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2021 marked the end of one of our first and longest programs. As Youthcreate finished, we got to hear the stories of how the youth and social workers created unique projects together. The program really focused on shifting the youth/adult relationship by promoting co-creation, and that certainly involved a major change in behaviors. Still, the youth were able to demonstrate their capacity to take charge, and carry out their projects with the guidance and cheering of the social workers. I believe the most impressive part of this program was to see how social workers took maker education as a tool to reconnect with the youth, and further deepen their relationship with them.

I recall the story of one of these youths, who learned woodwork at his neighborhood youth center because he wanted to make a basketball hoop to play with his friends. It probably wasn’t easy at first since it was his first large scale project. But with the support of social workers and other youths, he made it. And he didn’t stop there! Equipped with new skills, he was then able to help his family fix the broken dinner table, not only by repairing it, but also by changing its design to make it foldable. This is a great example of how maker education can foster problem solving skills, creativity and a spirit of initiative.

As the pandemic keeps on going, we will take inspiration from him in order to keep thinking out of the box to deliver innovative content and support more young changemakers! Besides working with youth themselves, we will also further develop our capacity for training the trainers, in order to deliver a long lasting impact to the community.
What is MakerBay Foundation?

Established in 2015 by Cesar Jung-Harada — a Japanese-French educator, environmentalist, and entrepreneur, MakerBay is a social enterprise aiming at achieving positive social and environmental impact through maker education and entrepreneurship.

Since its inception, MakerBay has trained hundreds of educators, from social workers to the likes of Harvard and MIT faculty. MakerBay is regarded as a thought leader in design thinking, prototyping, impact invention, maker education, and STEAM education.

MakerBay Foundation was established in 2017 specifically to work with underserved youths in Hong Kong. The Foundation also operates as a makerspace supporting social and environmental entrepreneurs by offering affordable, inclusive office and industrial work spaces. A core belief behind MakerBay Foundation is that everybody can learn to make something.

Local innovation can create a global impact!
Our Objectives

Innovation for Good
- Promote innovation as a tool to tackle social and environmental challenges

Skill Building
- Develop youth problem-solving and creative skills through hands-on workshops and projects

Capacity Building
- Support educators with adequate training for teaching of maker education

Inspiration
- Ensure an inspirational, engaging, and empowering experience for participants

Community building
- Building a community of makers by organising events and connecting like-minded people through our shared makerspace

Vision
We empower the next generation of innovators to have a positive social and environmental impact.

Mission
We foster innovation by offering the best resources for impact makers to
• Grow a community of makers
• Receive a hands-on education
• Do impactful projects

Our Values:
Collaboration, Creativity, Respect
Meet Our Team

Aurianne Ricquier  
Executive Director

Carina Wong  
Admin & Finance

Thomas Williams  
Workshop Manager

Meet Our Board of Directors

Maria Li  
Board Director

Sylvia Chan May-kuen  
Board Director

Chicky Bhavnani  
Board Director

John Leung  
Project Creator

Cherry Cheung  
Community Officer

Trinity Chan  
Community Officer

Kelvin Lai  
Content Creator

John Leung  
Content Creator

Rain Lau  
Content Creator

MakerBay Foundation has strengthened its governance thanks to the creation of its first board of directors in May 2021.
Defining maker education

We teach maker education through 7 main hard skills.

and 7 main soft skills.

Hard Skills
- Laser Cutting
- Metalwork
- Textile
- Electronic & Coding
- CNC Fabrication
- Woodwork
- 3D Printing

Soft Skills
- Problem Solving
- Collaboration
- Resilience
- Critical thinking
- Sustainability
- Initiative
- Impact Innovation
The main goal of this 3-year program supported by The Hong Kong Jockey Club Charities Trust was to look for new ways to co-create with youth. From the process, we hoped that social workers serving youth were encouraged to establish new peer relationships with them and enable them to become changemakers in the community.

As the facilitator of the maker track, we transformed rooms in six youth centres in low-income areas into mini maker-spaces, and trained over 250 social workers in social innovation and rapid prototyping with traditional and digital tools. With them, we have trained over one thousand young people in woodwork, metal work, textiles, laser cutting, 3D printing, electronics and design thinking. These skills translate into tangible impact, where the youth can do projects to improve their neighbourhoods and build portfolios to apply to high schools and universities.

The Chinese University of Hong Kong has studied the effectiveness of the YouthCreate Series: MakerBay Foundation “Maker Education” Project on the participants, and identified great improvement in the following areas:

• positive identity and self esteem
• capacity building
• digital competence
• social connectedness

You may read more details in the full report.

A further outcome of the program allowed MakerBay Foundation to create a wide range of step-by-step teaching videos for social workers to continue using as a resource.

Our Core Programmes

2018 - 2021: YouthCreate Series: MakerBay Foundation “Maker Education” Project
Total Beneficiaries: 3,721

2020 - 2021: Ocean Park AI Program
Total Beneficiaries: 600

2020 - 2021: Jockey Club Community Sustainability Fund - Impact Maker Program
Total Beneficiaries: 1,371

2021: City Nature Challenge
Total Beneficiaries: 80

YouthCreate Series: MakerBay Foundation
“Maker Education” Project

Beneficiaries

3721
Scientists have shown that at least 50% of coral reefs are already dead. Without action to preserve these reefs and curb climate change, they estimate that 90% of them will die by 2050.

Hong Kong is home to an impressive 84 species of corals. Here too, the reefs are increasingly bleaching due to climate change, pollution, and other destructive human activities.

To respond to the issue of coral bleaching, we partnered with Hong Kong landmark and education and entertainment center Ocean Park to first to understand where the corals are located and what their condition is. Together, we came to the conclusion that we needed to map out the coral reefs of Hong Kong. The existing technologies, such as quadrat, CISME, and Catlin typically don’t allow large scale mapping quickly enough to tackle this pressing issue.

Our solution was the CoralBot. The CoralBot is an autonomous bot that can take pictures of corals and process them through photogrammetry to develop maps.

In this program, over the course of 6 months we taught 600 students how to use AI for coral conservation. Through Zoom lessons, they familiarized themselves with the concepts of AI and how powerful of a tool it could be for conservation. They were trained to use AI and helped to label hundreds of photos. Thanks to the students’ work, we trained the CoralBot AI to recognize coral species and later demonstrated its effectiveness. On a sample reef check, the AI was able to accurately recognize 72% of the coral species when humans only had a score of 47%.

Over the last 18 months, the world has suffered a global pandemic and the biggest public health crisis that we have experienced since the Second World War. The COVID-19 pandemic has resulted in severe social and economic loss around the world. Young people are particularly vulnerable to the disruptions that the pandemic has caused, and many are now at the risk of being left behind in education, economic opportunities, health, and well-being during a crucial stage of their life development. In response to this, Makerbay Foundation designed the Impact Maker Program, which focuses on providing skill building, problem solving, and development for Hong Kong youth, through utilizing the UN Sustainable Development Goals (SDG).

Jockey Club Community Sustainability Fund - Impact Maker Program is a step-by-step approach to develop innovation skills and a problem-solving mindset to solve the challenges outlined in the SDG’s. Program participants have learned skills that are the combination of technical skills, design thinking, and problem solving, along with soft skills (e.g. resilience, self-confidence, effective communication) through a series of workshops led by MakerBay Foundation’s instructors.

This program was developed with 3 levels of workshops:
Level 1: learn to make a simple product
Level 2: improve your skills to make a more complex product
Level 3: use the design thinking method to innovate solutions for the community and the environment

We closed the program by awarding two of the teams with the most promising innovative solutions a 1-month membership for our Tsuen Wan space so that they could continue developing their ideas into a full-fledged product.
During City Nature Challenge 2021 workshops, Makerbay targeted to increase awareness of Hong-Kong biodiversity and inspire more youth to become users of iNaturalist. We had workshops at PMQ and Buddhist Fat Ho Memorial College, to go around the neighbourhood and take pictures of animals and plants.

Insect is one of the beings that urban people hate the most, but it is also the being that closest to urban people. So, we choose a good looking insect for people to overcome their fear.

By assisted by Stickyline, we make giant paper Longan lanternflies (Insect) with students, introduce one of the good looking insect that closest to the students for them to overcome their fear to insect.

Other projects in 2020-2021

- Developed a maker curriculum with Lee Shau Kee primary school
- Organized innovative maker activities with Ocean Park, Youth centre, public and private schools
- Mentored a team of secondary school students for Microsoft’s ‘AI for Good’ competition
COVID-19 Response

As a hands-on NGO, COVID-19 greatly impacted our operations. MakerBay Foundation was unable to host regular workshops and struggled to reach out to beneficiaries as school and other events were mostly suspended. Every difficult time comes with opportunities, and the restriction of physical contact helped to further enhance our selection of online classes, and for the first time we offered online maker classes with shipping of the tools and materials in advance.

We also received great support from the DH Chen Foundation. Thanks to the successful application of the DH Chen Foundation Fellowship, we received not only financial support, but also networking opportunities, empowering us to be more resilient in this difficult period. As of today, we are still part of a dynamic group of fellow NGOs with whom we can share experiences and support each other.

What’s on the Horizon?

We are thrilled to share that The Hong Kong Jockey Club Charities Trust has granted us funding to start Jockey Club AI Community Innovation Program, commencing October 2021 and running halfway through 2023. It will be a hands-on AI education program that brings together students, parents, teachers, and industry professionals to give everyone the chance to learn, play and solve real-world problems with AI.

The program aims at empowering our target audience, underserved youth aged 8-18 and their families, to identify meaningful problems in their communities and develop technology-based solutions.

This upcoming year and beyond, the MakerBay Foundation will focus on the following outcomes, in turn fostering a more inclusive and resilient society for Hong Kong Youth.

Key Program Areas:
- Hands-on workshops: making of a product to develop a deeper understanding of the tools and the design process
- Maker Visits: meetings with Hong Kong makers to inspire youth and showcase local talents
- Mentorship: 3-week long projects to identify and implement an innovative solution to a social or environmental issue
- Maker Exhibition: a showcase of the youth-made products to offer them more exposure
- Train the Trainers: supporting social workers and educators with training in design thinking, prototyping and maker skills

In addition, we aim to develop a robust volunteer program, where company employees can assist with mentorship opportunities, provide skill-based support during exhibitions, and much more.
Finances
AS AT 31ST MARCH 2021

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Partners

Without the support of our sponsors and partners we could not have achieved much of our work over the past several years. Thank you for your commitment and support and we look forward to what's to come.

Funded by

The Hong Kong Jockey Club Charities Trust

The programmes/projects funded by the Trust.

Supported by

Other Partners