Design Discovery

Prof. James A. Landay
Computer Science Department
Stanford University
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* some slides based on those of Julie Stanford, Sliced Bread Design

Hall of Shame!
Aesthetically pleasing but...

Does not perform it's only function well: To make Juice.

Amazon review:
You'll get almost as much juice on the wall and counter as you do in the glass, since the juice will spray in every direction.

An example of where beauty can overpower purpose.

Outline

- Design Discovery
- Needfinding

“You Are Not the Customer”

- Seems obvious, but...
  - different experiences
  - different terminology
  - different ways of looking at the world

- Easy to think of self as typical customer
**Design Process: Discovery**

- **Needfinding**
  - characteristics of customers & tasks
  - understand client’s expectations
  - determine scope of project
  - evaluate existing practices & products

**Understanding the Customer**

- How do you learn how your customers work & live as well as interact with technology?
  - interviews, self report, logging/analytics & observation
- How do you learn how your customers think?
  - understand human cognition
  - observe users performing tasks
- Important to carry out in naturalistic settings
  - outside the lab → “ecologically valid”
  - study behaviors in real-life situations

"You Can Observe a Lot Just by Watching"
—Yogi Berra

**Design Thinking Process**

- **Empathize**
- **Define**
- **Ideate**
- **Prototype**
- **Test**

**Empathy: Feel what they feel**

- Principles
  - 1) Immers
  - 2) Observe
  - 3) Engage

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Image Courtesy Wikipedia: https://upload.wikimedia.org/wikipedia/commons/1/1e/Wmalinowski_trobriand_isles_1918.jpg

Needs:
gaps within a system

Needfinding
discovering opportunities by recognizing those gaps

Figure out the story of what and why...

And tell a new one

Pay attention to all the artifacts
Look for workarounds & hacks
“Errors” are a goldmine

Getting to WHY
Needfinding starts with basic questions of everyday experiences
But moves from
– closed ended questions to open ended questions
– “whats” to “whys”
– actions to feelings

• Engage people in their environment
• Remember that people make sense
Choosing Participants

- Representative of target users
- May be current users of a similar system
- Might also be the non-users

Approximate if Necessary
(may not be ideal, but better than nothing)

How to Interview? Have a Conversation

Anatomy of an interview

- Be human.
- Seek stories.
- Talk about feelings.
- Ask "WHY?"

Conducting An Interview

- Introduce yourself, explain your purpose
- The interview is about them, not you!
- Begin with open, unbiased questions
- Ask the question and let them answer

One in which the interviewee speaks 90% of the time.

More than data gathering. Be ready to hear something new and be changed by it.
Defer your agenda & unlock their world
Step into the interviewee’s shoes
Be curious
Have a “beginners mindset”

Administrivia
1) Studio assignments coming out now – if you haven’t gotten one talk to Sherman – attend assigned studio unless pre-cleared by staff
2) Teams will be coming on Friday
3) Join the Piazza forum to keep up with questions & announcements at http://piazza.com/stanford/fall2016/cs147

Interview
Our interviews typically share the same basic structure as a story.

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**Introduction**

- **Background** — "Tell me about what you do here."
- **Sequence** — "Walk me through your day yesterday...then what do you do next?"
- **Physical tour** — "Take me on a tour of how you build the panels..."
- **Virtual tour** — "Walk me through your sales process from the beginning..."
- **Participation** — "Can you show me exactly how you prepare a bid for a customer?"
- **Exhaustive List** — "What are all the different municipalities where you sell?"

**Rising Action**

- **Naïve Outsider Perspective** — "I'm not from Southern California, tell me how the housing market works here."
- **Quantity** — "How many of your competitors fall into that category?"
- **Changes Over Time** — "How are things different than they were a year ago?"
- **Tasks and organizational structures** — "Can you draw me a diagram of the organizational chart of your company?"
- **Native Language** — "Why do you call your office 'the command post'?"
- **Reflecting Back** — "So, what I hear you saying is... is that right?"

**Climax**

**Denouement**

**Reflection**

**Wrap-Up**
Interview Questions – Stories & Emotions

- **Peer Comparison** – “Do your colleagues share your sales techniques?”
- **Other Viewpoint Comparison** – “What would other solar owners think about that?”
- **Clarification** – “… and when you say ‘I’m a closer,’ what do you mean exactly?”
- **Characterization and Comparison** – “Could you characterize your sales style and compare it to Mike’s?”
- **Success and Failure** – “Describe your most successful sales call. Now tell me about a sales call that was an absolute disaster.”

Our interviews typically share the same basic structure as a story.

- **Introduction**
  - Build Rapport
  - Evoke stories
- **Rising Action**
- **Climax**
- **Denouement**
- **Reflection**
- **Wrap-Up**

Interview Questions – Reflection

- **Point to Their Reaction** – “Why do you roll your eyes when you say that?”
- **Suggestive Opinion** – “Some people have very negative feelings about emotional, non-technical sales pitches in the solar industry. What are your feelings about it?”
- **Contradictions** – “You tell me you can sell ice cubes to Eskimos but you also tell me you have a deep concern for your customers, how do these two work together?”
Common Pitfalls – Suggesting Answers

“How was that decision reached? Was there a big meeting? Did your boss decide without you?…”

• Let the informant paint his or her own categories of meaning
• Technique: Avoid suggested answers
• Trust the question – ask it and stop talking;

Let there be silence

Common Pitfalls – You are talking too much!

“Because I spent last summer working on my parents roof I noticed how hard it was to keep things from falling off and I saw that you guys have lots of complicated equipment with wires and breakable panels and mechanical stuff going on all at the same time so I bet you find that safety training is hard to keep top of mind for your employees.”

• Ask succinct questions
• Minimize the number of your clarifications, conditionals, and rationalizations

Common Pitfalls – Hypothetical Situations

“What if I designed something that wasn’t as round and soft and annoying as your current thing and instead bounced up and down. Would that work for you?”

“What about your friends? What would they do?”

• Ask about events & things that actually happened/exist
• Focus on getting the user’s point of view, not what they think someone else might do/think

There is More Than One Way to Ask “Why?”

• Tell me more about that
• Tell me what you mean you say XXX
• … [last phrase the person said]?

Types of Questions to Avoid

• What they would do / like / want in hypothetical scenarios
• How often they do things
• How much they like things on an absolute scale
• Avoid binary questions
• “Tell me a story about yourself”
Good Questions

(a little bit of)
Silence is Golden

Follow up

• Adjust your questions to their previous answers
• Ask questions in language they use / understand
• Pick up on & ask for examples
• Be flexible

Extreme Users

Behaviors & Feelings are amplified
Help you notice nuances & find insights

Examples for travellers
- family w/ young children
- fearful passenger
- wheelchair user
- commuter

What are the gems?

• You've uncovered a surprise or found what is missing

• You can explain why people do unusual things

• You want to tell others about what you have learned
Share with your team

- Stories
- Photos
- Sketches
- Quotes

Getting Started on Unpacking

debrief after each interview on stickies
one color per participant, take notes with a sharpie

Using the Data Collected in the Field

- Figure out what is important
- Affinity diagramming
  - group info & find relations between groups
  - Post-Its on large surfaces
  - haptic UI
  - brainstorming
  - immersive
  - persistent
  - also used for creating web info architecture

Users: Unique or One of Many?

“Take the attitude that nothing any person does is done for no reason; if you think it's for no reason, you don't yet understand the point of view from which it makes sense.

Take the attitude that nothing any person does is unique to them; it always represents an important class of customers whose needs will not be met if you don’t figure out what’s going on.”

(p. 63, Contextual Design)

Your goal:

a point of view

Flare, then focus.
Caveats of User-Centered Design

- Politics
  - "agents of change" can cause controversy
  - important to get buy-in from all those involved
- Customers are not always right
  - cannot anticipate new technology accurately
  - job is to build a system customers *will want*
  - not system customers say they want
- Design/observe forever without prototyping
  - rapid prototyping, evaluation & iteration is key

Further Reading

- Books
  - *User and Task Analysis for Interface Design* by Joann T. Hackos, Janice C. Redish
  - *The Inmates are Running the Asylum* by Alan Cooper
  - Don Norman, *The Design of Everyday Things*
  - Goodman, Kuniavsky, & Moed, *Observing the User Experience*
- Institute of Design at Stanford
  - lots of online materials at [http://dschool.stanford.edu](http://dschool.stanford.edu)

Summary

- Know thy user & involve them in design
- Needfinding
  - build empathy with customers
  - listen to them to discover interesting insights

Next Time

- Lecture
  - 1) Define: Unpacking the needfinding results to better define the problem/domain of interest
  - 2) Ideate: How might we solve the problem?
- Readings
  - d’school’s *Empathy Fieldguide*
  - *Tips for Working Successfully in a Group* by Randy Pausch
- Watch
  - ABC News Nightline *IDEO Deep Dive*, July 1999 (22 minutes)
  - Bonus video: ABC News, *IDEO Design Thinking*, January 2013 (60 minutes)