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Define

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2026
September 28, 2026

Slides adapted from d.leadership Define + Ideate slides (https://dschool.stanford.edu/groups/dleadership/wiki/59f08/dleadership_2015.html)
Additional resources from bootcamp bootleg (https://hci.stanford.edu/courses/cs147/2021/wi/readings/bootcamp_bootleg.pdf)

Hall of Fame or Shame?



The screenshot shows the California DMV website. The header includes the CA logo, DMV logo, and navigation links for REAL ID, Online Services, Translate, MyDMV, and a search bar. Below the header is a navigation menu with links for Vehicle Registration, Driver's License & ID Cards, Vehicle Industry Services, Driver Education & Safety, Appointments, and Locations. The main banner features a large image of a man holding a smartphone and a California REAL ID license, with the text "UPGRADE TO REAL ID" and "Are you REAL ID ready? APPLY TODAY". Below the banner is a section titled "Skip the Visit. Use Our New Service Advisor!" with a list of services: registration, driver's license, replacement title, address change, and more. A "Visit Service Advisor" button is present. The bottom section is divided into three columns: "Registration Renewal" with a "Renew" button, "Online Services" with a "See all online services" button, and "Go Paperless" with a "Get paperless notices" button. Each column has a corresponding video thumbnail with a play button and a duration of 0:15.

<http://dmv.ca.gov>

California DMV

dmv.ca.gov/portal/chat-bot/

Miles

Hello, I'm Miles, the California DMV's Virtual Assistant. I'm here to answer general DMV related questions. If I cannot answer your question, type or say "agent" and you will be prompted to chat with an agent during normal business hours, Monday, through Friday 8 a.m.-5p.m.

Online Services

Vehicle or Vessel Registration

Driver's License/ID Card

Moving to California?

REAL ID

Occupational Licensing

Start Chat

Send

Save Chat

Language

End Chat

REAL ID

Online Services

Translate

MyDMV

Search here...

Vehicle Registration

Driver's License & ID Cards

Vehicle Industry Services

Driver Education & Safety

Appointments

Locations

UPGRADE TO REAL ID

Are you REAL ID ready?

APPLY TODAY

Feedback

Skip the Visit. Use Our New Service Advisor!

• registration • driver's license • replacement title • address change • more!

Visit Service Advisor

Registration Renewal

Skip the line and renew your vehicle registration online at your fingertips.

Renew →

Online Services

Most DMV business can be started and completed online, saving you time and money.

See all online services →

Go Paperless

Get your DL/ID card and vehicle registration renewal notices electronically.

Get paperless notices →

Take care of it the easier way: online!

Completing your vehicle registration has never been easier!

0:15

Skip the trip to the DMV office!

Skip the trip to the DMV office!

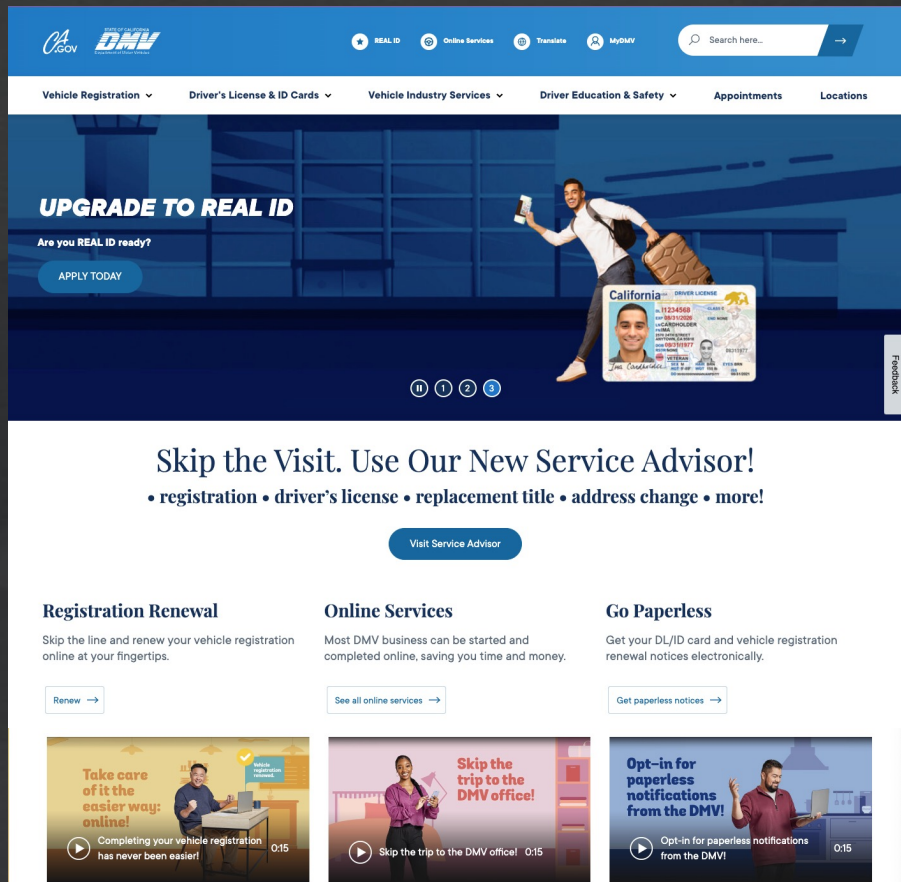
0:15

Opt-in for paperless notifications from the DMV!

Opt-in for paperless notifications from the DMV!

0:15

Hall of Fame!



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

- + UI is clean & uncluttered (lots of whitespace)
- + Most common task in white bar near top
- + Less important info below *fold*
- + Language translation at top
- + Contrast of white bar indicates navigation
- Large wasted first read: "UPGRADE TO REAL ID". And large image! (rotates among 3)
- Have to click through menus to get to tasks

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Define

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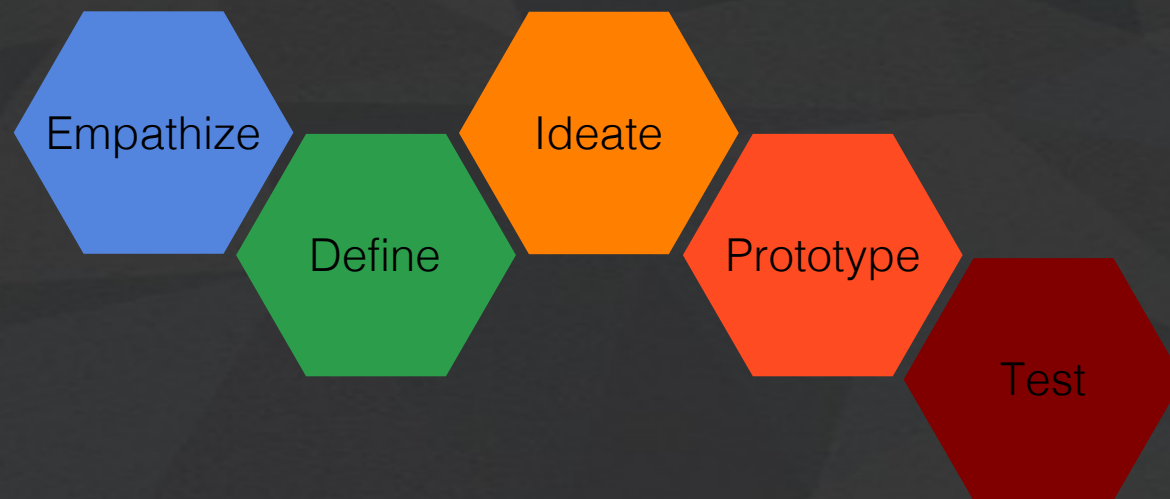
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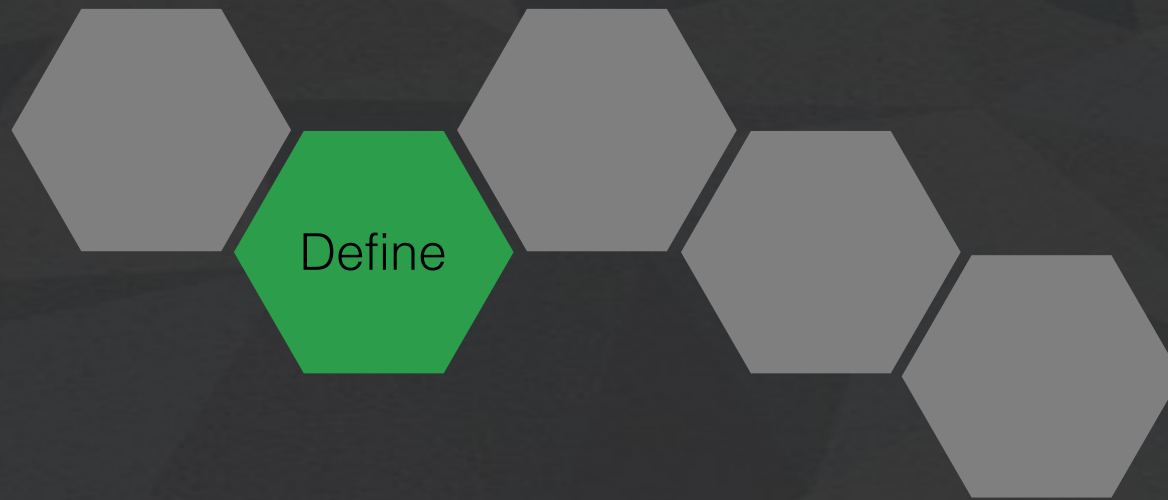
Outline

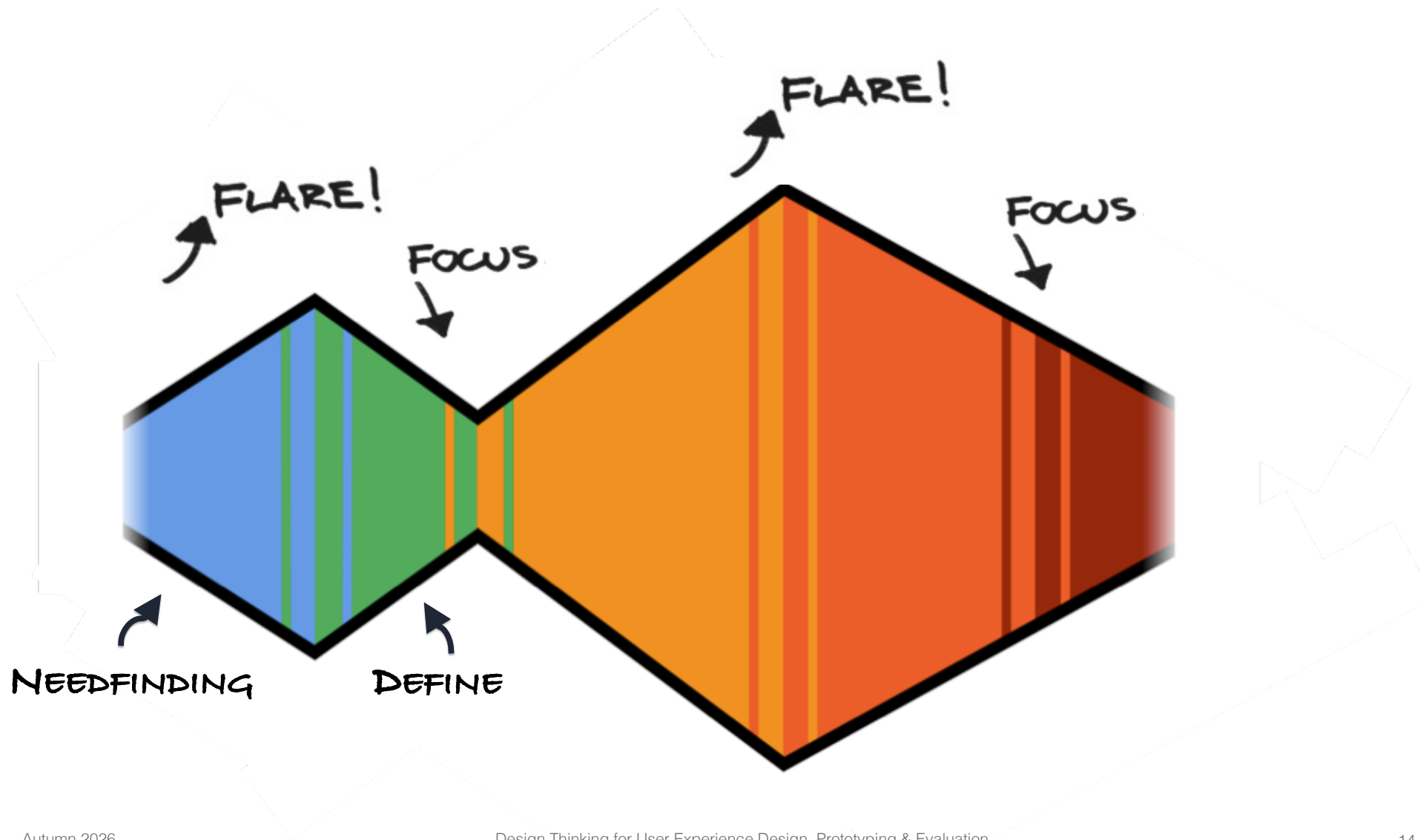
- Design thinking process
- Inferring needs & insights
- Point of views
- Administrivia
- Team break
- Unpacking data
- Writing & evaluating POVs

Design Thinking



Design Thinking





REALIZE



Define

FOCUS



REALIZE NEW INSIGHTS

REFRAME THE PROBLEM.
UNCOVER OPPORTUNITIES.

OBSERVATION

↑
NOTICE
SOMETHING

INFER

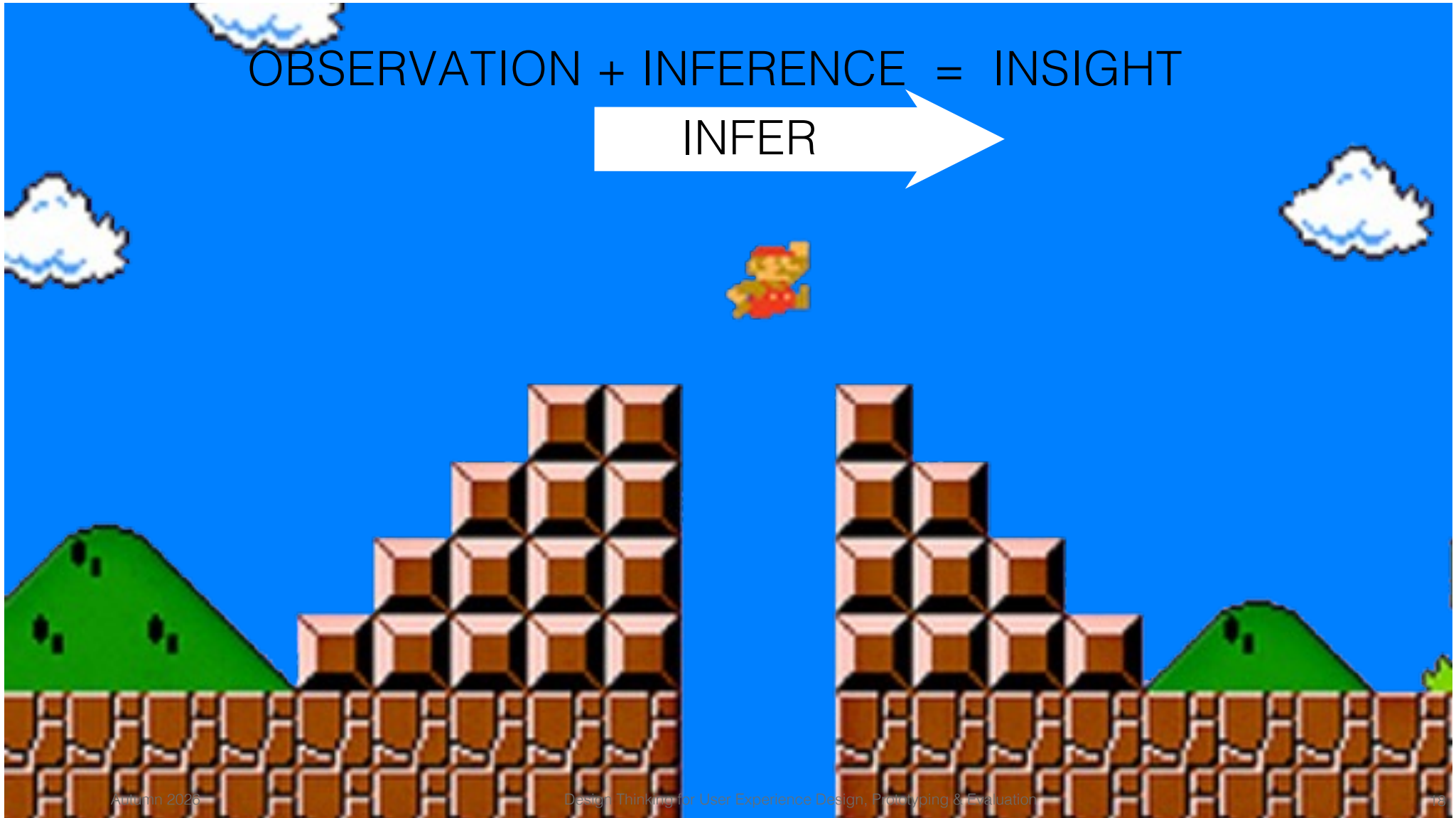
↑
“I WONDER IF THIS
MEANS . . .”

INSIGHT

↑
ACTIONABLE
LEARNING
ABOUT
PEOPLE

OBSERVATION + INFERENCE = INSIGHT

INFER



THE SELL:
TIDE
REMOVES
TOUGH
STAINS &
KILLS
GERMS





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.**

REALIZE



Define

FOCUS

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”

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

Focus by Writing a “Point of View”

WE MET . . .

(person you are inspired by & key characteristics)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an **inspired challenge** for your team. An **insight**. NOT a reason for the need! NOT a solution, but a **more informed problem**)

Focus by Writing a “Point of View”

WE MET . . .

Chuck, a young millennial living in an apartment in SoCal

WE WERE SURPRISED TO NOTICE. . .

he says he cares about his jeans, but he **doesn't wash** them often

WE WONDER IF THIS MEANS. . .

he believes the best way to **protect** his jeans is to **not wash** them

↑
NEED

IT WOULD BE GAME-CHANGING TO. . .

help him **care for his clothes** while keeping them clean

↑
INSIGHT



<https://hips.hearstamps.com/limg-prod/s3.amazonaws.com/images/acid-wash-jeans-1612804998.png?crop=0.505xw:1.00xh:0.192xw:0&resize=980>

Making Art Accessible to Young Professionals



We heard:
“I don’t understand.
Why is this \$50 and this \$5000.
I actually like the \$50 one
more, but maybe it sucks.”

“What do my
friends like?”

We think of
collecting art as
deeply personal,
but in fact for
them art is about
what others are
going to think.



The presumed mindset:

ART IS DEEPLY PERSONAL.

The realization:

ART IS FASHION ON THE WALL.

Focus by Writing a “Point of View”

WE MET . . .

(person you are inspired by & key characteristics)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an **inspired challenge** for your team. An **insight**. NOT a reason for the need! NOT a solution, but a **more informed problem**)

WE MET . . .

Joel, a guy in his twenties with a good job and a new apartment

WE WERE SURPRISED TO NOTICE . . .

He worries his **taste was unrefined** when the pieces he liked didn't align with the more expensive prices

WE WONDER IF THIS MEANS . . .

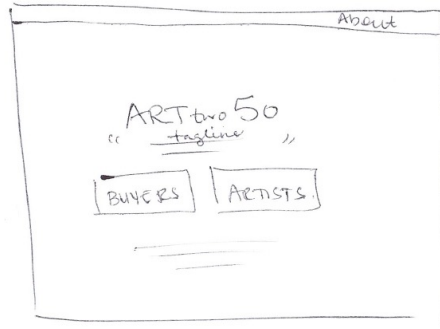
Joel views **art as fashion** on the wall: he wants to **impress** his friends with his taste in art

↑
NEED

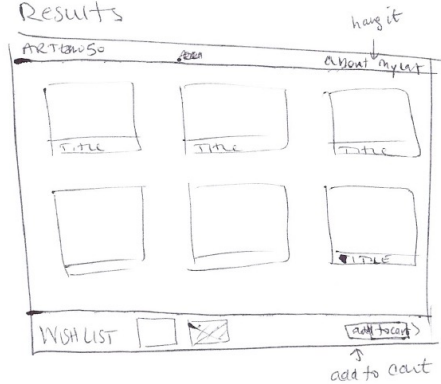
IT WOULD BE GAME-CHANGING TO . . .

help buyers cut through the **paralysis of doubt** ← INSIGHT

Landing



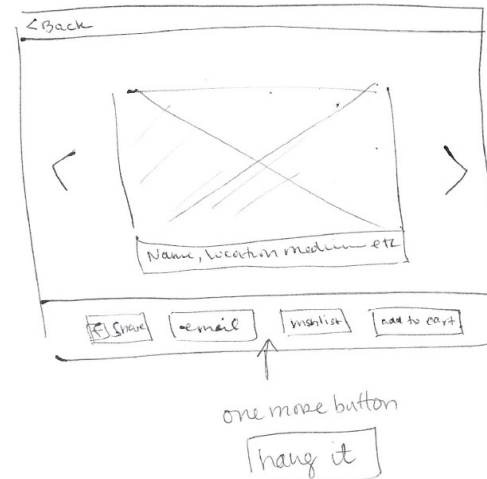
Results

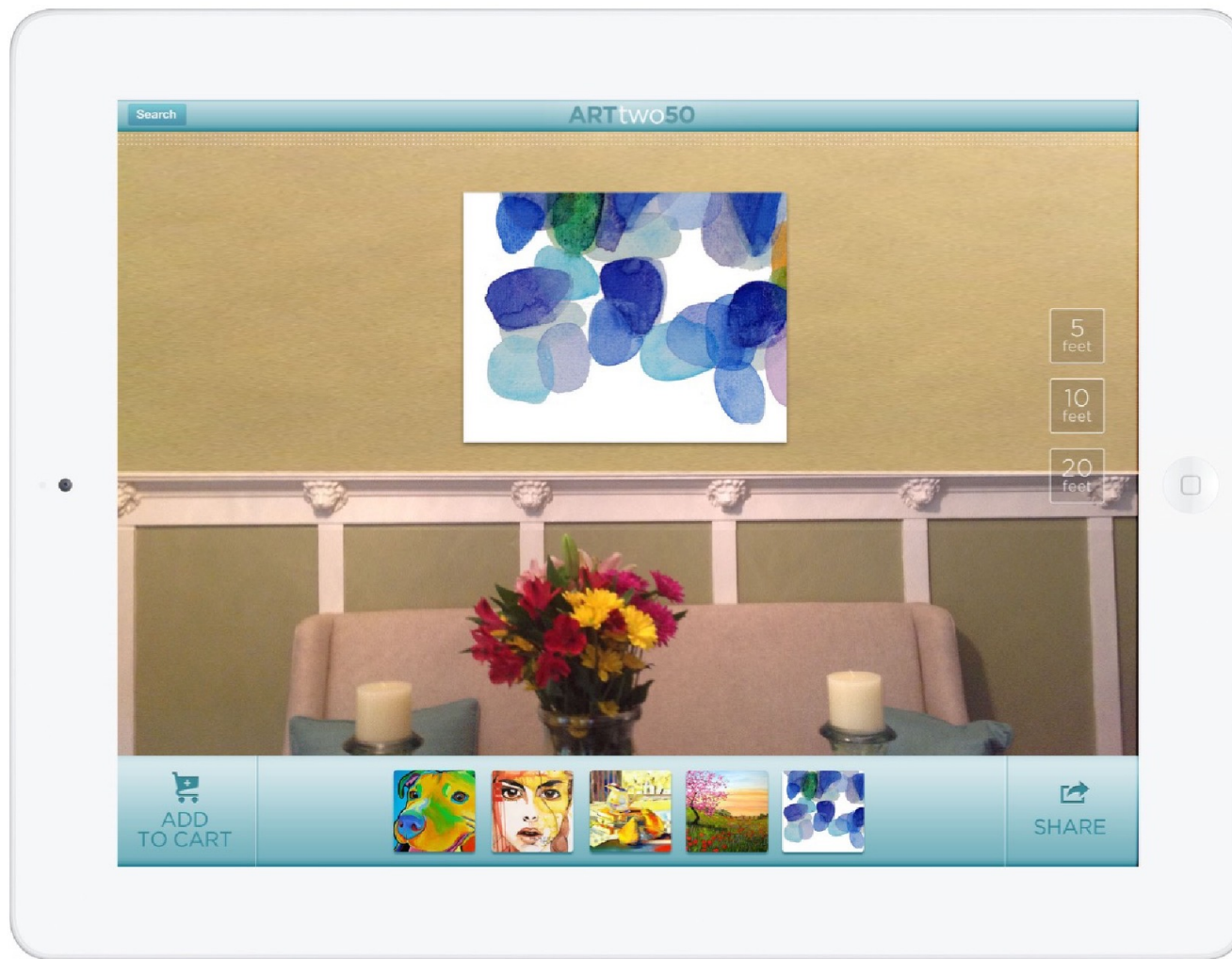


Search



Individual Result







Be Original

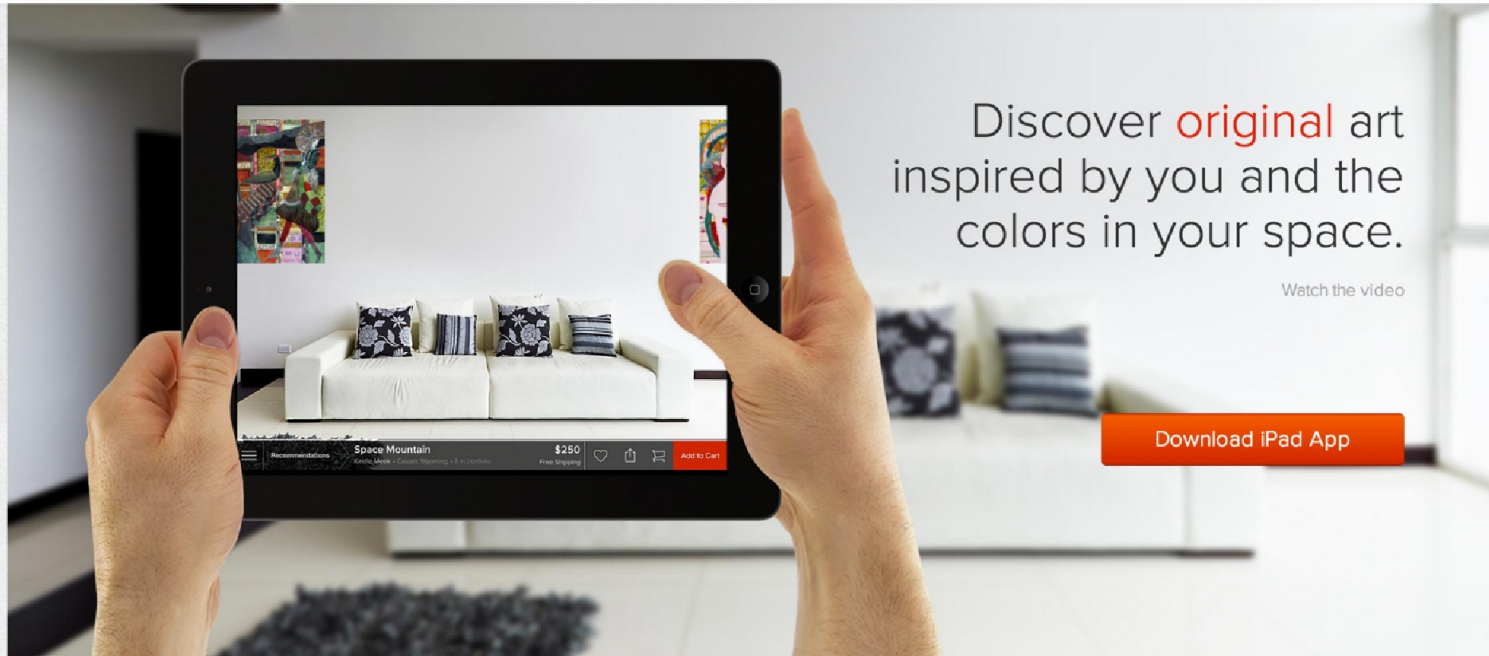
[Buy Art](#)

[Sell Art](#)

[Blog](#)

[About Us](#)

[Artist Sign In](#)



Discover **original** art
inspired by you and the
colors in your space.

[Watch the video](#)

[Download iPad App](#)

From the artist to your wall for \$250

Buy original artwork for \$250 with **free shipping and returns.**

[Learn More](#)

Team Wanderlust

We heard:

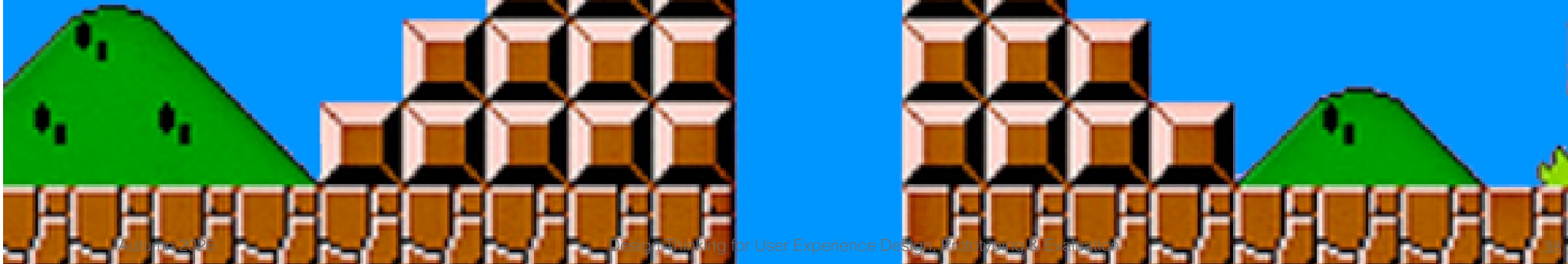
“[I’m] a person who only goes to places one always goes – safe bets.”

“when visitors come or I’m with other people, I’m motivated to research and explore new places”

“safety is the most important element when navigating a neighborhood”



People are not always searching for the sure thing and other people can serve as motivation to explore new areas



WE MET . . .

Lena, a newcomer to the city, who is afraid to stray from her routine path

WE WERE SURPRISED TO NOTICE . . .

she enjoyed diverging from her usual route to find a restaurant for her friend who was visiting

WE WONDER IF THIS MEANS . . .

people are willing to explore if they feel safe

IT WOULD BE GAME-CHANGING TO . . .

motivate people to explore unfamiliar places

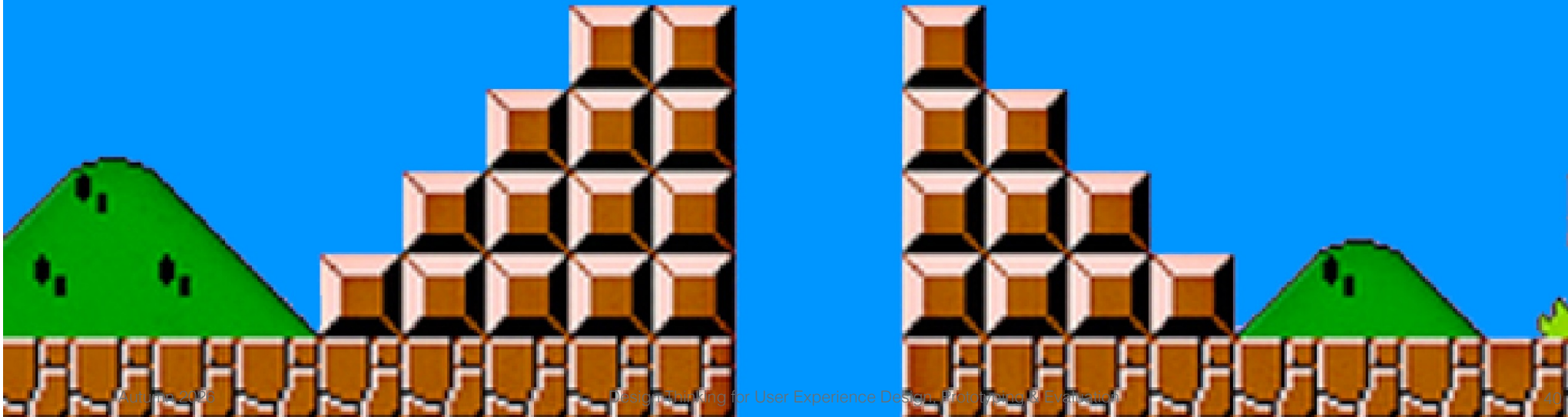
Team Wanderlust

We heard:

“there was a time that I only had a final destination to visit. Since I wasn’t in a rush, as long as I arrived to my final destination, routes did not matter.”



The fastest route is not always the preferable route. People need a way to customize their routes depending on context/purpose.



WE MET . . .

JunGu, a short-time visitor from Korea, exploring the area on his way to a destination

WE WERE SURPRISED TO NOTICE . . .

people are not always searching for the fastest route

WE WONDER IF THIS MEANS. . .

people would like to select more interesting routes

IT WOULD BE GAME-CHANGING TO . . .

customize routes based on one's travel goals (interest)

Too much of a solution

POV Will Differ Depending On Who You Talk To

Google search results for "professor".

Navigation: All, News, Images, Videos, Books, More, Settings, Tools. Collections, SafeSearch.

Filters: college, university, pokemon, clipart, teaching, math, old, art, physics, harry potter, stock photo, classroom, academic, chemistry.

Search Results:

- Professor - Wikipedia en.wikipedia.org
- Professor Office Hours | How to Get the ... petersons.com
- Differences Between Teacher and ... differencebetween.net
- College Professor - WeUseMath.org weusemath.org
- How to Become a College Professor college transitions.com
- Matthew McConaughey Is Film Professor ... popsugar.com
- Professor Prime effect ... digest.bps.org.uk
- Professor (Money Heist) en.wikipedia.org
- career-advice.jobs.ac.uk career-advice.jobs.ac.uk
- The Professor Is In: Research First o... chronicle.com
- Have a Tough College Professor? Here's ... noodle.com
- The Professor (2018) - ... imdb.com
- How to Pick the Best Professors | Fastweb fastweb.com
- How to Become a Professor howtobecome.com
- How To Become a Professor | Fastest ... worldscholarshipforum.com
- Money Heist Season 5: Professor's ... pinkvilla.com
- University professor with sexist and ... independent.co.uk
- Female Professor HD Stock Images ... shutterstock.com
- Seasoned faculty member re... insidehighered.com
- Students don't like female professors ... world.edu
- How to Become an English Professor ... jobhero.com
- Average College Professor Salary ... onlinedegrees.bradley.edu
- 75,447 Professor Stock Photos, Pictures ... istockphoto.com
- Professor - Wikipedia en.wikipedia.org

Guidelines for Gender Equity and Inclusivity

- [HCI Guidelines for Gender Equity and Inclusivity](#), by Morgan Klaus Scheuerman, Katta Spiel, Oliver L. Haimson, Foad Hamidi, Stacy M. Branham [note: lots of good material on this page, but linking directly to the survey section, as relevant for everyone]

Discussion Guide Resources

- [Creating an Effective Discussion Guide for User Research](#), Medium
- [5 Steps to Create Good User Interview Questions](#), Medium
- [Asking the right questions during user research, interviews, and testing](#), uxdesign.cc, Medium
- [Sample UX Research Plan \(discussion guide + context\)](#), Smashing Magazine
- [Just Enough Research](#), by Erika Hall of Mule Design, Talk at UX Salon 2016 (30 min. video)

Administrivia

- Studio assignment stats

1st choice	2nd choice	3rd choice	4th choice	5th choice
44	14	9	0	1

- OAE letters – if you have one send to me & Alan ASAP
- Open mindedness in design
 - follow the needfinding!

Administrivia

- Readings for today
 - *Tips for Working Successfully in a Group* by Randy Pausch
 - *The Discipline of Teams* by Katzenbach and Smith, Harvard Business Review
 - *How to Survive a Critique: A Guide to Giving and Receiving Feedback* by Karen Cheng
- Listen
 - *Invisible Women, 99% Invisible, Episode 363* (39 minutes)
- What did you think?

What Do You Want to Learn This Quarter

1. Design process & fundamentals (22)
2. Designing for real needs (12)
3. UX & user research (10)
4. Building a real product (9)
5. Aesthetics & delight (8)
6. AI & Design (6)
7. Accessibility & impact (6)
8. Teamwork (3)

Team Meeting Agenda

1. Schedule weekly meeting times (2-3)
2. Make a plan for how you will get the rest of your interviews & presentation slides done for Thur/Fri
3. Folks who have days where they know they won't be at studio, **schedule your presentations now** & make sure the team is covered & work is made up
4. **Go over the homework assignment** carefully & ask clarifications of your CA during/after break

TEAM MEETING

Weekly team evaluations (CATME)

Every week, we will send out a team evaluation form via email for the past week using CATME, asking you to rate...

- Each team member's **contributions**, **interactions**, **quality of work**, etc. (including yourself!)
- Whether there are any **conflicts** within the team
- Your level of **satisfaction** with the team

Out Thursday, due Sunday at 11:59 PM



Contributing to the Team's Work

Sonja Alvarado					Description of Rating
Bernadette Burke					
Dianne Richards					
Joe Graves					
Willis Johnson					
☐	☐	☐	☐	☐	• Does more or higher-quality work than expected. • Makes important contributions that improve the team's work. • Helps teammates who are having difficulty completing their work.
☐	☐	☐	☐	☐	Demonstrates behaviors described immediately above and below.
☐	☐	☐	☐	☐	• Completes a fair share of the team's work with acceptable quality. • Keeps commitments and completes assignments on time. • Helps teammates who are having difficulty when it is easy or important.
☐	☐	☐	☐	☐	Demonstrates behaviors described immediately above and below.
☐	☐	☐	☐	☐	• Does not do a fair share of the team's work. Delivers sloppy or incomplete work. • Misses deadlines. Is late, unprepared, or absent for team meetings. • Does not assist teammates. Quits if the work becomes difficult.

<< Back

Next >>

Weekly team evaluations (CATME)

We also ask for **meaningful comments** about your team in the final “confidential comments” box. If you want the instructors to intervene, put the word “ESCALATE” (or similar) in all caps.

Confidential Comments to Instructor

Please write your confidential comments to the instructor in the box below. Thank you for completing the survey.

5000 Character(s) Remaining

Finish

Answering all the questions + providing a comment will be part of your participation grade!

Point of View: How?

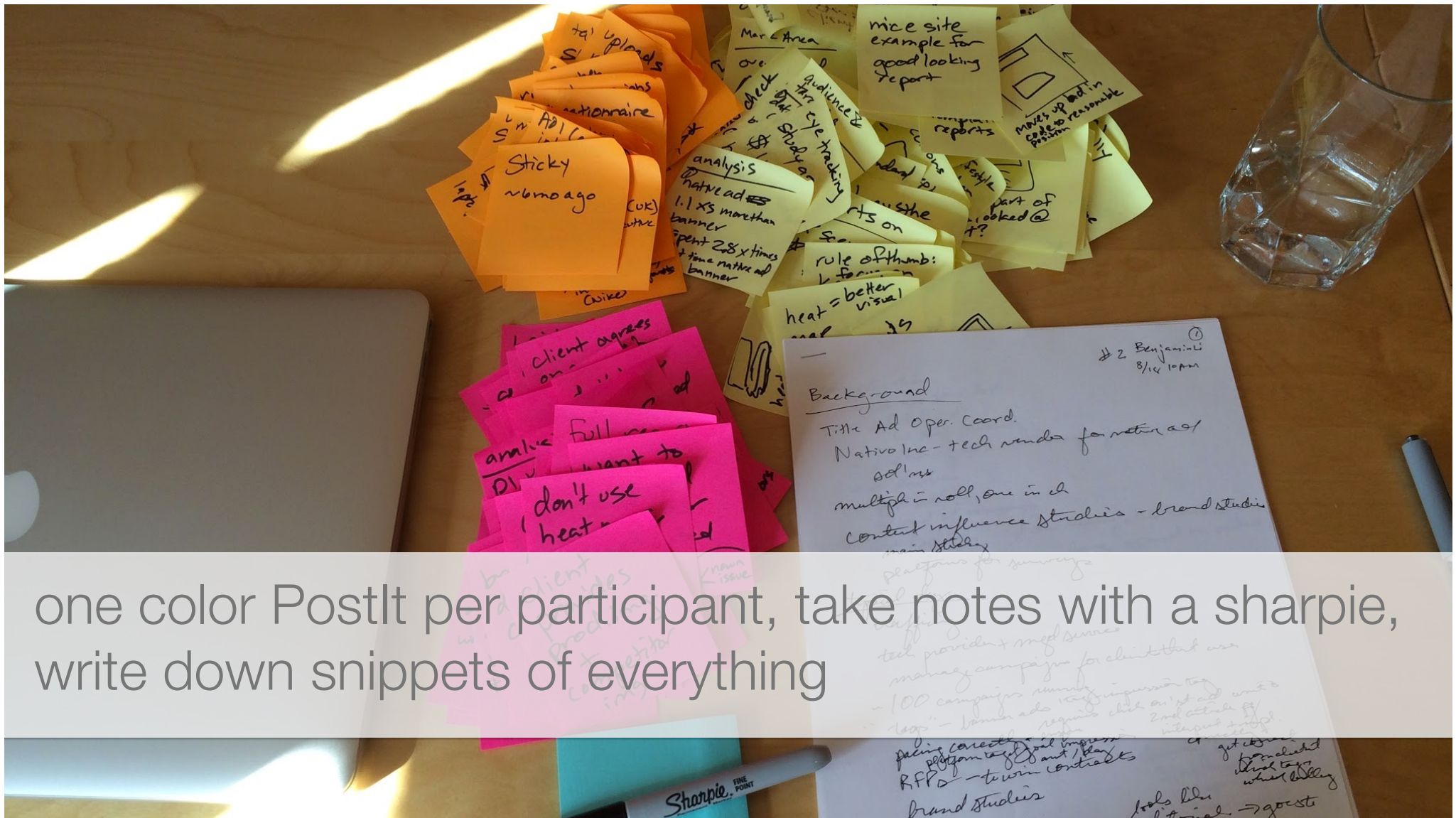
- Unpack your empathy work
- Leap from observations to identifying users, needs, & insights
- Reframe the problem as a Point of View (POV)



UNPACK

INSIGHTS

POINT OF VIEW



one color PostIt per participant, take notes with a sharpie, write down snippets of everything

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



Get Them up on a Wall...



Organize & discuss

Autumn 2026

Design Thinking for User Experience Design, Prototyping & Evaluation

59

Share your Field Stories



Recall Our Interviews With Bruno...



Unpacking Interview Results... Yes and...



Unpacking Interview Results... Don't do this!



Empathy Map to Help Synthesize

say

think



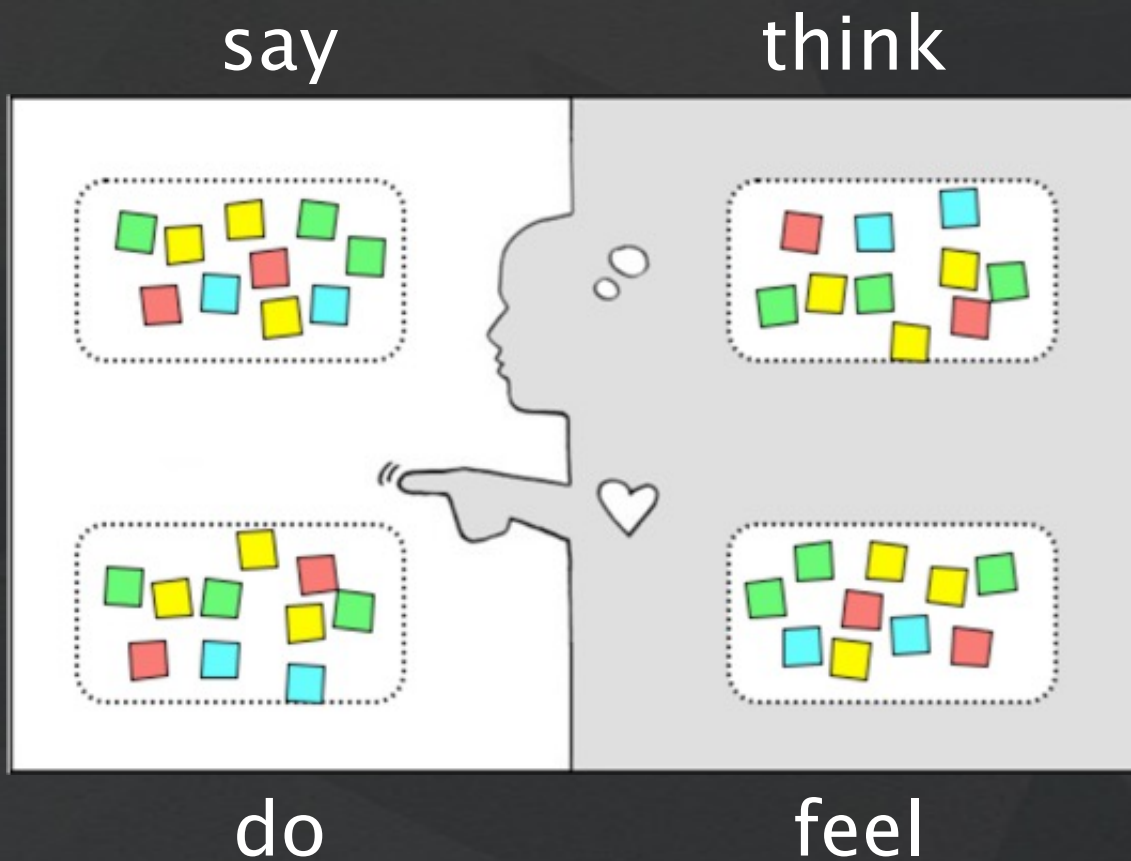
do

feel

Unpacking Interview Results...



Empathy Map to Help Synthesize



KEEP A LIST OF

TENSIONS, CONTRADICTIONS, SURPRISES



USE TO FIND NEEDS & INSIGHTS → POV

3. *WE WONDER IF THIS MEANS...*

4. *IT WOULD BE GAME CHANGING TO...*

Needs and Insights

- Needs

- human emotional or physical necessities
 - activities & desires with which your user could use help (often verbs)
 - e.g., to feel safe, to stay connected, to keep track of, to be understood...



- Insight

- A remarkable realization that you could leverage to better respond to a design challenge



Identifying Needs



WHAT DOES SHE NEED?

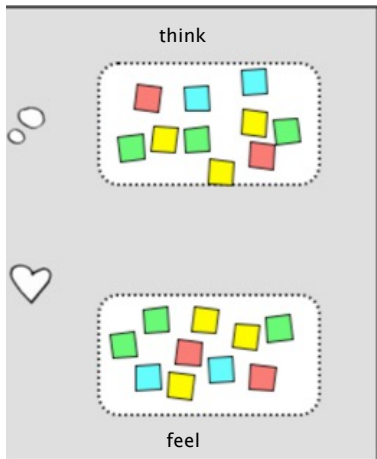
- A ladder, more books, ...
 - NO, these are solutions
- To get acknowledgement from her peers that she is a hard worker?
- To have a strong voice driven by knowledge & education?
- To enjoy more social time with her father through reading together?
- These needs are more **powerful & inspiring** for design

UNPACK

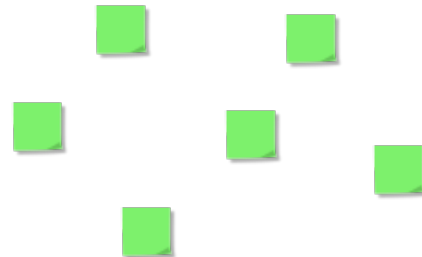
NEEDS & INSIGHTS

POINT OF VIEW

I wonder if this means . . .



TENSIONS,
CONTRADICTIONS,
SURPRISES



NEEDS & INSIGHTS



Identify attributes, surprises, needs, & insights

user attributes



surprises



needs



insights



Combine to create a point of view

user attributes



surprises



needs



insights



Combine to create a point of view

user attributes



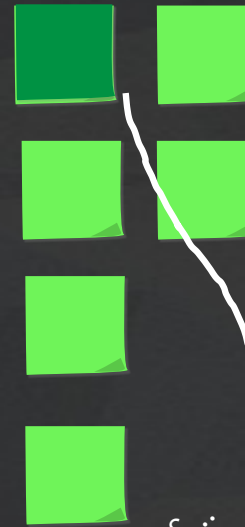
WE MET...

surprises



...SURPRISED TO NOTICE...

needs



...WONDER IF IT MEANS...

insights



...GAME-CHANGING TO...

UNPACK NEEDS & INSIGHTS POINT OF VIEW

Point of View

WE MET . . .

(person you are inspired by & key characteristics)

WE WERE SURPRISED TO NOTICE. . .

(tension, contradiction, or surprise)

WE WONDER IF THIS MEANS. . .

(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO. . .

(Frame up an **inspired challenge** for your team. An insight. **NOT** a reason for the need! **NOT** a solution, but a **more informed problem**)

Characteristics of A Good Point of View

- Provides focus & frames the problem
- Inspires your team
- Provides a reference for evaluating competing ideas
- Fuels brainstorming by suggesting “how might we” statements (next week on Ideate)
- Captures the hearts and minds of people you meet
- Saves you from the impossible task of developing concepts that are all things to all people
- Is something you revisit & reformulate as you learn

DO IT NOW:

UNPACK: note the say, do, think, & feel

NEEDS/INSIGHTS: infer from observations

POINT OF VIEW: 1 written sentence

the truck owner

<https://vimeo.com/9212719>

Do It Now:

UNPACK: note the say, do, think, & feel

SURPRISES: surprises, tensions, & contradictions

NEEDS: infer from the observations above

INSIGHTS: take a leap as to what the real problem is

POINT OF VIEW: 1 written sentence

We met X

We were surprised to notice...

We wonder if this means...

It would be game-changing to...

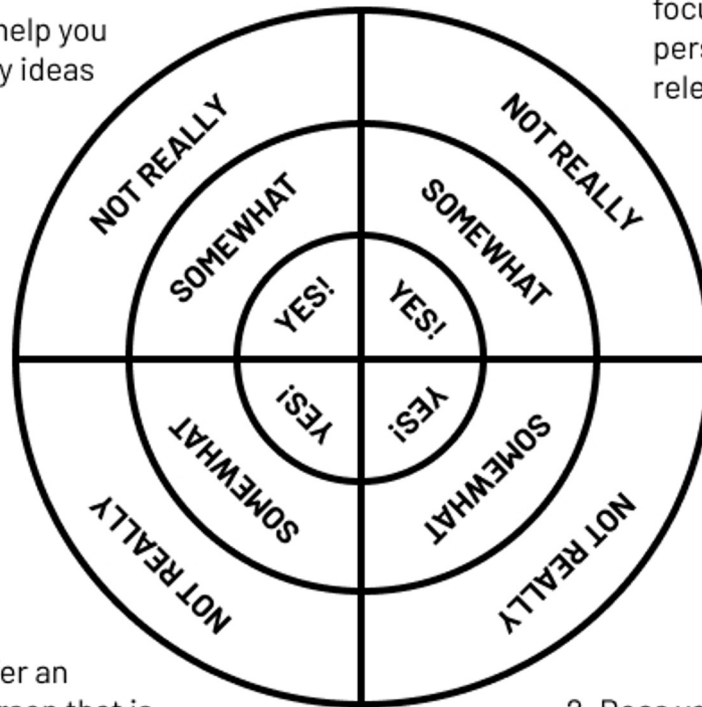
POVs for the truck owner

- We met...
- We were surprised to notice...
- We wonder if this means...
- It would be game changing to...

EVALUATE YOUR POV

**Start
Here**

1. Does your POV start by focusing on one specific person and sharing relevant context?

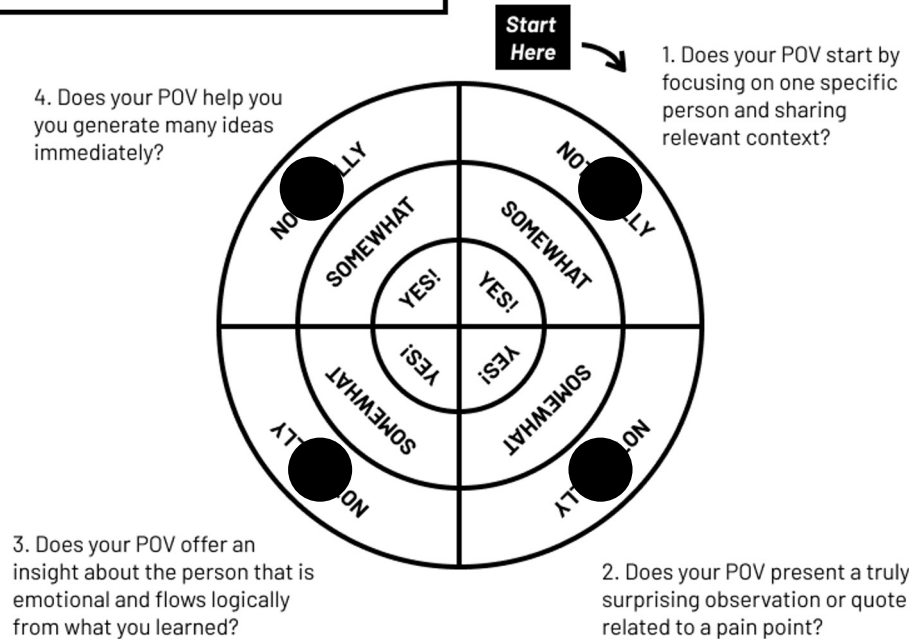


4. Does your POV help you generate many ideas immediately?

3. Does your POV offer an insight about the person that is emotional and flows logically from what you learned?

2. Does your POV present a truly surprising observation or quote related to a pain point?

EVALUATE YOUR POV



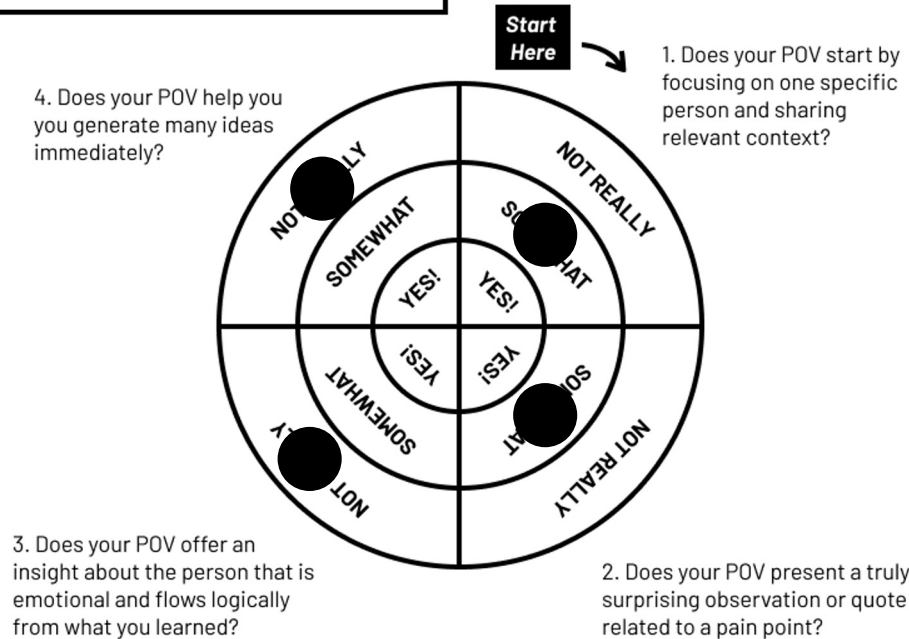
We met... Chuck. ← *No background*

We were surprised to notice... he wears jeans often and they're always dirty because he doesn't clean them. ← *It's a fact that jeans get dirty when you don't clean them. Not surprising.*

We wonder if this means... Chuck is lazy. ← *Focus more on Chuck's emotional experience. Don't label your users.*

It would be game changing to... help him be less lazy. ← *This is a big assumption about Chuck instead of his experience.*

EVALUATE YOUR POV

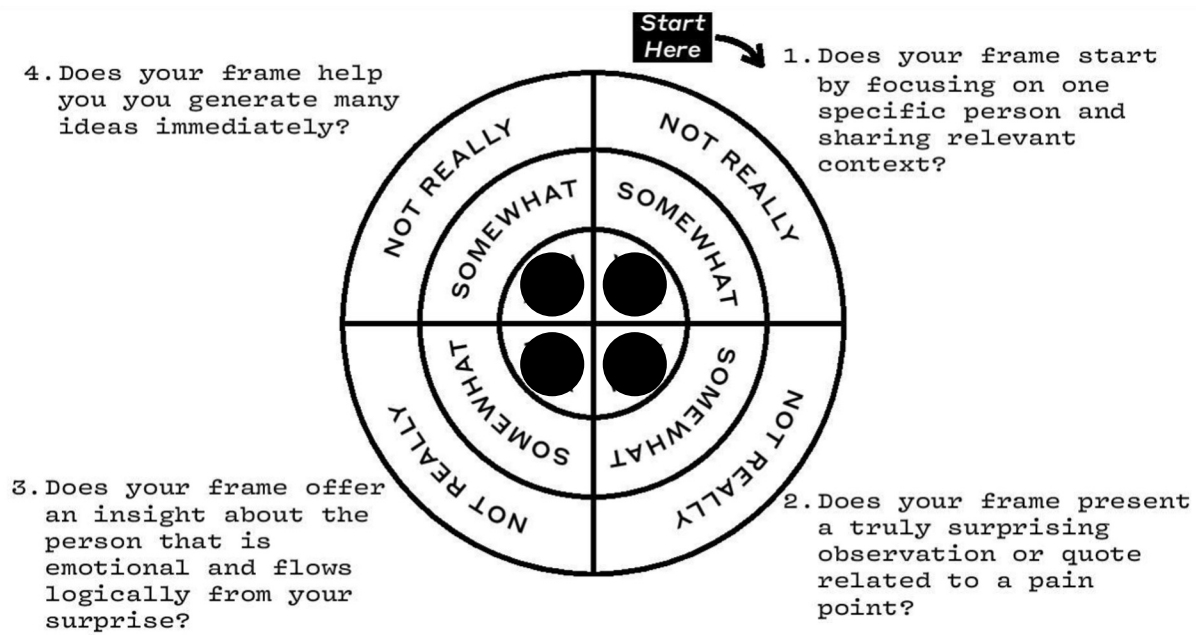


We met... Chuck, a guy who wears jeans all the time. ← *not enough about his identity*

We were surprised to notice... he wears his jeans dirty and chooses not to clean them. ← *why is it surprising he chooses not to clean them?*

We wonder if this means... Chuck doesn't have time to clean his jeans. ← *maybe, but not super logical in explaining his choice.*

It would be game changing to... provide Chuck with faster ways to clean his jeans. ← *limits the brainstorming*



We met... Chuck, a young millennial living in an apartment who loves to wear jeans. ← *lots of context!*

We were surprised to notice... he cares about his jeans and wants to preserve them, but doesn't like to wash them. ← *contradiction!*

We wonder if this means... Chuck believes that the best way to take care of his jeans is to *not* wash them. ← *about Chuck's beliefs!*

It would be game changing to... help him care for and preserve his clothes while still keeping them clean. ← *sky's the limit!*

Further Reading

An Image of Society: Gender and Racial Representation and Impact in Image Search Results for Occupations. Danaë Metaxa, Michelle A. Gan, Su Goh, Jeff Hancock, and James A. Landay. 2021. *Proceedings of the ACM on Human-Computer Interaction*, Volume 5, CSCW1, Article 26 (April 2021), DOI:<https://doi.org/10.1145/3449100>. CSCW 2021

Exit Ticket



Exit Ticket #1a: <https://tinyurl.com/cs147-week2a-exit>
due in 24 hours (by Tuesday, Sep 29th, 3:30 PM PT)

Next Time

- Wed Lecture
 - Go do more field interviews or if done write up empathy maps for each interview
- Studio
 - present your initial needfinding results & work in studio on Point of Views
 - focus on **surprises/contradictions** you found
- Read by Monday's lecture
 - [4 Steps to Successful Brainstorming](#) by Susan Adams
 - [From techno-optimism to techno-realism: What it means to innovate responsibly](#) by Margaret Gould Stewart
 - [Coping with Hitchhikers and Couch Potatoes on Teams](#), Excerpt from Oakley, et al.
 - Optional: [Early Customer Research](#) (pp. 5-27) by Tom Eisenmann (slides)
- Watch by Monday's lecture
 - [Working in Teams](#) (0:56), Tina Seelig, Stanford Technology Ventures Program