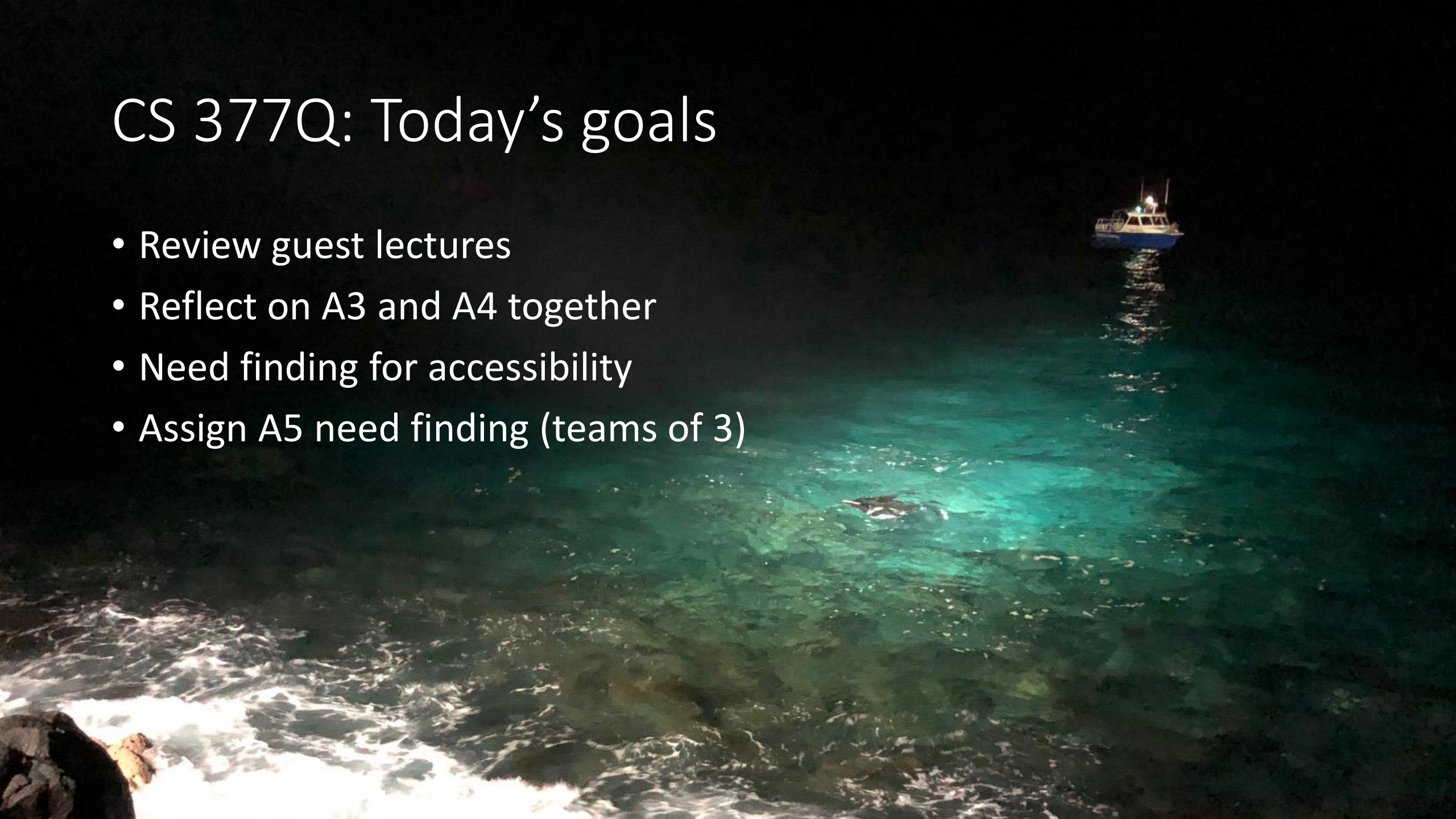


CS 377Q: Today's goals

- Review guest lectures
- Reflect on A3 and A4 together
- Need finding for accessibility
- Assign A5 need finding (teams of 3)



Stanford | Online Accessibility Program



[Home](#) [Program Services](#) [Getting Started](#) [Make My Site Accessible](#) [Tips](#) [Standards](#) [Contact Us](#)

About SOAP

The **Stanford Online Accessibility Program** provides resources for Stanford web designers, developers and content creators so that they can produce materials which are accessible to the broadest audience possible. The program achieves this through the promotion of *universal design* and *web standards* compliance.

[More About Us »](#)



Welcome to Stanford's Online
Accessibility Program (SOAP)

Guest lecture: Scaling up accessibility

- Jiatyan Chen
- SOAP, Stanford University

Importance of structural order

- Overreliance of visual in UX
- Structural order governs
 - Screen readers (saw this in A2)
 - Keyboard-driven (tab)
- Good structural order → good visual design





Neurodiversity
Awareness and
Education

Neurodiversity at
Work

Neurodiversity
Wellness

Neurodiversity
Research

Neurodiversity
Alliances



What is Neurodiversity?

Neurodiversity is a concept that regards individuals with differences in brain function and behavioral traits as part of normal variation in the human population.

The movement of Neurodiversity is about uncovering the strengths of neurodiverse individuals and utilizing their talents to increase innovation and productivity of the society as a whole.



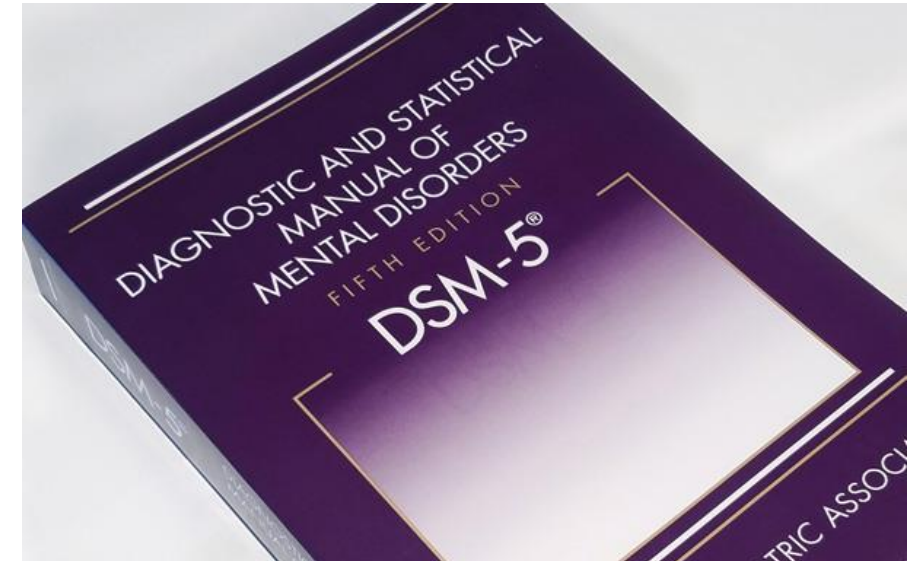
<https://www.youtube.com/watch?v=K2P4Ed6G3gw>

Autistic behaviors

- Extreme sensitivity to touch, light, and sound
- Repetitive behaviors like hand-flapping, rocking, jumping, or twirling
- Constant moving (pacing) and “hyper” behavior
- Fixations on certain activities or objects
- Specific routines or rituals (hyper-systematizing)
- Avoiding eye contact
- Doesn't respond to or express emotions appropriately
- Inability to stay on topic when talking or answering questions

Neurodiversity (autism)

- Behavioral and developmental diagnosis (no medical markers)
 - DSM-5
 - Some only diagnose selves when kids diagnosed
- What if you recognize symptoms?
 - It's a spectrum
 - E.g., socializing can be stressful
 - Designing for extreme users helps everyone
 - E.g., social media
 - People need to self-identify



(Some) Day to Day Challenges....

- Initiating and maintaining conversation
- Job interviews
- Making friends
- Following Routines in work/school
- Understanding verbal explanations/ directions
- Maintaining focus on/in work
- Sensory overload - Cities, Public Transport, Driving

Reflecting on the disability simulation

- In what way was the disability simulation effective?
- What aspects of the disability simulation were uncomfortable?
- How did you feel about getting/asking/expecting help?
- How much longer would you need to experience the disability to get over the novelty of the situation?
- Compare and contrast simulating vs. observing (socially conspicuous)
- What other disabilities could be simulated? Which would be hard to simulate?
- What about the ethics of a disability simulation?
- What is the best way we can understand the experience of people with disabilities to design for it?

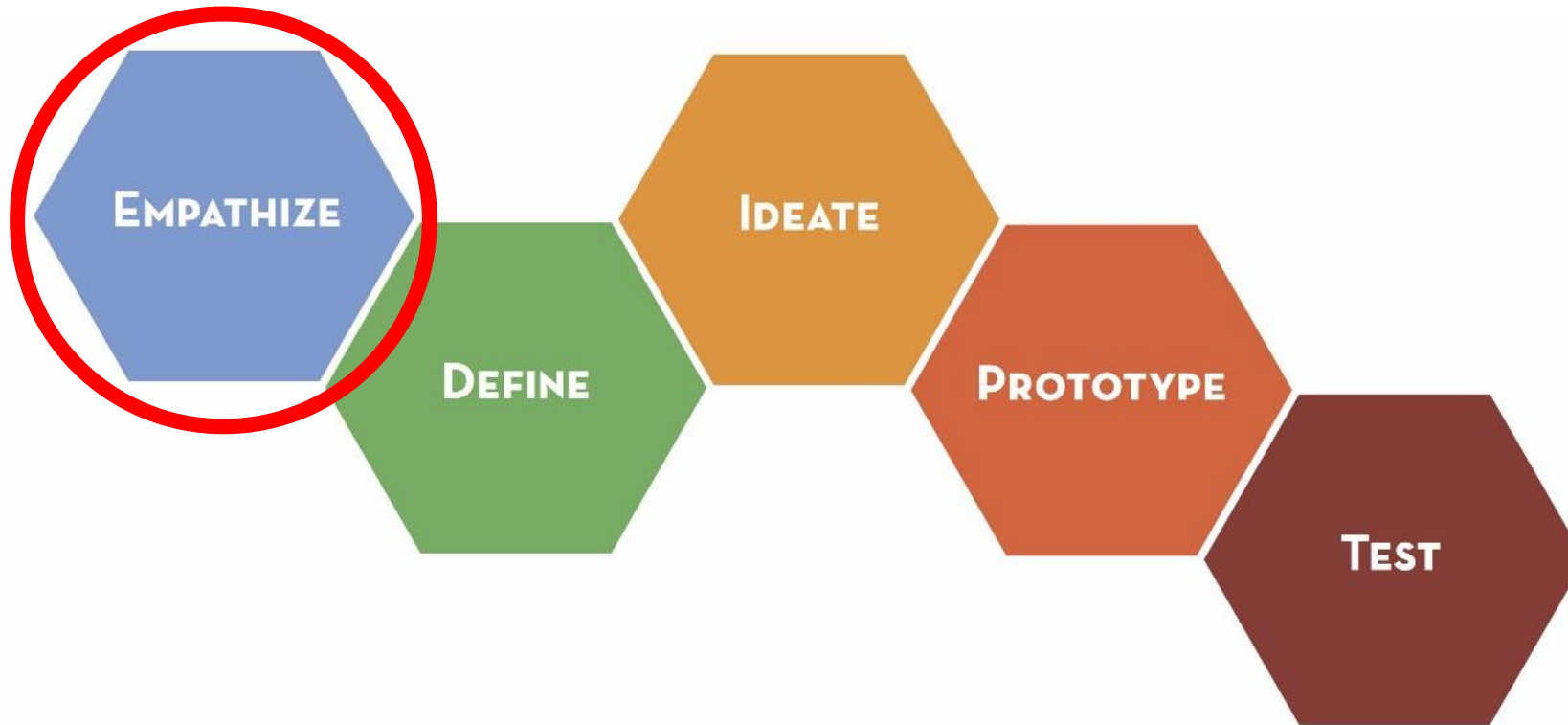
Disability simulation tools

- Web extensions
 - <https://www.funkify.org/?v=7516fd43adaa>
 - <https://chrome.google.com/webstore/detail/web-disability-simulator/olioanlbgbpmdlgjnnampnnlohigkjl>

Engaging with accessibility

- Disability simulation
- Direct need-finding with people with a disability
- Appeal to experts in the community
- People with disability in user studies
- Include people with disabilities in the design/brainstorming process (in career)


Need finding



Need finding techniques

- Direct observations
 - Look for places that could have a concentration of the activity of interest
- Interviews
- Diary study
- Goal: Understand people's lived experiences
 - What resources are important for them to accomplish their task
 - What challenges, obstacles, unmet needs to they encounter

Break

A large elephant is the central focus, with the word 'MORE' painted in white, block letters across its side. A woman in a blue top and black skirt is crouching near the elephant's front leg, and a man in a grey suit is sitting on the floor near its back leg. The background is a plain, light grey.

Addressing awkwardness/nervousness
when interviewing people with disabilities

In advance

- Pick an accessible setting for the activity
 - Go to them (mobile prototype)
 - Go to an accessible site they frequent
 - If they have to come to the lab
 - Make sure there are no accessibility obstacles
 - Think through how they can get there
- Getting informed consent, advance info
 - They may need assistance—ask in advance
 - Example: Low vision, send electronically in advance so they can use preferred technology to read

Settling in

- Make sure they are comfortable
- Make sure they have access to anything they need to participate
- Don't overlook caregiver
 - They may need to stay in the room with them

Focus on the person, not the disability

- Let the person describe their abilities to you and how they refer to them
- Instead of:
Are you blind or low vision?
- Try:
How would you describe your level of vision?

Questions: Experience-focused

- Probe for questions that get at core of experience, not disability
- Instead of:
What are your disabilities and how does that affect how you accomplish x
- Try:
What is important to you about accomplishing x and what are your experiences when trying to accomplish x

Questions: Inclusive

- Phrasing questions to also make sense to people without disabilities (avoids separating them as an “other” category)
- Instead of:
How does having low vision affect how you accomplish x
- Try:
What do you find challenging when trying to accomplish x

What if I get nervous/anxious?

- Typical unfamiliar reaction
- They're probably used to it
- Feel free to admit:

This is the first time I'm working with people with x, so feel free to let me know about anything I should be aware of.

- If you notice something that might need attention, you can ask about it.
It looks like you're leaning over to the right, would you like to reposition?
- Don't be phased by the unexpected (behaviors, visuals, etc.)
- Take a moment to recompose (leaving the room if needed)
- Working in pairs can help

Interactions

- Be open to requests they might have
- If uncomfortable, see if their caregiver can help
- Be patient—they may need more time to respond, accomplish tasks
- Ask again or rephrase if they don't seem to understand
- **Allow for extra time**
- Ask them to teach you
 - I'm not sure of the best way to do this, how would you like to accomplish x.
- Some data might be unusable

Basic etiquette guides

- People who are deaf or hard of hearing:
 - <http://www.theabilitycenter.org/docs/Deafetiquette.pdf>
- People who are blind or low vision:
 - <https://nfb.org/programs-services/meet-blind-month/courtesy-rules-blindness>
- People who use a wheelchair:
 - <https://www.karmanhealthcare.com/wheelchair-etiquette/>
- People with Autism Spectrum Disorder:
 - <https://waternoice.com/2007/05/20/autism-etiquette/>
- Do a web search of any specific disability + “etiquette” or “courtesy”

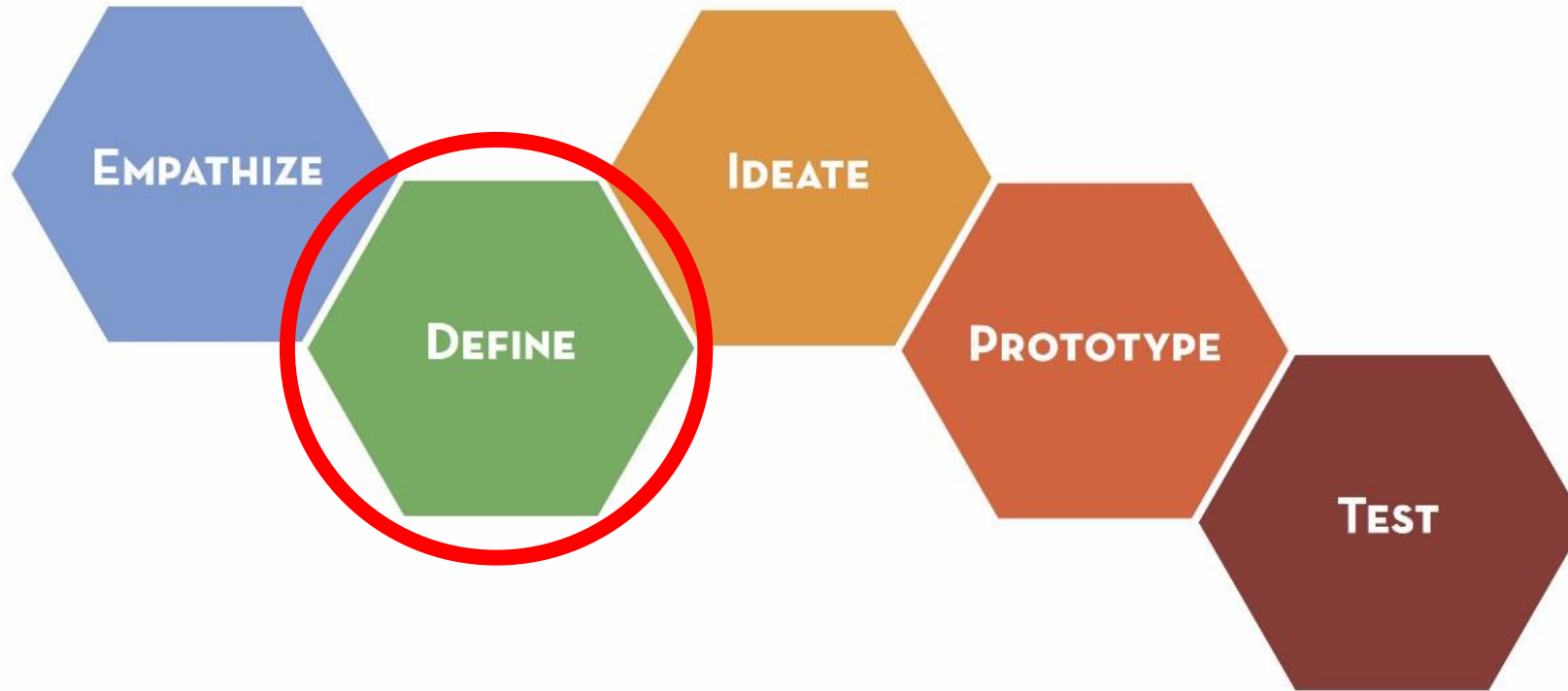
Courtesy rules of blindness

1. I'm an ordinary person, just blind. You don't need to raise your voice or address me as if I were a child. Don't ask my spouse what I want—"Cream in the coffee?"—ask me.
2. I may use a long white cane or a guide dog to walk independently; or I may ask to take your arm. Let me decide, and please don't grab my arm; let me take yours. I'll keep a half-step behind to anticipate curbs and steps.
3. I want to know who's in the room with me. Speak when you enter. Introduce me to the others. Include children, and tell me if there's a cat or dog.
4. The door to a room or cabinet or to a car left partially open is a hazard to me.
5. At dinner I will not have trouble with ordinary table skills.

Courtesy rules of blindness (cont.)

6. Don't avoid words like "see." I use them, too. I'm always glad to see you.
7. I don't want pity. But don't talk about the "wonderful compensations" of blindness. My sense of smell, touch, or hearing did not improve when I became blind. I rely on them more and, therefore, may get more information through those senses than you do—that's all.
8. If I'm your houseguest, show me the bathroom, closet, dresser, window—the light switch, too. I like to know whether the lights are on.
9. I'll discuss blindness with you if you're curious, but it's an old story to me. I have as many other interests as you do.
10. Don't think of me as just a blind person. I'm just a person who happens to be blind.

Need finding



FOCUS
ON ***ONE***
MEANINGFUL
CHALLENGE

Focus by Writing a “Point of View”

A unique, concise reframing of the problem that is grounded in user needs & insights.

Focus by Writing a “Point of View”

WE MET . . .

(user you are inspired by)

WE WERE AMAZED TO REALIZE . . .

(insight—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO . . .

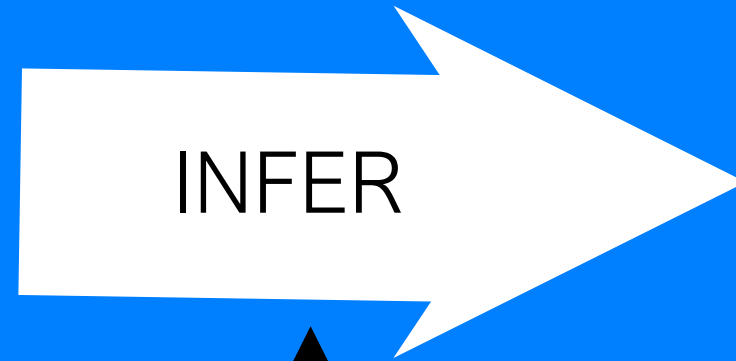
(Synthesized statement to leverage in designing solution.

NOT just a reason for the need!)

OBSERVATION



NOTICE
SOMETHING



INFER

INSIGHT



“I WONDER IF
THIS MEANS ...”



ACTIONABLE
LEARNING
ABOUT
PEOPLE

OBSERVATION + INFERENCE = INSIGHT

INFER



THE SELL:
TIDE
REMOVES
TOUGH
STAINS





We heard:

“I rarely wash my jeans, I want them to look great longer”

We observed:

Jeans on the back of a chair



Millennials care about their clothes, and that means not cleaning them

discrete observations

abstracted statement

The Perennial Objective:

**IMPROVE THE STAIN-REMOVING
PERFORMANCE OF TIDE**

The Realization:

**IT'S NOT ABOUT CLEANING. IT'S
ABOUT CARING FOR CLOTHES.**

Focus by Writing a “Point of View”

WE MET . . .

a young millennial living in SoCal

WE WERE AMAZED TO REALIZE. . .

he protects & preserves clothing by not washing them often

IT WOULD BE GAME-CHANGING TO. . .

help him care for his clothes while keeping them clean

A5: Need finding (12 points)

- Work in teams of 3 (not necessarily project teams)
- Pick a domain of disability to focus on for need finding
- Use need finding skills modified for accessibility concerns
 - Recommend working in pairs
- At formative stage, qualitative need finding most appropriate
- I think this is a key stage of the design process
- CS bias towards software prototypes, but this is mostly a design class

Focusing scope

- Disability
- Demographic
- Domain
- Context
- Problems you've experienced or observed in assignments so far or other personal experience
 - Interactive screen reader
 - Accessible mapping
- HCI Seminar: 4/19 Amanda Lazar, University of Maryland — The Role of Technology in Understanding Perspectives on Aging and Health
 - 11:30am-12:30pm, Gates B1

A5: Diversity of engagement

- Must conduct *at least* 2 different engagements with people who have a disability
 - More would be better, but challenging to access to populations with disabilities
- Direct observations (at least 2 distinct settings)
 - Places with concentration of the activity of interest
 - Sites mentioned in A1 (healthcare settings, public transit centers, senior centers, etc.)
- Interviews (at least 2 different people)
- Diary Study (at least 2 different people)
- Combination
- If ability-based design for a specific person, 2 engagements over time

Reprise: A1 Places to observe

- Magical Bridge playground, Palo Alto
<http://magicalbridge.org/palo-alto/>
- Palo Alto transit center
- Hospital/health clinic/services specific to disability
- Senior center
- High volume public places (shopping center, public squares, etc.)



A5: Process

- Document observations
 - Pictures
 - Field notes
 - Interview quotes
- Analyze for recurring themes
- Formulate Point of View statement

A5: Presentation

- Tuesday, April 23, in class
- Prepare a 5-minute presentation
 - Summarize need finding activities
 - Point of View statement and the evidence supporting it
- We will provide 5 minutes of critique (teaching staff and class)
- Opportunity to learn from each other, build on ideas
- Submit presentation slides and pointer to need finding data
- Build on this for individual Idea Pitch presentations in A6

A5: Rubric

- 5 points: Need finding methods. Were methods used and data collected appropriate for the need finding task? Did you find appropriate people to interview or situations to observe.
- 5 points: Analysis. Did the analysis of the need finding data lead to a compelling Point of View. How was the data used to support the Point of View?
- 2 points: Presentation. Did the presentation communicate what was done and how it led to the Point of View within the 5-minute time limit?

A5: Recruiting people

- Start immediately—this takes time!!!
- Support, healthcare, rehabilitation groups, senior centers
 - Stanford support groups
- Stakeholders
 - Family members, loved ones, caregivers
 - Healthcare professionals
- Personal contacts, social media
 - Interviews remotely over Skype allowed
- Resources from the class

Expert resources

- Blind and low vision:
 - Alice Turner aturner@vistacenter.org
 - Cc: Valerie Campos vcampos@vistacenter.org
- Wheelchair: Kaia Barsky recommends adaptive sports programs
 - <https://www.riekes.org/fitness-athletic-performance-classes>
 - Steven Toyoji at stoyoji@riekes.org
- Neurodiversity
 - Mary Hurlbut maryhurlbut@stanford.edu
- Assistive technologies
 - Dave Jaffe djaffe@stanford.edu

Team organizing