Design Discovery

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Autumn 2017
September 27, 2017
* 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, using the juice will spray in every direction.

An example of where beauty can overpower purpose.

Outline

• Design Discovery

• Needfinding

Design Process: Discovery

• characteristics of customers & tasks (AKA Needfinding)
• understand client’s expectations
• determine scope of project
• evaluate existing practices & products
“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

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”

“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) Immerse
  2) Observe
  3) Engage

 Bronislaw Malinowski Learning From Trobriand Islanders (1914)
Technique: Active Observation

Observe & interview without knowing what you are looking for

Facts

Inferences

Assumptions

Needs

gaps within a system

Needfinding
discovering
opportunities
by recognizing
those gaps

Figure out the story of what and why...

Desire line

Look for workarounds & hacks
“Errors” are a goldmine

Pay attention to all the artifacts

And tell a new one
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

A needfinding interview is …

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.

Interview

Good interviews require a broad set of questions – but be prepared to veer.

Defer your agenda & unlock their world

Step into the interviewee’s shoes
Be curious
Have a “beginners mindset”

Interview

Adapted from Michael Barry

Interviews typically share the same basic structure as a story.

Closed-ended questions / What
Open-ended questions / Why

What Did She Do Wrong?

Adapted from Michael Barry

Climax
Explore emotions
Reflection
Wrap-Up

Evolve stories
Environment

Introduction
Build Rapport

Background
Intro
Interview Questions – Background

- **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 customer bid?”
- **Exhaustive List** — “What are all the different municipalities where you sell?”

Interview Questions – Build Rapport

- **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 last year?”
- **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?”

Adapted from Michael Barry
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.”

Follow up and pull that thread

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

Interview

Adapted from Michael Barry

I heard you say that you were reluctant to talk to John… tell me more about that.

Closed-ended questions / What

Open-ended questions / Why

Intro

Build Rapport

Rising Action

Explore emotions

Evolve stories

Demolish

Reflection

Wrap-Up

Background

Denial

Autumn 2017
Choosing Participants

- Representative of target users
- May be current users of a similar system
- Might be the non-users – but could be in future
- Interview people on both sides of an interaction
- Experts are good for background but are not a substitute for users
- Consider interviewing extreme users
- Typically interview 6-12 people individually for 30-90 min

Where to Recruit

- Depends on target audience...
- Nextdoor.com
- Facebook
- Craig’s List
- Local email lists (e.g., parents, etc.)
- Snowball sampling – when you recruit someone ask them to pass it on to others that they think would be good.
- What’s worked for you??
**Administrivia**

1) Studio assignments coming out Wed night
   - attend assigned studio unless pre-cleared by staff
2) Teams will be arranged on Friday night
3) Join the Piazza forum to keep up with questions & announcements at http://piazza.com/stanford/fall2017/cs147
4) CURIS Poster Session, Thursday (tomorrow), 4:30-6 on Packard Lawn (free food!)

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**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 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
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
Interview a Stranger
2 minutes and then switch
Find a good story from their summer

What are the gems?
• You’ve uncovered a surprise/found what is missing
• You can explain why people do unusual things
• You want to tell others about what you learned

Getting Started on Unpacking

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

Extreme Users

Behaviors & Feelings are amplified
Help you notice nuances & find insights
Examples for travellers
- family w/young children
- fearful passenger
- wheelchair user
- commuter

Share with your team
• Stories
• Photos
• Sketches
• Quotes

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
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)

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 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, Kuniaisky, & Moed, Observing the User Experience

- Institute of Design at Stanford
  - lots of online materials at 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 (13 minutes)