中文

## CASE STUDY

## LITTLE INVENTORS INSPIRED BY DESIGN THINKING TO ADDRESS SOCIAL NEEDS

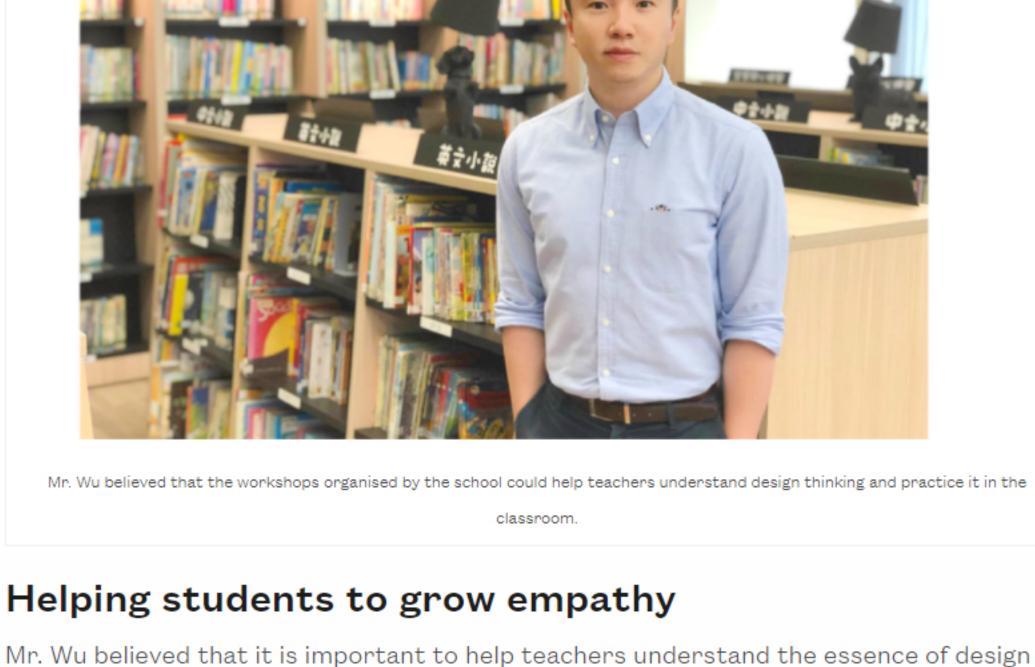


and problem solving, as well as communication, collaboration, character education and having a sense of global citizenship. Therefore, the education sector also needs to change with the times change, redesigning its system and curriculums to nurture the next generation for the society. As such, King's College Old Boys' Association Primary School No.2 (KCOBAPS2) introduced design thinking into its interdisciplinary project studies for Primary 5 and 6 students in 2017/18. The initiative encourages students to use their empathy to observe

their surroundings and create small inventions to answer those needs, through which

21st century should focus on these attributes: creativity and imagination, critical thinking

students can acquire the suitable skills to survive the 21st century. "Conventional education system focuses on textbook learning, offering students little room to solve problems with creativity or through collaboration. Therefore, starting from 2017, we have decided to use class hours flexibly and design year-round interdisciplinary study activities for students in order to create some changes," said Mr. Wu Kwok Chu, Assistant Principal of KCOBAPS2.



the Quality Education Fund, the school organised an "Applying Design Thinking by Teachers" workshop for staff. Mr. Chan King Hong, who heads the school's computer department, is one of the participants.

thinking in order to promote it at the school successfully. Thus, with the support from

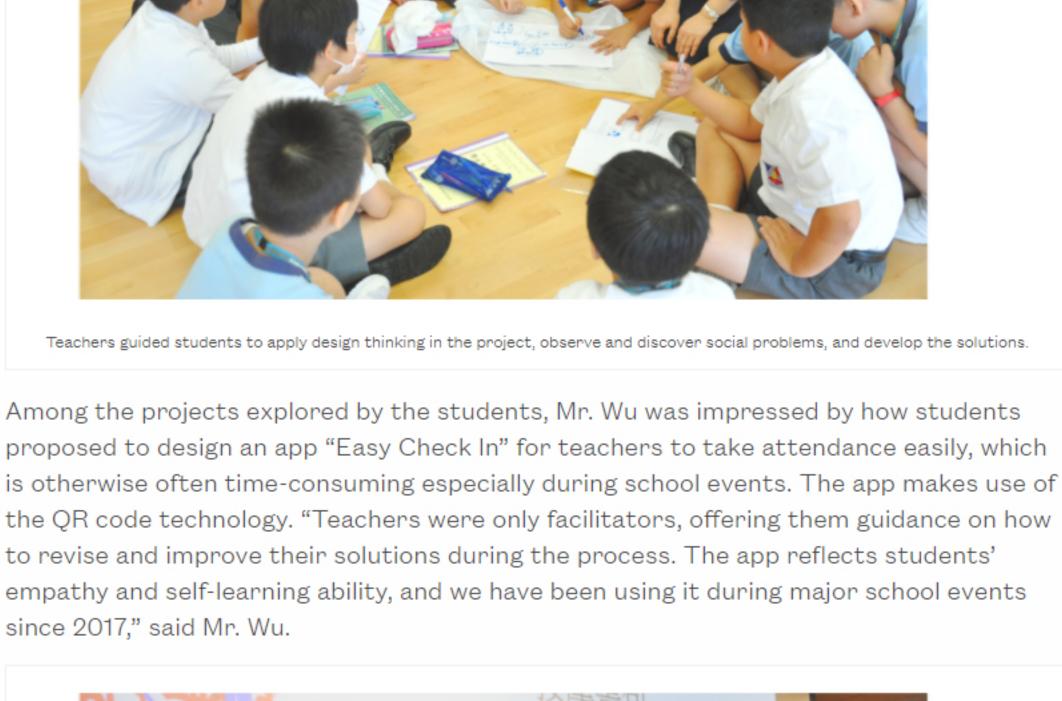
programme marked a key exploration of the student-centred teaching.

Mr. Chan said, "In the past, teaching plans were developed by teachers themselves and students could not participate in it. But design thinking starts with empathy, and reminds us to understand and respond to the needs of students from their perspective, such as observing their performance and responses in the classroom, and then trying to figure out why some students underperform." While this approach echoes the ancient Confucius adage of "teaching students according to their aptitude", the interdisciplinary project

Under the programme, students are divided into groups of 10 and each led by a teacher. "Each group comprises students from different classes and with different abilities and strengths. We would encourage them to divide their tasks according to their interests and strengths, and as they work together, they can learn about teamwork and communication skills," Mr. Chan explained. He added that the programme included 10 modules that would introduce students to the concept and application of design thinking through everyday examples. "Then the

teachers would ask the students to explore the community and the issues within, try to

understand others' needs with empathy, and propose solutions accordingly."





Some students invented the "Smart Massaging Backpack" to alleviate the back pain experienced by the elderly. They shared the R&G

process in the interdisciplinary project presentation.

Mr. Wu said their school has been participating in Hong Kong Jockey Club's CoolThink@JC

programme, and is one of its resource schools that further promote the integration of

to solve problems with technologies and empathy. For example, in light of the recent

global pandemic and the hidden risks associated with public toilets, students Ma Hong

design thinking and computational thinking education with an aim to encourage students

Smart toilet to combat pandemic

frequency of use," noted Wong.

Yiu, Wong Tze Hin and Ng Wai Cheung used a popular software Scratch, Lego building blocks, electronic sensors and AI technology to invent a AI smart toilet prototype. "It simulates a toilet seat that opens and closes automatically and can perform touchless flushing. It also allows the user to adjust the self-cleaning schedule according to the

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cleansed more frequently. So we use AI technology to enhance the design as it helps determine the cleaning frequency based on the number of visitors on the previous day. We also developed an interface for holidays to allow the user to customise the cleaning

Led by Chan King Hong, head of computer department, (from left) Ma Hong Yiu, Wong Tze Hin and Ng Wai Cheung joined the

CoolThink@JC Competition and won the championship (Scratch).

During the R&D process, they interviewed their family members about their perceptions

of public toilets and user experience so as to identify their needs and find inspiration. Ng

noted, "When making the prototype, we kept consulting our families, and realised that

public toilets have a higher number of visitors during weekends, and thus need to be

frequency." Mr. Wu was pleased to see that the students gained a better understanding of the human-centred principle of design thinking through these inventions. They also learnt to collaborate as a team, solve problems and learn independently. "These are the essential skills to be mastered by the young generation, and therefore we will continue to incorporate design thinking into other disciplines and strengthen students' capabilities," Mr. Wu said.

Hong Kong Design Centre (HKDC) is a non-governmental organisation founded in 2001, and a strategic partner of the HKSAR Government in establishing Hong Kong as a centre of design excellence in Asia. HKDC continues its public mission in using design and innovation to drive value creation of business development and improve the well-being of society, through the provision of diverse innovation-oriented knowledge sharing and exchange platforms, anchored by five major work directions: CONNECT, CELEBRATE, NURTURE, ADVANCE and ENGAGE.

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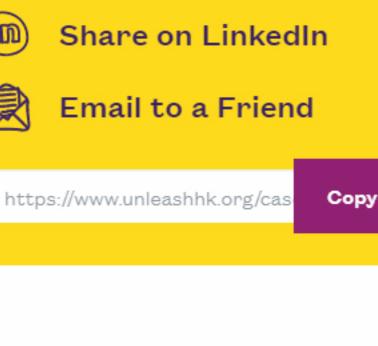
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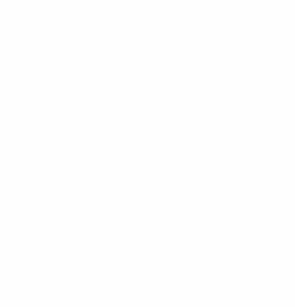
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