21 marzo – 4 aprile

Today
From
Benchmarking
to
Functional and
Experience
Prototyping

Meanwhile...
continue meetings
with teams

diverging...

converging...
benchmarking:

research, interviews, previous work

• What is the current state of the technology?
• What similar products are already on the market?
• What needs do people have?
Technology Benchmark Example:
ME310 Immerse Global (2008)
Provide potable water anywhere.
Immerse Global Design Process

- Functional, physical
- User, experiential
Immerse Global (brainstorming)

Possible functional approaches:
- Water from exhaust
- Water purifier
- Reverse osmosis
- Filters
- Dessicants
- Solar power
- Wind
- Thermal storage

*Vapor cycle:*
- AC
- Refrigerator
- Dehumidifier
Immerse Global: technology benchmarking

Figure 17: Condensing experiment and disassembly of Kenmore dehumidifier

Figure 19: Disassembled refrigerator
requirements definition: (who is at fault here?)
the point is...

When defining a novel product you need to figure out your own requirements.
Types of requirements: Sometimes a Functional/Physical decomposition is useful:

- **Functional**
  - Internal (intrinsic): Things it must do on its own (e.g., keep time)
  - External (extrinsic): Things it must do in interaction with something or someone (e.g., display time)

- **Physical**
  - Internal (intrinsic): Parts of its internal structure or composition (e.g., be modular)
  - External (extrinsic): Associated with user or environment (e.g., fit in pocket)
Critical Function Prototype
Critical Experience Prototype

• Due: 11 aprile
• Starts the synthesis phase of a project
  – Build something
  – Do something
  – Learn something
• What it’s not: Not a mockup. Not a paper study. Not a survey…
  ❌ dimostrare
  ✔ informarsi
CFP (critical function prototype)
CEP (critical experience prototype)

- a prototype designed to explore one important functionality or requirement
What is a Critical Function Prototype?

- **Create a physical thing** or system that lets you explore some interesting part of the design space.
  - Is not a total solution. Focus on one specific component or function.
  - Really prototype. (Buying several things at Carrefour or UniEuro and throwing them together will not suffice...)
  - *It can be very rough!* (cartone, elastici, nastro americano...)

- Talk about what you chose
- talk about design insights you gained
Lockheed Space Systems current user architecture
Explaining your CEP/CFP
(Lockheed 2010)
What is a Critical Experience Prototype?

• **Create an experience** that is “real enough” to gather some insights (*intuitzione*).
  – Many implementation details can be “smoke and mirrors” or “Wizard of Oz” (*effetti teatrali*).
  – Focus on the effect and what you can learn from watching people experience it.

• For fall report: Document it via Storyboard, Video, Process Flow Diagram, etc.

• Also document findings (need not have all results by CEP/CFP review day).
project challenge
improve the open air experience
Benchmarking: modeling what we know, BMW + TUM
critical experience prototype
testing what we don’t know
airflow revisited
prototypes ... prototypes
many prototypes later...
Design Development

- Understanding Oral Hygiene
- Benchmarking Current Tech
- Mapping the Needs
CEP – Motivational
Calendar + Game
CFP – Feedback

WiiBrush

Accelerometer Brush
Accelerometer Brush
Accelerometer Brush

- Poor Brushing
- Good Brushing
Future Work

• Refine target user identity
• Discover optimal engagement level for target group
everything is worth trying. (Greg Kress)