhood Education) in Leadership and Special Needs (Four-year Part-time)
 - c. Bachelor of Education (Honours) (Early Childhood Education) in Leadership and Non-Chinese Speaking Children (Four-year Part-time)
- [6] Certificate in Professional Development Programme on Promoting Socioemotional Competence: Family and School Practices since 2017-18 (refresher training programme recognized by the Education Bureau; also recognized by EdUHK for credit transfer upon enrolment in postgraduate programmes)
- [7] Facebook and Instagram of 3Es Project, Centre for Child and Family Science, EdUHK (account: eduhk.3esproject)
- [8] Li, X., Lam, C. B., & Chung, K. K. H. (2019). Linking maternal caregiving burden to maternal and child adjustment: Testing maternal coping strategies as mediators and moderators. *Journal of Developmental and Physical Disabilities*, 32, 323-338.
- [9] Li, X., Lam, C. B., Chung, K. K. H., & Leung, C. (2019). Linking parents' self-stigma to the adjustment of children with special educational needs. *American Journal of Orthopsychiatry*, 89, 212-221.
- [10] Li, X., Lam, C. B., Chung, K. K. H., Cheung, R. Y. M., Leung, C., & Fung, W. K. (2020). Development and validation of the Chinese Inventory of Children's Socioemotional Competence (CICSEC). *Early Education and Development*, 31, 854-872.

President's Award for *Outstanding Performance in Knowledge Transfer (Team Award)* (2019/20),
The Education University of Hong Kong
<http://p-awards.eduhk.hk/ECE.php>

This project has been shortlisted for the K12 Award of the QS Reimagine Education



3Es Newsletters



3Es K2 Package

Impact Case History**(i) Project Title**

Project WeCan – Quality Education Development Programme (QEDP)

(ii) Name of Principal Investigator

Professor Lui Tai-lok

Vice President (Research and Development)

(iii) Name of Project Co-director(s)

Professor Chiu Chi-shing

Honorary Advisor, Centre for Excellence in Learning and Teaching

Dr Tsang Wing-hong

Project Manager, the KT Sub-office

(iv) Summary

The Educational Innovation Leadership Project (EdILP) was established in 2019. It is one of the initiatives of the KT Sub-office under the Vice President (Research and Development) of EdUHK, aimed at integrating the academic theories and knowledge of the University in its edge of teacher training, with the successful field experiences of the schools, to facilitate the innovative educational development of the latter through in-depth collaboration programmes. These include:

1. provision of school development and consultancy services,
2. organization of school leadership training programmes, and
3. conduction of research and knowledge transfer activities.

By adopting the BUS (Business-University-School) model, Project WeCan Company Limited (PWCL) and EdUHK agreed to implement the QEDP through the EdILP to provide 3-year Quality Education Support Services for the 76 PWC participating secondary schools at a fixed total amount of HK\$15,000,000 paid by PWCL to EdUHK.

The PWC schools cater to students from low socioeconomic status families, low academic achievers in their early stage of school education, and students with Special Education Needs. These schools may have to academically address lots of student learning diversities and non-academically pastoral care and needs, e.g., social and psychological support. Thus, there is a significant need for the professional development of principals and teachers in PWC schools.

The pool of well-experienced school principals, educators, and School Development Officers (SDOs) who are active practitioners in the field of education with solid frontline school experiences, both in management and teaching, is the significant competitive edge of EdILP in providing teacher development and school support for the PWC schools.

To maximize programme impact, in the academic year 2019/20 EdILP boosted the capacity of the management and teaching teams of the 76 PWC schools via many school management development

and teacher empowerment programmes, in-school supports, and related KT activities. In the 1st semester, these school development programmes were conducted in the traditional face-to-face mode. However, in the 2nd semester, due to the outbreak of the COVID-19 pandemic, these trainings/activities were then conducted via ZOOM. During the year, in-school supports were provided to 6 schools by EdILP SDOs; 7 Professional Learning Clusters were conducted with 170 teachers participating in various face-to-face Learning Clusters, and a total of 724 teachers attended the ZOOM Cluster activities. 8 Joint-school Teacher Development Days with 18 online ZOOM talks were organized. A total of 3,939 teachers (in terms of person-time) logged onto the platform for the talks while more teachers actually participated because, due to the limit of online ZOOM capacity, it was suggested that schools broadcast the talks simultaneously within the school for the benefit of more teachers. In sum, 76 schools with 76 principals, about 4,200 teachers and supporting staffs of the 76 PWC schools, and 12 other stakeholders, benefited from the above KT activities.

(v) Underpinning research

“The quality of an education system cannot exceed the quality of its teachers.” (Schleicher, 2019) Mourshed, M., Krawitz, M. and Dorn, E. (2017) identify two critical factors for significant student achievement, namely (1) a growth mindset rather than a fixed one, and (2) a blend mode of instruction: Teacher-directed and Inquiry-based. They particularly refer the above findings to schools with students of lower socio-economic status by stating that “It was particularly striking that several of these mindsets made the most difference for students either in low performing schools or in lower socioeconomic quartiles. In fact, for students in schools with low outcomes, having a well-calibrated motivation mindset is equivalent to vaulting into a higher socioeconomic class.” OECD (2016) has previously, in its publication “Low-Performing Students: Why They Fall Behind and How to Help Them Succeed”, scrutinized issues related to students’ low performance, such as engagement, motivation, school characteristics and school governing systems etc.

Barber, M. and Mourshed, M. (2007) suggest, from a worldwide study, three success factors for a leading school system, namely (1) making the right people teachers, (2) making teachers effective instructors, and (3) ensuring an effective system for delivering best instructions to students. The World Development Report (2018) also raises similar concerns and identifies three main dimensions of Learning Crisis. They are (1) poor learning outcomes, (2) immediate causes such as student unpreparedness, lack of effective teaching skills and motivation of teachers, poor school management, and governance etc., and (3) deeper systemic causes. The latter also proposes three Policy Actions for the Crisis. They are: to assess learning to make it a serious goal; act on evidence, to make schools work for learners; and align actors, to make the system work for learning.

This QEDP of EdILP is a school and teacher support programme serving 76 PWC schools with mostly students of lower academic ability or students who come from lower socio-economic backgrounds, as suggested by Mourshed, M., Krawitz, M. and Dorn, E. (2017). This QEDP programme, through its various staff development activities and learning clusters, provided in-depth training for school teachers to develop positive mindsets and motivation both for themselves and for their students, and also introduced appropriate instruction skills to the teacher to improve the potential achievements of the students.

Following the findings of Barber, M. and Mourshed, M. (2007) for successful top-school systems, and also the proposed policy actions of the World Development Report (2018) for managing the learning

crisis, QEDP is trying to bring significant change to the 76 PWC schools by providing staff development and school support programmes focusing on making their teachers effective instructors, and aiming at facilitating an effective internal management and governance system within each of the schools.

(vi) References to the Research

- International Bank for Reconstruction and Development/ The World Bank (2018). *The World Development Report 2018 – LEARNING to realize education’s promise*. Washington: The World Bank Group.
- Barber, M. and Mourshed, M. (2007, September 1). *How the world’s best-performing school systems come out on top*. McKinsey Report 2007. Retrieved from <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/how-the-worlds-best-performing-school-systems-come-out-on-top>.
- Mourshed, M., Krawitz, M. and Dorn, E. (2017, September 22). *How to improve student educational outcomes: New insights from data analytics*. Retrieved from <https://www.mckinsey.com/industries/public-and-social-sector/our-insights/how-to-improve-student-educational-outcomes-new-insights-from-data-analytics#>.
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(vii) Details of the Impact or Benefit

QEDP provided 4 levels of teacher development and support programmes, at Senior and Middle Management Level, Teacher Level, Whole School Level, and PWC Schools Sector Level. Throughout the academic year, QEDP provided successful and influential support to “make schools work for learners; and to align actors to make the system work for students’ learning” (World Development Report, 2018) through the mentioned Business-University-School (BUS) cross-sector collaboration model. Members of the team of EdILP School Development Officers (SDOs), previously frontline practitioners in the education sector, have rich knowledge and successful experiences in the development of school subject curricula, in the application of effective teaching pedagogies, and are equipped with various strategies in school leadership. With this team, QEDP has successfully delivered professional development activities to the target groups of principals and teachers. The participants were provided opportunities to reflect on their daily practices, learn new ideas, and interchange experience with participants other than their serving schools, through the meetings of Professional Development Clusters. 18 professional talks with different themes were conducted in the 8 Teacher Development Days, in which the participants could learn valuable lessons and gain insights from the sharing of the SDOs according to the needs and interests of the participants. A number of staff development talks, either for the school management team or for all staff within individual schools were also conducted. Communities/ Clusters of practices and inter-school collaboration were also facilitated. As stated earlier, a total of 76 schools, 76 principals, about 4,200 teachers and supporting staffs of the schools, and 12 other stakeholders benefited from these KT activities. Thanks to the enhancement of teacher professional capabilities and the improvement of school leadership strategies through these KT activities, we strongly believe that all students in the 76 PWC schools eventually benefited.

(viii) References to the Corroboration of Impact or Benefit

The evaluation questionnaire results of the KT professional talks of the Teacher Development Days and the activities of the Professional Development Clusters are both very positive. The percentage of participants agreeing with the statement that “The talk is inspiring” and “The talk can enhance one’s professional knowledge of the theme” ranged from 94% to 100%. There was also considerable positive and encouraging feedback from the participants. All these KT activities and their evaluation results were stated in the QEDP quarterly reports.



In-school Teacher Development Workshop in Progress



Professional Learning Cluster in Progress

Annex I–D**Impact Case History****(i) Project Title**

Ploughing Drama Education for Innovating the Preschool Curriculum and Pedagogy in Hong Kong

(ii) Name of Principal Investigator

Dr Tam Po-chi

Assistant Professor, Department of Early Childhood Education

**(iii) Summary**

The project of Ploughing Drama Education for Innovating the Preschool Curriculum and Pedagogy in Hong Kong (the DE Project) (2018-2021) aims to promote drama integration into the preschool curriculum and the drama professional development of preschool teachers in Hong Kong (<http://www.playfullearning.org.hk/about-us/>). This is a collaborative drama partnership formed by the Department of Early Childhood Education in the University and the Hong Kong Repertory Theatre with funding support from the D. H. Chen Foundation. The Department has received funds amounting to over HK\$1,200,000 from the Foundation in support of a project evaluation and multiple case study led by Principal Investigator Dr Tam Po-chi of the Department to identify good practices of drama integration in the partner schools. The DE Project targets supporting 85 preschools, 850 teachers, and 7,500 children to teach and learn with drama as a curricular and pedagogical innovation.

The DE Project is an extension of a pilot project called Playful Learning: Integrating Drama Education in Preschool Curriculum (2013-2015) (Cheung, 2016). Based on the results of this pilot project, the partnership mechanism of the DE Project has been enhanced by introducing a multi-pronged approach to school support which includes on-site and school-based teacher training, co-teaching methods, teacher sharing seminars, and consultancy with overseas experts. All contribute to a strong and close partnership between the schools, the theatre community, and the University. The DE Project is mainly evaluated by the degree and aspects of the integration of drama education into the everyday teaching and regular curriculum of the partnership schools. The identified good practices will reveal the necessary conditions for the sustainable development of drama education in local early childhood education.

(iv) Underpinning research

Although process drama is a creative pedagogy conducive to the promotion of arts and creativity, two major learning domains listed in the official curriculum guide (Curriculum Development Council, 2017), its full potential can only be unlocked if it can be taught in a creative way (Cremin and McDonald, 2013).

Process drama is regarded as a child-centred, inquiry-based, and playful pedagogy. Instead of being a stand-alone discipline in drama or theatre, it is a pedagogy of high compatibility (Warren, 2005) and high adaptability to the teaching and learning of a wide range of subject disciplines and generic skills.

Onsite support and co-teaching provided by teaching artists can provide schoolteachers with extra strength and opportunities for close collaboration with the drama community, both of which are vital to the success of arts and creative partnership (Stinson, 2009).

Cremin, T. and McDonald, R. (2013). Drama. In J. Russell and D. Wyse (Eds.) *Creativity in the Primary Curriculum* (pp 83-97). London: Routledge.

Curriculum Development Council. (2017). *Kindergarten Education Curriculum Guide*. Hong Kong: Curriculum Development Council.

Stinson, M. (2009). Drama is like reversing everything': intervention research as teacher professional development. *Research in Drama Education: The Journal of Applied Theatre and Performance*, 14(2), 225-243.

Warren, K. (2000). Thinking for the new millennium: The contribution of process drama. In W. Schiller (Ed.), *Thinking through the Arts* (pp. 124-136). London: Routledge.

(v) References to the Research

Lin, Mei-Chun & Tam, Po Chi (2018). The glocalization of early childhood drama education in Taiwan & Hong Kong: A study of dialogic video ethnography, *Curriculum & Instruction Quarterly*, 2(13), 1-28.

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Tam, Po Chi. (2017). Integrating conventions approach with picture books: The approaches, practices and challenges of early childhood drama education in Hong Kong. *Research in Arts Education*, 34(1), 65-91.

(vi) Details of the Impact or Benefit

75% of the project has been completed. So far, 56 schools, 603 teachers, and 9,735 children have benefited from the project. After the partnership, a school-administrator survey was conducted to collect the partnership schools' opinions on the following aspects of the benefits gained from drama integration:

a. Teachers' professional development:

- All respondents (100%) agreed that drama education could help them create a learning atmosphere of friendship, respect, acceptance, appreciation, and harmony;
- All respondents (100%) agreed that drama education could help them choose daily-life oriented themes and provide children with interesting learning experiences;
- All respondents (100%) agreed that drama education could help them encourage children to use their senses to learn and promote their overall development; and
- All respondents (100%) agreed that drama education could help them care for the interests, development and needs of children and pay attention to their differences.

b. Children's learning and development:

- 97% of respondents agreed that drama education could provide children with opportunities to explore, discover knowledge and cite discoveries;

- All respondents (100%) agreed that drama education could advocate play to learn and strengthen the free exploration elements in games;
- All respondents (100%) agreed that drama education could advocate the use of life-oriented themes to penetrate the contents of various learning areas;
- All respondents (100%) agreed that drama education could strengthen children's moral learning; and
- 97% of respondents agreed that drama education could emphasise the balanced development of young children.

c. Curricular innovation:

- 91% of respondents agreed that drama education had enhanced their school-based curriculum;
- 76% of respondents claimed they would integrate drama education into various teaching areas of the curriculum (such as music, physical education, and languages); and
- 76% of respondents will apply drama conventions and plays as a regular teaching tool in the everyday classroom.

Public promotion and advocacy of the importance of drama education to quality kindergarten education

- [1] 開發創意的烏托邦：深耕計劃師生攜手探索戲劇教育真義陳雯懿（2020年9月）。《教聯專業月刊》，27，28-29。
- [2] 香港電台（2019年6月11日）。日常8點半（民生・親子／教育）：第二十四集。取自：<https://www.youtube.com/watch?v=PK17b-iGjxY>
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- [5] 李欣敏（2018年7月3日）。〈專家的話：讓戲劇扎根學前教育〉。《明報：Happy PaMa 教得樂》，第197期。
- [6] 張其能（2018年3月）。最緊要好玩，課堂從此不一樣！戲劇應用與生活。《劇誌》，14-15。取自：https://issuu.com/hkrep/docs/repazine_21_single_page_issue
- [7] 黃璇（2018年1月22日）。「戲有益」推廣兒童戲劇教育。《大公報》。文化，A22。

(vii) References to the Corroboration of Impact or Benefit

a. Good practices of drama partnership

Professional teacher training is regarded by academics as key to the success of education reforms (Wong and Rao, 2015). However, Hong Kong teachers are found to have limited capacity for development of innovative curriculum and teaching materials (Chien and Hui, 2010). On the foundation of the understanding and research results provided by the pilot project, the DE Project has adopted an apprenticeship mode of school support and teacher training which basically includes fifty hours of co-teaching conducted by the school teachers and the drama artists, with their teamwork ranging from lesson design, review, and implementation, to evaluation and amendments. According to the participant teachers, the school-based, on-site, and mentorship support they received was useful to help them keep pace with the new pedagogies and augment their own professional development. Some teachers found the project more practical and relevant to their immediate needs than academic lectures or seminars on drama education they had

attended. The DE project can serve as an exemplary practice of drama partnership for curricular and pedagogical innovation.

b. Awards

This pilot project won the Arts Education of Hong Kong Arts Development Award 2015 (Non-school division, Certificate of Merit) presented by the HKSAR Hong Kong Arts Development Council.

c. A sub-project as a response to COVID-19

Due to the positive feedback from the participant schools and teachers, the DE project has obtained the Donor's support for developing a sub-project which promotes the use of drama, play and integrated arts as a post-COVID-19 education programme (Tam, 2020).

Cheung, K. Y. (Ed.). (2016). *It is beneficial to play: A Collection of Exemplary Practices of Integrating Drama into Preschool Education*. Hong Kong: The Hong Kong Repertory Theatre.

Chien, Chu-ying, and Hui, N. N. Anna. (2010). Creativity in early childhood education: Teachers' perception in three Chinese societies. *Thinking Skills & Creativity*, 5(2). 49-60.

Tam, Po-Chi (2020). Response to COVID-19 – “Now I send you the rays of the sun”: A drama project to rebuild post-COVID-19 resilience for teachers and children in Hong Kong. *Research in Drama Education: The Journal of Applied Theatre and Performance*. doi/full/10.1080/13569783.2020.1816816.

Wong, J. M. S., and Rao, N. (2015). The evolution of early childhood education policy in Hong Kong. *International Journal of Child Care and Education Policy*, 9(1), 1-16.



Kick-off Ceremony



Oversea Consultant

Impact Case History**(i) Project Title**

Social Metacognition and Big Data Network

(ii) Name of Principal Investigator

Professor Chiu Ming Ming

Director, Assessment Research Centre

(iii) Summary

The Social Metacognition and Big Data Network, recognised by the World Education Research Association (WERA), brings together 36 researchers from 20 universities in 9 countries/ regions (i.e. Australia, Germany, Japan, Hong Kong, Mainland China, Norway, South Korea, Taiwan, and the United States) to analyse big data using artificial intelligence and advanced statistics on the following topics:



- young children's buddy reading;
- students' learning from feedback;
- discussions to improve teaching;
- technicians' problem solving;
- mathematics problem-solving forums;
- online debate justifications; and
- winning online debates.

So far, 1,663 teachers, 208 university students, 53 kindergarteners, and 259 employees in Hong Kong, Canada, and the USA have benefited from participating in our research studies.

(iv) Underpinning research

We aim to advance our understanding of how people influence one another's emotions, thinking and actions (Social metacognition theory, Chiu & Kuo, 2009) by statistically examining big data, specifically many sequences of people's conversations and actions in a variety of contexts, both face-to-face and online.

We applied statistical discourse analysis (SDA, Chiu & Lehmann-Willenbrock, 2016), a new statistical method we invented, and other suitable, complementary analyses, such as process – outcome analyses (Chiu, 2018), discourse analysis (Johnstone, 2018) or content analysis (Krippendorff, 2012), to address many difficulties involved in analysing social interactions in large, complex data sets for the above studies.

(v) References to the Research

- Chiu, M. M. (2018). Statistically modelling effects of dynamic processes on outcomes: An example of discourse sequences and group solutions. *Journal of Learning Analytics*, 5, 1, 75-91.
- Johnstone, B. (2018). *Discourse Analysis* (Third ed.). Hoboken, NJ: John Wiley & Sons.
- Chiu, M. M., & Lehmann-Willenbrock, N. (2016). Statistical discourse analysis: Modeling sequences of individual behaviors during group interactions across time. *Group Dynamics: Theory, Research, and Practice*, 20, 3, 242-258. doi:10.1037/gdn0000048
- Krippendorff, K. (2012). *Content Analysis: An Introduction to Its Methodology* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Chiu, M. M., & * Kuo, S. W. (2009). Social metacognition in groups: Benefits, difficulties, learning, and teaching. In C. B. Larson's (Ed.) *Metacognition: New Research Developments* (117-136). Hauppauge, NY: Nova Science Publishers.

(vi) Details of the Impact or Benefit

As of today, our Network has produced 16 publications (including 11 journal manuscripts, 1 book chapter, 1 keynote and 3 conference presentations) and 1 grant proposal. Below are highlights of our research findings on Social Metacognition and Big Data, and their implications for the education:

- We investigated 53 kindergarteners' buddy reading behaviours and found that (i) buddy reading monitoring behaviours (asking questions, drawing attention to book content, debating, or negotiating) were associated with higher inference/ critical thinking and vocabulary meaning generation scores; (ii) buddies who read in triads had lower individual-prompted retelling scores than buddies who read in dyads. These findings highlight the importance of promoting monitoring during buddy reading and paying attention to group size.
- Using statistical discourse analysis to analyse the global trends and dynamics of teacher-student interactions, we found that teachers' discourse moves to support individual student's problem solving helped engage them in mathematical reasoning, which improved their problem-solving performance.
- Results of studying 577 special educators from 221 school districts in a Midwestern state in the United States suggest that (i) teacher preparation, (ii) instructional freedom, (iii) student characteristics, and (iv) service delivery model, all significantly relate to teachers' practice in reading for adolescents with disabilities.
- Statistical discourse analysis of 2,028 postings revealed that gender, social distance, and time, were linked to the use of evidence and explanations. Females used more explanations, while males used more evidence. Responses to messages from males also presented more evidence than explanations. Responses to messages conveying greater versus less social proximity (we/ you vs. he/ she/ they) presented more explanations and evidence, respectively.
- We examined 1,210 journal entries by 121 university students in a General Education course, and found that gender, time, journal content, and feedback are all important factors in raising the reflection quality and gaining higher teacher ratings.

To examine how student and teacher feedback influences students' reflections, we applied for and were awarded 2 grants. One is for unpacking student self-assessment processes: A longitudinal naturalistic experiment from the Hong Kong Research Grant Council (HK\$733,312, 2020-2022) while the other is for harnessing the power of teacher feedback to enhance learning outcomes: The roles of students' feedback orientations and learning engagement from the Hong Kong Research Grant Council Grants (HK\$473,665, 2021-2022).

(vii) References to the Corroboration of Impact or Benefit

Book chapters

Gerpott, F. H., Chiu, M. M., & Lehmann-Willenbrock, N. (2020). Multilevel antecedents of negativity in team meetings: The role of job attitudes and gender. In A. L. Meinecke, Allen, J. A., & Lehmann-Willenbrock, N. (Ed.) *Managing Organizational Meetings* (pp. 143-161). Bingley, UK: Emerald.

Journal manuscripts

- Chiu, M. M., & Huang, X. (submitted). Statistical discourse analysis: Students' group problem solving. *Journal of Global Education*.
- Chiu, M. M., Oh, Y. W., & Kim, J-N. (submitted). Politeness effects on audiences during online debates: Not agree vs. disagree vs. reject. *Nature: Human Behavior*.
- Arya, P., Christ, T., & Chiu, M. M. (submitted). A comparison of preservice teachers' literacy learning outcomes across online and face-to-face collaborative peer video analysis formats. *Contemporary Issues in Technology and Teacher Education*.
- Chiu, M. M. (in press). Analyzing classroom talk: An integration of artificial intelligence and statistics. *PKU Education Review*.
- Xin, Y. P., Chiu, M. M., Tzur, R., Ma, X., Park, J. Y. & Yang, X. (in press). Linking teacher-learner discourse with mathematical reasoning of students with learning disabilities: An exploratory study. *Learning Disability Quarterly*. DOI:10.1177/0731948719858707 Impact factor: 2.132
- Yu, Y. M., & Chiu, M. M. (in press). Influences on the reflection quality of journal writing: An exploratory study. *Reflective Practice*, 20, 5, 584-603. DOI: 10.1080/14623943.2019.1651712 Impact factor: 0.75 (SJR, Q1)
- Wang, H., Hall, N., Chiu, M. M., Goetz, T., & Gogol, K. (in press). Exploring the structure of teachers' emotional labor in the classroom: A multitrait-multimethod analysis. *Educational Measurement: Issues and Practice*. Impact factor: 1.35. <http://dx.doi.org/10.1111/emip.12353>
- Chiu, M. M., & Jeong, A. (2020). Gender, social distance, and justifications: Statistical discourse analysis of evidence and explanations in online debates. *Educational Technology Research and Development*. 0.1007/s11423-020-09739-8
- Christ, T., Wang, X. C., Chiu, M. M., & Cho, H. (2019). Kindergarteners' meaning making with multimodal app books: The relations amongst reader characteristics, app book characteristics, and comprehension outcomes. *Early Childhood Research Quarterly*, 47, 357-372. DOI:10.1016/j.ecresq.2019.01.003
- Wang, X. C., Christ, T., Chiu, M. M. & Strekalova-Hughes, E. (2019). Exploring the relationship between kindergarteners' buddy reading and individual comprehension of interactive app books. In A. Bus, S. B. Neuman, & K. Roskos (Eds.). *American Educational Research Association Open, Special Issue: Screens, Apps, and Digital Books for Young Children: The Promise of Multimedia*, 5(3), 1-17. DOI: 10.1177/2332858419869343

Christ, T., Wang, X. C., Chiu, M. M., & Strekalova-Hughes, E. (2019). How app books' affordances are related to young children's reading behaviors and outcomes. In A. Bus, S. B. Neuman, & K. Roskos (Eds.). *American Educational Research Association Open, Special Issue: Screens, Apps, and Digital Books for Young Children: The Promise of Multimedia*, 5(2). DOI: 10.1177/2332858419859843

Conference presentations

Jeong, A., & Chiu, M. M. (April, 2020). *Production blocking in brainstorming arguments in online group debates and asynchronous threaded discussions*. Paper presented at the Annual Meeting of the American Educational Research Association. San Francisco.

Chiu, M. M. (2019, May). *Toward automatic analyses of classroom conversations*. Presented as part of the Global Chinese Conference on Computers in Education. Wuhan, People's Republic of China. Keynote.

Chiu, M. M., & Jeong, A. (April, 2019). *Gender, Social Distance, and Justifications: Statistical Discourse Analysis of Evidence and Explanations in Online Debates*. Paper presented at the Annual Meeting of the American Educational Research Association. Toronto.



Our Network engages 36 researchers from 20 universities in 9 regions

Annex II**Approved KT Fund Projects 2019/20**

Principal Investigator(s)	Project Title
Dr Cheung Lin-hong Department of Chinese Language Studies	A Proposal on Sample Textbook Design for Lower Primary L2 Chinese Learners – A Pilot Study Leading to a Curriculum Development
Dr Chow Chi-ching Department of Health and Physical Education	EdU Touch Resource Pack – Phase 2
Professor Chung Wai-yee Department of Health and Physical Education	Mindfulness Education
Dr Hung Keung Department of Cultural and Creative Arts	Portable Meditation with Novel Technology for New Practice
Dr Ko Yue-on Department of Education Policy and Leadership	Using Mobile Applications and an Online Platform to Facilitate Self-evaluation and Peer Observation in Schools
Professor Lo Sing-kai Graduate School	Train the Trainers: Teaching a Simplified Style Tai Chi for the Elderly in France
Dr Siu Tik-sze Department of Early Childhood Education	Developing a Virtual-reality-based Intervention to Foster Perspective-taking in Young Children
Dr Zou Di Department of English Language Education	Transferring Knowledge of Multi-modal Measurement of Learning Engagement of Hong Kong Primary School Students to the General Public

Annex III**List of Patent Application/ Granted in 2019/20**

Type (Patent Application/ Patent Granted)	Inventor List	Name of Patent	Serial Number of Patent	Country/ Region Granting the Patent	Date of Application/ Grant
Patent application	Dr Matsunobu Koji Department of Cultural and Creative Arts	A Mouthpiece for Use with A Musical Instrument and A Method of Manufacturing Thereof	PCT/CN2019/ 103000	-	20190828
Patent application	Dr Matsunobu Koji Department of Cultural and Creative Arts	A Mouthpiece for Use with A Musical Instrument and A Method of Manufacturing Thereof (樂器で使用するための マウスピース)	2019-600137	-	20190913
Patent granted	Dr Leung Chi-hin Department of Cultural and Creative Arts	A System for Creating a Grid Notation Music Score (一種方格樂譜生成系統)	HK1259119	Hong Kong	20191122
Patent granted	Dr Xie Haoran (former staff) Ms Wang Jingjing Dr Chan Wai-hong Department of Mathematics and Information Technology	A Personalised Online Learning and Professional Two-way Referral Method and System (一種個性化線上學習與 職業雙向推薦方法及系 統)	HK30008626	Hong Kong	20190917
Patent application	Dr Xie Haoran (former staff) Ms Wang Jingjing Dr Chan Wai-hong Department of Mathematics and Information Technology	A Personalised Online Learning and Professional Two-way Referral Method and System (一種個性化線上學習與 職業雙向推薦方法及系 統)	201910878676.3	PRC	20190917

Annex IV**Internal Award Winning Projects in 2019/20****Faculty of Liberal Arts and Social Sciences
The 7th round of Dean's Research Fund
Research Impact Prize**

Principal Investigator(s)	Research Area
Dr Chow Cheuk-fai Department of Science and Environmental Studies	The Power of Supramolecular Dissociation: Toxic Pollution Detection and Remediation
Dr Chu Man-ying Department of Social Sciences	Surveys with Sensitive Questions – Advancing and Applying Randomized Response Technique to Ask Sensitive Questions in Business, Social Sciences, and Healthcare Research
Dr Deng Wenjing Department of Science and Environmental Studies	Environmental Science – Veterinary Antibiotic Residues in Drinking Water, Food and Children's Urine: Implication to Children Health
Dr Lam Chung-wah Department of Science and Environmental Studies	Environmental Science – Toxicity Assessment of Perfluorobutanesulfonate Using Fish Model
Dr Li Wai-chin Department of Science and Environmental Studies	Alleviation of Heavy Metal Pollution in Soil and Its Uptake in Rice
Dr Tsang Yiu-fai Department of Science and Environmental Studies	Environmental Engineering – Environmental Remediation through Novel Practices for Wastewater Treatment

**Faculty of Education and Human Development
Research Awards 2019/2020
Dean's Research Award: Research Engagement and Impact**

Principal Investigator(s)	Research Area
Dr Choi Tae-hee Department of Education Policy and Leadership	Effective Policy Processes for Equitable Quality Education
Dr Yan Zi Department of Curriculum and Instruction	Synergizing Teacher Formative Assessment and Student Self-assessment

Annex V**International Award Winning Projects in 2019/20**

Project Title	Principle Investigator(s)	Award(s)
iENA – International Trade Fair “Ideas-Inventions-New Products” in Germany 2019 (30 October – 3 November 2019)		
A Mouthpiece with a Supporting Windway	Dr Matsunobu Koji Department of Cultural and Creative Arts	Bronze Medal
The Grid and Grid Notation for Music Education	Dr Leung Chi-hin Department of Cultural and Creative Arts	Bronze Medal
International Invention Innovation Competition in Canada 2019 (August 2019)		
Personalized Vocabulary Learning System based on the Checklist of Technique Feature Analysis	Dr Zou Di Department of English Language Education Dr Xie Haoran (<i>former staff</i>) Department of Mathematics and Information Technology	Gold Medal, Special Award
GMoodle: Online Evidence-based Assessment System for Student Group Activities	Dr Winnie Lam Wai-man Department of Mathematics and Information Technology	Silver Medal, Special Award
Chinese: Take a photo and Learn	Dr Tse Ka-ho Department of Chinese Language Studies	Silver Medal
A Literacy Play Kit for Supporting Young Children’s English Learning	Dr Susanna Yeung Siu-sze Department of Psychology Dr Ng Mei-lee Department of Early Childhood Education	Silver Medal

Annex VI**Number of Beneficiaries** ^{Note 1}

Key Beneficiary Item	Nature of KT Activities Involved ^{Note 2}	2018/19	2019/20
Number of schools benefited	Categories (4), (5) & (6)	13,963	13,576
Number of principals benefited	Categories (1), (3), (4), (5) & (6)	7,079	9,500
Number of teachers benefited	Categories (1), (3), (4), (5) & (6)	101,083	118,319
Number of students benefited	Categories (4) & (5)	1,196,900	1,249,015
Number of conference participants benefited	Category (2)	9,561	4,777
Number of organisations/ advisory bodies benefited	Category (6)	1,102	1,221

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
- There has been some reduction in terms of the number of beneficiaries in 2019/20 as they have been impacted by the unforeseeable outbreak of the COVID-19 pandemic.

Annex VII**Summary of Performance Indicators**

Performance Indicators for Knowledge Transfer Activities			2018/19 (1/7 – 30/6)	2019/20 (1/7 – 30/6)
1	Continuing Professional Development (CPD) Courses	Number of CPD courses	19	25
		Income from CPD courses	\$11,010,541	\$10,639,944
		Number of key partners	30	28
		Number of student contact hours	774	1,260
2	Local/ International Professional Conferences	Number of local/ international conferences	53	16
		Income from conferences	\$2,125,182	\$1,226,111
		Number of key partners	117	34
		Number of presentations	1,459	460
3	Professional Seminars/ Workshops	Number of professional workshops/ seminars	434	234
		Income from seminars/ workshops	\$739,937	\$558,560
		Number of key partners	1,355	237
4	Commissioned/ Contract Projects	Number of commissioned/ contract projects	105	119
		Income from projects	\$91,967,611	\$95,848,862
		Number of key partners	282	473
5	Partnership Projects	Number of partnership projects	126	101
		Income from partnership projects	\$21,164,189	\$30,112,924
		Number of key partners	691	593
6	Consultancies	Number of consultancies	30	42
		Income from consultancies	\$2,673,883	\$1,336,335
7	Professionals Engaged in Academic/ Professional Programmes	Number of programmes involved	64	44
		Number of teachers engaged	21	37
		Number of principals engaged	19	15
		Number of other professionals engaged	198	79
8	Commercialised R&D Products and Intellectual Properties (IPs) <small>Note 1</small>	Number of commercialised R&D products/ IPs	49	48
		Income from the R&D products/ IPs	\$40,200	\$312,350
9	Social, Community and Cultural Engagement	Number of public lectures/ symposiums/ exhibitions and speeches to a community audience	519	224
		Number of performances and exhibitions of creative works by staff or students	26	11
10	Staff Engaged as Professional Consultants or Members of External Advisory Bodies	Number of staff engaged	168	176
11	Student Engagement	Number of student internships/ placements	3,243	2,783
12	Publicity or Media Exposure	Number of publicity or media exposure related to KT, including print, on-line and electronic media	879	713
13	Nexus between Research and Teaching	Number of academic staff using research in teaching/ course activities	269	258
		Percentage of academic staff using research in teaching/ course activities	96.8%	95.6%
		Number of academic staff using teaching as research	162	153
		Percentage of academic staff using teaching as research	58.3%	56.7%
14	Publications with Local and Regional Impacts	Number of publications directly relevant to improvement, innovation and development of professional/ educational practices/ policy development	891	868

Notes:

1. The data on item 8 (IPs) for 2019/20 includes one copyright item with income of HK\$300,000.
2. All the incomes generated are in HK\$.
3. There has been some reduction in terms of the number of PIs in 2019/20 as they have been impacted by the unforeseeable outbreak of the COVID-19 pandemic.

