

設計與科技知識增益系列： 透過設計思維和創意解難發揮學生 創造力工作坊

CSD020240626 / CSD020240673

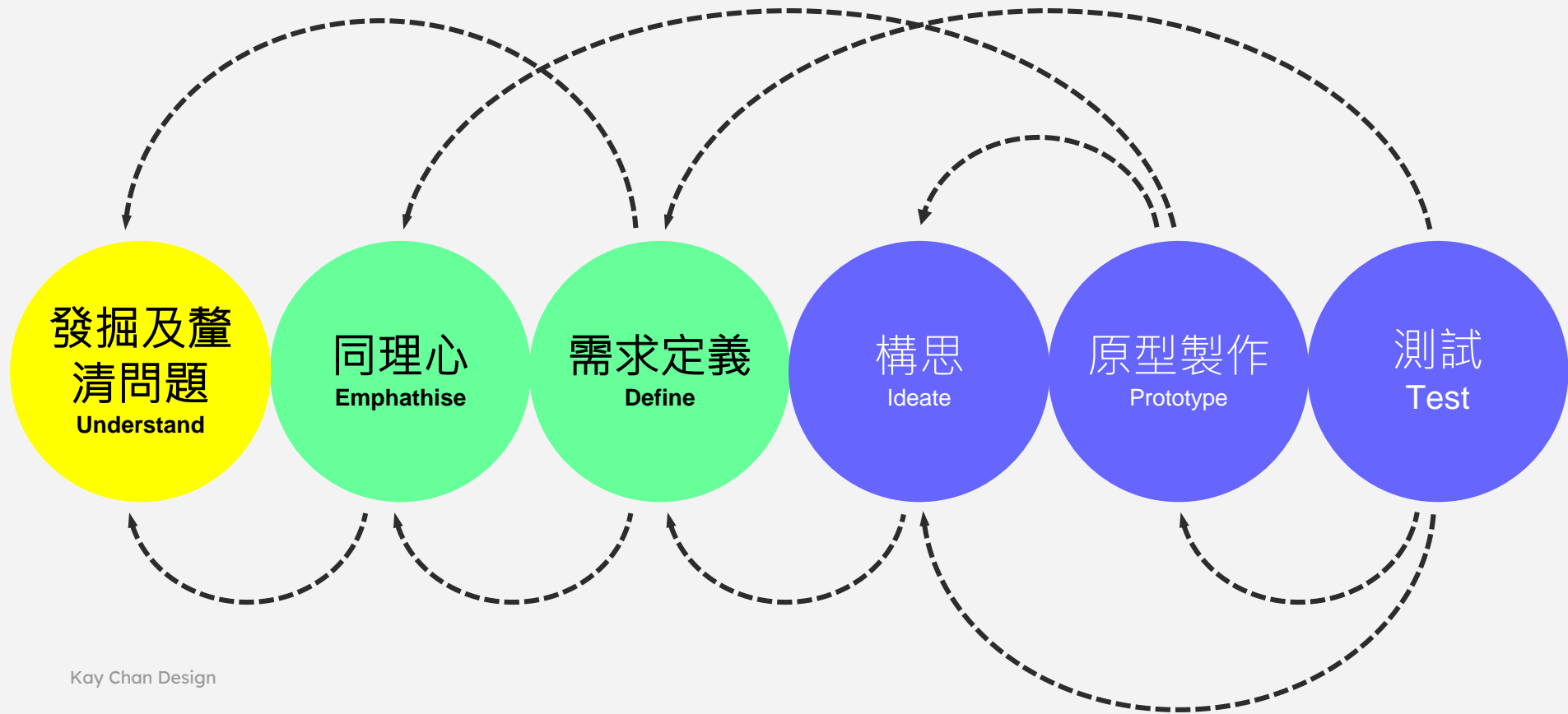
19/07/2024 (星期五) / 02/11/2024 (Saturday/星期六)

09:30 – 12:30; 13:30-16:30 (6小時)

時間	內容/活動
09:30 – 09:45	<ul style="list-style-type: none">• 設計思維和創意解難在設計與科技科目中的重要性• 相關的學與教資源
09:45 – 11:00	<ul style="list-style-type: none">• 經驗分享• 介紹設計思維及創意解難
11:00 – 12:30	<ul style="list-style-type: none">• 體驗活動
12:30 – 13:30	<ul style="list-style-type: none">• 午膳時間
13:30 – 14:00	<ul style="list-style-type: none">• 介紹不同的設計思維及創意解難工具
14:00 – 16:20	<ul style="list-style-type: none">• 體驗活動• 設計美學與設計原則
16:20 – 16:30	<ul style="list-style-type: none">• 問與答

設計過程: 迭代

Design Process: An Iteration



初中科技教育及高中設計與應用科技的相關學習內容

初中科技教育

科技教育發展的基本理念：

- 除了讓學生了解科技在社會上的發展外
，學校應培養學生**敢於創新的素質**及**開拓與創新的精神**，這些都是未來社會不可或缺的能力。

共通課題：

- **設計及應用 - “基本設計元素”，“設計過程”**

共通能力：

- **創造力** - 在科技教育中，創意的培養體現於**學生構思意念**、把舊有元素重新從新組合、運用不同策略以解決科技問題、發掘科技產品的不同設計特點等。

正面的價值觀：

- **堅毅、同理心**

高中設計與應用科技

預期學生可從必修部分中培養出：

- **創意思維**、**分析**及明辨性思考能力；
- **設計**、模塑及傳意能力；
- 在廣闊並相聯的**不同設計情境中**，有關設計實務和科技原理的理解；及
- 科技、**社會**和創業意識。

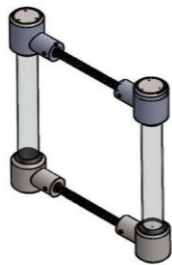
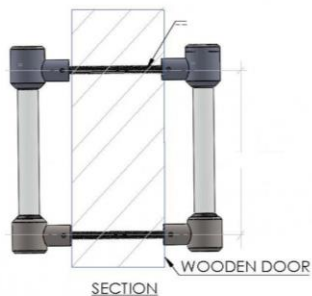
必修部分學習範疇一 設計與創新

- **運用各種設計方法**（例如創意和理性方法、結構圖表法）及**設計思考方法**（例如水平與垂直思考法、具建設性的異議、改造、類比、腦力激盪法、具備深入了解的洞察力、概念發展）
- 選擇及使用**適當的研究方法**，以蒐集、理解及報告有關設計的資料（例如文獻蒐集、實驗、專家評估、性能測試）

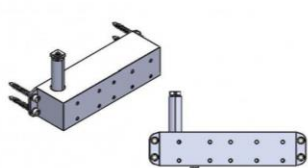
與不同STEAM學科的配合

...當時仍就讀中學的黃同學及李同學某天如廁後，聯想起大多數商廈及住宅仍以沾有消毒藥水的毛巾拭擦門柄，但消毒藥水本來就會為人體帶來傷害，更莫講那條拭擦過無數門柄及物件的毛巾本就極為污穢不堪，但一直只以紙巾開門也是無補於事。因此，他們決定嘗試設計一個可以自動消毒的門柄，防範傳染病再一次在香港肆虐。

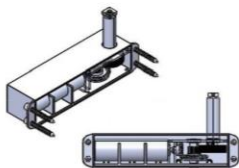
Self-Sanitizing Door



Generator



FRONT VIEW

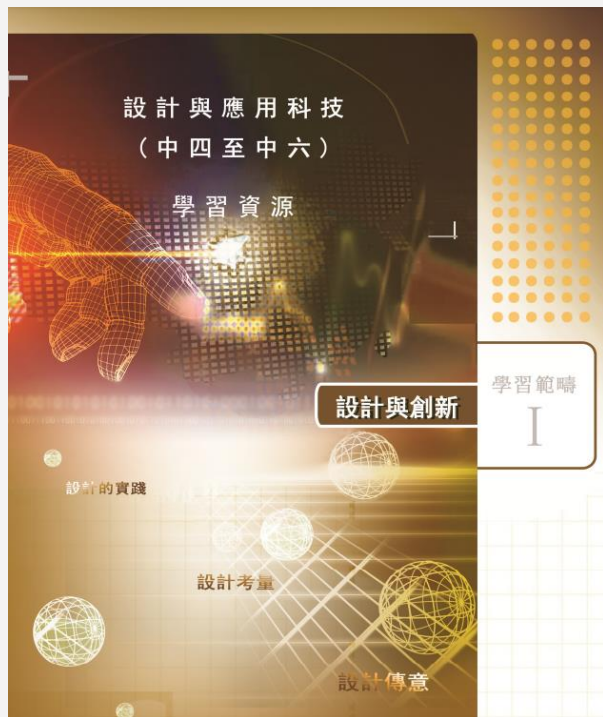
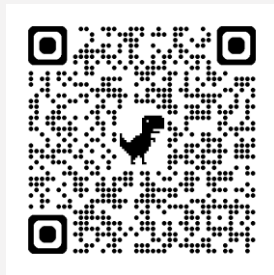


BACK VIEW



相關的學與教資源

- 中四至中六 設計與應用科技 - 學與教資源
- 運用徒手草圖作為視覺思維及傳意工具
- 原型製作於產品設計過程中的應用 (試行版)



設計與應用科技
(中四至中六)

學習資源

設計與創新

學習範疇 I

設計的實踐

設計考量

設計傳意



中學設計與科技科目學習資源
使用手繪草圖作為視覺思維和傳意工具



香港特別行政區政府教育局
課程發展處科技教育組
2020年3月



設計與應用科技學習資源 (試行版) 原型製作於產品設計過程中的應用

兩款較常提及的設計過程框架包括：英國設計協會 (British Design Council) 提出的「雙菱形 (Double Diamond) 設計過程¹」(圖 1.1b) · 及美國史丹福大學普拉特納設計學院 (d.school) 共同創辦人 David Kelley 提出的「設計思維過程²」(圖 1.1c) ·

設計構構 發現 (Discover) 定義 (Define) 發展 (Develop) 實行 (Deliver) 最終方案

設計概要

圖 1.1b 雙菱形設計過程 · 每個菱形表示一種由擴散 (Divergent) 到聚合 (Convergent) 的思維模式 ·

同理心 (Empathise) 需求定義 (Define) 構思 (Ideate) 原型製作 (Prototype) 測試 (Test)

圖 1.1c David Kelley 提出的設計思維過程

Creativity through

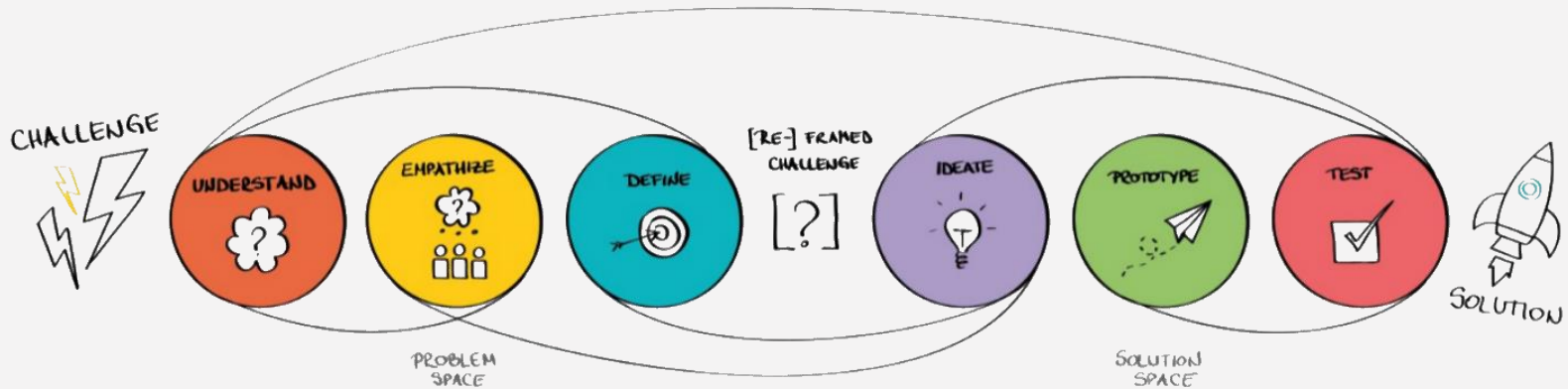
Design Thinking & Creative Problem-Solving

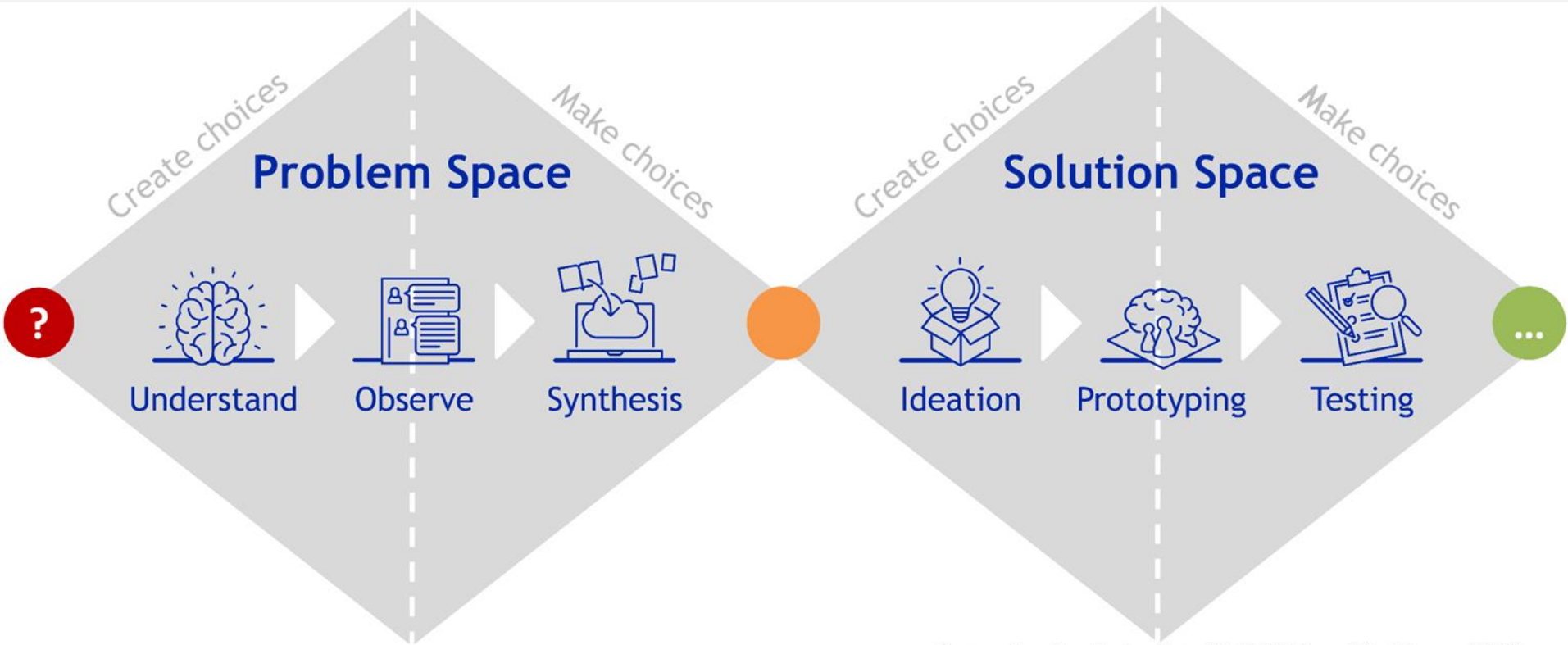


<https://kaychanwanki.com/>



Design Thinking

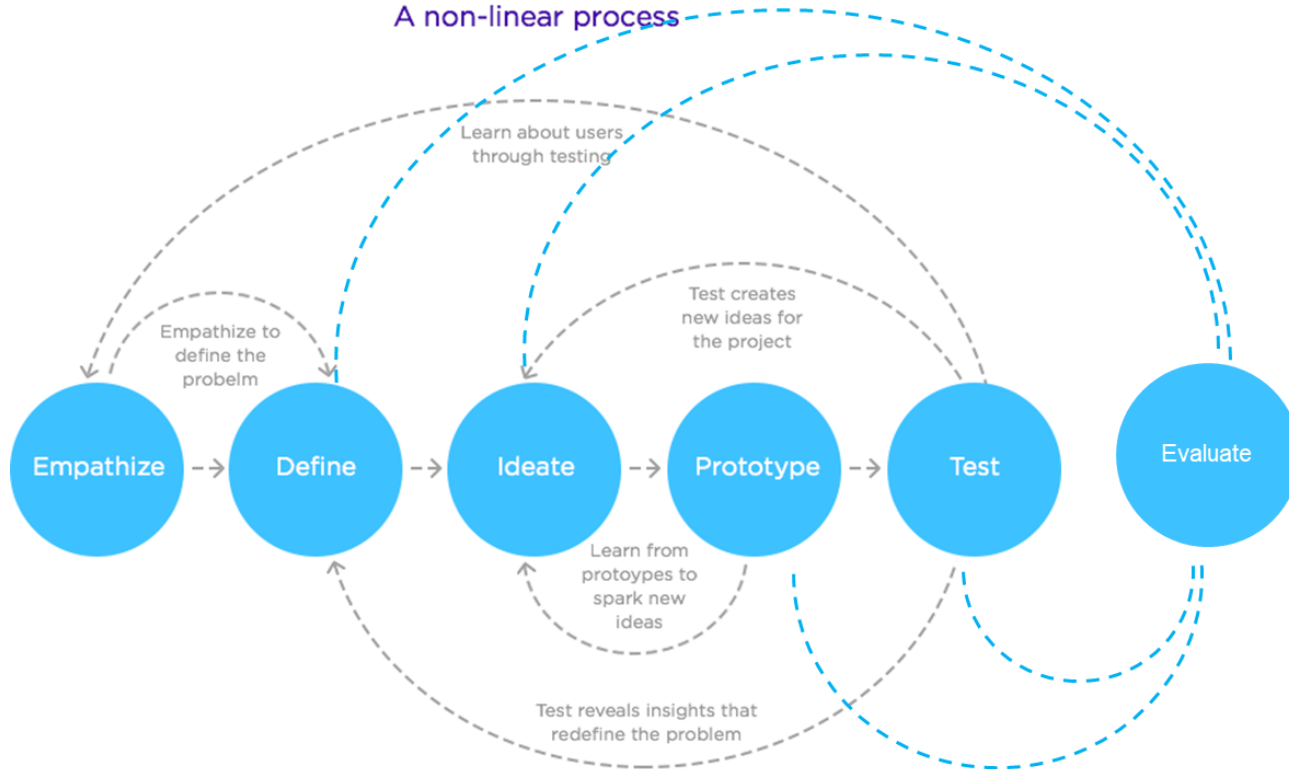




Source: Based on Design Council UK (2019) and Stadelmann (2021).

DESIGN THINKING:

A non-linear process





Research on your target user

研究您的目標用戶

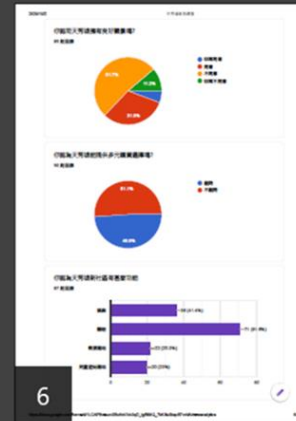
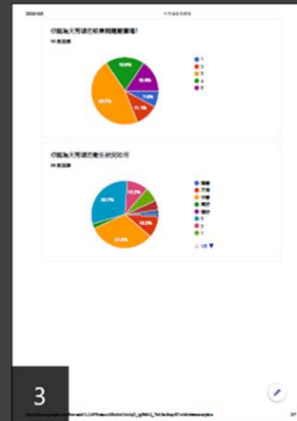
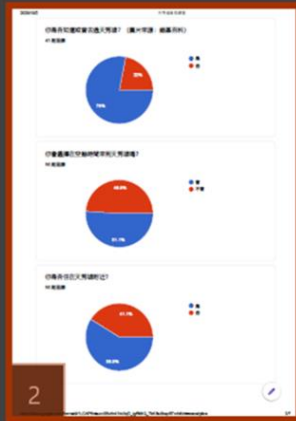
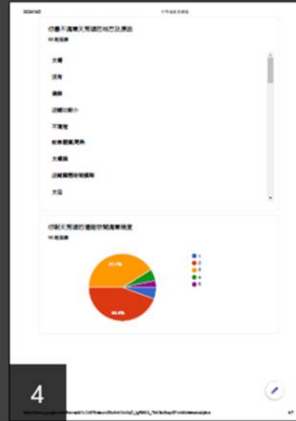
Research method

- Field study
- Interview
- Online research
- Case study
- 實地考察
- Survey/Poll
- 網上研究
- 案例分析
- 訪問
- 調查/民意調查



Interview 訪問

Survey/Poll 調查/民意調查





Define the problem and cause

研究您的目標用戶

Define Stage = Analyses To Synthesize > Problem Statement

定義階段

=

分析到綜合

問題陳述

Synthesis:

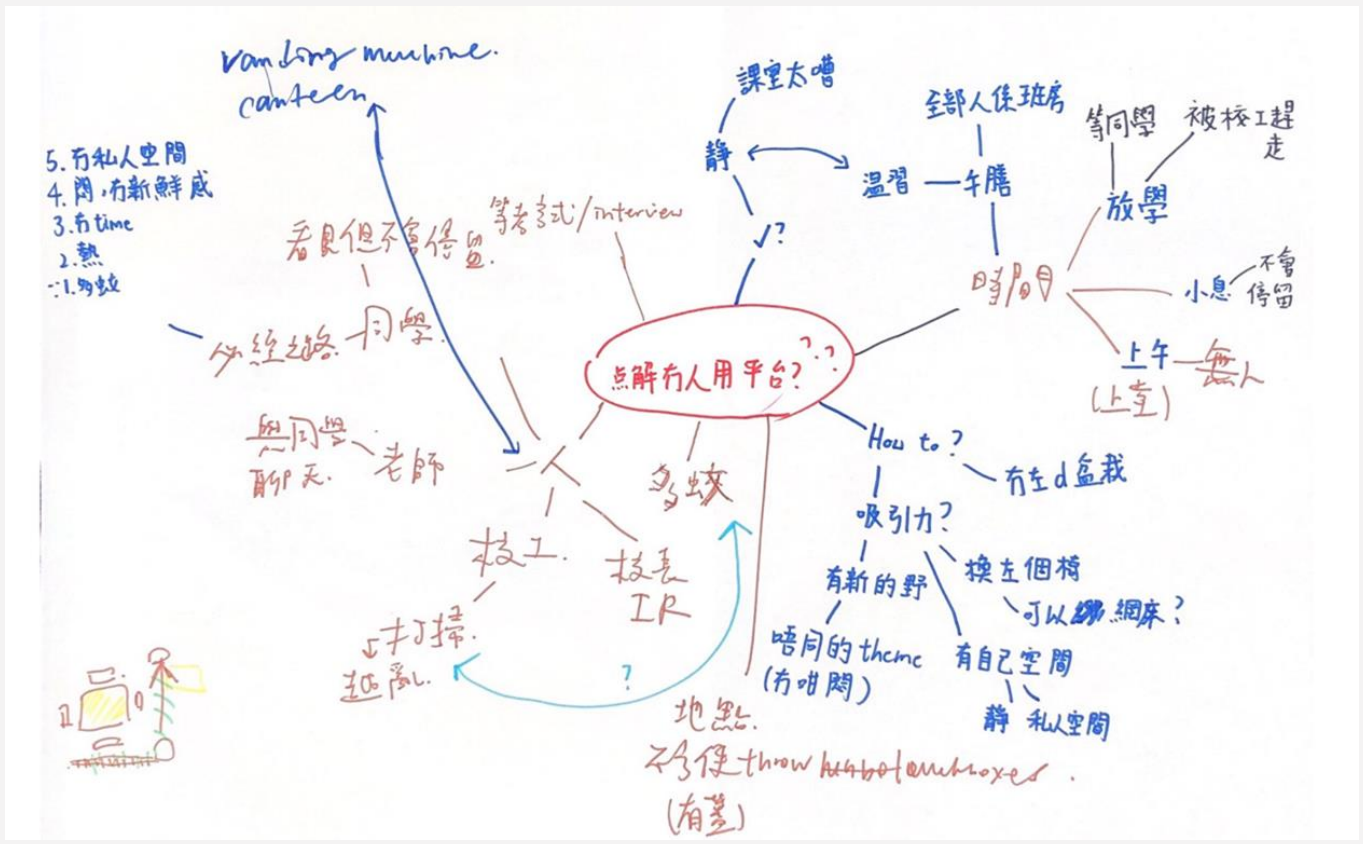
Creatively placing the complexity together to form the whole idea. It is the act of combining separate ideas, beliefs, and thoughts to create something creative.

Analysis:

Breaking down complex concepts and problems into smaller, easy-to-understand constituents. It is a result of careful examination.

Problem Statement:

Problem statement defines a current problem and focuses on the goals which have to be achieved in the design thinking process. A problem statement should be human-centered and a base for the ideation process.







Brainstorming with creative phases for ideas that could solve the question respectively problem.

Rules of Brainstorming

1 — Defer Judgment 延期判決

Creative spaces are judgment-free zones—they let ideas flow so people can build from each other's great ideas.

2 — Encourage Wild Ideas 鼓勵瘋狂的想法

Embrace the most out-of-the-box notions. There's often not a whole lot of difference between outrageous and brilliant.

3 — Build on the Ideas of Others 建立在他人的想法

Try to use “and” instead of “but,” it encourages positivity and inclusivity and leads to tons of ideas.

4 — Stay Focused on the Topic 專注於主題

Try to keep the discussion on target. Divergence is good, but you still need to keep your eyes on the prize.

5 — Be Visual 形象化

Use colored markers and Post-its. Stick your ideas on the wall so others can visualize them.

6 — Go for Quantity 追求數量

Crank your ideas out quickly. For any 60-minute session, you should try to generate 100 ideas.



Six Creative Ways To Brainstorm Ideas

<https://youtu.be/yAidvTKX6xM?feature=shared>

1. Colours

2. Material

3. Texture

4. Character

5. Value

6. Form

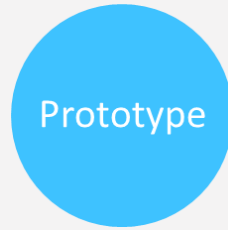
7. Space

8. Smell

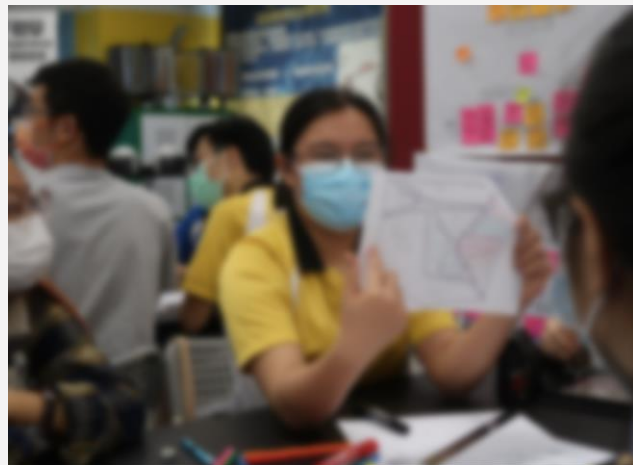
9. Sound

10. Scenario

11. Function



Build (a) prototype(s) of selected ideas to test its technological feasibility. Make sure that the idea(s) match your objectives.





Let stakeholders test and interact with the prototype
Get structured feedback to improve your prototype.

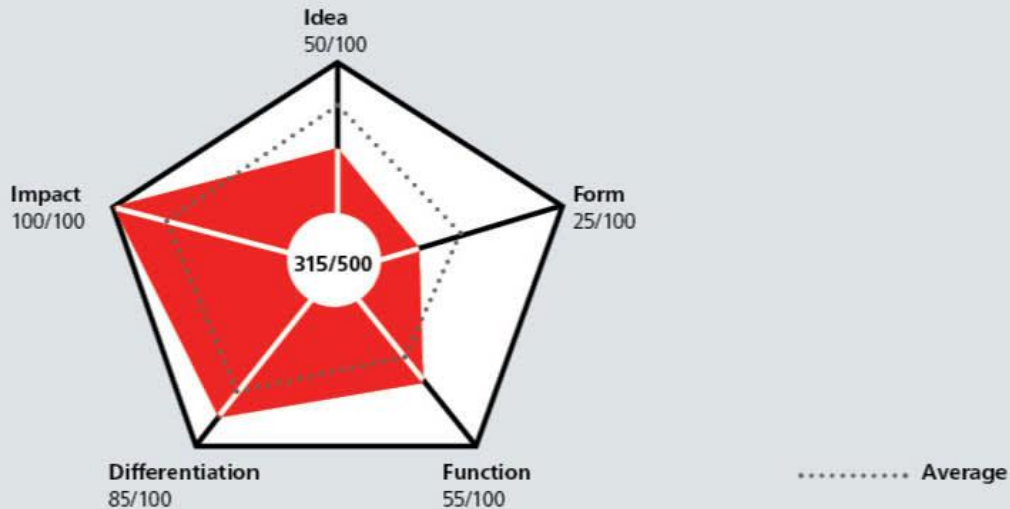




The insights and learnings gained from the evaluation stage are fed back into the earlier stages of the design thinking process, enabling the team to refine and improve their solutions based on the feedback received.

iF DESIGN AWARD 2024 | CRITERIA & SCORECARD

Example of Evaluation



Idea

Task

What was the task?

Relevance

Is it relevant?

Fit for purpose

Is the idea appropriate?

Form

Aesthetics

Is it beautiful?

Emotional appeal

Does it engage the user?

Execution*

Is it made well?

Function

Usability*

Can it be used with ease?

Efficiency*

Does it work well?

User Benefit

Does it serve the user?

Differentiation

Innovation

Is it new?

Brand Differentiation

Does it support the brand?

Impact

Effect

What targets have been reached?

Social Benefit

Does it serve society?

Sustainability

Is it sustainable?



Idea

- Relevance
- Fit for purpose

Form

- Aesthetics
- Emotional appeal
- Execution

Function

- Usability
- Efficiency
- User benefit

Differentiation

- innovation
- Brand differentiation

Impact

- Social benefit
- Sustainability

理念

- 相關性
- 適合目的

形態

- 美學
- 情感上的吸引力
- 執行

功能

- 易用性
- 效率
- 用戶利益

差異化

- 革新
- 品牌差異化

影響力

- 社會效益
- 可持續發展



POLYU DISCI SOINNO tools

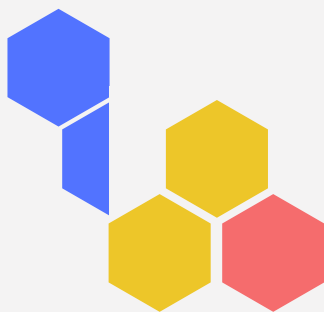
Open source materials

Programme Planning Tool



This tool helps **visualise** your lesson planning.

You can depends on the **duration** of each session to put on the appropriate size of the hexagon(A whole or half of it).



INDEX

- PLAYING
- THINKING
- MAKING
- DELIVER

DD1.1

Presentation Guideline

DELIVER

Presentation | Deliver

2 HOURS

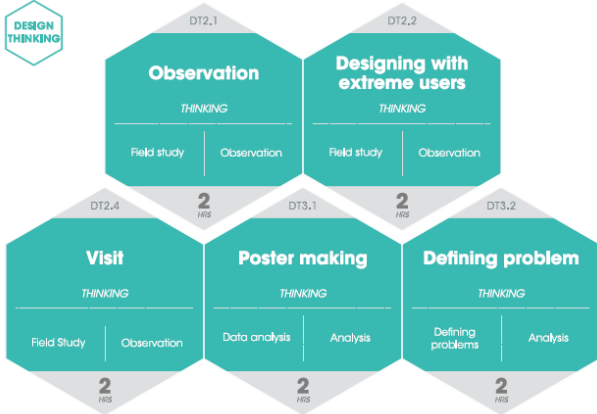
Programme Planning Tool

Materials: Printable Sticker Label
Size: A4 (297x210mm)

DESIGN PLAYING



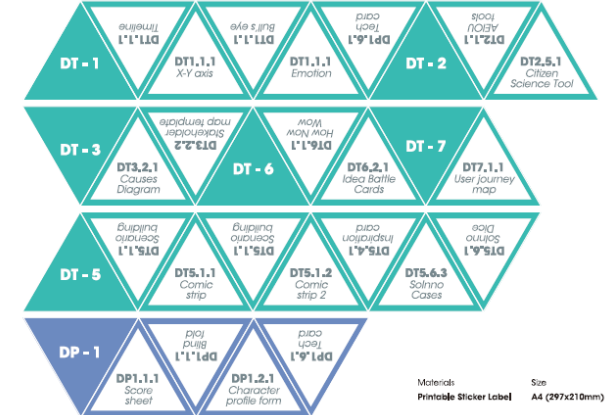
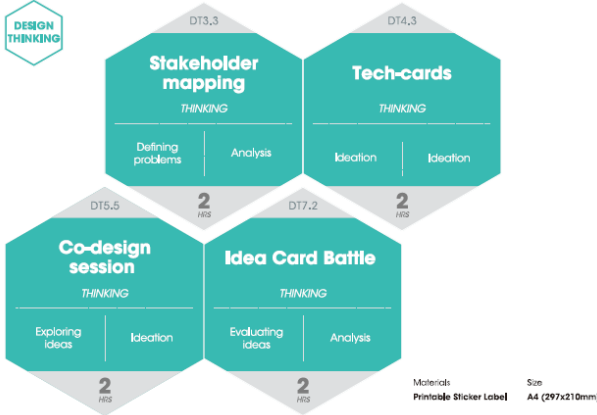
DESIGN THINKING



DESIGN MAKING



DESIGN THINKING



Materials: Printable Sticker Label
Size: A4 (297x210mm)

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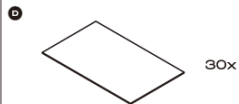
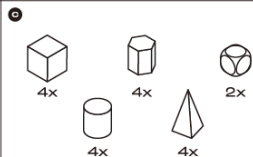
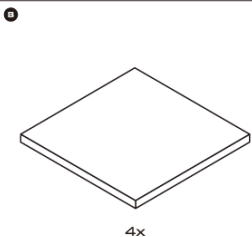
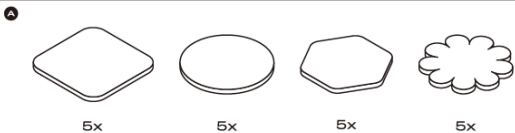
A hand is shown placing a grey cone-shaped piece onto a cardboard game board. The board features several hexagonal cutouts, each containing a different geometric shape: a green triangle, a grey cube, a pink cube, and another green triangle. In the foreground, there are more cardboard pieces and several loose geometric shapes (pink and grey cubes) scattered on a white surface. The text "The Game Kits" is overlaid in the center of the image.

The Game Kits

The Game Kits

Materials
Thick Paper,
Card board / Acrylic board

Needs
Laser Cutting machine,
3D Printer



Organized by



Funded by

✉ polydesign@poly.edu.hk

📍 [SerraGelid](#) 📍 [soinno_design_education](#)



The Game Kits © 2022 by Jeckey Chan Design Institute for Social Innovation is licensed under CC BY-NC 4.0. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc/4.0/>

Game Mechanics

Ask the students to either choose or draw randomly to think of different mechanics that suit their games.

Topic:

Group:

Date: / /

Every turn players will

.....
.....
.....
.....

So that they can sometimes

.....
.....
.....
.....

Which eventually lead to

.....
.....
.....
.....

Materials : Paper (A4)

(End/Winning)

Develop a game helps students **interpret** the knowledge and information they acquired. It is an efficient way to **strengthen** the understanding and **transform** into a different context.

Game Mechanics

SCINNO DESIGN EDUCATION

Ask the students to either choose or draw randomly to think of different mechanics that suit their games.

Topic :

Group :

Date : / /

Every turn players will

.....
.....
.....
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So that they can sometimes

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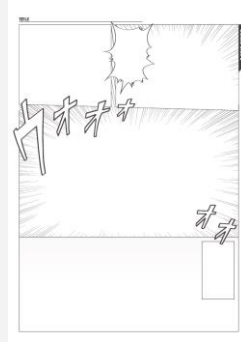
.....
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.....

Materials : Paper (A4)

(End/Winning)

1. Choose several games or a **genre** of game. Why choosing this game?
2. Analyse the **mechanism** of the game. Look into details.
3. Prototyping. Simple to complex
4. Simple = 2 ppl with 5-10 moves...
-> add more steps to make it complex





5 words

related to the topic

Pick 1 word

5 words

Random words from the environment (e.g. magazine, street....)

Pick 1 word

Force combining

1+1 → >20 ideas

Scenario building

Comic-strips

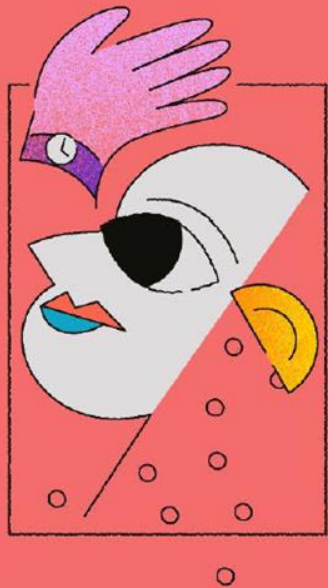
Divergence

a Design Thinking Game Kit



Warm up

BUILD YOUR CHARACTER



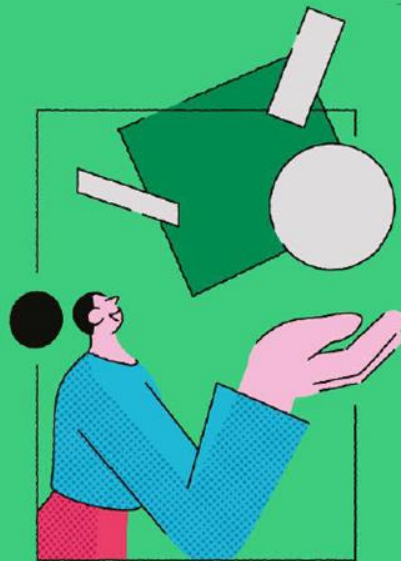
Brainstorming

MIX & MATCH



Developing

PRE-PITCH



Solution

FINAL PITCH



Character



Background



Characteristic

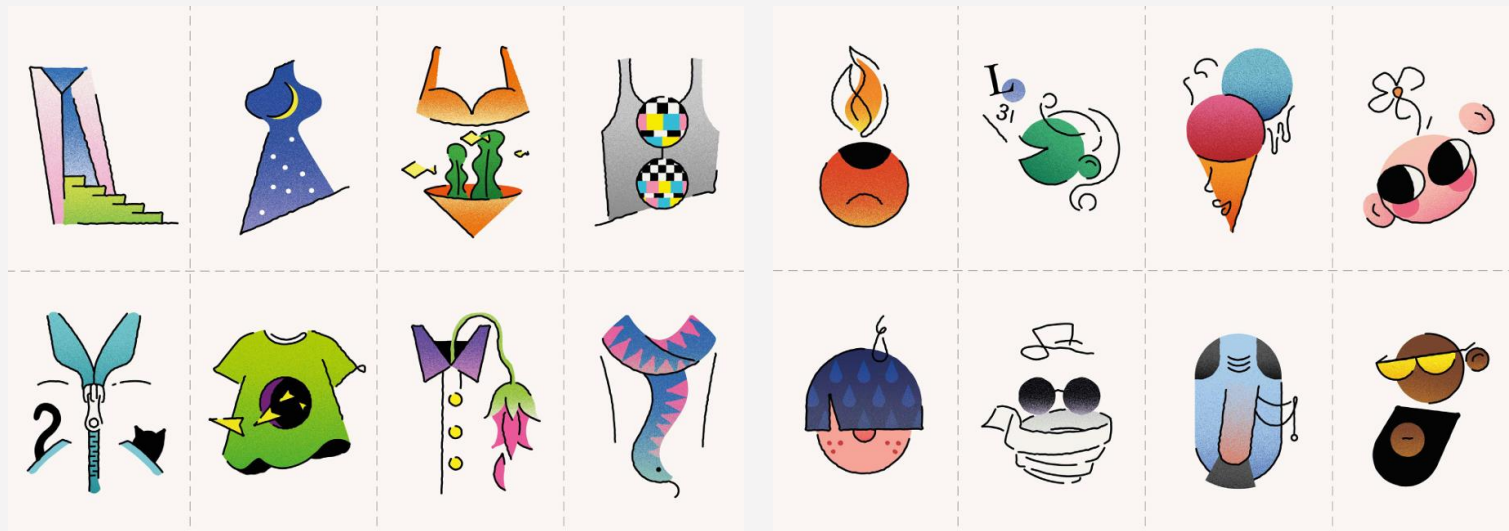


*Use 'Yes, and' sentence to follow previous description to encourage positive comments

Build up a

character

characteristic and background



角色卡

CHARACTER PROFILE 角色資料

NAME
名字

What's your character's name?
角色的名字是什麼?

CHARACTER PROFILE 角色資料

AGE
年齡

How old is your character?
角色的年紀?

CHARACTER PROFILE 角色資料

ROLE
職責

What's your character's
demographic and / or
occupation?
角色代表的群組與職業?

CHARACTER PROFILE 角色資料

PERSONALITY
個性

Choose from below:
二選其一:

Spontaneous 衝動
Cool-headed 冷靜

問題卡

Try combining different opportunities together



Score counter



Explore a new

opportunity



ADVERTISING
廣告宣傳



EDUCATION
教育



ARCHITECTURAL
DESIGN
建築設計



GAMES
遊戲



BLOCKCHAIN
區塊鏈



ARTIFICIAL
INTELLIGENCE
人工智能

Explore a new

opportunity

Kay Chan Design

1. Spend points to get the **desire opportunities**
2. Try to explore **different combinations** to create new and unexpected ideas



PITCH STRATEGY 藍報策略

MARKETING MAVEN 行銷專家

Create names for all the combinations you present in your Pre-Pitch
初次匯報時為每個方案訂立名稱

+5

PITCH STRATEGY 藍報策略

ONE MORE THING 除此之外

You are able to answer 5 or more questions during the Q&A session
在問答環節中回答 5 條或以上問題

+5

PITCH STRATEGY 藍報策略

LIFESAVER 角色代入

You do your 1-minute Final Pitch from the perspective of your Character
以角色的身份進行最後匯報

+5

PITCH STRATEGY 藍報策略

SUPER-APP 包羅萬有

You incorporate ALL the Opportunity cards into the Final Pitch solution
最後匯報方案包含所有抽到的機會卡

+5

Explore a new

opportunity

1. Random pick 3 Pitch Strategy Cards
2. If you apply Pitch Strategy, you can get **extra point!**
3. But it is more **challenging** to the presentation.

Present **as many ideas as you can** with at least two opportunity cards.



*'Pitch Strategy' may help you to get more points.

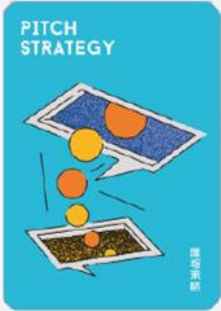
Give your **feedback** to provide a different perspective to the presenter.



Develop potential

design ideas

Present your **final idea** after adjusting from pre-pitch feedback.



*‘Pitch Strategy’ may help you to get more points.

Deliver your solution

Q&A sessions & score the idea.



PITCH CONDITIONS SCORECARD 前期條件評分

Name created for solution 為方案定立名稱	2
Solution used 3 or more opportunities 方案應用了 3 張或以上的機會卡	2
Name of Character referenced 提及角色名字	2
Details / attributes of Character referenced 提及更多關於角色的資訊	2
Pitch duration between 50 seconds and 1 minute 篇幅長度於 50 秒至 1 分鐘之間	2

FINAL PITCH SCORECARD 最後階段評分

INNOVATION 創新 1 2 3 4 5 Extremely innovative 非常創新	SOLUTION 方案
IMPACT 成效 1 2 3 4 5 Extremely impactful towards the Character 為角色帶來極正面影響	
IMPLEMENTATION 執行 1 2 3 4 5 Extremely feasible to build / implement 非常易於付度	
PERSUASIVENESS 說服力 1 2 3 4 5 Idea presented in an extremely persuasive way 非常具說服力	
RESPONSE 回應 1 2 3 4 5 Extremely outstanding responses in the Q&A 於問答環節作傑出色的響答	PERFORMANCE 表現

The one who has **highest** score wins.





Emotional Response Cards

Project:
Team:
Version & Date:

EMOTIONAL RESPONSE CARDS I



Quick Guide: Emotional Response Cards can be used to learn more about users' feelings, get better interview results and insights. Print and cut the words from the two template pages with the adjectives.

More tips & tricks for this template on book page: 87



Lewrick / Link / Leifer
The Design Thinking Toolbox
978-1-119-62919-1



Project:
Team:
Version & Date:



Quick guide: See Emotional Response Card I

More tips & tricks for this template on book page: 87

EMOTIONAL RESPONSE CARDS II



Lewrick / Link / Leifer
The Design Thinking Toolbox
978-1-119-62919-1



old	stimulant	appealing	demanding	appealing
thrilling	exceptional	impressive	satisfactorily	cheap
unambiguous	simple	easy to use	intimidating	anticipated
impressive	flexible	kind	frustrating	ordinary
helpful	inconsistent	innovative	intuitive	comfortable
complex	creatively	not valuable	slow	borin'

is fun	modern	laborious	new	not relevant
beneficial	personal	professional	relevant	unruffled
swift	difficult to apply	difficult	sure	useful
solid	stressful	comprehensive	unattractive	unwanted
unconventionally	unprofessional	vital	trustworthy	intimate
disheveling	predictable	valuable	time-consuming	time-sp

Emotional Response Cards

- Understand the user emotions while testing different stages of the service / products
- Learn more about other products, brands and experiences
- Collect statements on strategy, information architecture, interaction, aesthetics, and speed

HOW TO PLAY

- Choose the related emotions to each touchpoint
- Review each to discover the potential directions

~10mins Break~

Let's getting started!

Remember to update your

Logbook

throughout the workshop

我想改變 _____ ，
因為 _____ 。
我們會就 _____
_____ 著手，透過

或者我們可以試一下_____

最後我們決定 _____
_____ ，因為
_____ 。
人們覺得這樣 _____

因為 _____ 。
最後讓我們向你介紹 _____
_____ 。

MY LOGBOOK 設計日誌
THE STORY OF
BY
FROM
Write down information here

Organiser
THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學
J.C.D.I.
www.jcdi.hk

Funded by
The Hong Kong Jockey Club Charities Trust

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MY LOGBOOK 設計日誌

我想改變 / / 因為	我們會就 / / 著手	透過 / /	或者我們 可以試一下 / /	最後我們決定 / / 因為	人們覺得這樣 / / 因為	
問題 PROBLEM	發現 INSIGHTS	方向 DIRECTION	意念 IDEAS	解決方案 SOLUTION DIRECTION	設計原型 PROTOTYPE	

Task 1: AEIOU

Activities

A

Environment

E

Interaction

I

Objects

O

Users

U

Activities

A

Environment

E

Interaction

I

Objects

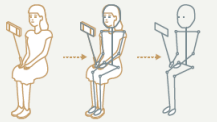
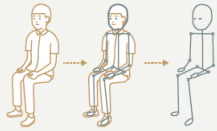
O

Users

U

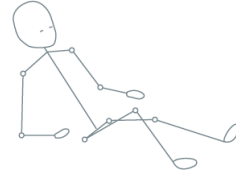
Draw the Gestures

SIT 坐



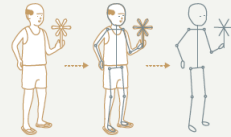
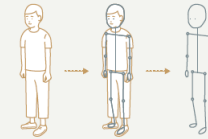
Draw the Gestures

LIE 躺



Draw the Gestures

STAND 企



Activities

A

Environment

E

Interaction

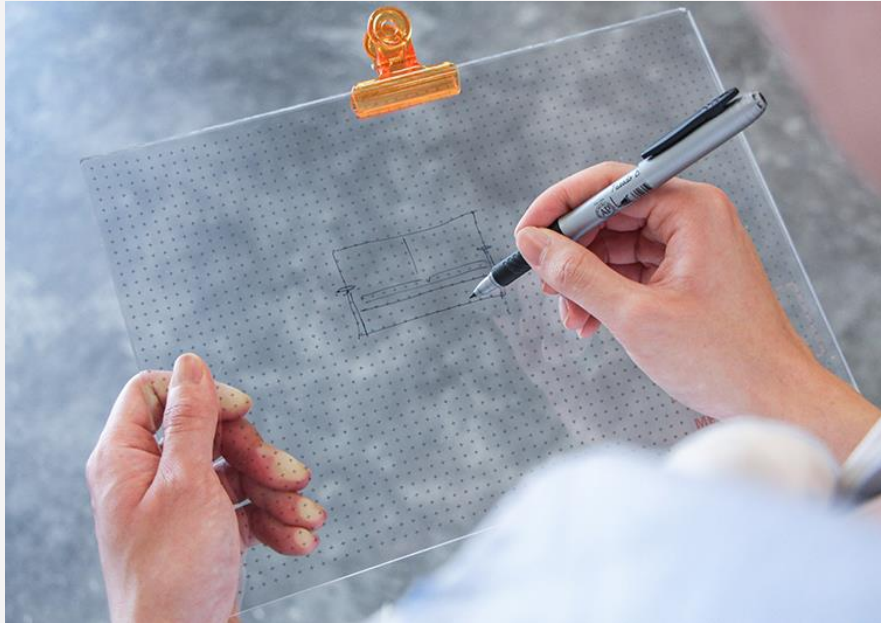
I

Objects

O

Users

U



Activities

A

Environment

E

Interaction

I

Objects

O

Users

U



STUDENT WORKSHOP

"Interactions" Tool

SCENNO DESIGN EDUCATION RESISTEN

"Interactions" Tool

Item: "Interactions" Tool (Laser-Cut File)
 Size: 78 X 182 mm
 Materials: Sheet Cardboard x 1
 Paper (A4) x 1
 Thermal paper (58) x 1 (L18 X 80 mm)
 Resin x 1

Organizer: THE FRANK BEIND THE FRANK UNIVERSITY
 Funded by: The Hong Kong Jockey Club Donation

info@scenno.design-education
 facebook.com/scenno_design_education

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Activities

A

Environment

E

Interaction

I

Objects

O

Users

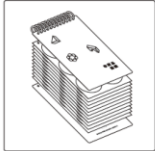
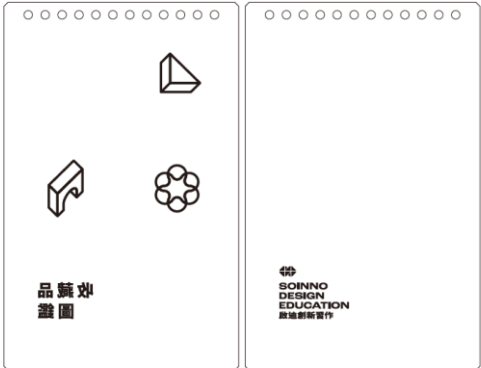
U



STUDENT WORKSHOP

SOINNO DESIGN EDUCATION 蘇城設計教育

“Objects” Tool

品類
繪圖

SOINNO DESIGN EDUCATION 蘇城設計教育

— Vector outlining
— Vector engraving

SOINNO DESIGN EDUCATION 蘇城設計教育

Organizer: THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

Funded by: ICDIS 香港國際設計中心, The Hong Kong Jockey Club Charities Trust

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Activities

A

Environment

E

Interaction

I

Objects

O

Users

U



STUDENT WORKSHOP

"Users" Tool

SCENIO DESIGN EDUCATION SYSTEM

PEOPLE 人物

Item: "Users" Tool (Laser-Cut File)
 Size: 310 x 330 mm
 Materials: Brass Core/Board / Acrylic Sheet x 1
 Screen Set / Paper / Marker x 1
 Clip x 1
 All-Block Transparency Sheet x 1

Organizer: Funded by:

THE HONG KONG POLYTECHNIC UNIVERSITY
 JCDSI
 The Hong Kong Jockey Club Charities Trust
 info@scenio.hk@polytechnic.edu.hk
 @scenio_hk
 scenio_design_education

License: CC BY-NC-SA
 "Users" Tool © 2020 by Scenio. All Design & Artwork for Scenio are created by Scenio.com. All Rights Reserved. For more details of the Scenio Tool, please visit: <http://www.scenio.com> & www.hkpolytechnic.edu.hk

30MINS

Task 2: Mindmapping

When?

What?

Who?

Where?

Why?

How?

**Let's start with
5W+Hs Questions**

Kay Chan Design

20MINS

What is/are

the problems

users facing?

Fill in the

Problem Statement

in your logbook!

~See you after lunch~

Review

A hand holding an orange pen is shown writing on a document. The document has a title that reads "USER JOURNEY MAP OF" in red capital letters. The background is a light, neutral color.

User Journey Mapping

USER JOURNEY MAP OF

Name

簡介

金句 **Persona**

創作人:

1. Introduction

- Goal of the session and steps that students will go through

2. Imagining the persona

- Create the main person who is using the products or services
- Write description and background

3. Breaking down the user journey

- 3-4 critical phrases

4. Graphic feelings

- Imagine the thoughts and feelings
- Note the touchpoint(artefacts, interface, person, etc...)

需要



做乜

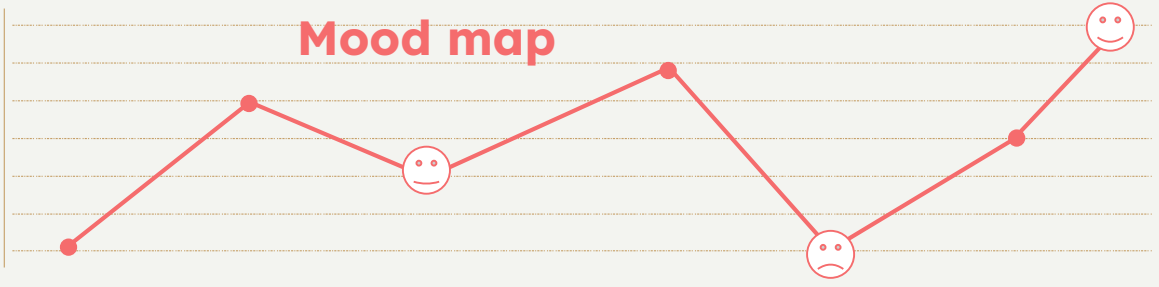


諗乜



Journey

Mood map



接觸點

USER JOURNEY MAP OF

Name

簡介

金句 **Persona**

創作人:

[More related tools](#)

1. Introduction

- Goal of the session and steps that students will go through

2. Imagining the persona

- Create the main person who is using the products or services
 - Write description and background
- ## 3. Breaking down the user journey
- 3-4 critical phrases
- ## 4. Graphic feelings
- Imagine the thoughts and feelings
 - Note the touchpoint(artefacts, interface, person, etc...)

角色設計 Character Design

名字: (本名) _____ (角色名) _____

金句:

角色的最強對白是什麼?

🗨️

🗨️

金句:

角色的最弱對白是什麼?

🗨️

動力:

令到角色前進的動力是什麼?

目標:

角色的最終目標是什麼?

類型: _____ 性格: _____

職業: _____ 類別: _____

年齡: _____ 技能: _____

簡介: _____

阻力 / 障礙:

角色有什麼難關要過?

克服:

最後角色怎樣克服難關?

接觸點

USER JOURNEY MAP OF

Journey

簡介

金句

創作人:

1. Introduction

- Goal of the session and steps that students will go through

2. Imagining the persona

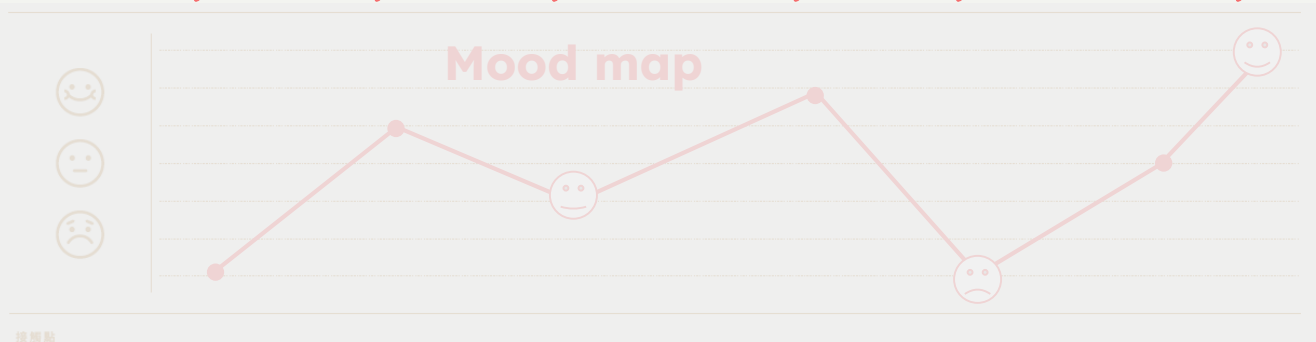
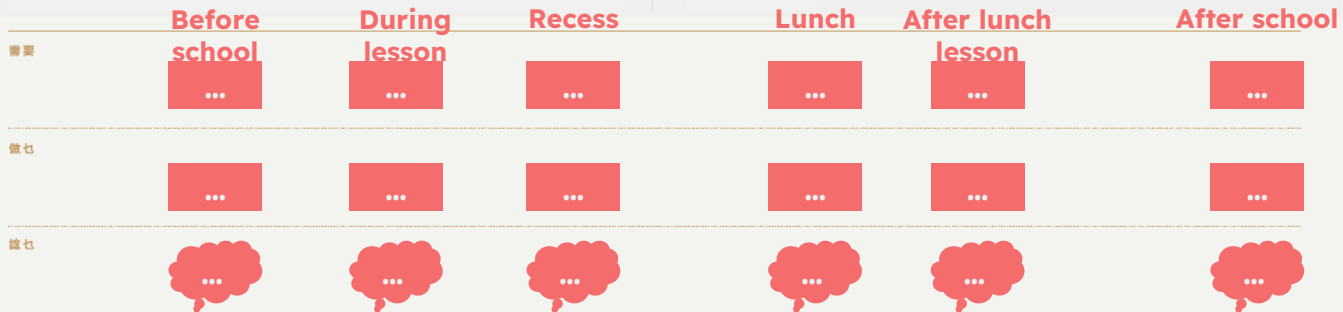
- Create the main person who is using the products or services
- Write description and background

3. Breaking down the user journey

- 3-4 critical phrases

4. Graphic feelings

- Imagine the thoughts and feelings
- Note the touchpoint(artefacts, interface, person, etc...)



USER JOURNEY MAP OF

階段	Before school	During lesson	Recess	Lunch	After lunch lesson	After school
背景
做乜
感受

1. Introduction

- Goal of the session and steps that students will go through

2. Imagining the persona

- Create the main person who is using the products or services
- Write description and background

3. Breaking down the user journey

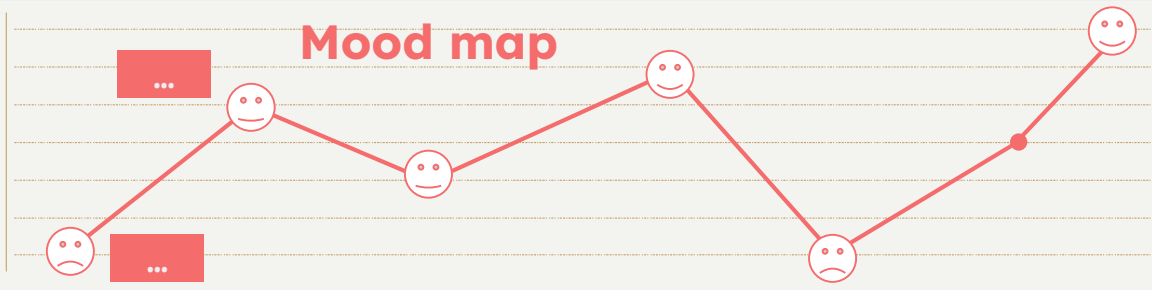
- 3-4 critical phrases

4. Graphic feelings

- Imagine the thoughts and feelings
- Note the touchpoint(artefacts, interface, person, etc...)



Mood map



接觸點

COMIC-STIRPS

我很寂寞
壓力：
家庭，朋羣，學業



相思



Sending love

流動雪糕車



- 知道有人 support
→ not alone

Scenario Building

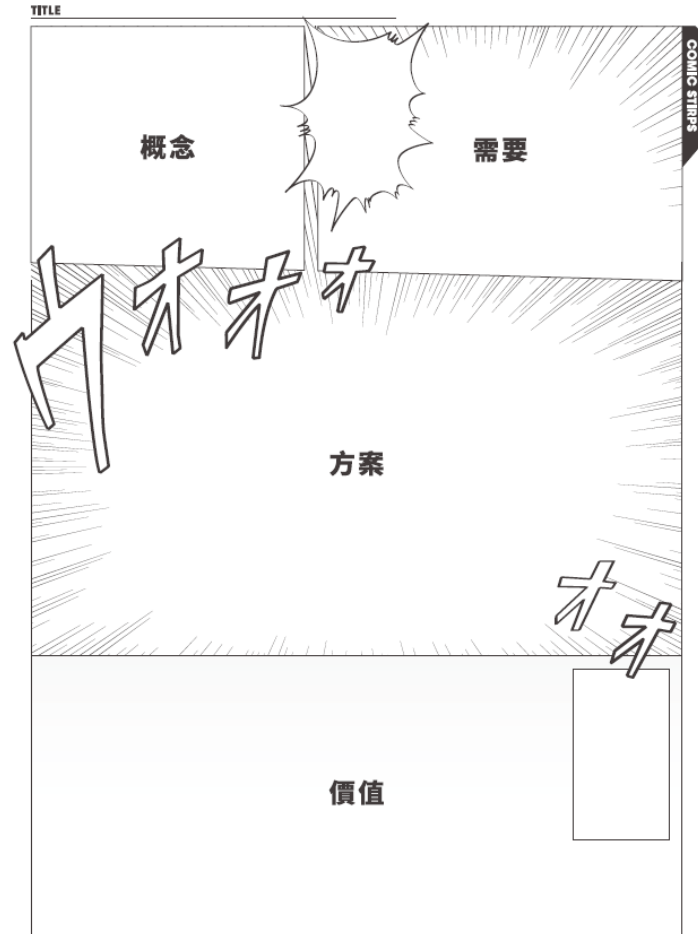
Scenario building

Drawing scenarios

- Imagine and apply their ideas in real life
- Adopt the perspective of user

Comparing scenarios

- Choose **more than one** idea to visualise
- Facilitators lead them to **compare the differences** between two scenarios



Inspiration card



51

Storytelling

- Ask the students to choose different images to **complete a story**
- Facilitator can **ask more questions** (e.g. real-life questions, imaginary, details...) to complete the story

Related tools

5W: Who, What, When, Where, Why

AEIOU: Activities, Environments, Interactions, Objects and Users

POEMS: People, Objects, Environments, Messages and Services

Empathy Map: How the user sense and think.



Storytelling

- Ask the students to choose different images to **complete a story**
- Facilitator can **ask more questions** (e.g. real-life questions, imaginary, details...) to complete the story

5WH QUESTIONS

Project: **THE DESIGN THINKING TOOLBOX**

Team: _____

Version & Date: _____

Quick Guide: The 5WH questions help to gain deep insights, new insights, and observations and to understand the customer and the problem landscape. The 5WH questions give the opportunity to learn more about the users and systems of the user or a customer.

More tips & tricks for this template on book page 73

Learn it / Use it / Leave it: **The Design Thinking Toolbox #73-1-119-8219-1**

Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?

Get a PDF Premium Design Thinking Template: www.dt-toolbox.com/shop

PROJECT NAME: _____ **ACTIVITY:** _____ **LOCATION:** _____

TIME: 1 2 3 4 5 6 7 8 9 10 11 12 **DATE:** _____

DETAILED DESCRIPTION OF ACTIVITY:

PEOPLE
List main groups of people.

OBJECTS
List objects that are used by the people and that populate the environment.

ENVIRONMENT
Describe the surroundings. What are the main features?

MESSAGES
What are the messages or communications being communicated and how?

SERVICES
List services being offered. List services available to the people.

COMMENTS ABOUT USER EXPERIENCE: _____

GENERAL THOUGHTS & COMMENTS: _____

Get a PDF Premium Design Thinking Template: www.dt-toolbox.com/shop

Related tools

5W: Who, What, When, Where, Why

AEIOU: Activities, Environments, Interactions, Objects and Users

POEMS: People, Objects, Environments, Messages and Services

Empathy Map: How the user sense and think.

AEIOU

Project: **THE DESIGN THINKING TOOLBOX**

Team: _____

Version & Date: _____

Quick Guide: The aim of AEIOU is Activities, Environments, Interactions, Objects, Users to be learn more about the user/customer and their environment through mapping and observation and to bring more structure into the observation.

More tips & tricks for this template on book page 107

Learn it / Use it / Leave it: **The Design Thinking Toolbox #73-1-119-8219-1**

1 Research Research activities	2 Observation on site and documentation Observation on site and documentation	4 Findings Customer insights
Activities What activities do they carry out?	3 Environment What does the environment look like?	
Environment What does the environment look like?	Interaction How do the customer interact with one another?	
Interaction How do the customer interact with one another?	Objects What objects and devices are used?	
Objects What objects and devices are used?	User How are the users?	
User How are the users?		

Get a PDF Premium Design Thinking Template: www.dt-toolbox.com/shop

EMPATHY MAP

Project: **THE DESIGN THINKING TOOLBOX**

Team: _____

Version & Date: _____

Quick Guide: The Empathy Map is a tool for empathize, target direct insights and ideas want to generate them, use feedback letters and to empathize with the user stories. The aim is to gain a deep insight into potential users by observing at their own life experiences or scenarios.

More tips & tricks for this template on book page 118

Learn it / Use it / Leave it: **The Design Thinking Toolbox #118-118-8219-1**

Thinking and feeling
What does the user/customer think and feel?

Hearing
What does the user/customer hear?

Seeing
What does the user/customer see?

Saying and doing
What does the user/customer say?

Pains
What are the biggest problems and challenges?

Gains
What are the opportunities and benefits?

Get a PDF Premium Design Thinking Template: www.dt-toolbox.com/shop

Project:
Team:
Version & Date:

Who?
Who?
Who?
Who?
Who?

What?
What?
What?
What?
What?

When?
When?
When?
When?
When?

Quick guide: The 5WH questions help to gain deep insights, new insights and information and to understand the situation and the problem holistically. The WH-questions give the opportunity to learn more about the wishes and opinions of the user or a customer.

More tips & tricks for this template on book page: 71

5WH QUESTIONS



Laurrik / Link / Leifer
The Design Thinking Toolbox
978-1-119-62919-1



Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?
Who?	What?	When?	Where?	Why?	How?

Get a PDF
Premium Design
Thinking Template:
www.dt-toolbook.com/shop

BASIC TEMPLATE

www.dt-toolbook.com/shop



Kay Chan Design

Project:
Team:
Version & Date:

Hearing
Hearing
Hearing
Hearing
Hearing

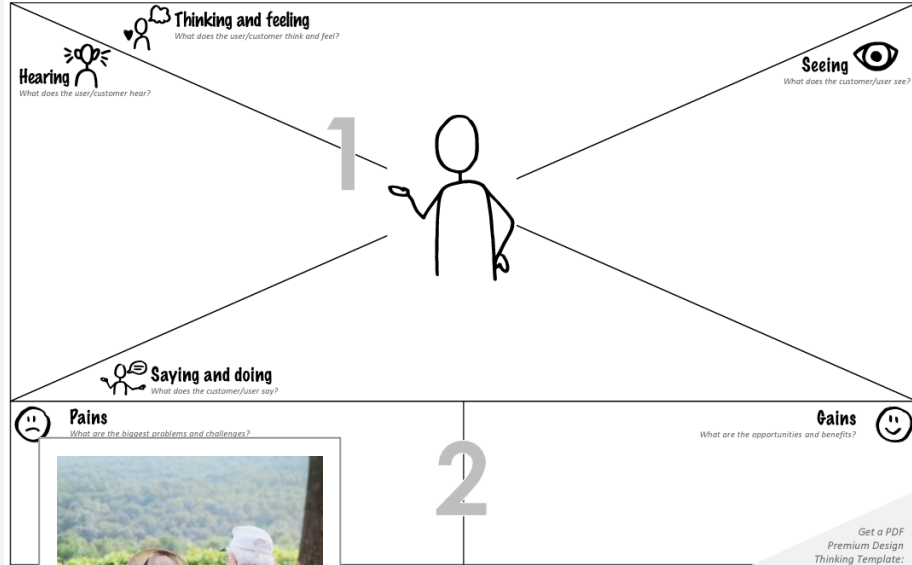
Quick guide: The Empathy Map is a tool for empathic target group analysis and helps users to perceive their own feelings better and to empathize with their own actions. The aim is to gain a deep insight into potential users by answering as many open WH-questions as possible.

More tips & tricks for this template on book page: 93

EMPATHY MAP



Laurrik / Link / Leifer
The Design Thinking Toolbox
978-1-119-62919-1



Pains
What are the biggest problems and challenges?



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BASIC TEMPLATE

www.dt-toolbook.com/shop

Get a PDF
Premium Design
Thinking Template:
www.dt-toolbook.com/shop

Continue our journey...

Task 3 : Idea speed dating

Speed Dating

- **Swap** with other every 2 mins

Analysing ideas

- Divide the papers into several pieces so every group has one section
- In groups, the students start to **select and analyse** some of the ideas.



What

fun & unique ideas

you have got?

30MINS

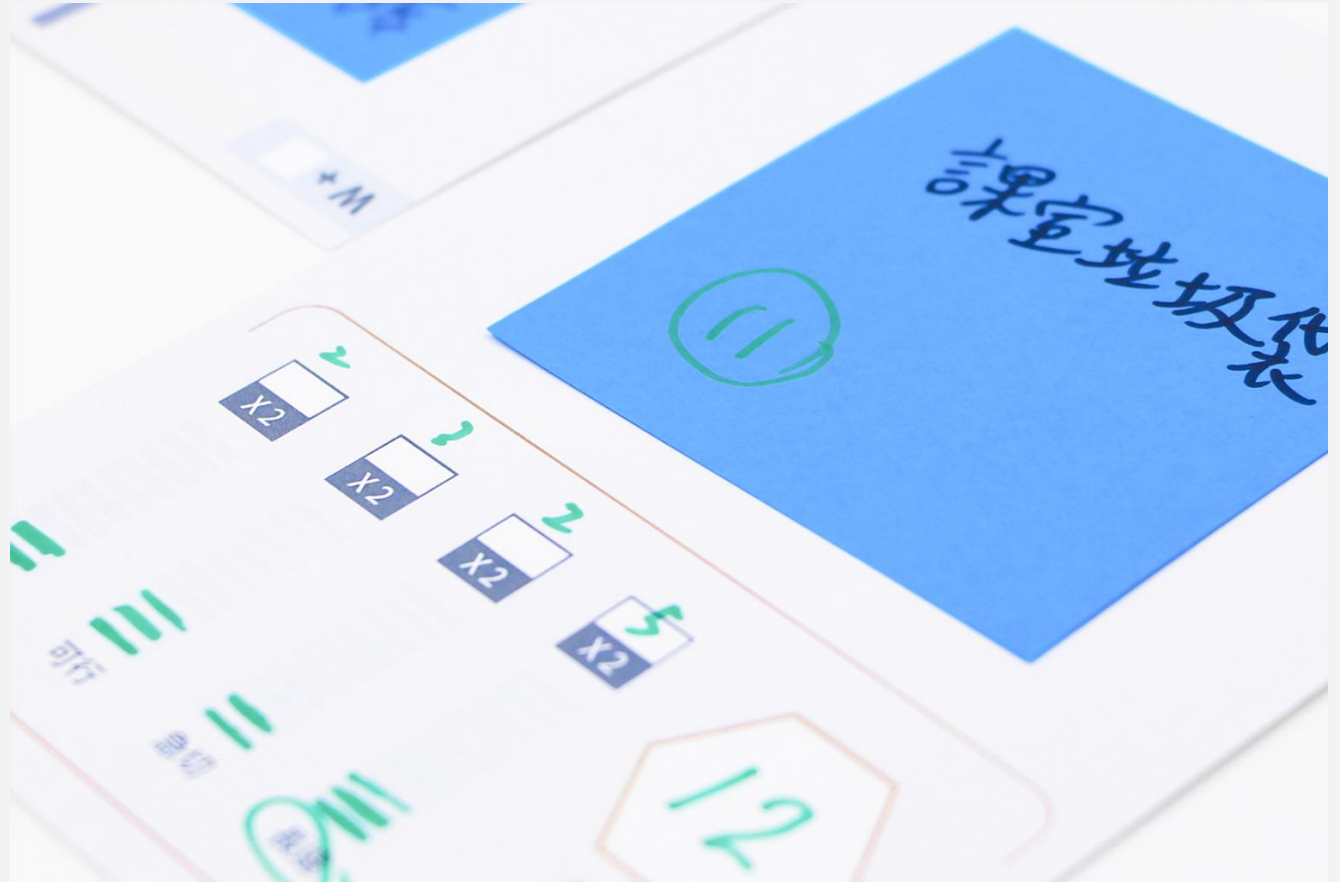
Task 4 : Idea battle card

Idea Battle Card

- **Pick 5** ideas from idea speed dating

Analysing ideas

- Fill in the battle cards for each idea
- Evaluate each idea
 - Which card is the most effective and efficient solution?
 - Which card is the quickest to solve the problem?
 - More evaluating questions
 -



BATTLE CARD

W



Put Your Sticky Note Here!

L



原創 X2

可行 X2

急切 X2

長遠 X2

戰鬥值



SOINNO DESIGN EDUCATION

Size : A5

15MINS

Product design principle

1

User-Centered Design (UCD): Conduct thorough user research to understand the target audience's needs, preferences, and ergonomic requirements. Design furniture that caters to their specific use cases and comfort levels.

2

Simplicity: Keep the furniture design clean, uncluttered, and focused on the core functionality. Avoid overly complex or ornate designs that can distract from the usability.

3

Consistency: Maintain a consistent design language across a furniture collection or line, using similar materials, finishes, and visual cues to create a cohesive brand identity.

4

Feedback and Responsiveness: Incorporate features that provide tactile or auditory feedback to the user, such as smooth-gliding drawers, sturdy construction, or soft-close mechanisms.

5

Hierarchy and Visual Emphasis: Prioritize the key functional elements of the furniture and use visual cues, such as size, color, and placement, to draw the user's attention to them.

以使用者為中心的設計 (UCD)：進行徹底的使用者研究，以了解目標受眾的需求、偏好和人體工學要求。設計適合其特定用例和舒適度的家具。

簡潔：保持家具設計乾淨、整潔，並專注於核心功能。避免過於複雜或華麗的設計，以免影響可用性。

一致性：在整個家具系列或產品線中保持一致的設計語言，使用相似的材料、飾面和視覺線索來創建有凝聚力的品牌形象。

回饋與反應能力：結合提供使用者觸覺或聽覺回饋的功能，例如平滑滑動的抽屜、堅固的結構或軟關閉機制。

層次結構和視覺重點：優先考慮家具的關鍵功能元素，並使用視覺線索（例如尺寸、顏色和位置）來吸引使用者的注意。

6

Flexibility and Adaptability: Design furniture that can be easily reconfigured, adjusted, or repurposed to accommodate different user needs and preferences, such as adjustable desks or modular seating.

7

Error Prevention and Handling: Anticipate potential user errors or safety concerns and design the furniture accordingly, using features like rounded edges, stable construction, and intuitive assembly instructions.

8

Accessibility: Consider the needs of users with various physical abilities and ensure the furniture is accessible, with features like adjustable heights, ample legroom, and easy-to-reach controls.

9

Learnability and Discoverability: Intuitively design the furniture to be self-explanatory, with clear cues and instructions on how to use its various functions and features.

10

Aesthetics and Emotional Appeal: Combine functional design with visually appealing aesthetics, using materials, colors, and forms that evoke the desired emotional response from the user, such as a sense of comfort, sophistication, or creativity.

靈活性和適應性：設計可以輕鬆重新配置、調整或重新調整用途的家具，以滿足不同使用者的需求和偏好，例如可調式辦公桌或模組化座椅。

預防錯誤與處理：預測潛在的使用者錯誤或安全問題，並利用圓邊、穩定的結構和直覺的組裝說明等功能相應地設計家具。

無障礙：考慮不同身體能力的使用者的需求，並確保家具易於使用，具有可調節高度、充足的腿部空間和易於觸及的控制裝置等功能。

可學習性和可發現性：直觀地設計不言自明的家具，並提供有關如何使用其各種功能和特性的清晰提示和說明。

美學和情感訴求：將功能設計與視覺吸引力美學相結合，使用能夠喚起使用者所需情感反應的材料、顏色和形式，例如舒適感、精緻感或創造力。

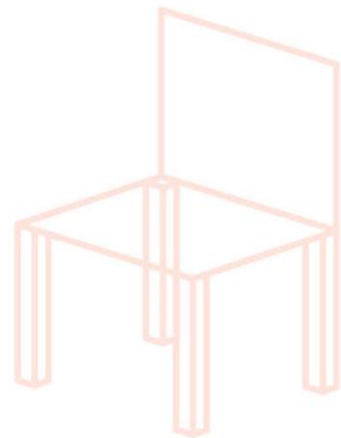
Try to think different

sense and experience

from using the chair

- 1 顏色 Colours
- 2 材質 Material
- 3 質感 Texture
- 4 氣氛 Vibe
- 5 價值 Value
- 6 形狀 Form
- 7 空間 Space
- 8 氣味 Smell
- 9 聲音 Sound
- 10 情景 Scenario
- 11 功能 Function

Chair 櫈



這是什麼?
WHAT?

在哪裡用?
WHERE?

為什麼?
WHY?

誰會用?
WHO?

什麼時候用?
WHEN?

如何用?
HOW?

Task 5 : Making

45MINS

Open source

Design Thinking Toolkit & Guide



POLYU DISCI SOINNO tools

<https://soinnohub.polyujcsoinno.hk/zh-hant/tools/>



IDK Design Thinking Toolkit

<https://www.idk-hkdc.org/toolkit>



The Design Thinking Toolbox

<https://en.dt-toolbook.com/tools>



Atomic Design

<https://spin.atomicobject.com/tag/design-thinking/>



IBM Design Thinking Course

<https://www.ibm.com/design/thinking/page/toolkit>

Debrief

~Thank you~