Session 5

Design Thinking & Innovation

Breaking Fixedness 2
SIT | Function Follows Form

Existing Situation
- Manipulation (thinking tools)
- Virtual Product

FUNCTION
- Identify benefits, advantages, markets
- Identify challenges
- Adaptations
- IDEA

FORM

Source: SIT 2012
The tendency to think of an object or process as a whole, with a defined structure that cannot be modified, divided, or rearranged.
How could you apply division to the stethoscope?
To improve a product you remove attributes—sometimes even ones deemed indispensable—rather than adding features or attributes.
Examples of Subtraction

- Amazon subtracted the physical store
- iPads subtracted keyboard and disc drive
- iPhone 7 subtracted the headphone jack
- Eye glasses → Contact Lenses → Lasik Surgery
- Non-violent struggles and movements subtracted violence
- Disintermediation or Automation
  - Travel agent
  - Automatic teller machines
  - Cooperatives subtract the middleman
  - Health care—Eye exam kiosk, OTC, portable x-rays, Nurse practitioners
  - On-line education subtracts the teacher
  - Robotic factories subtract the worker
- How might we apply subtraction to the bicycle helmet

Source: SIT 2012
SIT | Relational Fixedness

The tendency to view relationships and dependencies between attributes of a product or situation as static and permanent.

X depends on Y

Source: SIT 2012
To create, change or eliminate dependencies between variables of a product or a system (internal attributes) and its environment (external factors).
Examples of Attribute Dependency

- Lights automatically turn off when no one is in a room
- Windshield wipers adjust to the amount of rain
- Loyalty programs—length of relationship, amount of business results in special privileges
- Domino’s Pizza’s promise of delivery within 30 minutes or it is free creates a dependency between time to deliver and price that did not exist before
Continuous Focal Lenses
Attribute Dependency

- Attribute Dependency starts with a list of external factors written along the rows.
- The columns represent internal attributes of a product (price, benefit/payment).
- Each cell represents a new potential dependency (or potential break in an existing dependency) that forms a Virtual Product.
- Using Function Follows Form, we work backwards and envision a potential benefit or problem that this hypothetical solution solves.

Source: SIT 2012
## Attribute Dependency Matrix for Eyeglasses

<table>
<thead>
<tr>
<th>EXTERNAL ATTRIBUTES</th>
<th>Tint of glass</th>
<th>Type of lens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of glare</td>
<td>0  (\rightarrow) 1</td>
<td>0</td>
</tr>
<tr>
<td>Viewing Distance</td>
<td>0</td>
<td>0  (\rightarrow) 1</td>
</tr>
</tbody>
</table>