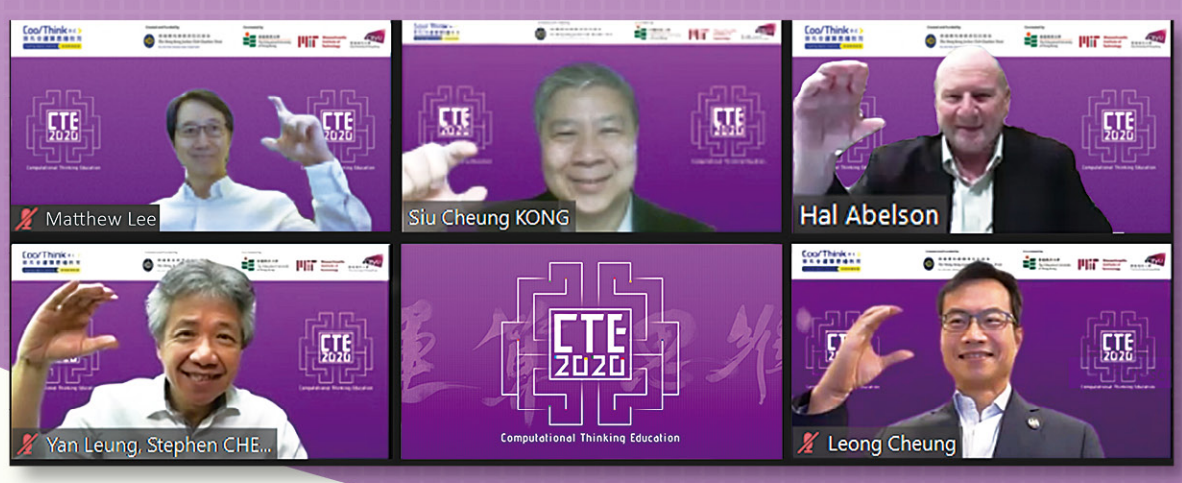
International Conference on Computational Thinking Education 2020

Sharing achievements of the CoolThink@JC pilot project

Meaningful exchange on the practice of computational thinking education



Recently, the Education Bureau has published the latest Supplement to the Primary Curriculum, recommending schools to adopt the document in curriculum planning and implementing coding education systemically to cultivate students' computational thinking. The Bureau also updated the Information and Communication Technology curriculum for senior secondary education, expanding the coverage to computational thinking, artificial intelligence, ethical issue – this is a true testament to the growing importance of computational thinking in classrooms.

As computational thinking and coding education playing an increasingly important role in school curriculum, the **4th International Conference on Computational Thinking Education 2020** was held on 19-21 August, 2020 which provided a platform to exchange ideas and findings on the implementation of computational thinking education and related teaching developments. Organised by CoolThink@JC, the three-day conference was moved online due to the pandemic. More than 700 world-renowned academics and frontline education practitioners from local and overseas institutions participated in the event.

CoolThink@JC's impact has gone beyond Hong Kong to the global arena. The CTE international conference, formation of International Research Network under the World Educational Research Association, participation of international events and bridging scholars around the world to share best practices have made CoolThink@JC a leading initiative in computational thinking education globally.

Officiating at the opening of the online conference were The Hong Kong Jockey Club's Executive Director, Charities and Community, Leong Cheung; President of The Education University of Hong Kong, Professor Stephen Y L Cheung, as well as Conference Chair, Professor S C Kong.

"Since The Hong Kong Jockey Club initiated CoolThink@JC four years ago, it has not only aroused widespread public support through various co-curricular activities but also facilitated a big step forward in promoting computational thinking education in local school curricula by policymakers. Globally, our project leaders inspire educators and scholars around the world to take reference of CoolThink@JC to advance their local educational movements," said Leong Cheung in his opening remarks.

Building on the success of the initiative, Mr Cheung said the Club's Charities Trust would commence the second phase of CoolThink@JC in September 2020. The objectives are to scale the initiative to a wider, more diverse set of local primary schools; to create a self-sustaining ecosystem that nurtures digital creativity in all classrooms; to work together with policymakers and stakeholders to incorporate computational thinking education into mainstream curricula; and contribute to the emerging global literature on computational thinking education.

Conference Chair Professor S C Kong said, "Some people may not have clear understanding on computational thinking, and easily links computational thinking with coding. After completing our four-year pilot, the CoolThink@JC framework for fostering digital creativity is now clear as day. We're grateful for the continuous support from The Hong Kong Jockey Club Charities Trust for CoolThink@JC to further promote our schemes to more local schools in the next four years."

Professor Stephen Y L Cheung, President of The Education University of Hong Kong added, "In view of the pandemic, EdUHK switched to online learning and teaching back in February. In just a month, the University offered 80 online hands-on training workshops. Videos were also posted on the web to provide guidance on creating and starting online lessons. EdUHK also aspires to extend its support for online learning and teaching in primary schools. In particular, CoolThink@JC's project team is preparing animated videos to enable the continuation of computational thinking education online. Online animated videos as well as offline worksheets are also offered to primary school teachers and students for free. In the coming year, EdUHK will work on four e-learning projects on Chinese Language, English Language, Mathematics and General Studies for primary students."

More details on CoolThink@JC:
www.coolthink.hk
www.facebook.com/coolthinkatjc

The four-year CoolThink@JC pilot has achieved outstanding results

Seeking to inspire digital creativity among students and nurture their proactive use of technologies for social good from a young age, CoolThink@JC is a computational thinking education initiative created and funded by The Hong Kong Jockey Club Charities Trust, and co-created by The Education University of Hong Kong, the Massachusetts Institute of Technology, and City University of Hong Kong. In just four years, CoolThink@JC has benefited more than 20,000 students from 32 local primary schools to master the concepts and application of computational thinking education. According to a CoolThink@JC research led by SRI International Director's Linda Shear, it found that:

- Students who've undergone the programme show stronger problem-solving skills as compared to their peers, aiding them in subjects like mathematics and more.
- Teachers agree that the curriculum designed by EdUHK and MIT was helpful in strengthening not only their understanding of computational learning and CoolThink@JC, but also of the ever-changing digital future.
- 80% of teachers reported that teaching CoolThink@JC involves adopting new teaching strategies, which some described as a shift towards more student-centered approaches.
- Principals appreciated how CoolThink@JC catalyzed teacher community and helped them to advance their schools towards STEM goals.

International Teacher Forum: Academic Papers on Computational Thinking Education

In this conference, teachers around the world are invited to share their best practices and key challenges in implementing computational thinking education. Outstanding academic researchers from China, Hong Kong, Lithuania, Singapore, South Korea, Sweden, Taiwan were invited to present their papers at the 'International Teachers Forum"in the conference.

Four teams of local teachers from CoolThink@JC network schools (Fukien Secondary School Affiliated School, King's College Old Boys' Association Primary School No.2, Ling To Catholic Primary School and Maryknoll Fathers' School (Primary Section)) received Outstanding Teacher Paper Award.

Teachers Wong Mau-Fai and Vicky Yuk-Yue Wong from Kings' College Old Boys' Association Primary School No.2 chimed in with their "Eco-Taxi" programing project. Students investigated gaps in people's daily needs and wrote the Eco-Taxi application after they've successfully established the problem, strut their imagination, and repeatedly tried and tested their prototype. This model of guiding students to solve problems has seen eye-opening success. To better implement computational learning, the two teachers believe that boosting students' self-confidence and problem-solving skills are key.

Ling To Catholic Primary School's teachers Li Wing-Kai, Lam Man-Hay and Yeung Shing-Chun, said CoolThink@JC not only offers schools a systematic curriculum to computational learning, but also gives teachers a better understanding in students' logical thinking, practice and application. The advantages of computational learning lie in the digitisation and gamification of students' daily lives and that their involvement is much higher compared to that of rote classroom learning.