DESIGN THINKING 101

EXPLORE

IDEATE
Generate a range of crazy, creative ideas.

PROTOTYPE
Build real, tactile representations for a range of your ideas.

TEST
Return to your users for feedback.

IMPLEMENT
Put the vision into effect.

EMPATHIZE
Conduct research to develop an understanding of your users.

DEFINE
Combine all your research and observe where your users’ problems exist.

UNDERSTAND

MATERIALIZE

NNGROUP.COM
Prototype your solutions
Students Printing 3D Mannequins
Voice/Performance Sensor for simulations
Training in Virtual Reality

- More realistic images than I can manage to draw
- Training in virtual reality
- Perform procedure
- Adjust parameters for abnormalities/difficulty/skill level
- Can pause
- Opportunity to view surrounding area

[not here]
Augmented Reality in the Simulation Training Center
Holograms of the Consultation Room

device to holographically reproduce the room (holoptation) (not video)

why not? I needed it very effective

you don’t know much do you?

“pushing the trainee to interactions beyond his comfort zone”
Virtual Reality Simulation and Debriefing

Sketch your big idea, note details if necessary!

VR Simulation

Life like manikins

- bleed
- distorted

Clinic Room 1

Debrief

Anesthetic Product Designers

Trained Surgeons
Remote Augmented/Virtual Simulations

- Observing engineering graduate students
- Skin-like material + cot drum
- Reflex sensors + elastic motion
- Pain sensors + speakers + fluid banks (blood)

Evaluator can see from physician’s point of view

AR goggles

3-D printed genital-only port
Augmented Reality to view blood vessels and body parts

Utilize augmented reality to view blood vessels, organs and other parts of the body that are not simulated in current mannequins to understand how they function during a procedure.

- Adina Wollner
3D Printed parts for Mannequins

Design Problem – How can you utilize 3D printing in universities and hospitals to produce cheaper parts for mannequin simulations.

MED-Mech Club

Mechanical engineering students interested in healthcare can design CAD diagrams for STC.

VA Hospital

Hospitals can use CT Scan images to get dimensions of patients’ structures for 3D printing.

Simulation Training Center

3D Printer printing cheaper mannequin parts.
Modular 3D printed Mannequin

Expensive Mannequin! :

3D printed mannequins that are cheaper and offer more variety! :)

Head
Arms
Abdomen

Muscled arm with camera port

Pregnant abdomen
NEXT?

• Find a problem
• Propose a solution
• Prototype your solution
  1. Build a Web site
  2. Create a Wideo
HCI4H 2017 Prototypes
Logistics

• Groups of 2 (not necessarily the same pair as during the observations)

• Presentations on Week 10
  • Tue Mar 13 2018
  • Thu Mar 15 2018

• Groups and tentative project title by the end of the long weekend
  • Email to hic4h@hci.ucsd.edu by Monday night (2/19/18)
Video

- **Background, Problem & Impact**
  - Within the first two minutes:
  - Background: general information on your topic
  - Problem & Impact: explain what the problem is in society and the impact of this product in society. This information can come from anything; experience, reading, on-site visits, etc.

- **Features**
  - Two to three minutes
  - Features of product that address the problem
  - Should be a feature by feature explanation with mock-up examples

- **Conclusion & Future Work**
  - Last thirty seconds to 1 minute
  - How do you think you can evaluate in the future if your product works?
Website

- Product name
- Team members (contact information)
- Product description
- Key features
- Embedded video from above
- Website contains all information that will be needed in a Q & A section after presentation
Presentation

- 15 minutes presentation max which includes the 5 minutes video
- 5 minutes: Show video to class
- 10 minutes or less: Explain any additional information that your group wants to highlight or expand on.
- Q&A for the remaining of the time
Have Fun!