

# Designing & Prototyping Smart Applications

ViaX James Landay CS Summer Camp

Professor James A. Landay

Stanford University

Summer 2018

James Landay CS Summer Camp: Designing & Prototyping Smart Applications

## Design Discovery

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Summer 2018

July 23, 2018

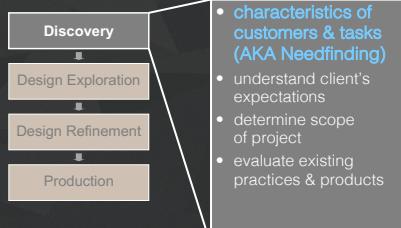
\* some slides based on those of Julie Stanford, Sliced Bread Design

### Outline

- Design Discovery
- Needfinding



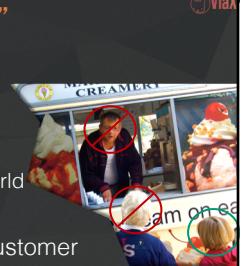
## Design Process: Discovery



## "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



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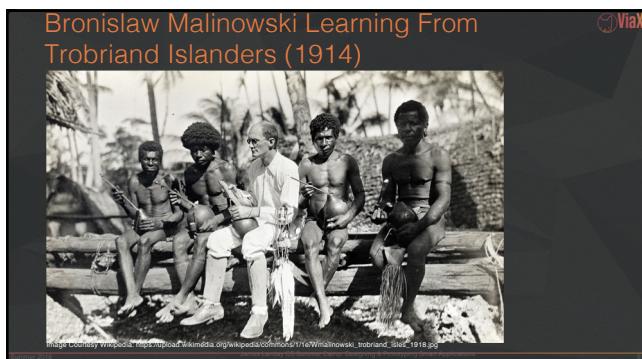
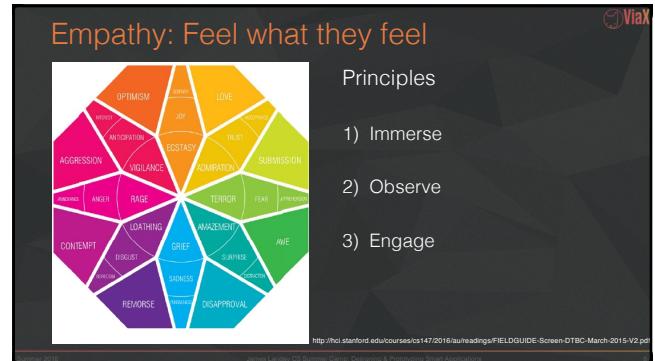
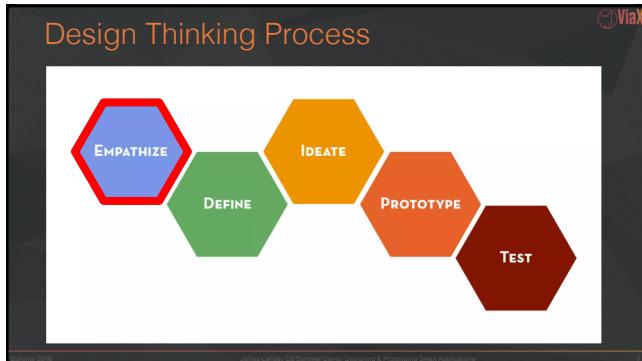
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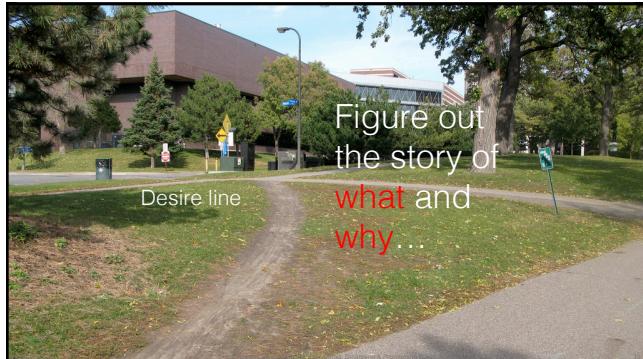
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Pay attention to *all* the artifacts  
Look for workarounds & hacks  
“Errors” are a goldmine

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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

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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.

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Defer your agenda & unlock their world  
Step into the interviewee’s shoes  
Be curious  
Have a “beginners mindset”

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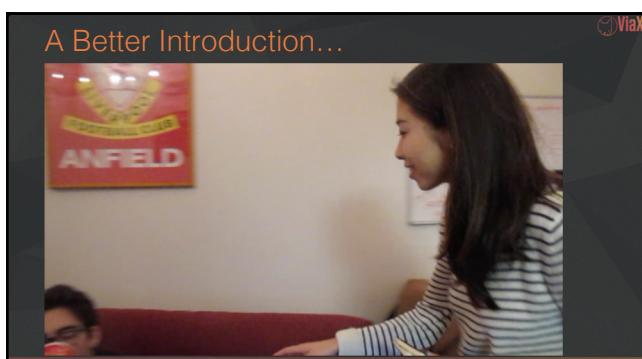
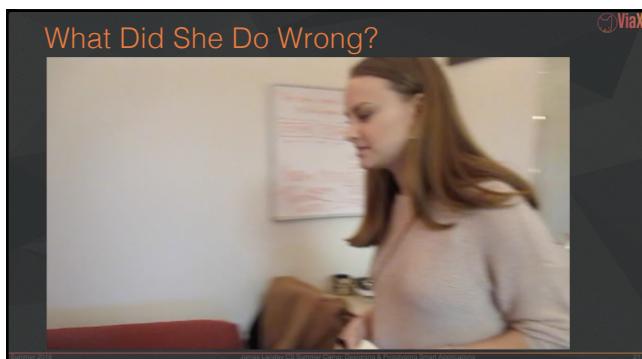
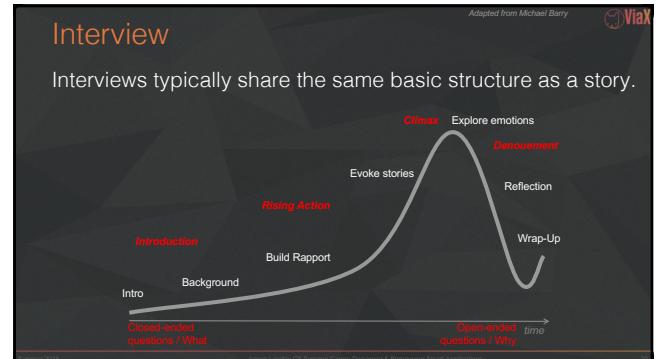
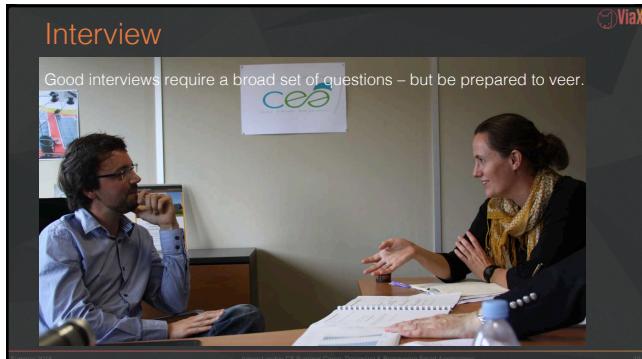
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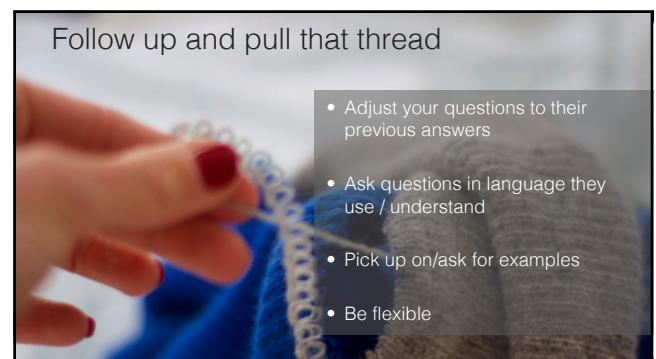
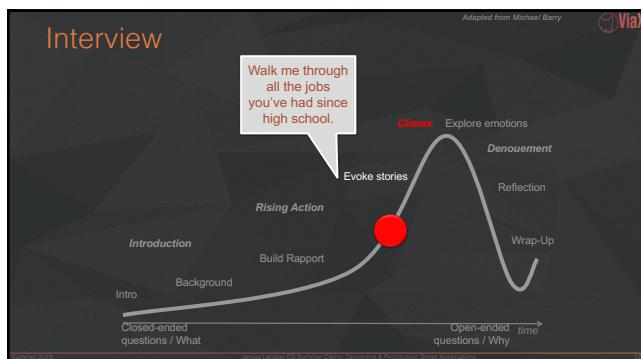
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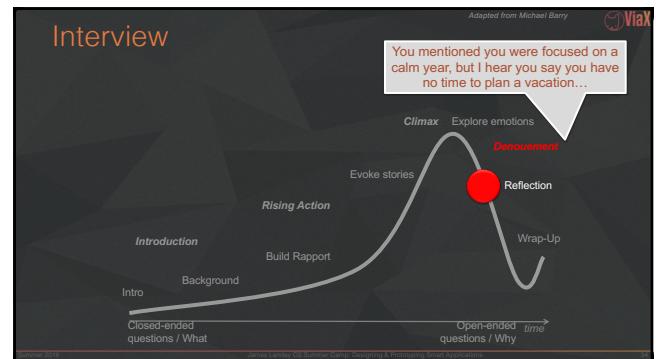
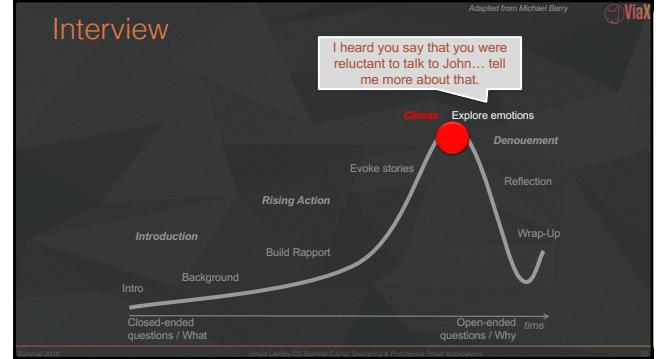
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Interview Questions – Reflection

- 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?”

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## 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)
- Interview people on both sides of an interaction
- Experts good for background but aren't a substitute for users
- Consider interviewing *extreme* users
- Typically interview 6-12 people individually for 30-90 min
- **Note:** interviewing children may require permission from the school

## Where to Recruit

- Depends on target audience...
- Facebook / wechat groups
- 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...



## 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]?

Good Questions



(*a little bit of*)  
Silence is Golden

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

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## 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)



<http://overheadforceandgettheATM.html#bottom>

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.



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[http://research.microsoft.com/pubs/183778/CH2012\\_Del\\_ResponseBias.pdf](http://research.microsoft.com/pubs/183778/CH2012_Del_ResponseBias.pdf)

"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



## Summary

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