Design Thinking for SDGs

Session 1, 2 Define

Wednesday August 18, 2021

Prof Semee Yoon
Prof Hyunkyung Lee
Today’s agenda

1) DT Step 1: Empathize
   ○ Empathize with your P, issues in Sustainable Development
   ○ Activity: Empathize recap

2) DT Step 2: Define your problem
   ○ Activity: Problem Statement
Planeteers

Yuri Shin
#Positivity
#Passion

Jungwon Youn
# Good listener
# Fun

Salma Elbehary
# Enthusiastic
# Sustainability seeker

Juwon Son
#Idealist
#Rational

Hatyja Nuriyeva
#simplifier
#climateactivist
Ecovision

Group Leader

Yunjoo Cho
#1 Experience is the best
#2 Sympathetic

Alex Lew
#1 Slow and steady
#2 Experience over materialism

Eunhee Shin
#1 Open-minded
#2 Friendly

Yewon Lee
#1 Hard Worker
#2 Athe-holic
Group 2 — ECOnowledge

Sangwoo Jeon  
Sporty & Generous

Kelsi Bryson  
Motivated & Outgoing

Hyewon Shin  
Positive & Love traveling

Sooyoun Bae  
Joyous & Animal lover

Zokhira Mukhammaduyunusova  
Dynamic & Bright
SMOOTH LIKE BUTTER

JINHA
#career-oriented
#challenging

JINKYU
#favorable
#relaxed

YEONWOO
#dreamer
#observant

YIJEONG
#fiftypercent
#optimistic

CARINE
#organised
#driven
GROUP 8 — “GREENWICH”

**NAYEON KANG (SARAH)**
- Seoul National University Graduate School of Environmental Studies - Environmental Management
- **Keywords:** All-rounder, Environment-conscious
- Korean (Native), English (Fluent)
- “Food is the best vaccine against chaos” (SDG 2)
  ~ David Beasley, Head of UN WFP

**DONGEUN SHIN**
- University of Utah - Urban Ecology
- **Keywords:** Caring, Quirky
- Korean (Native), English (Fluent), Chinese (Intermediate)
- “There is no ‘Plan B’ because we do not have a ‘Planet B’. We have to work and galvanize our action”
  ~ Ban Ki Moon (UN Secretary-General 2007-2016)

**APOORVA JAYAKUMAR**
- Yonsei University Graduate School of International Studies - Global Economy and Strategy
- **Keywords:** Curious, Compassionate
- Tamil (Native), English (Fluent), Hindi (Fluent), Korean (Intermediate)
- “Until justice rolls down like water and righteousness like a mighty stream”
  ~ Martin Luther King Jr.

**EUNCHONG KIM (SAMUEL)**
- Sungkyunkwan University - Department of Chinese Language and Literature
- **Keywords:** Slow, Steady
- Korean (Native), English (Fluent), Chinese (Beginner)
- “The Earth is a beautiful planet”
  ~ Scott Kelly (Retired Astronaut)

**EJIN KIM**
- George Mason University – Global Affairs
- **Keywords:** Passionate, Positive
- Korean (Native), English (Fluent), Chinese (Beginner)
- “Making peace with nature is the defining task of the 21st century”
  ~ Antonio Guterres, UN Secretary-General
Group 7

Hyeonjeong Kim
Enthusiastic & Dreamer

Yunji Kim
Easy-going & Generous

Ayoun Koh
Determined & Insightful

Ian Hwang
Principled & Clear-sighted

Akira Setaruchi
Open-minded & Considerate

DFK
DESIGN FACTORY KOREA
UNOSD 5th SDGs Youth Summer Camp

Daeun Kim (Grace)
Global Health Design

Henry Webster
Peace Save

Suyoung Mun
Bright Smile

Ahayeon Kim (Ellen)
Sincere Joyful
Group 4: The Puppy Lovers

Suosopor Khuoy
1. Cheerful
2. Sensible

Chedza Bokamoso Nkhwa
1. Versatile
2. Sociable

Seoyoon Cho
1. ENFP
2. Animal Lover

Jiseun Shin
1. Energetic
2. Optimistic

Jaehyun Lee
1. Driven
2. Outgoing
Today’s agenda

1) DT Step 1: Empathize
   ○ Empathize with your P, issues in Sustainable Development
   ○ Activity: Empathize recap

2) DT Step 2: Define your problem
   ○ Activity: Problem Statement
Empathize → Define

What is Human Centered Design

- the needs of people
- the possibilities of technology
- the requirements for success

DFK

INSPIRATION

I have a design challenge. How do I get started? How do I conduct an interview? How do I stay human-centered?
**Understand**
Experience, empathize; users and stakeholders
Research, benchmark

**Ideate**
Possible solutions
Co-create
Combine, prioritize, select

**Prototype**
Build to test
...to understand
...to ideate
Tell stories

**(re)Define**
Dissect the brief
Define the problem
Redefine the problem

**Test**
Test to learn
With people!
Provide experiences
Understand = Empathize
Understand
Experience, empathize; users and stakeholders
Research, benchmark

(re)Define
Dissect the brief
Define the problem
Redefine the problem

Ideate
Possible solutions
Co-create
Combine, prioritize, select

Prototype
Build to test
...to understand
...to ideate
Tell stories

Test
Test to learn
With people!
Provide experiences

DFK
DESIGN FACTORY KOREA
(re)Define
Dissect the brief
Define the problem
Redefine the problem

Understand
Experience, empathize; users and stakeholders
Research, benchmark

Ideate
Possible solutions
Co-create
Combine, prioritize, select

Prototype
Build to test
... to understand
... to ideate
Tell stories

Test
Test to learn
With people!
Provide experiences
Interpretation transforms your stories into meaningful insights.

Observations, field visits, or just a simple conversation can be great inspiration—but finding meaning in that and turning it into actionable opportunities for design is not an easy task.

It involves storytelling, as well as sorting and condensing thoughts until you’ve found a compelling point of view and clear direction for ideation.
Search for Meaning to Define the Problem

**Empathize**
- Find Themes
- Make sense of findings
- Define Insights

**Define**
- What is the actual problem we are trying to solve?
- Who is really affected by it?
- What are the different ways of solving the problem?
Simple technique to identify underlying causes and motivations to get to the bottom of a problem.

1. "Why did the robot stop?"
The circuit has overloaded, causing a fuse to blow.

2. "Why is the circuit overloaded?"
There was insufficient lubrication on the bearings, so they locked up.

3. "Why was there insufficient lubrication on the bearings?"
The oil pump on the robot is not circulating sufficient oil.

4. "Why is the pump not circulating sufficient oil?"
The pump intake is clogged with metal shavings.

5. "Why is the intake clogged with metal shavings?"
Because there is no filter on the pump.
Make Insights Actionable

Task 2: Develop Your Problem Statement
DT Step 2: Define

Reframe and define the problem in human-centered ways

To find a solution that is:

- Technically feasible
- Economically viable
- Desirable for the user
Define: Problem Statement

- Human-centered:
  - About the people that the team is trying to help
- Broad enough for creative freedom:
  - Should not focus too narrowly on a specific method or list technical requirements
- Narrow enough for management:
  - Sufficient constraints so that not too daunting counter-ex) “improve the human condition”
Environment → PPL: Resource + Service

Planetary Boundaries
after Johan Rockström, Stockholm Resilience Centre et al. 2009

- Chemical pollution (not yet sufficiently quantified)
- Climate crisis
- Ocean acidification
- Ozone depletion
- Nitrogen cycle
- Biodiversity loss
- Phosphorus cycle
- Freshwater use
- Deforestation and other land use changes

Safe planetary boundary / guide rail according to the authors
Scientific observation until 2009
Define: Point of View

● Goal-oriented manner
● 3 elements
  ● Who is your user?
  ● What is their deep, unmet need?
  ● Why is this insightful?
    ● insights gained from empathize

User... (descriptive) needs ______ (verb), because _______________ (insight, compelling).
Define: Point of View

Resources gathered from DT Step 1: Empathize

Figure A6.a. Percentage of schools where all or most of the eighth-grade students take part in internal or external school activities related to environmental sustainability (2016)

International Civics and Citizenship Education Study

StatLink: https://doi.org/10.1787/888933802760
Define: Point of View

Korean youth needs to experience activities related to environmental sustainability, b/c schools are unable to do so + lack of awareness will led to inaction on environmental issues.

Figure A6.a. Percentage of schools where all or most of the eighth-grade students take part in internal or external school activities related to environmental sustainability (2016)

International Civics and Citizenship Education Study

Note: Eighth-grade students are 13.5 years old on average.
Define: Point of View

Korean youth needs to gain experiential learning activities related to climate change, because

1) the current curriculum does not incorporate risks and opportunities of climate change &
2) hands-on experience has been found to influence behavior and action.
Task: $5 + \alpha$ why’s + Problem Statement

- **Today:** write down 5 why’s on Miro.
- **For the afternoon:** pick one problem statement after discussion.
  - Trust your gut feeling: choose those questions that feel exciting and help you think of ideas right away.
  - Select the questions that are most important to address, even if they feel difficult to solve for.

*1 post-it for 1 question
As many as possible*
During the first pitch today, each team will briefly pitch their POV problem statement, after ideation.
POV checklist

Your POV should:

• Provide focus and frame the problem
• Inspire your team
• Provide a reference for evaluating competing ideas
• Empower team members to make decisions in response to the high level goals of the team
• Fuel brainstorm by suggesting “how might we” statements
• Capture the hearts and minds of people you meet
• Save you from the impossible task of developing solution concepts that are all things to all people
• Allow you to revisit and reformulate the POV as you learn by doing
• Guide your innovation efforts
Appendix
Due beginning of the 1st session on WEDNESDAY

Slide one: sentence problem statement

Slide two or more: Background research on your users (empathy step)
<table>
<thead>
<tr>
<th>User</th>
<th>Need</th>
<th>Insight</th>
</tr>
</thead>
<tbody>
<tr>
<td>An overworked husband</td>
<td>to feel good about recycling</td>
<td>When things pile up he feels behind. And ultimately the big pile on the curb feels more like generating waste than doing good.</td>
</tr>
</tbody>
</table>

**HMW reduce the size of the recycling pile?**

**HMW make the husband feel good about a big pile?**

**HMW reduce the amount of work involved in gathering all the house piles?**

**HMW eliminate the overflowing recycling bins?**

**HMW make the husband feel ahead of the game?**

**HMW make the husband feel less overworked?**

**HMW make recycling feel less like waste?**