

dt+UX: DESIGN THINKING FOR USER EXPERIENCE DESIGN + PROTOTYPING + EVALUATION

Design Discovery

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2018
September 26, 2018

* some slides based on those of Julie Stanford, Sliced Bread Design

Hall of Fame or Shame?

http://www.dol.wa.gov/

Hall of Fame or Shame?

http://www.dol.wa.gov/

Hall of Fame!

http://www.dol.wa.gov/

- + UI is clean & uncluttered
- + Less important info (tweets, videos) below the fold
- + Multiple language options are clearly indicated
- + Similarity & connectedness gives strong aesthetic & indicates navigation
- "How can we help you today?" wastes real estate
- A bit busy overall

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

Empathy: Feel what they feel

Principles

- 1) Immerse
- 2) Observe
- 3) Engage

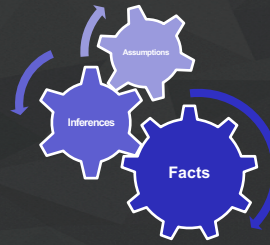
http://cd.stanford.edu/courses/cs147/2016/ai/reading/FIELDGUIDE-Screen-DTBC-March-2015-V2.pdf

Bronislaw Malinowski Learning From Trobriand Islanders (1914)



Image courtesy Wikipedia. File:upload.wikimedia.org/wikipedia/commons/1/16/Wmalinowski_trobriand_isles_1918.jpg

Technique: Active Observation



Observe & interview *without knowing what* you are looking for



Needs gaps within a system



Needfinding discovering opportunities by recognizing those gaps



Figure out the story of **what** and **why**...
Desire line



And tell a new one


Pay attention to *all* the artifacts

Look for workarounds & hacks

“Errors” are a goldmine

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

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


Autumn 2018 Experience Design, Prototyping & Evaluation

A needfinding interview is....



One in which the interviewee speaks 90% of the time.
Be ready to hear something new and be changed by it.

Autumn 2018




Defer your agenda & unlock their world

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

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

Interview

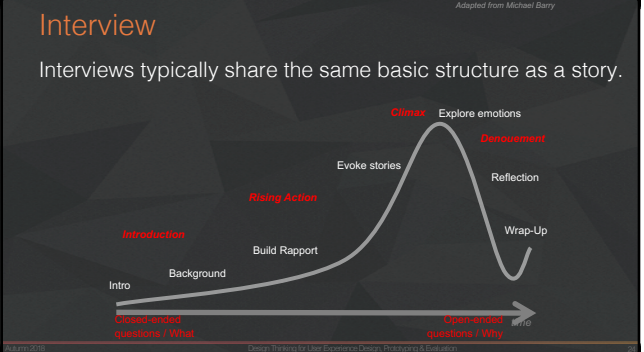
Good interviews require a broad set of questions – but be prepared to veer.



Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

Interview

Interviews typically share the same basic structure as a story.



The diagram shows a story arc with the following stages: Intro, Background, Introduction, Build Rapport, Rising Action, Evoke stories, Climax (Explore emotions), Detachment, Reflection, Wrap-Up, and Outro. Below the arc, it indicates that the start of the interview involves 'closed-ended questions / What' and the end involves 'open-ended questions / Why'.

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

What Did She Do Wrong?

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

Interview

Adapted from Michael Barry

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

A Better Introduction...

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

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?”

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

Interview

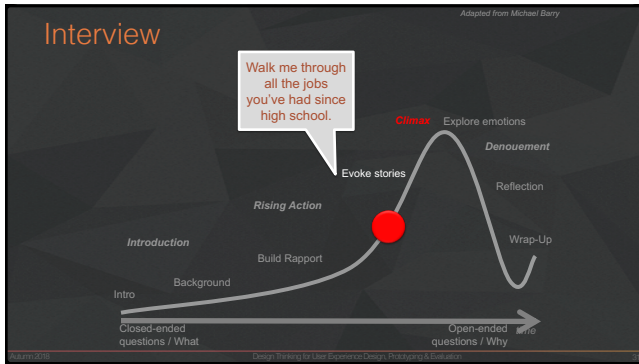
Adapted from Michael Barry

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

Interview Questions – Build Rapport

- **Naive Outsider Perspective** — “I’m not from LA, how does the housing market work here?”
- **Changes Over Time** — “How are things different than they were last year?”
- **Reflecting Back** — “So, what I hear you saying is.... is that right?”
- **Quantity** — “How many of your competitors fall into that category?”
- **Tasks and organizational structures** — “Can you draw me a diagram of your org. chart?”
- **Native Language** — “Why do you call your office ‘the command post’?”

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation



Interview Questions – Stories & Emotions

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

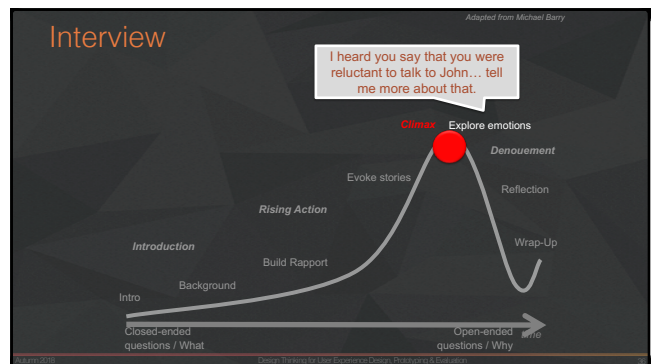
Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation

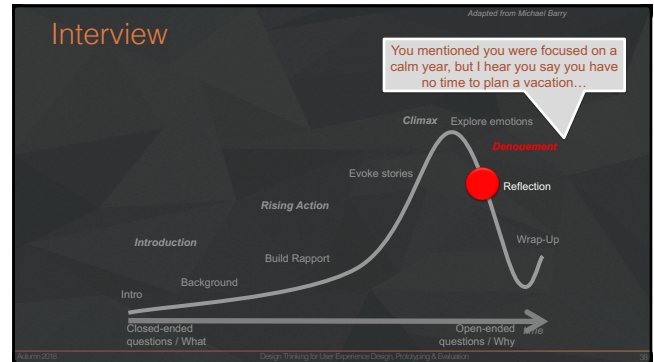


Follow up and pull that thread

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

Autumn 2018 Design Thinking for User Experience Design, Prototyping & Evaluation





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 sales pitches. 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?”



A few last tips

- Remember that people make sense (to themselves)
- Your job is to be able to **explain how they make sense** – get to the bottom of things & understand the what & why
- Create a discussion guide with lots of questions, but be ready to veer to pull threads

Choosing Participants

- Representative of target users (current or future users)
 - usually not Stanford students
- Interview people on both sides of an interaction
- Experts good for background but aren't substitute for users
- Consider interviewing *extreme* users
 - e.g., airport design: flies every week vs. never flown
- Typically interview 6-12 people individually for 30-90 min
- **Note:** interviewing children may require permission

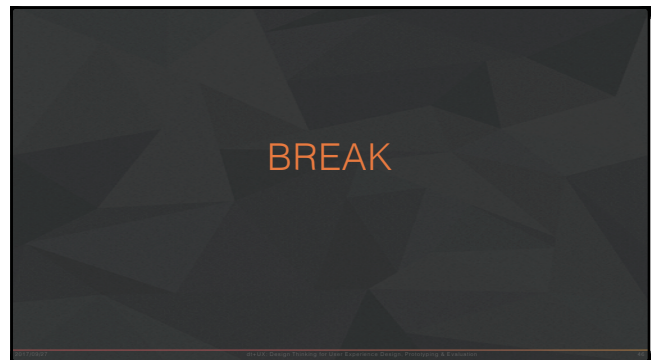
Where to Recruit

- Depends on target audience...
- Nextdoor.com
- Facebook / wechat groups
- Craig's List
- Local email lists (e.g., parents, etc.)
- Snowball sampling – when you recruit someone ask them to pass it on to others 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
 - Inform your TA if you will not be there this Friday (e.g., GHC attendees)
- 2) Teams will be arranged on Friday night
- 3) Join the Piazza forum to keep up with questions & announcements at <http://piazza.com/stanford/fall2018/cs147>
- 4) CURIS Poster Session, Friday, 3-5 pm on Packard Lawn (free food!)
- 5) Make sure to check course web site: cs147.stanford.edu

| Day | Date | Lesson | Reading | Out | Out | Studio |
|-----|-----------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----|------------------|
| Mon | 9/25/2018 | Introduction (PPT) | | | | |
| Wed | 9/27/2018 | Design Dictionary (PPT) | Tom Kelley, The Perfect Business, Excerpt from The Art of Innovation: Individual & Open, Commercial Design, Ch. 3 (optional) Holstad & Ryan, Commercial Design, in: The Philosophy of Design: Computer Innovation (2nd Ed.) | #1 Read/Think (30min) | | Design Project 1 |
| Mon | 10/1/2018 | Define (PPT) | 1) d.school's Empathy Framework 2) Top 10 Working Successfully in a Group by Randy Pausch Watch: ABC News Nightline (2012) Deep Dive, July 1919 (22 minutes) Bonus video: ABC News, 60 Minutes, 2012 Design Thinking, January 2013 (13 minutes) | | | |



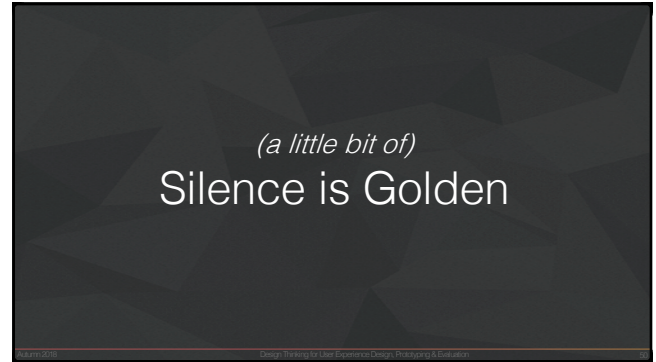
Common Pitfalls – Suggesting Answers




"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
- Avoid suggesting answers
- Trust the question – ask it & stop talking

Let there be silence



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?”

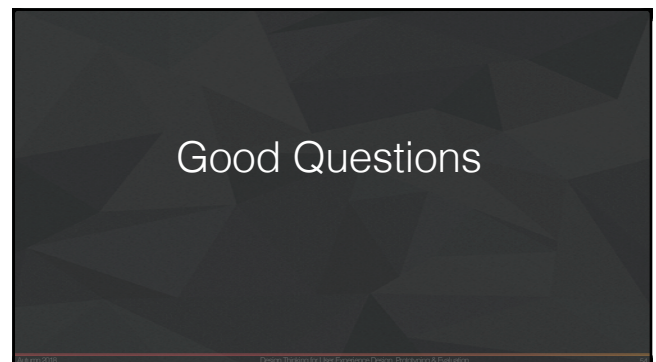
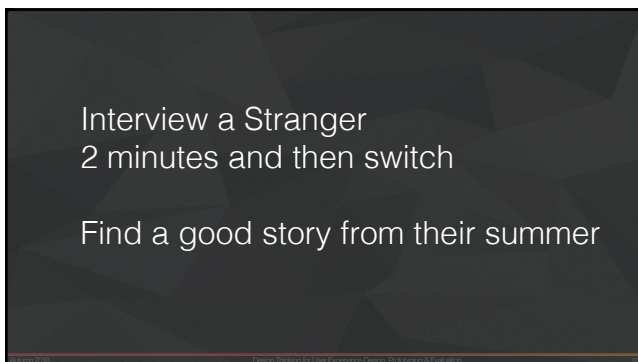
“What about your friends? What would they do?”

- 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 when you say XXX
- [last phrase the person said]?



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

Share with your team

- Stories
- Photos
- Sketches
- Quotes

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*)

Ethical Considerations in Needfinding

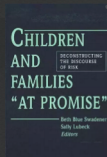
Testing/fieldwork can be coercive if there is a power imbalance (e.g., in under resourced communities)



People may feel no option but to speak to you or give you their time even though they may not get anything of value in return.

Ethical Considerations in Needfinding

Testing/fieldwork can be coercive if there is a power imbalance (e.g., in under resourced communities)



"the 'at-risk' label is highly problematic and often implicitly racist and classist... [it] locates problems in individuals, families, and communities, rather than in institutional structures that create and maintain inequality."

Ethical Considerations in Needfinding

Testing/fieldwork can be coercive if there is a power imbalance (e.g., in under resourced communities)



"When the interviewer is a foreign researcher requiring a translator, the bias towards the interviewer's artifact increases to 5x."

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

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

8

Ethical Considerations in Needfinding

Testing/fieldwork can be coercive if there is a power imbalance (e.g., in under resourced communities)



“the ‘at-risk’ label is highly problematic and often implicitly racist and classist... [it] locates problems in individuals, families, and communities, rather than in institutional structures that create and maintain inequality.”

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

9

Ethical Considerations in Needfinding

Testing/fieldwork can be coercive if there is a power imbalance (e.g., in under resourced communities)



“When the interviewer is a foreign researcher requiring a translator, the bias towards the interviewer’s artifact increases to 5x.”

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

8

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

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

9

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
 - *The Design of Everyday Things* by Don Norman
 - *Observing the User Experience*, Goodman, Kuniavsky, & Moed
- Institute of Design at Stanford
 - lots of online materials at <http://dschool.stanford.edu>

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

8

Further Reading on Ethical Issues With Community-based Research

- Children and Families “At Promise”, Beth B. Swadener, Sally Lubeck, editors, SUNY Press, 1995, <http://www.sunypress.edu/nr-2023-children-and-families-at-promise.aspx>
- “Yours is better!” Participant Response Bias in HCI, Proceedings of CHI 2012, by Nicola Dell, et al., <http://research.microsoft.com/en-us/projects/163716/CHI2012-Dell-ResponseBias-prcc.pdf>
- “Strangers at the Gate: Gaining Access, Building Rapport, and Co-Constructing Community-Based Research”, Proceedings of CSCW 2015, by Christopher A. Le Dantec & Srah Fox, <http://dl.acm.org/citation.cfm?id=2675133.2675147&coll=dl&dl=ACM>
- “Imperialist Tendencies” blog post by Jan Chipchase, <http://janchipchase.com/content/essays/imperialist-tendencies/>
- “To Hell with Good Intentions” by Ivan Illich, speech to the Conference on InterAmerican Student Projects (CIASP), April 20, 1968, http://www.swarat.org/illich_hell.htm

9/27/2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

9

Summary

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

Autumn 2018

Design Thinking for User Experience Design, Prototyping & Evaluation

10

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)

Autumn 2018

dt+UX Design Thinking for User Experience Design, Prototyping & Evaluation

11