

REDESIGNING THE NEONATAL ICU

A Stanford University d. School class fall, 2014



WHO?

Instructors



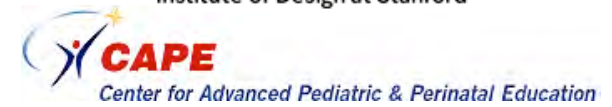
Dr. William Rhine, Professor of Pediatrics Stanford University
Medical Director, Neonatal Intensive Care Unit,
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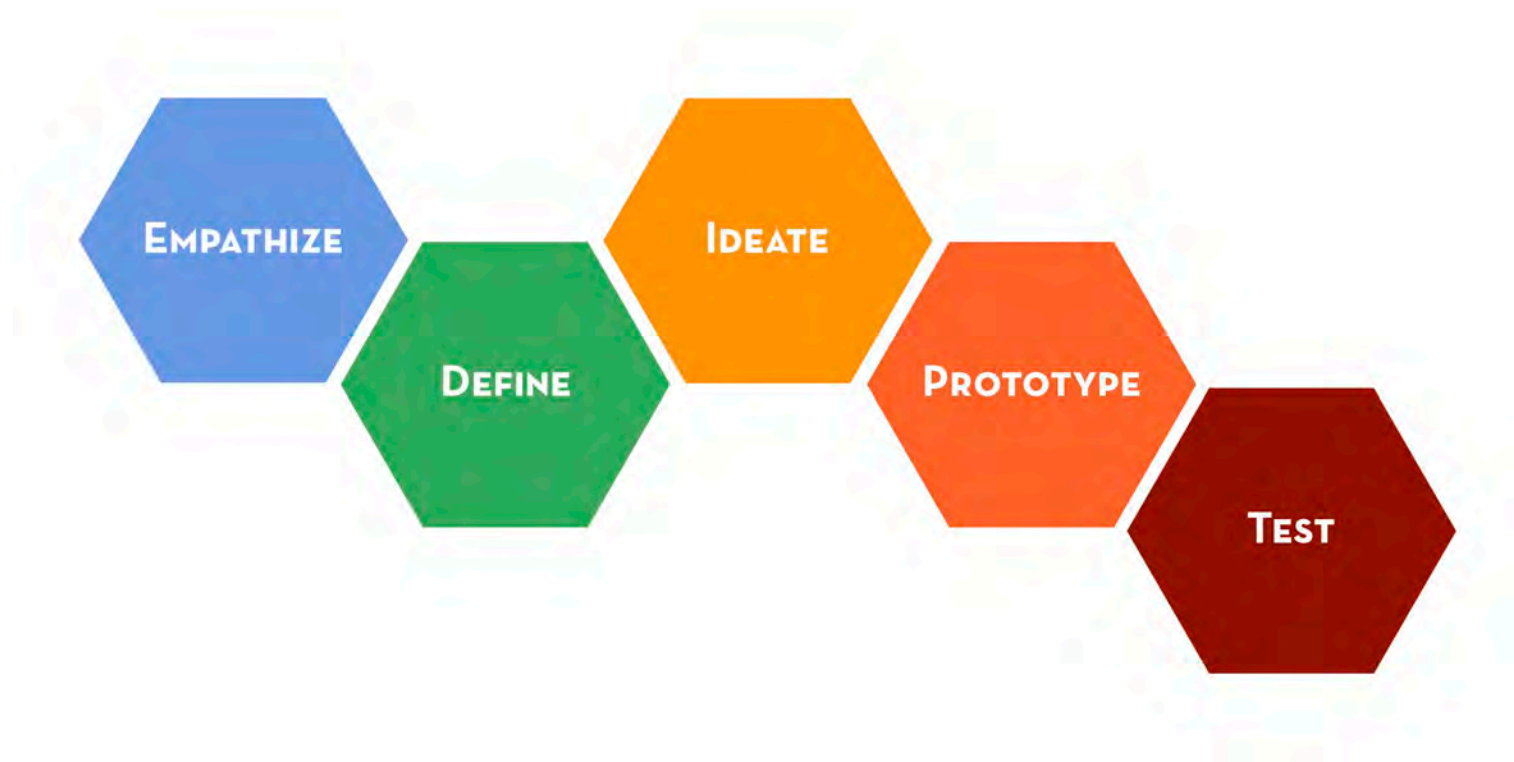


Travis McCain, MS

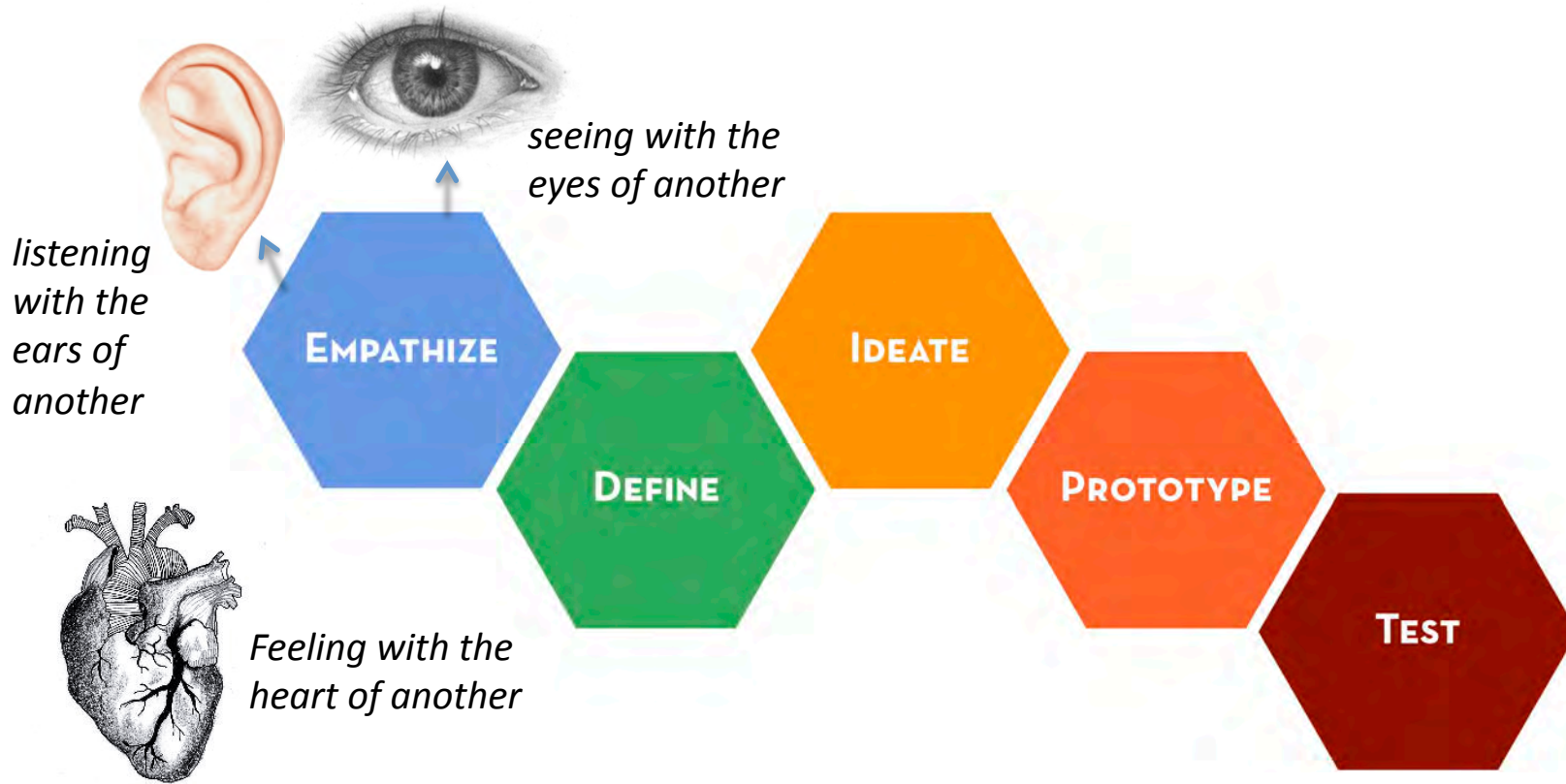
INTRO TO DESIGN THINKING

Redesigning The Neonatal ICU
Fall, 2014

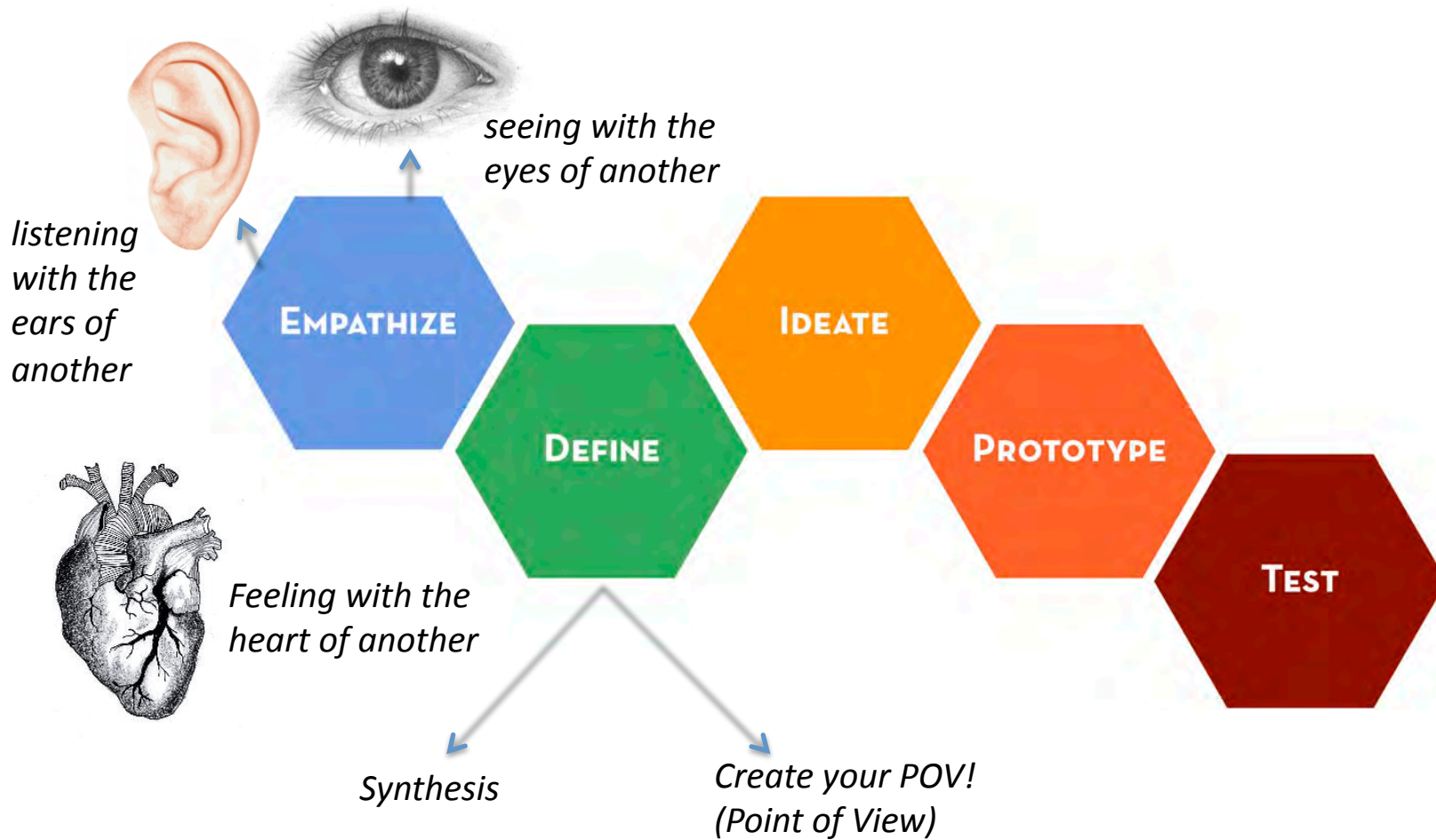
Human Centered Innovation Process



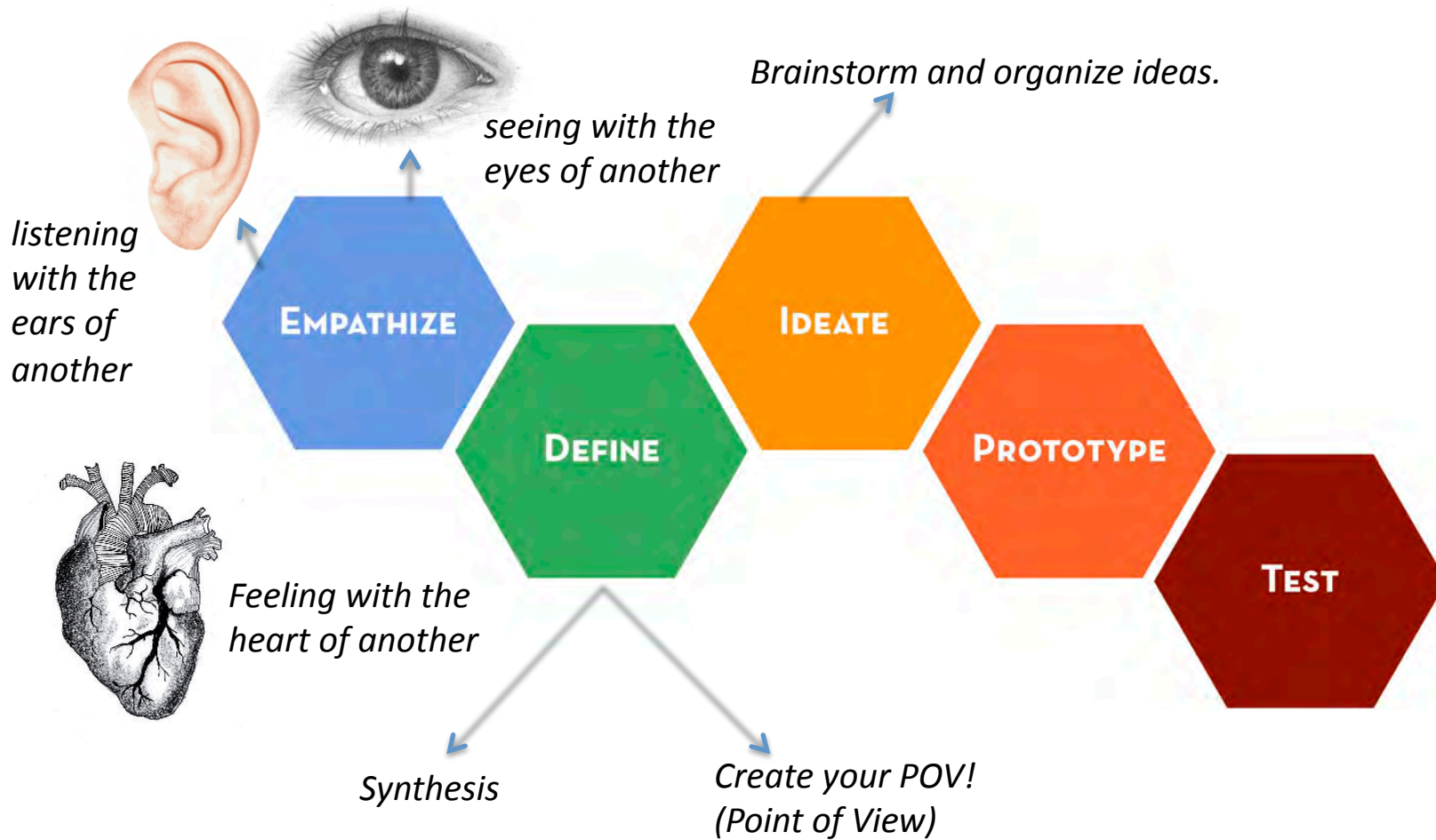
Human Centered Innovation Process



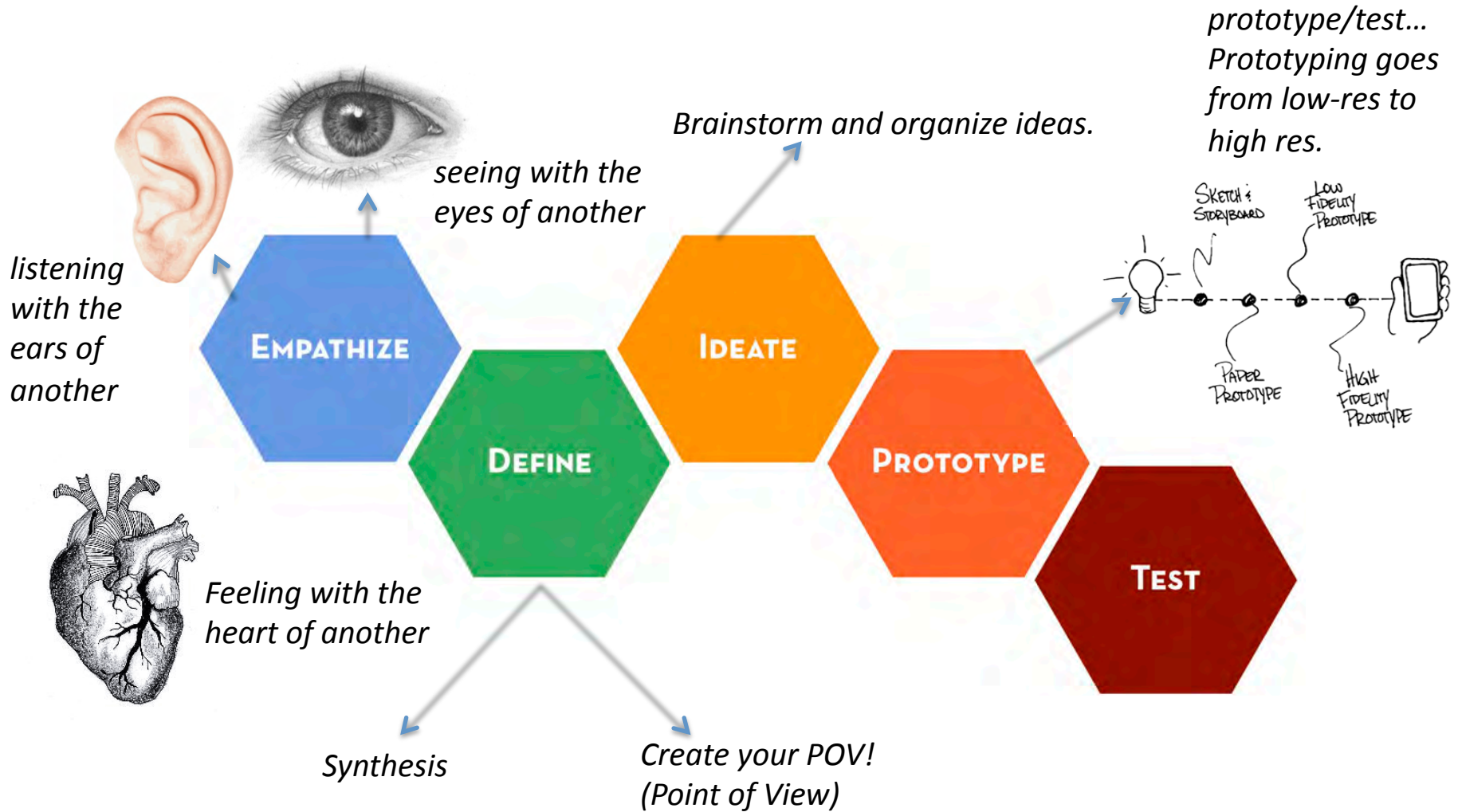
Human Centered Innovation Process



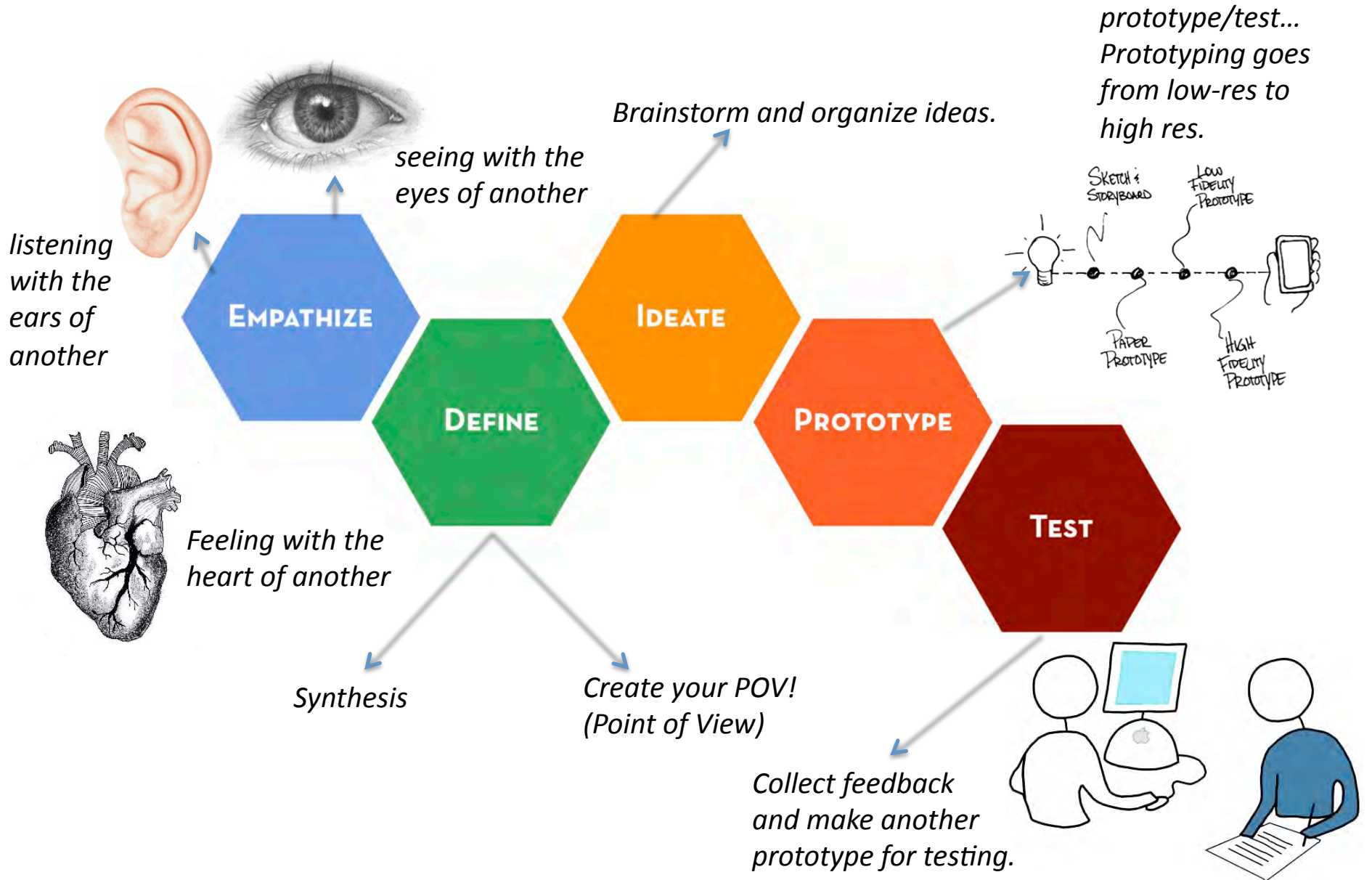
Human Centered Innovation Process



Human Centered Innovation Process



Human Centered Innovation Process



why seek empathy?



To discover people's explicit and implicit **needs** so that you can meet them through your designs.



Ethnographic Research

- Ethnography is the rigorous study of the routine daily lives of people in a culture.
- To understand a group from their point of view as well as our own.
- Ethnography uncovers user's needs, and explanations for "why" people do what they do.

embrace

A LOW-COST INFANT WARMER

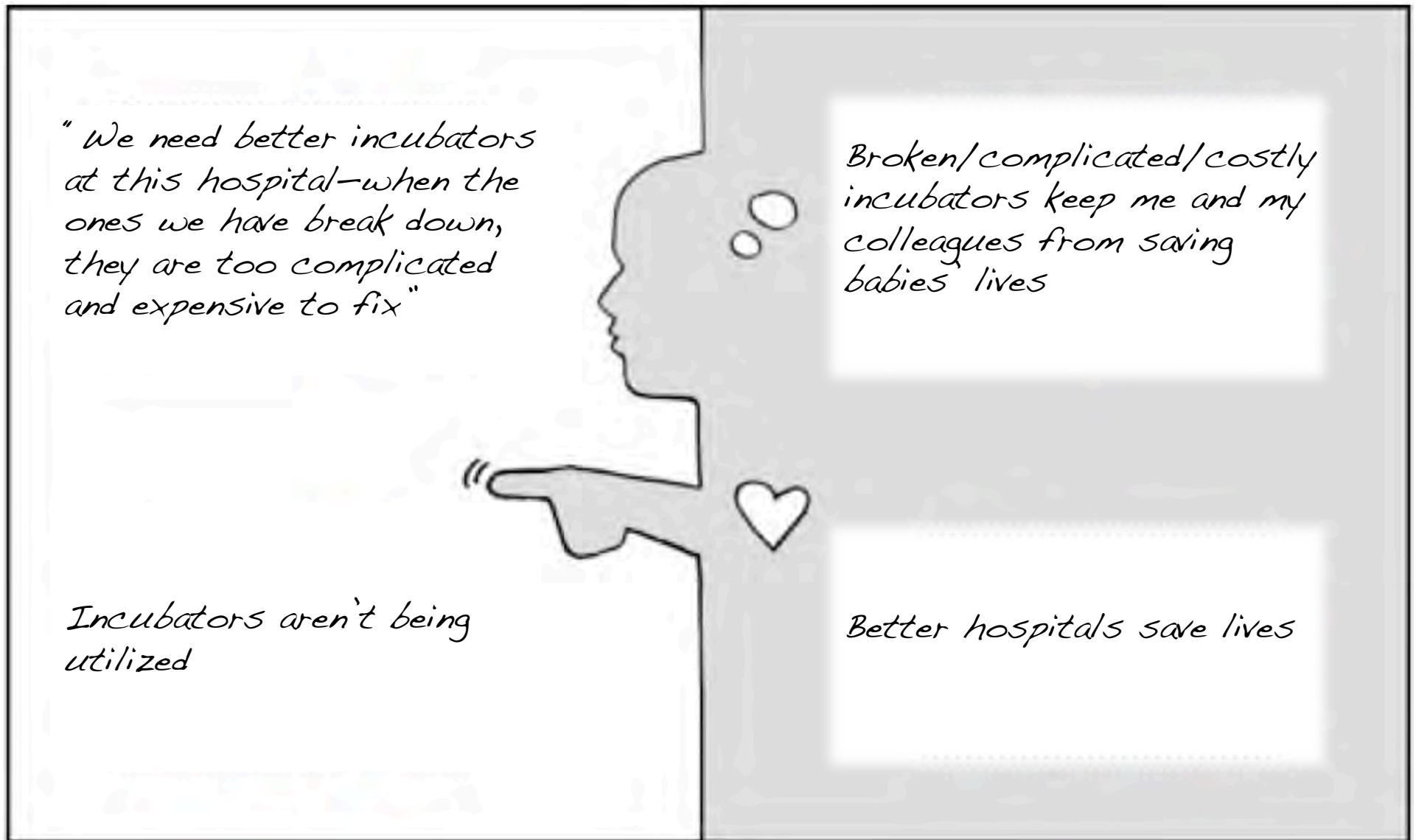
GE Product Overview
September 14th, 2009

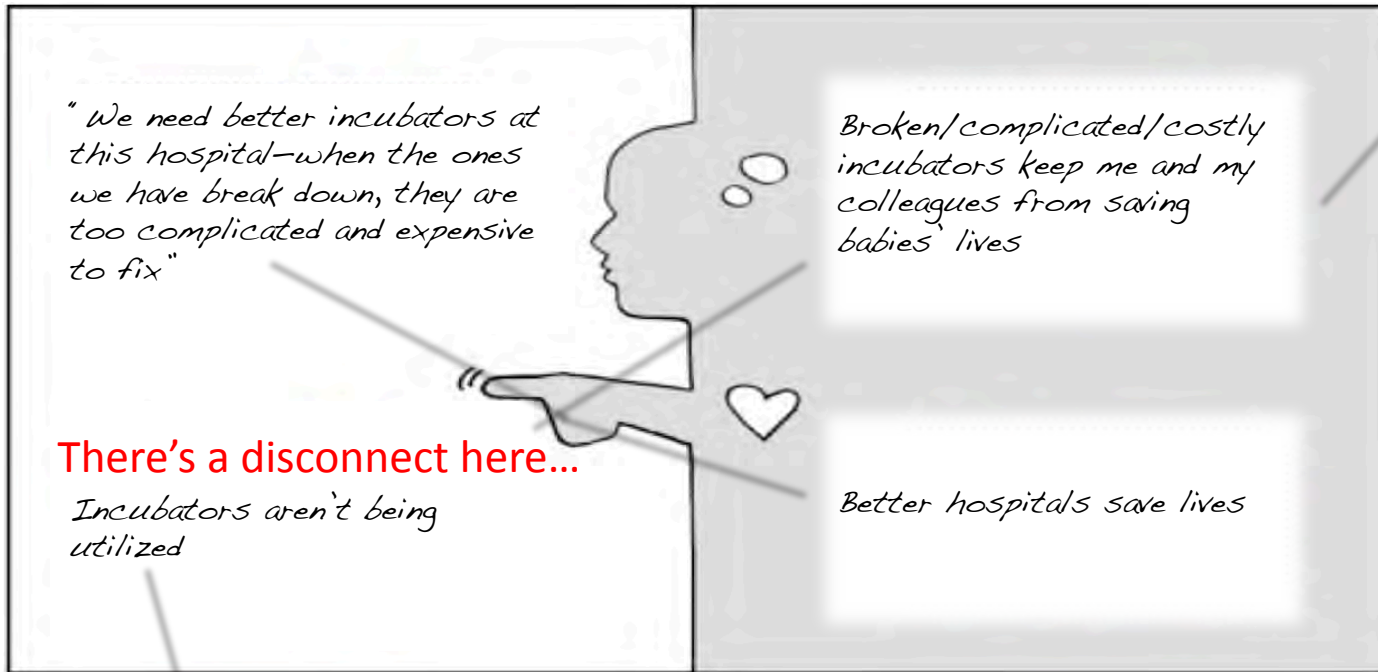


Original POV from Design Partner:

Developing world doctor needs a simpler, cheaper incubator to save premature babies' lives

Embrace's User Empathy Map: Doctor





Hmm... maybe it's the lack of babies in the hospital that keeps hospitals from saving babies' lives.

There's a disconnect here...

WHY?

"Well, most premature babies are actually born far out in rural areas and never have the chance to see a hospital."

Unexpected question:

Who is actually responsible for the well-being of prematurely born babies?

Our original POV is based upon what we heard from doctors; but it appears that doctors aren't who we are designing for—we need a new POV.

"Their mothers."

New POV:

A rural mother needs way to keep her premature baby warm at home in her own village (because she does not have access to a hospital)



Embrace Version 0.0



Embrace V 0.2



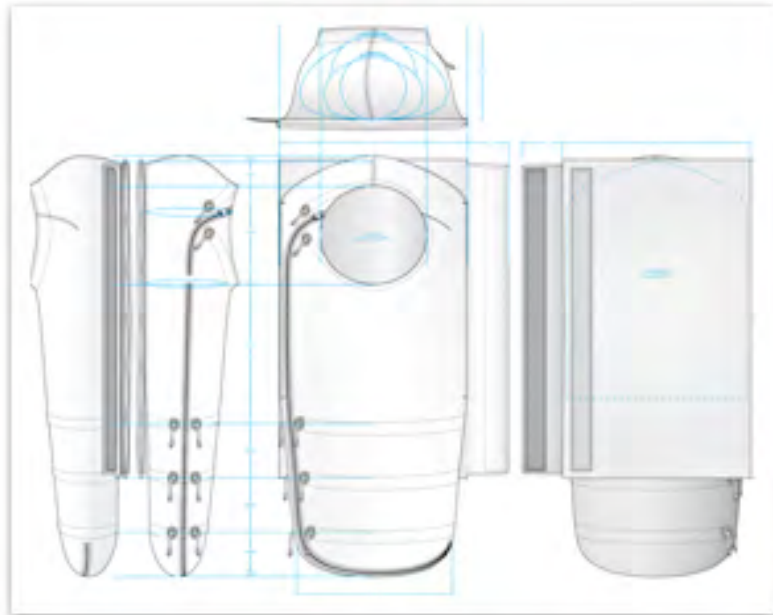
Embrace V 0.3



Embrace V 0.4



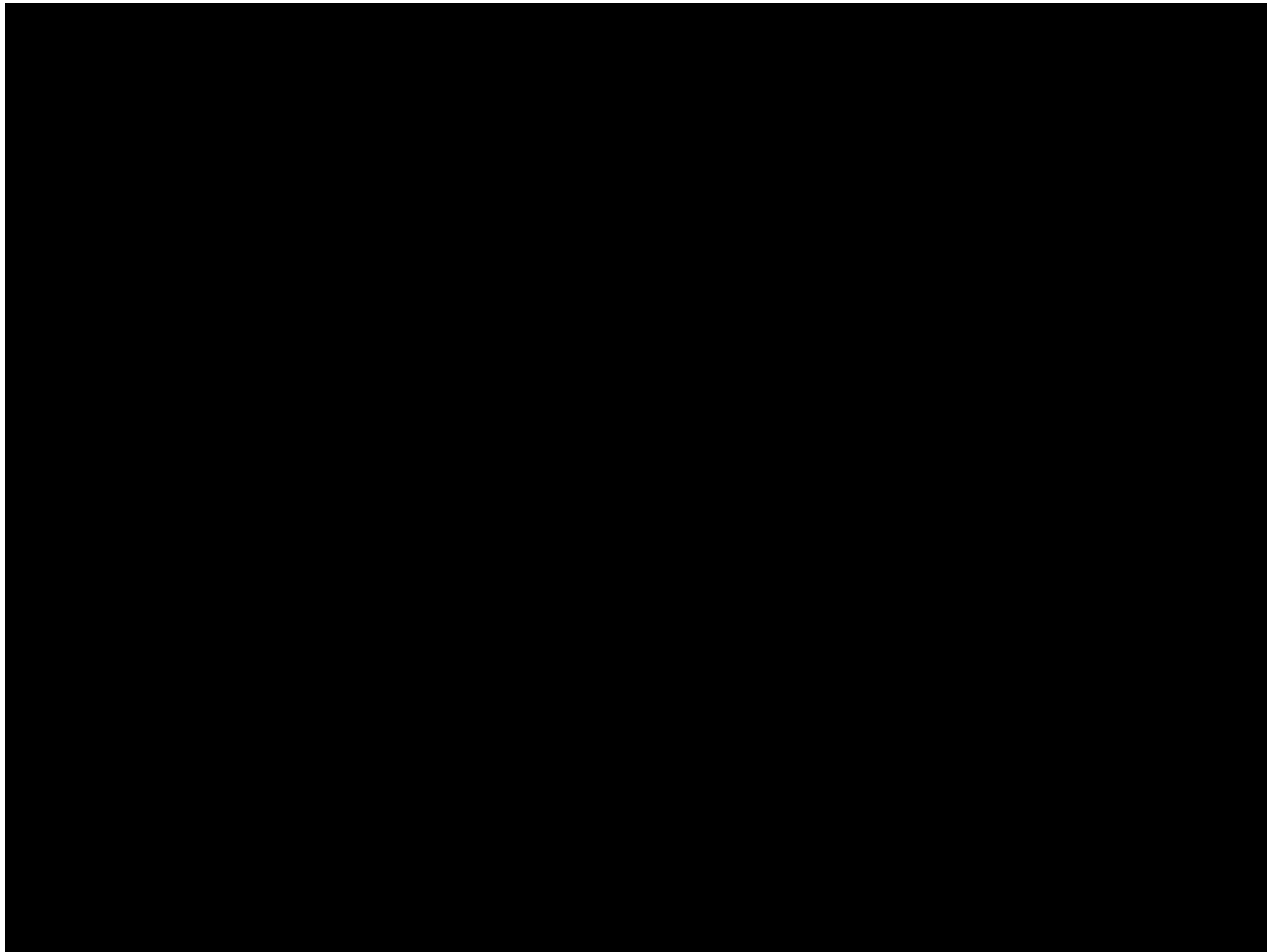
Embrace V 0.6



Embrace V 1.0

POINT OF VIEW

IS A COMPELLING
(RE)FRAMING OF THE
DESIGN CHALLENGE
BASED ON YOUR NEW
UNDERSTANDING





A designer 'needfinds' or works to understand a user's experience by learning about their lives. Empathy gaining and needfinding may be broken down into three discrete methods:

Immerse (environment)

Engage (interview)

Observe (shadow/watch)



The goal of the empathy mode is to discover gaps in between what people do and what people say they do. These gaps are the design opportunities.



What is a need?

- A physical, psychological or cultural requirement of an individual or group that is missing or not met through existing solutions.
 - Users typically cannot articulate what's missing.
 - Our process is as much like detective work as research.
- looks broad and deep
 - infers models to explain
 - identifies gaps and inconsistencies

What is an interview?



- Semi-structured
- A field guide is developed and used, but interviews are flexible and feel like conversations.
- Respondents should do 80-90% of the talking.
- Encourage storytelling, get failure and success stories.
- Ask simple or naïve questions that often start with “what, how, who, or why?” or “tell us about...”

What do you think shuts down an interview?



Brainstorming, Synthesis & Prototyping

Brainstorming Rules:

- One person at a time (try not to interrupt)
- Go for quantity
- Build on ideas of others
- Don't hold back wild ideas
- Be visual
- Stay on topic
- Defer judgment



How do we select ideas?

Post-it voting – each team member gets three votes and marks three ideas that he or she is attracted to. Independent voting allows all team members to have a voice.



Headline

Picture or Sketch



Quote/Observation

Need/Insights

Point of View

Opportunity Space

Hospital Waste: What's garbage to us is gold to others.



Quotes:

“I can’t believe how many unused syringes, catheters, vials and medicine cups get tossed everyday. They aren’t sterile once removed from their packaging, but they are still clean enough to use.”

“I wish we could be more thoughtful about how we disposed of our waste.”

Needs/Insights:

- Medical workers feel a responsibility to regulate waste.
- Medical workers are too busy to sort waste.
- Medical workers feel guilty about wasting disposable medical products.

Point of View:

Medical workers need an infrastructure designed that supports EASY recycling of medical waste in order to feel responsible about their processes in a local & global way.



How Might We? (Opportunity Space)

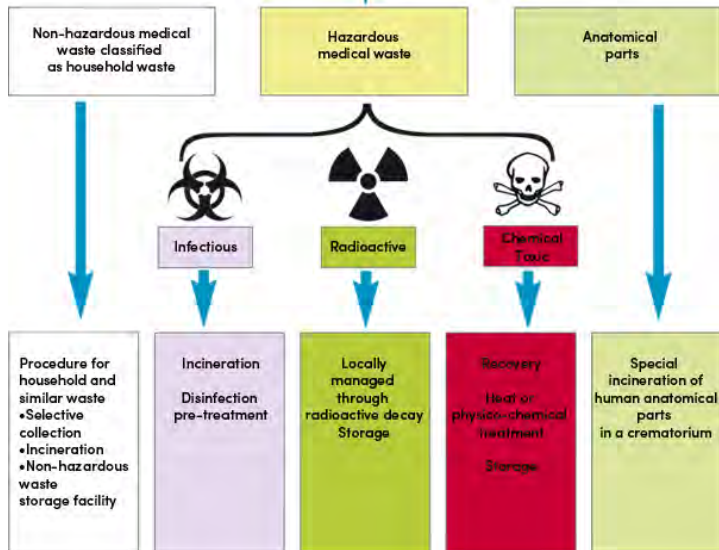
How might we design a waste management system for hospitals?

How might we provide underserved communities with medical equipment that would otherwise be thrown away?

Prototype for Empathy



Paper Prototype Example



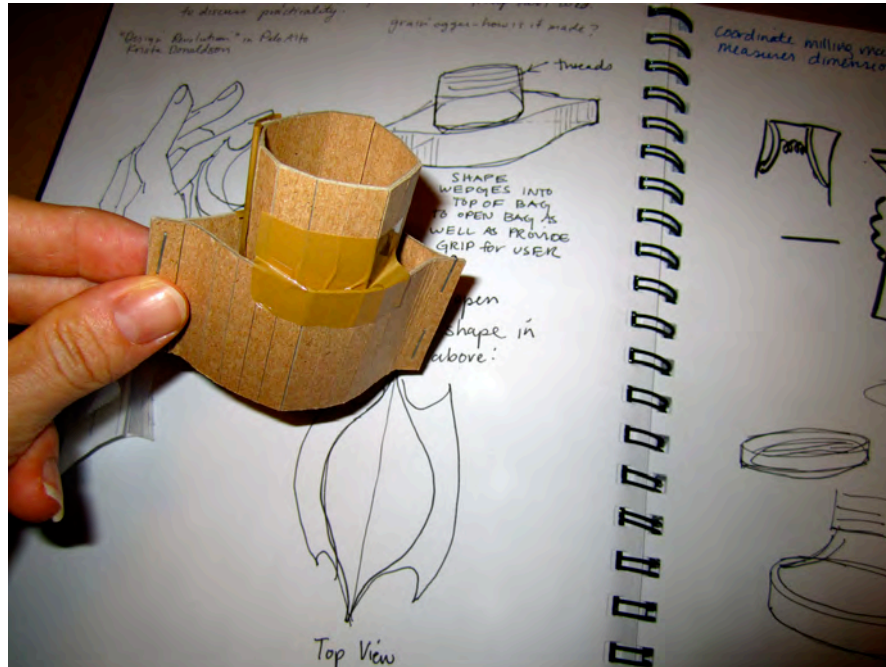
System Prototype Example

Think about what you are trying to learn with your prototypes, and create low-resolution objects and scenarios which probe those questions.



Scenario Prototype Example

Prototype for Empathy



The objective is not simply to create a mock-up or scale model of your solution concept; it is to create experiences to which users can react.



Product Prototype Example

Testing

Testing is the chance to refine our solutions and make them better.



WHY TEST?

- To refine our prototypes and solutions.
- To learn more about our user.
- To refine our POV.

