
設計思維

(Design Thinking)

如何在學校推動創意培育？

聖士提反書院 源植盛老師

yycs@ssc.edu.hk

Stanford Teaching Festival 2016

Designing Under Constraint

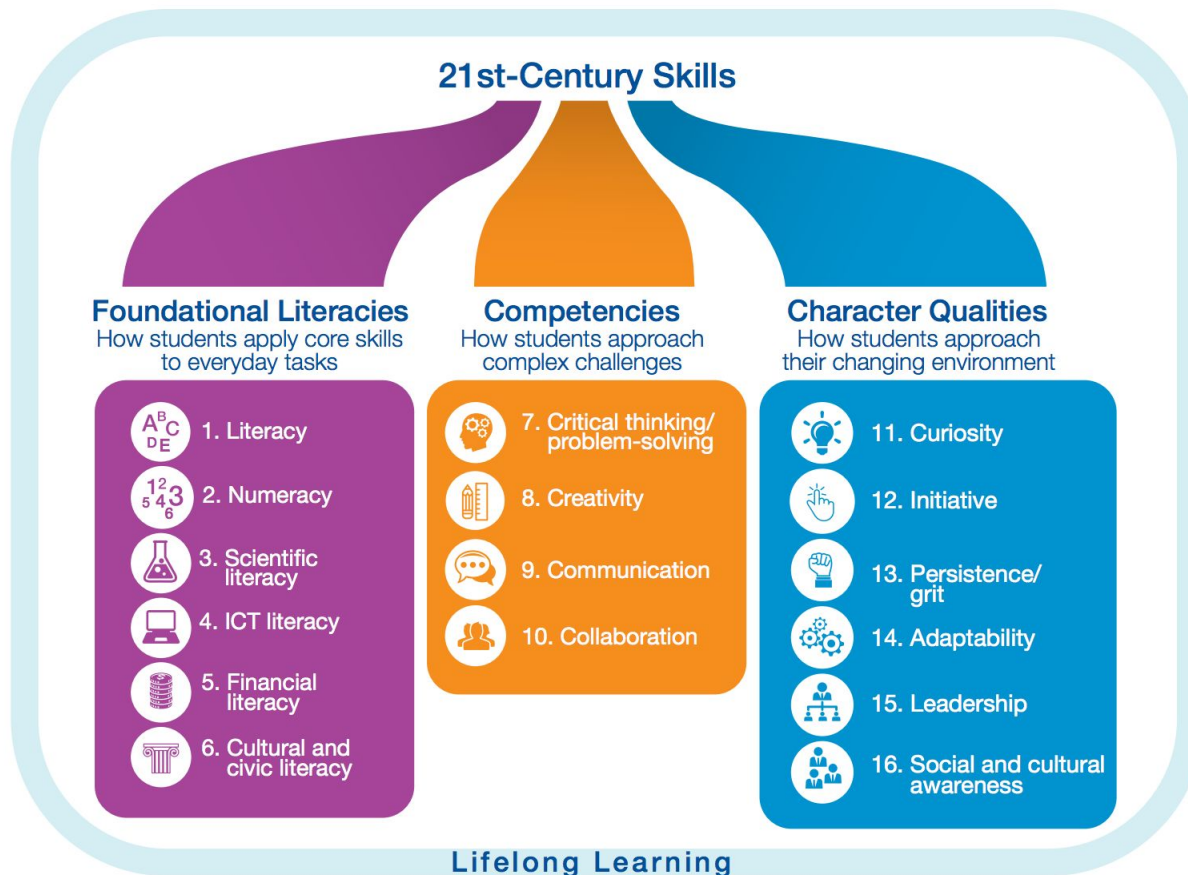
5-days course

<https://cset.stanford.edu/pd/courses/designing-under-constraint>

[Photo1](#)

[Photo2](#)

[Photo3](#)



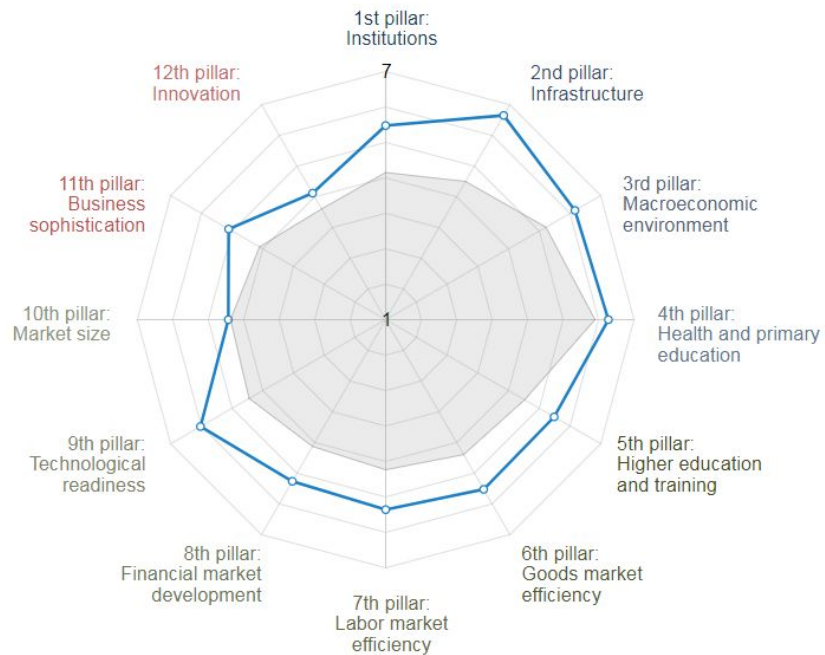
Note: ICT stands for information and communications technology.

Global Competitiveness Index 2017-2018 edition

Key indicators, 2016

Source: International Monetary Fund; World Economic Outlook Database (April 2017)

Population millions	7.4 i	GDP per capita US\$	43,528.0 i
GDP US\$ billions	320.7 i	GDP (PPP) % world GDP	0.36 i



—
你

覺得自己有**創意**嗎？

「我沒有創意，我不懂設計」

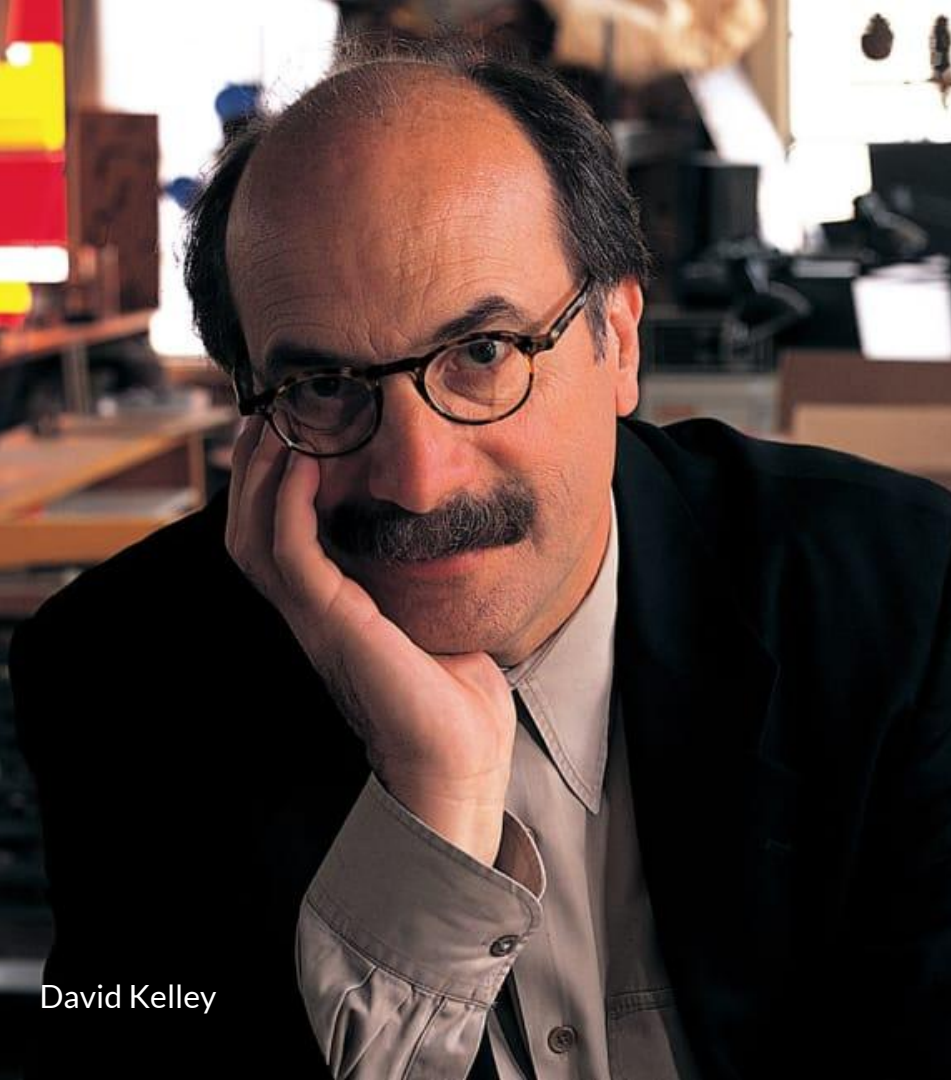
在著重考試的教育制度下，學生在求學過程中，被教育成只追求**標準答案**。

— 培育創意/創新, How ?

功課、活動/比賽「有創意元素」?

學生自由發揮
靈感?
靈機一觸?!

建立一個
Makerspace?
STEM room?



David Kelley

設計思維(Design Thinking) 大師David Kelley

1977年他在史丹福大學取得 產品設計碩士學位，一邊任教一邊創辦設計公司，曾為蘋果電腦設計出第一代滑鼠。

1990年他和另外三個設計團隊合併，共同創辦 IDEO，為全球企業、組織創新 產品和服務。

2004年在史丹福大學創辦 d.School，將設計思維轉化成課程。

2007年 d.School設立K-12 Lab Network，將設計思維精神和做法，推廣給中小學老師、校長。

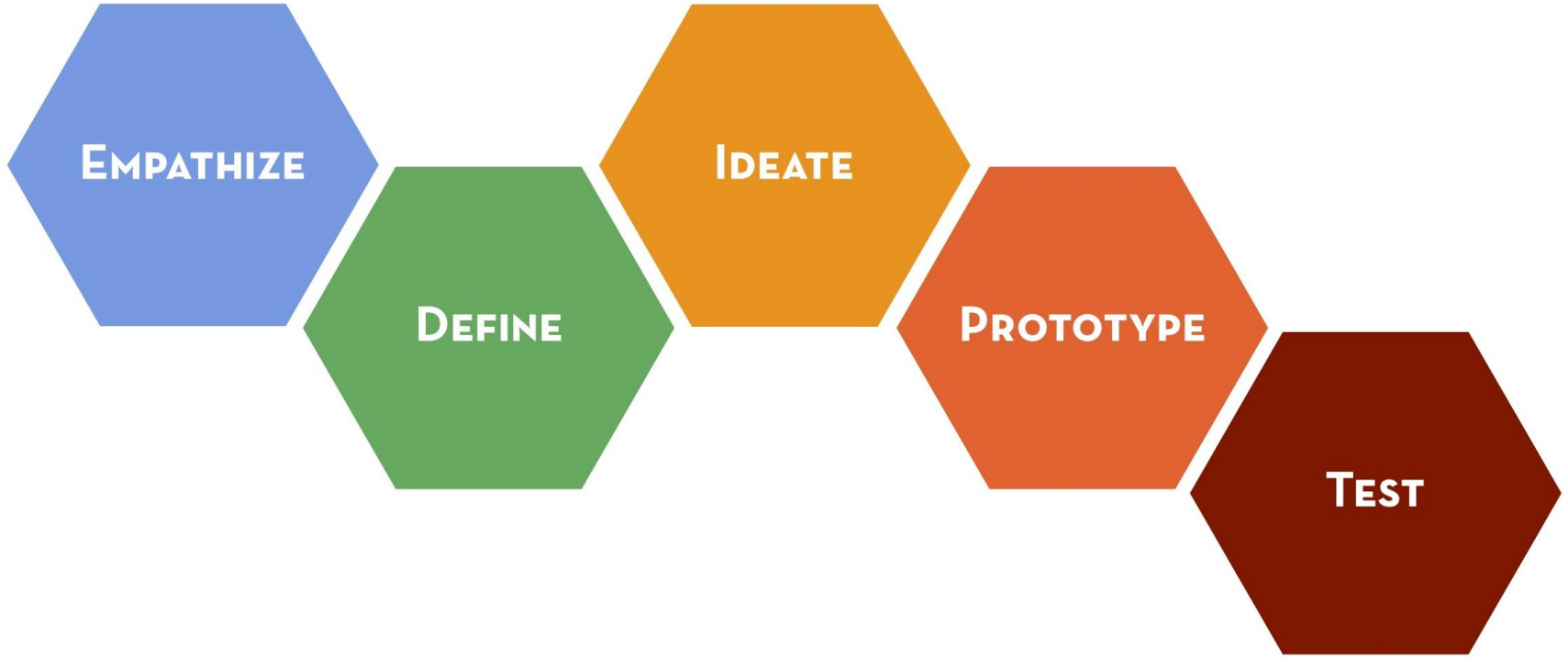
2008年 IDEO專設「教育工作室」，用設計思維來協助教育界。

—
「創意是一種心態、一種思考方式，也是一種解決問題的積極態度。」

David Kelley《創意自信帶來力量》

設計思維(Design Thinking)

- 是一套用創新思維，解決複雜問題的方法。
- 重點是從**使用者的需求**出發，去設計產品、服務或體驗。
- 讓創新「**有跡可循**」，它用具體、完整的五個步驟，引導出改變、創新的解決方案。



EMPATHIZE

DEFINE

IDEATE

PROTOTYPE

TEST

同理心(Empathize)

每一個設計的開始都是看到了一個「別人的」問題，不是為自己設計。透過觀察和訪談，設身處地考慮使用者的經驗，找出問題更深層的意義。

定義問題(Define)

根據上述發現，釐清要解決的問題。

USER

A) Kate,
a highschool history
teacher working in
a traditional school
in the countryside

NEED(s)

in order to for

A) her students
to feel
motivated and
valued.

~~to change
students mindsets~~

needs

to provide her
students with
a sense of
family ~~and~~
in the classroom

醞釀(Ideate)

不設限、天馬行空的腦力震盪，鼓勵所有人提供任何可能的構想。將構想透過分類、組合，找出創新解決方案。

Big Surprise

Tables/Leads are flexible

Do they use social media in classroom as way to collaborate?

No. Situation in blending media

Do they use social media in classroom as way to collaborate?

Do they use social media in classroom as way to collaborate?

Tension

Old School Classrooms versus few Non-IT classrooms

City → Growth alongside demographic = ↓ innovation

Parents not engaged and personal problem solving is not supportive

Use App on laptop only vs. use the device

Using tech for science/math is helpful but distracting

Can space help increase motivation engagement? Student-teacher relationship

Wild Card

Best Quote

Student who knows a self-motivated vs. parent

Key Piece of Environment

OWNERSHIP students of and teachers

Students ↑ engaged using space

Principal create a self-motivated learning environment

Not motivating

How do you make it work?

2 roles Teacher Math class AND gives teacher support

Keep family life long family attitude

Curious about learning and wants teachers to be

Also Students!

Biggest D.

Some teachers reluctant to change to the new tech

Students not interested in getting high marks

Teachers reluctant to learn Why??

製作原型(Prototype)

設計思維不只是動腦去想，更強調行動。動手製作出一個原型，不論是圖畫、實體、計劃的原型，有瑕疵未盡完善也沒關係。

精神是「越早失敗、越快成功」。

測試(Test)

將做出來的原型拿去測試、得到回饋、再修改、再
測試

—
設計思維不是「又」一個全新的教育趨勢。它的主張和這幾年全球教育改革的方向一致。

不論是翻轉教育、Maker 動手做、專題式學習...都是以學生為主體，改變老師角色從授課到引導，讓學生主導自己的學習，更有學習動機。

Design Thinking Stories: MRI Scanning for children





In 2016, AlphaGo seals 4-1 victory over Go grandmaster Lee Sedol

AP Has A Robot Journalist That Writes A Thousand Articles Per Month

[10 October 2015 Tech Times]

Automated Insights, an American technology company that specializes in making narratives using big data, published a case study detailing how its Wordsmith platform has helped the Associated Press produce close to 4,300 stories per quarter – 14 times more than the previous manual output of AP's reporters and editors.

AP implemented the automation specifically for business-related stories that involve corporate earnings and stock market performance. Companies like Yahoo, for instance, uses it for personalized recaps and reviews of Fantasy Football.

When done manually, write-ups would be very time-consuming for human writers. There is also the likely possibility of committing errors when faced with so many figures. In contrast, Wordsmith can produce 2,000 of such stories in a second and all of which will have fewer errors.

總結

- 練習觀察
- 多問Why
- 練習動手做
- 失敗是到達成功的過程

A Virtual Crash Course in Design Thinking





Thank you