






Nurturing Entrepreneurial Spirit in a Disrupted World: **The Missing Links**

Prof. Bernard Suen
CUHK Center for Entrepreneurship

Table of Content

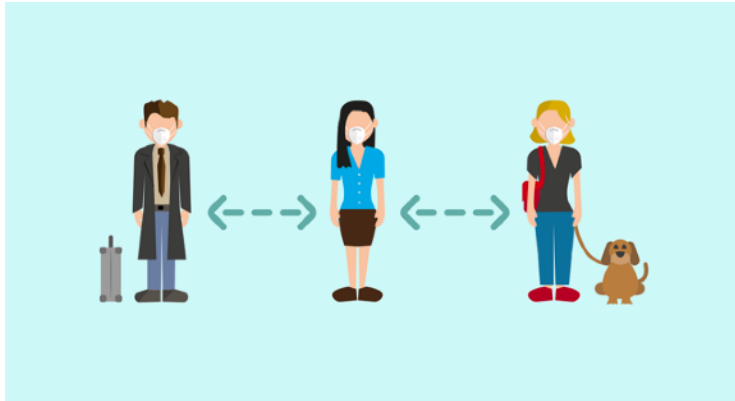
-  **Drastic disruptions in politics, economy, socio-culture, technology, and environment need new talents to address them**
-  **21st century skills and the missing links in educating talents**
-  **Nurturing entrepreneurial spirit and positive values and attitudes to fill the gaps**
-  **From ideas to practices: how to realise entrepreneurial spirit in daily lives**
-  **Learning from people with entrepreneurial spirit as role models**

Background

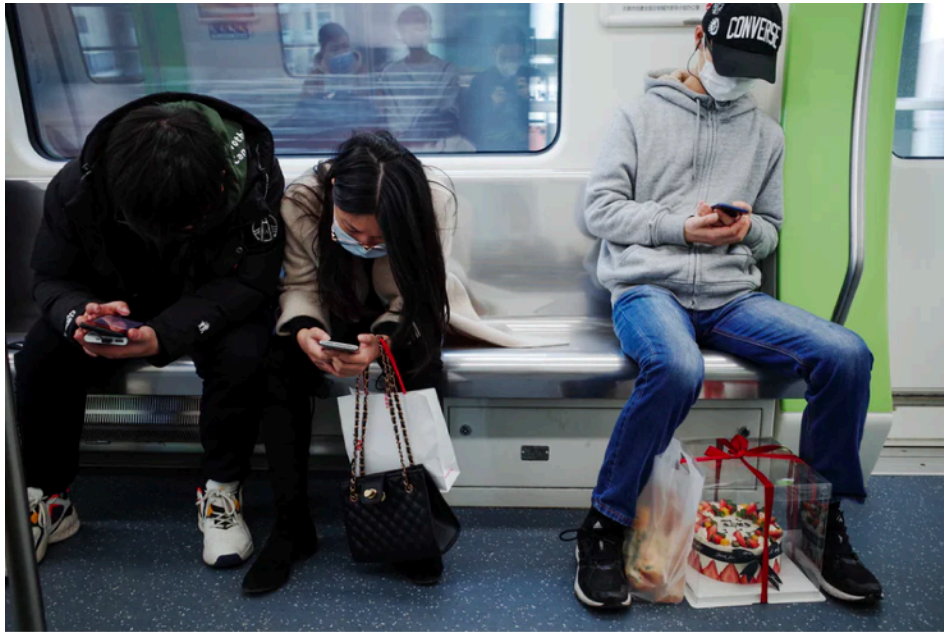
A stylized, colorful illustration of a coronavirus particle. The particle is depicted as a central core with numerous long, thin, and slightly curved spikes radiating outwards. The spikes are colored in various shades of blue, green, and red. The entire particle is set against a dark, textured background. A white rectangular box is superimposed over the center of the particle, containing the word "CORONAVIRUS" in bold, black, capital letters.

CORONAVIRUS

Social distancing, quarantine & vaccination: The “new normal”.



Source:pixabay.com



Our life disrupted.
But is **COVID** the
only one?

**Environmental disruptions that are also
threatening our survival.**

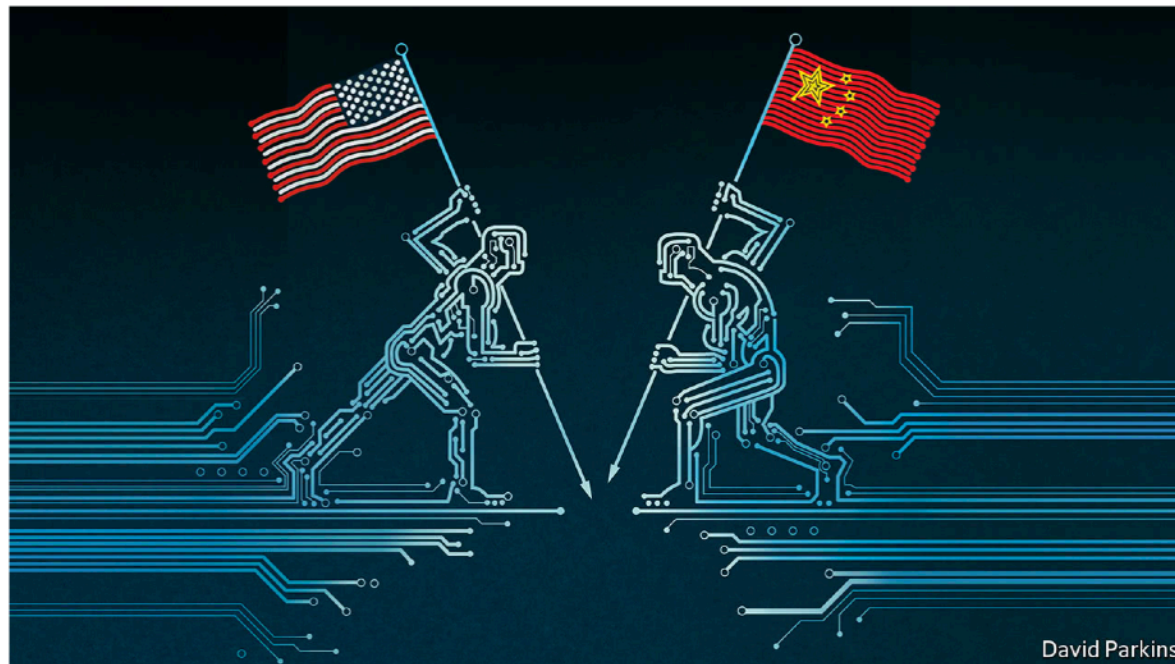


New world order in the making...

America v China

The battle for digital supremacy

America's technological hegemony is under threat from China



China vs. US – Top Players for Key Verticals



Source: China Internet Report 2018

A man wearing safety glasses and a blue shirt is looking at a yellow industrial robotic arm in a factory setting. The arm is positioned on the left side of the frame, and the man is in the background, slightly out of focus. The text "Where machines could replace humans—and where they can't (yet)" is overlaid in white serif font across the center of the image.

Where machines could replace humans—and where they can't (yet)

By Michael Chui, James Manyika, and Mehdi Miremadi

Source: McKinsey Quarterly July 2016



Source: TED Aug 2018 How AI can save our humanity | Lee Kai-Fu

01:49 -07:55

Optimization

Creativity or Strategy



Repetitive

Routine

Optimizing

Complex

Creative

Tele-sales

Truck driver

Radiologist

CEO

Columnist

Dishwasher

Hematologist

Reporter

M&A Expert

Scientist

Customer Support

Security Guards

Research Analyst

Economist

Artist

Source: TED Aug 2018 How AI can save our humanity | Lee Kai-Fu

Optimization

Creativity or Strategy

Repetitive

Routine

Optimizing

Complex

Creative

AI
Telesales
Cashier
Customer support

AI
Truck driver
Human logist
Security guards

AI
Robotologist
Reporter
Research analyst

CEO
M&A Expert
Economist

Columnist
Scientist
Artist

5

years

10

years

15

years

SAFE

SAFE

Source: TED Aug 2018 How AI can save our humanity | Lee Kai-Fu

A photograph of train tracks receding into the distance, heavily blurred to convey a sense of rapid motion. The tracks are dark and run horizontally across the frame. The background is a mix of brown and grey tones, also blurred.

Can we cope with these rapid changes?

**How can we survive and seek happiness
and meaning in such a world?**



U.S. Department of Education

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[Data](#)

Science, Technology, Engineering and Math: Education for Global Leadership



"[Science][Science] is more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world..."

— President Barack Obama, March 23, 2015

"STEM" EDUCATION COMES TO THE RESCUE

推動STEM教育

發揮創意潛能

概覽



課程發展議會
2015年11月

RESPONSE FROM THE HKSAR November 2015

「賽馬會運算思維教育」創新社群

CoolThink@JC InnoCommunity

現正啟動



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TECHNOLOGY WILL CONTINUE TO BE INDISPUTABLE

Though Novoselsky does predict STEM-related occupations will dominate fast-growing occupations, with a big quest for software and app developers, as well as IT specialists, technology isn't only in these fields. In fact, she explains, outside of traditional tech, jobs like registered nurses, postsecondary teachers, accountants and auditors will increase in demand, and people in these roles will encounter tech more regularly during their day-to-day tasks. According to a CareerBuilder survey, 69% of employers said every job is essentially a "tech job" because some part of the responsibilities is dependent on their ability utilize various technologies. "This shift will push companies

Twenty-first century skills



Source: <http://www.ibe.unesco.org/en/glossary-curriculum-terminology/t/twenty-first-century-skills>

An overarching concept for the knowledge, skills and attitudes citizens need to be able to fully participate in and contribute to the knowledge society. This need is mostly attributed to the changes in society, and more particularly, to the rapid development of technology and its impact on the way people live, work and learn. While in the industrial society the main focus of education was to contribute to the development of factual and procedural knowledge, in the information or knowledge society the development of conceptual and metacognitive knowledge is increasingly considered important. Furthermore, the changes in economy and the labour market caused by globalization and internationalization are an important driving force for the need of 21st century skills. Different organizations, including also partnerships and consortia, have defined and endorsed core competences/skills frameworks using different foci, emphases, groupings and terminologies. Most frameworks seem to converge on a common set of 21st century skills or competences, namely: collaboration; communication; Information and Communication Technology (ICT) literacy; and social and/or cultural competencies (including citizenship). Most frameworks also mention creativity, critical thinking and problem solving. Across the various frameworks it is acknowledged that ICT is at the core of 21st century skills. Specifically, it is regarded as both (a) an argument for the need of 21st century skills, and (b) a tool that can support the acquisition and assessment of these skills. In addition, the rapid development of ICT requires a whole new set of competences related to ICT and technological literacy.

World Economic Forum Education 4.0 Framework

Content (built-in mechanisms for skills adaptation)

Global citizenship skills

To include content that focuses on building awareness about the wider world, sustainability and playing an active role in the global community.

Innovation and creativity skills

To include content that fosters skills required for innovation, including complex problem-solving, analytical thinking, creativity and systems-analysis.

Technology skills

To include content that is based on developing digital skills, including programming, digital responsibility and the use of technology.

Interpersonal skills

To include content that focuses on interpersonal emotional intelligence (i.e. empathy, cooperation, negotiation, leadership and social awareness).

Personalized and self-paced learning

From a system where learning is standardized, to one based on the diverse individual needs of each learner, and flexible enough to enable each learner to progress at their own pace.

Accessible and inclusive learning

From a system where learning is confined to those with access to school buildings to one in which everyone has access to learning and is therefore inclusive.

Problem-based and collaborative learning

From process-based to project and problem-based content delivery, requiring peer collaboration and more closely mirroring the future of work.

Lifelong and student-driven learning

From a system where learning and skilling decrease over one's lifespan to one where everyone continuously improves on existing skills and acquires new ones based on their individual needs.

Experiences (leveraging innovative pedagogies)



**What kind of talents do we need
in the 21st century?**

Is **tech enough for getting us ahead ?**

“No less a force in global business than IBM found, in a global study (conducted in **2010**) of more than **1,500 CEOs** from **60 countries** and **33 industries**, that the most important skill for successfully navigating our increasingly complex, volatile, and uncertain world is none other than **creativity**.”

Source: Fast Company March 28, 2013)

The surprising thing Google learned about its employees — and what it means for today's students

By **Valerie Strauss** December 20, 2017 [Email the author](#)



(Marcio Jose Sanchez/AP)

“In 2013, Google decided to test its hiring hypothesis by crunching every bit and byte of hiring, firing, and promotion data accumulated since the company’s incorporation in 1998. Project Oxygen shocked everyone by concluding that, among the eight most important qualities of Google’s top employees, STEM expertise comes in dead last. The seven top characteristics of success at Google are all soft skills: being a good coach; communicating and listening well; possessing insights into others (including others different values and points of view); having empathy toward and being supportive of one’s colleagues; being a good critical thinker and problem solver; and being able to make connections across complex ideas.”

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- 1. Good coach**
- 2. Communicating and listening well**
- 3. Possessing insights into others**
- 4. Having empathy and being supportive of colleagues**
- 5. Critical thinker**
- 6. Problem solver**
- 7. Make connection across complex ideas**
- 8. STEM expertise**

The STEAM Journal

Volume 3

Issue 1 *Sediment*

Article 11

November 2017

Creating STEAM with Design Thinking: Beyond STEM and Arts Integration

Danah Henriksen
Arizona State University



A place for explorers & experimenters at Stanford University.

[What We Do](#)

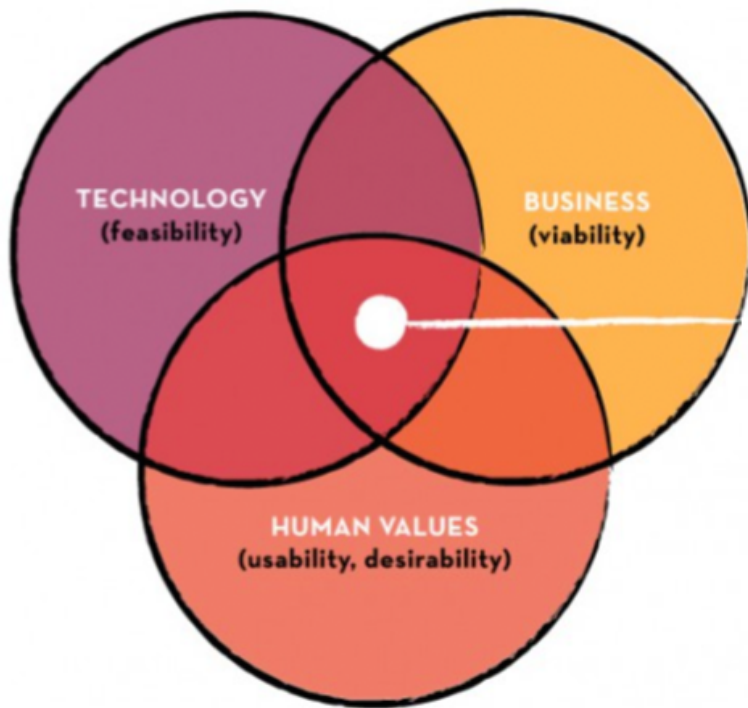
[How We Do It](#)

[Our Impact](#)

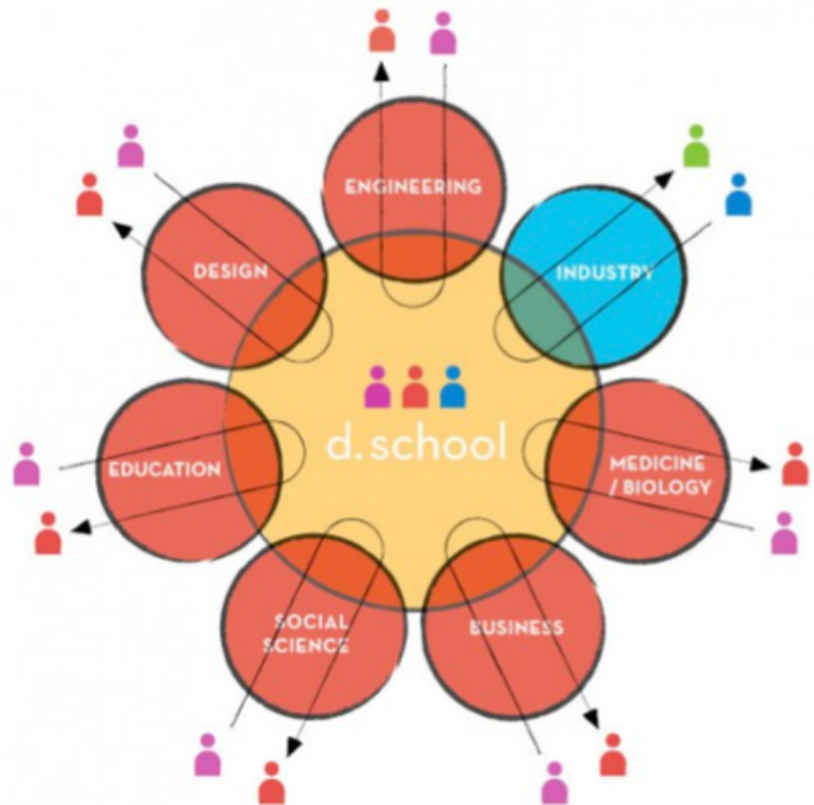
[The Home Team](#)

[How to start a d.school](#)





Source: Stanford d.School



Tech / Innovation

Hong Kong urged to adopt design thinking to stay innovative in technology era

Creative mindsets are increasingly being sought after as cities like Hong Kong strive to stay competitive in rapidly changing technological landscape



Zen Soo

Published: 5:00am, 10 Oct, 2018 ▾

Why you can trust SCMP



REIMAGINING EDUCATION

New Perspectives. New Generation.



InnoPower @JC: Fellowship for Teachers

Ednovators encourages teachers and social workers to have a long-term contribution to the development of education and social welfare. Innovative minds and a practical course of action are required when facing the needs and challenges of these two sectors.

Source: [InnoPower@JC](#)

From STEM to STEAM

What is “STEAM”?

"Science and Technology, interpreted through Engineering and the Arts, all based in elements of Mathematics."

Georgette Yakman, 2007

DESIGN THINKING

Design Thinking in Education: Empathy, Challenge, Discovery, and Sharing

As a model for reframing methods and outcomes, design thinking reconnects educators to their creativity and aspirations for helping students develop as deep thinkers and doers.

By [Susie Wise](#)

February 8, 2016



Photo credit: Scott McLeod via flickr (CC BY 2.0)

The unlikely champion for testing kids around the world on empathy and creativity

By [Jenny Anderson](#) • February 22, 2019



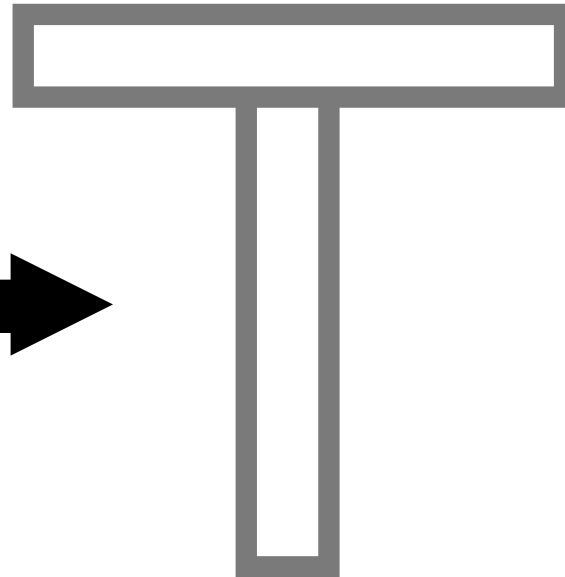
Source: Quartz, February 22, 2019

PISA's founder, Andreas Schleicher, who is head of education at the OECD which runs PISA, said by 2021 empathy, creativity and inquisitiveness will be measured and by 2024 digital competency will be measured.

**I-Shaped Talent of
the Industrial Age**



**T-Shaped Talent of
the Network Age**



The Power of Interdisciplinary Learning



SCIENCE, TECHNOLOGY AND MATHEMATICS EDUCATION

in the Development of the Innovation and
Technology Ecosystem of Hong Kong

“... Innovation and scientific research, as well as the ability to solve complex problems nowadays require multidisciplinary training and possession of so-called **“T-shaped”** knowledge. However, over two-thirds of HKDSE students took only two Electives, comparing poorly to an average of four subjects in addition to Languages and Mathematics previously (under the HKCEE8 system). The narrowed knowledge base seriously weakens the foundation required for articulation into post-secondary education. “

--- Extracted from the Executive Summary



Minor in Entrepreneurship and Innovation (EPIN)

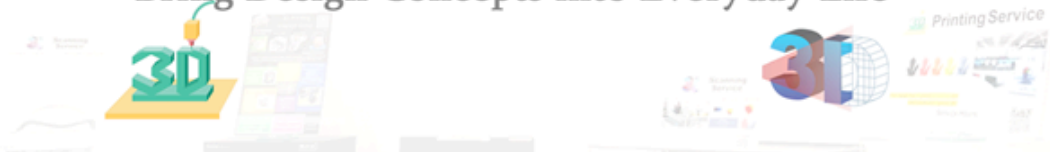
is coming in September 2017!

EPIN (pronounced as “\e-pin\”, sounds similar to “epic”) is a university-wide minor programme in entrepreneurship and innovation. CUHK students dare to be different. You are passionate to create and break new grounds. This is a platform to learn, practice and make things happen.



Maker Bubble

Bring Design Concepts into Everyday Life



Common Core & Utrecht University: *The More-Than-Human-City*

Transdisciplinary Research Exchange 2022



Universiteit Utrecht

THE HONOURS COLLEGE, THE HUMANITIES HONOURS PROGRAMME, THE COMMON CORE

THE MORE-THAN-HUMAN CITY Transdisciplinary Research Exchange 2022

A GLOBAL RESEARCH-IN-ACTION LAB

Project Directors:

Gray Kochhar-Lindgren (HKU) & Rick Dolphijn (UU)

Who?

- From HKU, 8 highly motivated, creative, and curious students chosen from across all the Faculties who have (i) successfully completed at least three Common Core courses with Grade B or above; (ii) obtained a cumulative GPA (CGPA) of 3.0 or above (as of Summer Semester, 2020-21); and (iii) are committed to full engagement with, and completion of, the exchange, including (if we are, miraculously, able to travel) availability during the week of Utrecht's visit to HKU and our

<https://commoncore.hku.hk/studentinfo/>

Introducing the



COMMONCORE

THE UNIVERSITY OF HONG KONG

ENTREPRENEURSHIP

INNOVATION



Bachelor of Arts & Sciences

The University of Hong Kong



The new Bachelor of Arts & Sciences degrees, involving all ten faculties, are aimed at nurturing globally-minded thinkers and leaders able to leverage their interdisciplinary knowledge and skills to address the contemporary and future challenges of our increasingly complex world.



Bachelor of Arts & Sciences



AppliedAI



Design +



FinTech



Global Health & Development



Social Data Science

作間

CUHK Maker Space



Workshops and Hackathon: From Data Sourcing to Publishing (Oct – Nov 2021 series)



We are pleased to offer the following workshops on the theme "From Data Sourcing to Publishing" in this academic year and a hackathon in Term Two, 2021/22. All CUHK students and staff are welcome to join. The workshops are classified following the five categories of the data cycle:

1. Problem Definition 2. Data Preparation 3. Analysis/Modeling/Validation 4. Presentation/Visualization/Storytelling 5. Deployment

These workshops are organized in a series. Students are highly recommended to attend every workshop to understand the whole data cycle. Students can watch the workshop recordings before attending the next workshop if they cannot attend a particular workshop.

Guest Speaker: Prof. Bernard Suen, Center for Entrepreneurship, CUHK

Introduction to Web Publishing with HTML/CSS and GitHub

23 Oct 2021 (Sat) 9:30 a.m. - 12:30 p.m. & 2:00 p.m. - 5:00 p.m. | [Click here to register](#)

Introduction to Computer Programming in Python

30 Oct 2021 (Sat) 9:30 a.m. - 12:30 p.m. & 2:00 p.m. - 5:00 p.m. | [Click here to register](#)

Programmes for promoting computation and data literacy

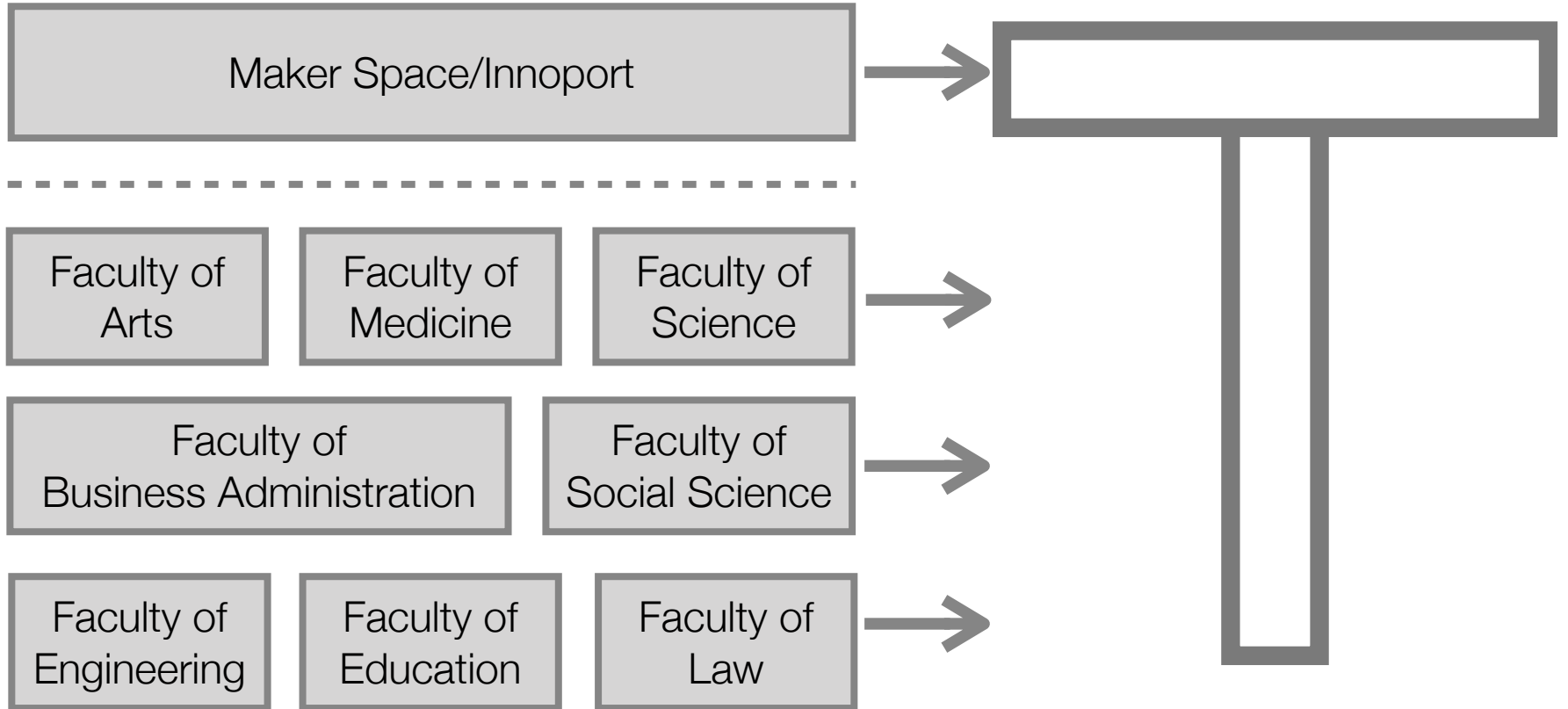
<https://libguides.lib.cuhk.edu.hk/makerspace>

INNOPORT IS...

THE HABITAT
FOR CUHK
INNOVATORS AND
ENTREPRENEURS

LEARN MORE





Because the world is changing so fast, we need interdisciplinary flexibility.

Integration through Applied Learning: Development in Singapore



By Lianne Chia
@LianneChiaCNA

05 Mar 2018 04:42PM
(Updated: 06 Mar 2018
12:35AM)

145 shares



Bookmark



Singapore

All primary schools to set up Applied Learning Programmes by 2023: Ng Chee Meng

Since 2017, more than 80 of the 191 primary schools in Singapore have these Applied Learning Programmes, which are designed by schools to help students apply their learning to the real world.

Source: CNA, Mar 5, 2018

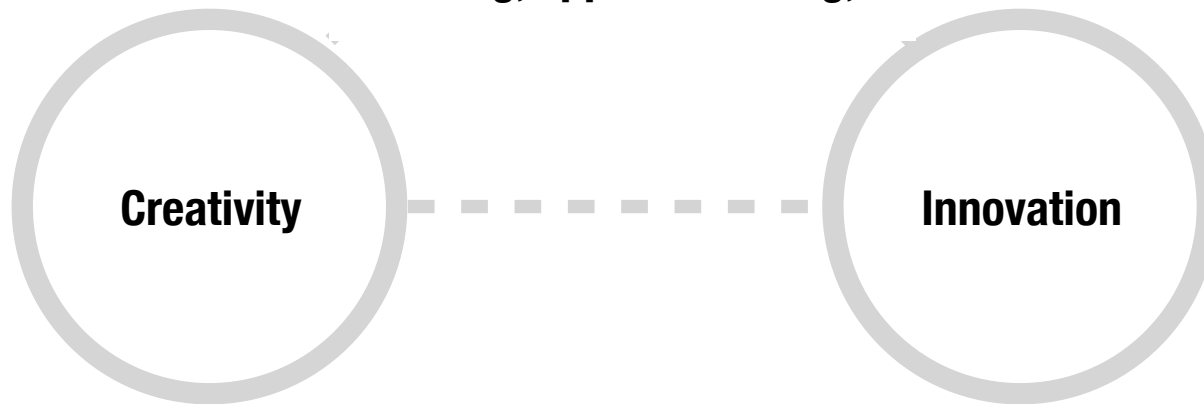
Minister for Education (Schools) Ng Chee Meng announced yesterday that he has directed all primary schools to set up an ALP by 2023... “It is a diverse, colourful and exciting landscape, catering to a wide range of interests: STEM, languages, humanities, business, entrepreneurship, aesthetics, inter-disciplinary fields,” he said. “All the ALPs, importantly, encourage exploration, ideation and creativity.

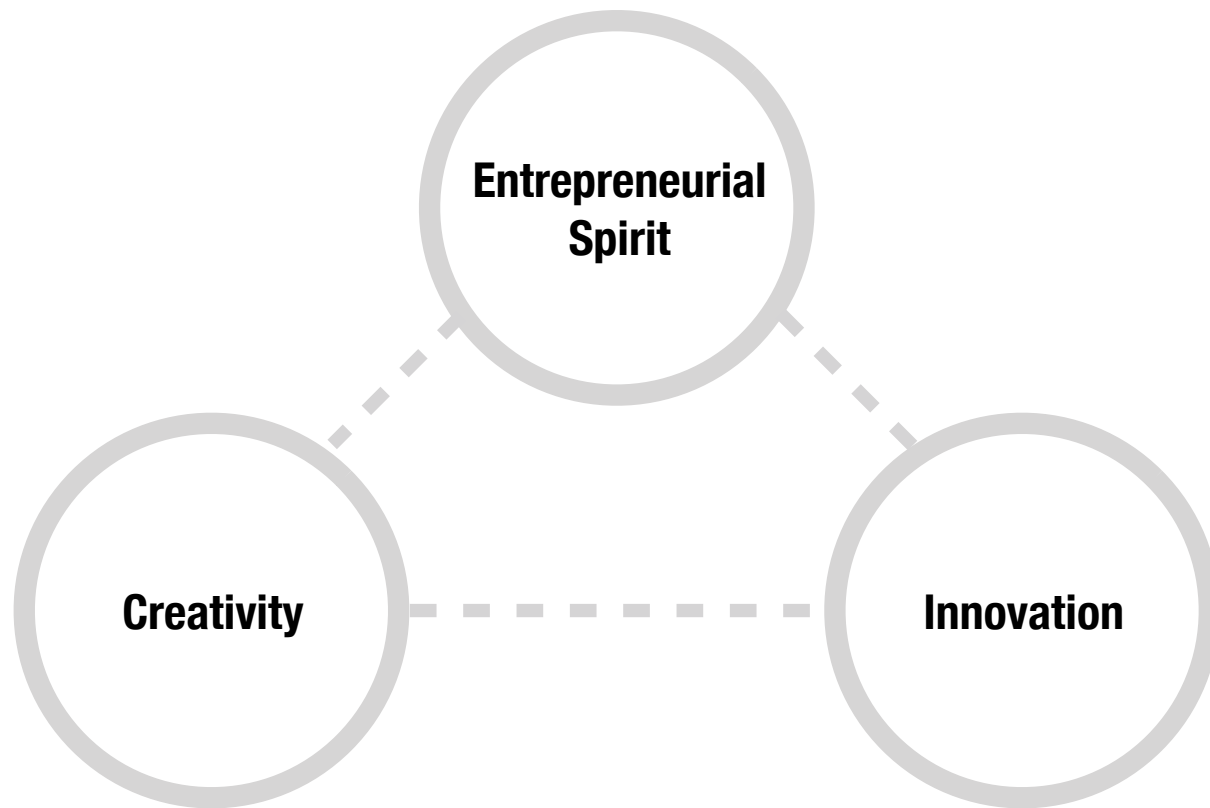
There are no tests or exams. I have emphasised this to MOE. Students learn through experimentation – they try, fail, try, learn from it and try again.”

Source: <https://tnp.straitstimes.com> Mar 6, 2018

The **Missing** Links

**21st century skills, STEAM,
interdisciplinary project-based
learning, applied learning, etc.**





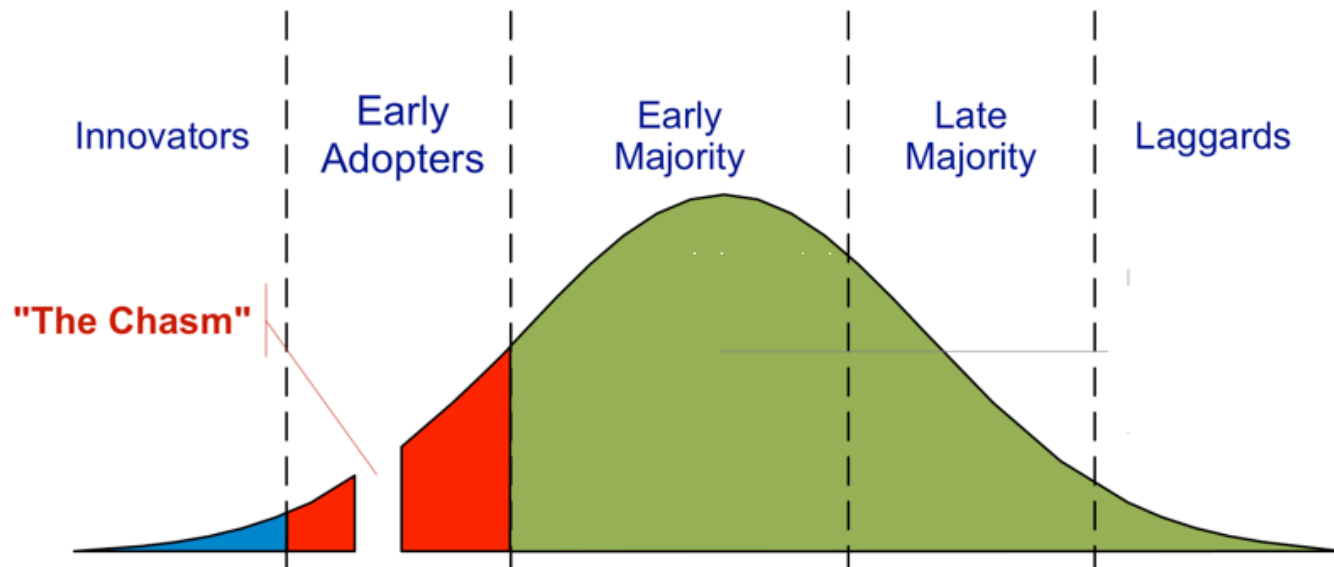
Entrepreneurship education is essential for developing the human capital necessary for society of the future. It is not enough to add entrepreneurship on the perimeter – it needs to be core to the way education operates.

World Economic Forum, 2009

**Entrepreneurial Spirit provides
the missing links.**



新精神相當重要



Source: Wikipedia

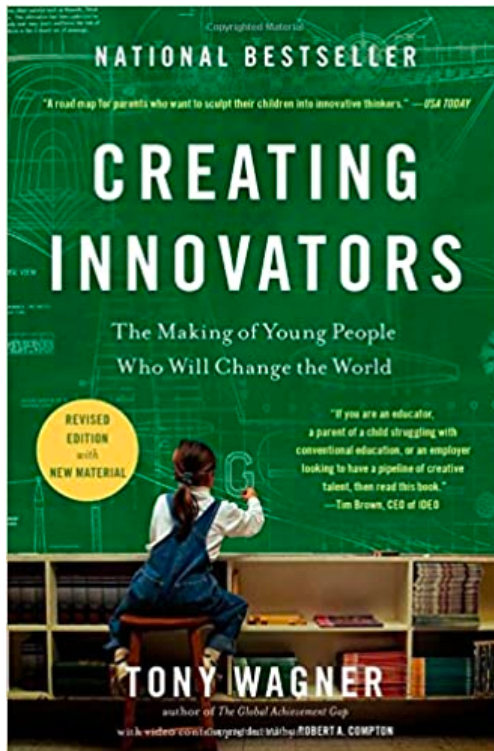
Diffusion of Innovation

Invention \neq Innovation

**Starting a
business \neq Innovation**

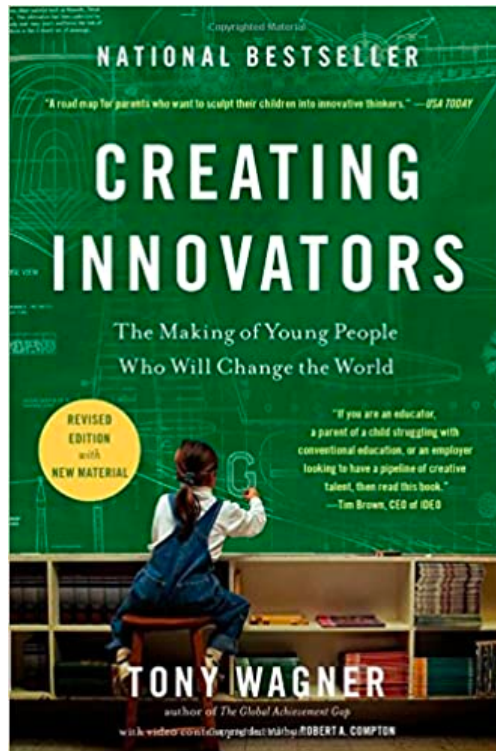
Innovation takes time to diffuse and to make impact. Innovation is **not the 100m sprint**. It is a **marathon**. To make innovation sustainable, we need positive values, perseverance, and diligence...





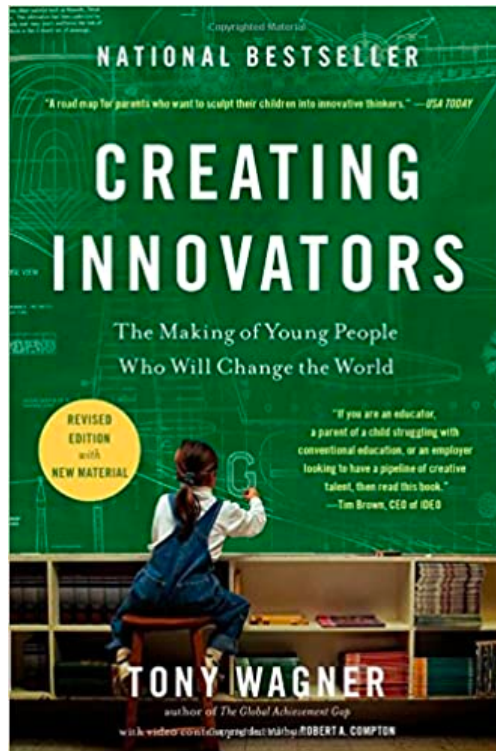
“Most policy makers—and many school administrators—have absolutely no idea what kind of instruction is required to produce students who can think critically and creatively, communicate effectively, and collaborate versus merely score well on a test. They are also clueless about what kind of teaching best motivates this generation to learn.”

- Tony Wagner, author of *Creating Innovators*



The book discusses **what works**—and **what does not work**—for fostering innovation in schools by presenting **five dualisms**:

- (1) Individual Achievement versus Collaboration
- (2) Specialization versus Multidisciplinary Learning
- (3) Risk Avoidance versus Trial and Error
- (4) Consuming versus Creating
- (5) Extrinsic versus Intrinsic Motivation



Final message in the book:
Encouraging innovators to
“persevere” in their work by
engaging in meaningful **play**,
pursuing their **passions**, and
establishing a driving sense of
purpose.

**From ideas to practices: how to
realise entrepreneurial spirit in
daily lives**



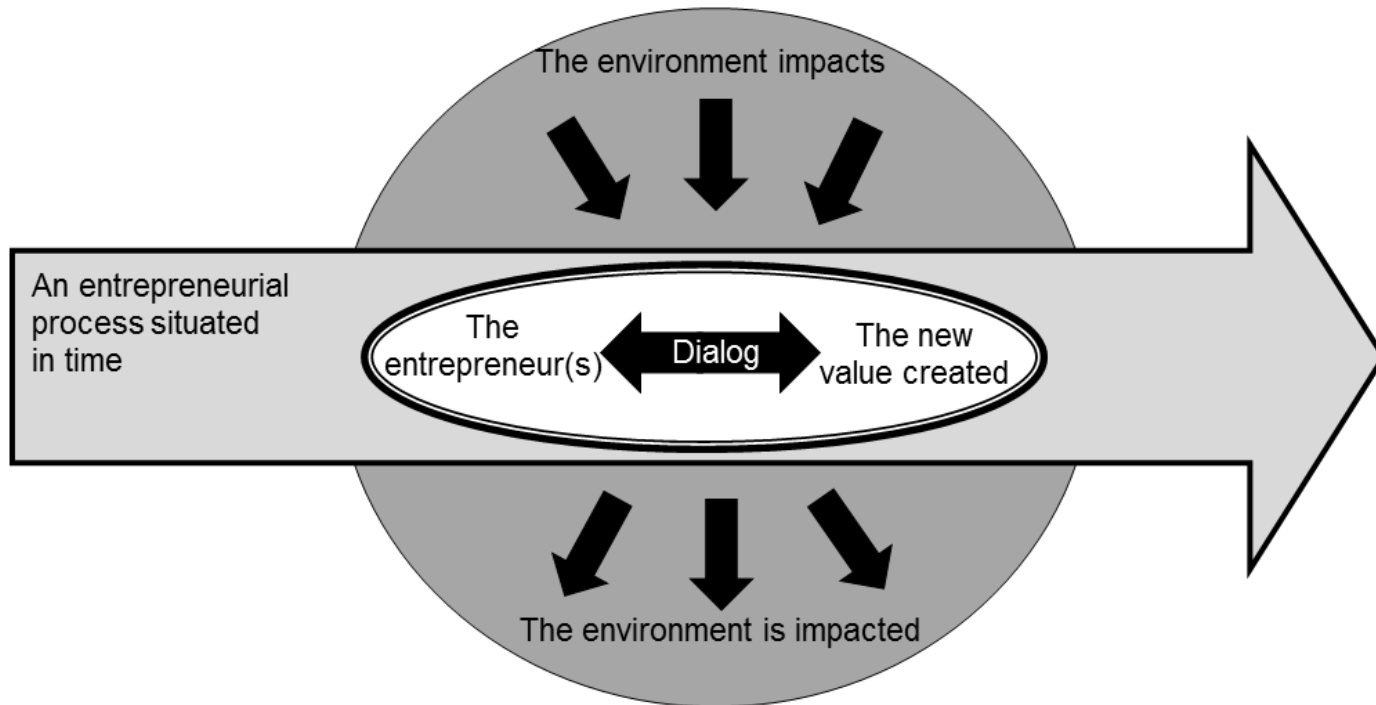
How to turn a project into a passion and lifelong purpose?



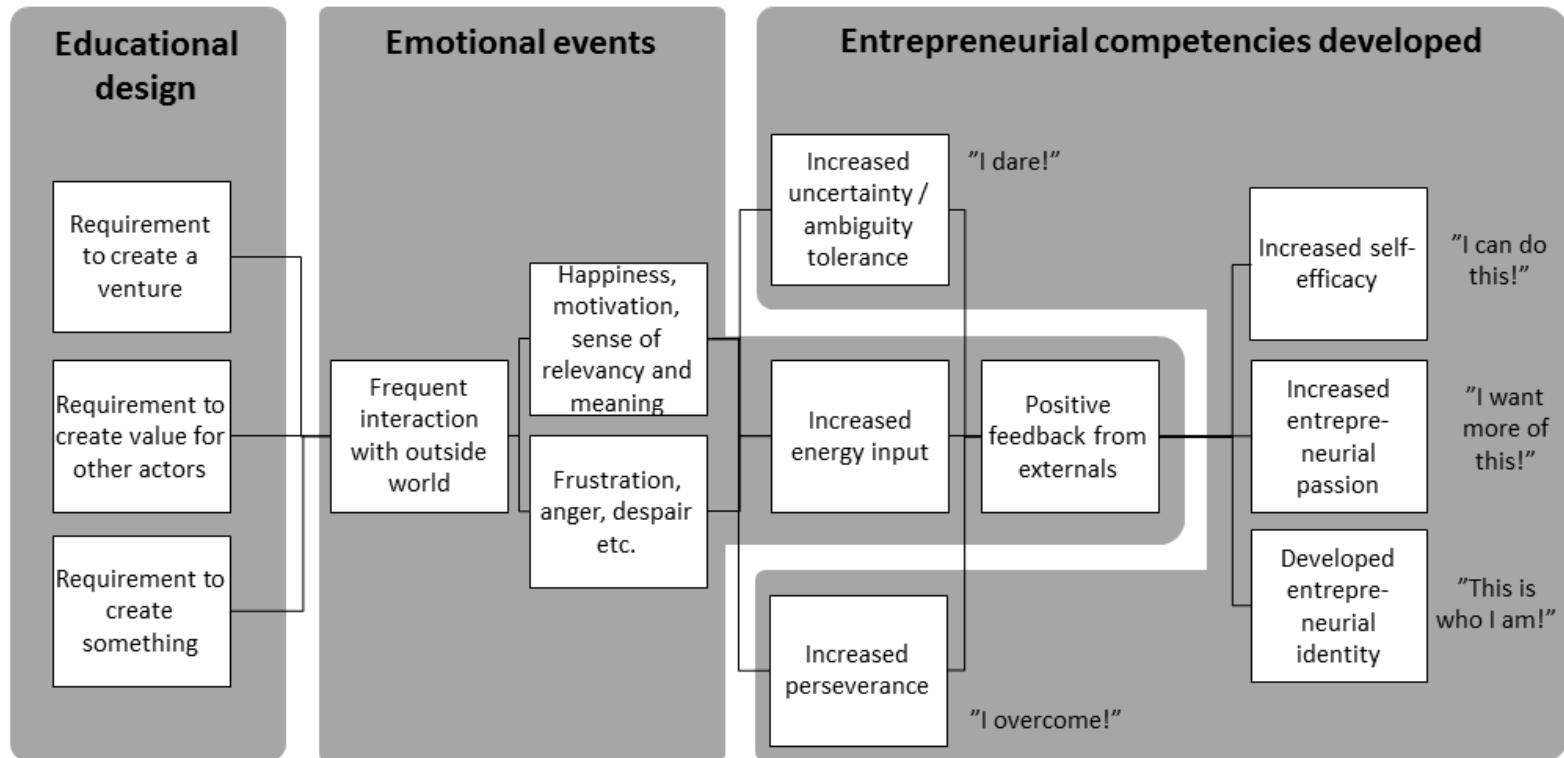
“Value creation as the common core of entrepreneurial education”

- Entrepreneurship in Education study supported by OECD and EC





Source: Entrepreneurship in Education by OECD and EC



Source: Entrepreneurship in Education by OECD and EC



<https://www.youtube.com/watch?v=-rnGn4cPjhA>

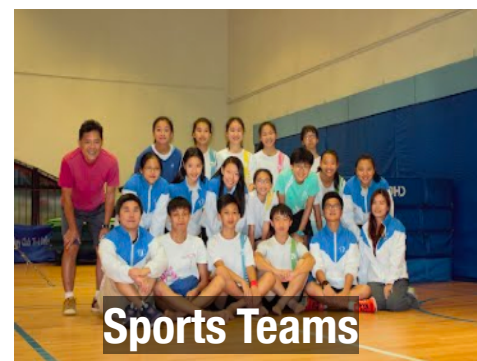




Service Learning



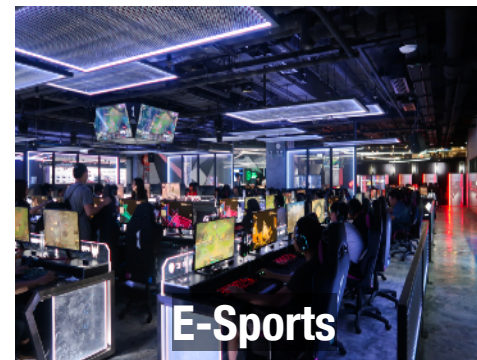
Project-based Learning



Sports Teams



School Clubs



E-Sports

People with Entrepreneurial Spirit as Role Models



Source: RTHK



Source: Wikipedia

**Our role models for turning
play into passion and
purpose with perseverance.**

最初學游水 為「求生」?

何詩蓓：
一諗奧運目標
就有動力撐落去





何詩蓓

"給青年的鼓勵"



我希望青年
不要這麼容易
放棄

專訪內容刊於公教報

**We need to give ourselves room to
play, explore, and set our own
priorities and be happy!**

天行健，君子以自強不息。
地勢坤，君子以厚德載物。

《周易·象傳》

Thanks for joining me today!