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# Ideate

Prof. James A. Landay  
Computer Science Department  
Stanford University

Autumn 2023  
October 4, 2023

Slides adapted from d.leadership Define + Ideate slides ([https://dschool.stanford.edu/groups/dleadership/wiki/59f08/dleadership\\_2015.html](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](https://hci.stanford.edu/courses/cs147/2021/wi/readings/bootcamp_bootleg.pdf))

# Hall of Fame or Shame?



## Sony Google TV Remote



# Hall of Shame!



## Sony Google TV Remote



Very complex

So large that it requires two hands

So many controls that you can't use in the dark (watching movie?)

Two navigation pads. When to use which?

But, it does have typing input...

# Hall of Fame or Shame?



## Apple TV Remote



# Hall of Shame!



## Apple TV Remote



Overly simple

Many things require navigating menus

Text entry is almost impossible

So small that it is easily lost

**But, common tasks easy**

# Hall of Fame or Shame?



## Apple Siri Remote



Still limited number of buttons, but adds

Voice Input

Touch pad w/ navigation, swipes & clicks

Slightly larger → no longer lost in the cushions?

Anyone have experience with this?

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# Outline

- Review Define: unpacking field data & POVs
- Ideate
- How Might We...?
- Brainstorming solutions
- Selecting good problems & solutions
- Team Break
- Experience prototyping



# Point of View

WE MET . . .

(person you are inspired by)

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.

NOT a reason for the need! Not a solution, but a **more informed problem**)

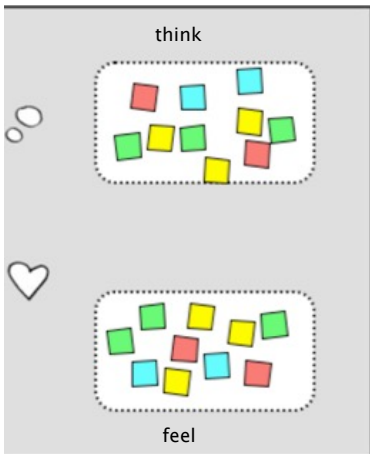
I wonder if this means . . .



TENSIONS,  
CONTRADICTIONS,  
SURPRISES

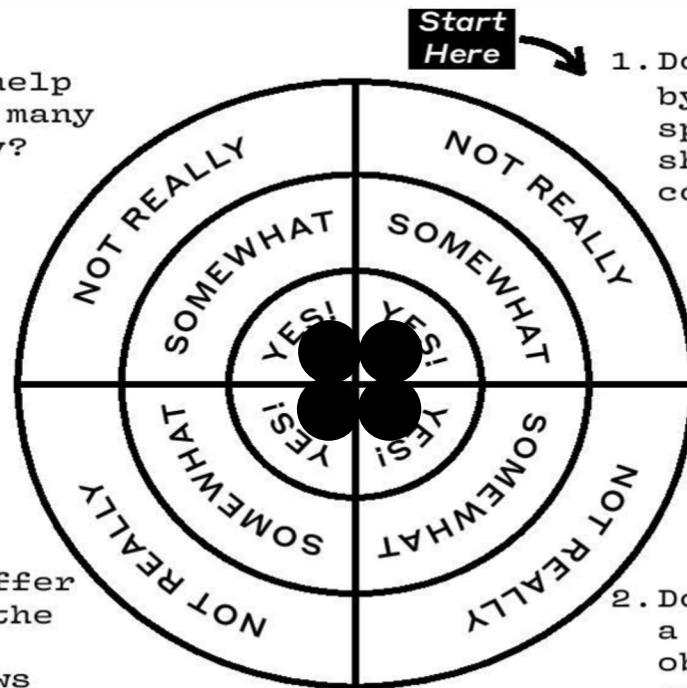
INSIGHTS

USERS & NEEDS



# Truck Owner POVs

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



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

3. Does your frame offer an insight about the person that is emotional and flows logically from your surprise?

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

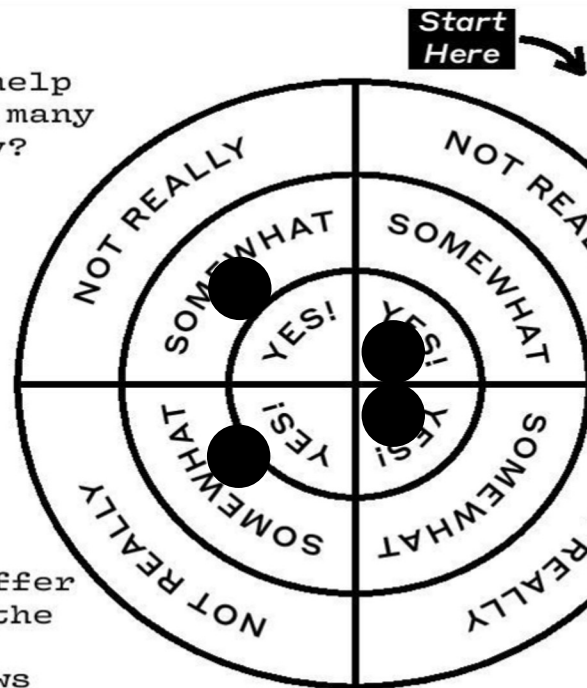
**We met...** a young female truck owner, with an ME background, who loves owning her truck & learning about it.

**We were surprised to notice...** she sometimes blindly trusts whatever the mechanics say so as to not reveal how little she knows about her vehicle.

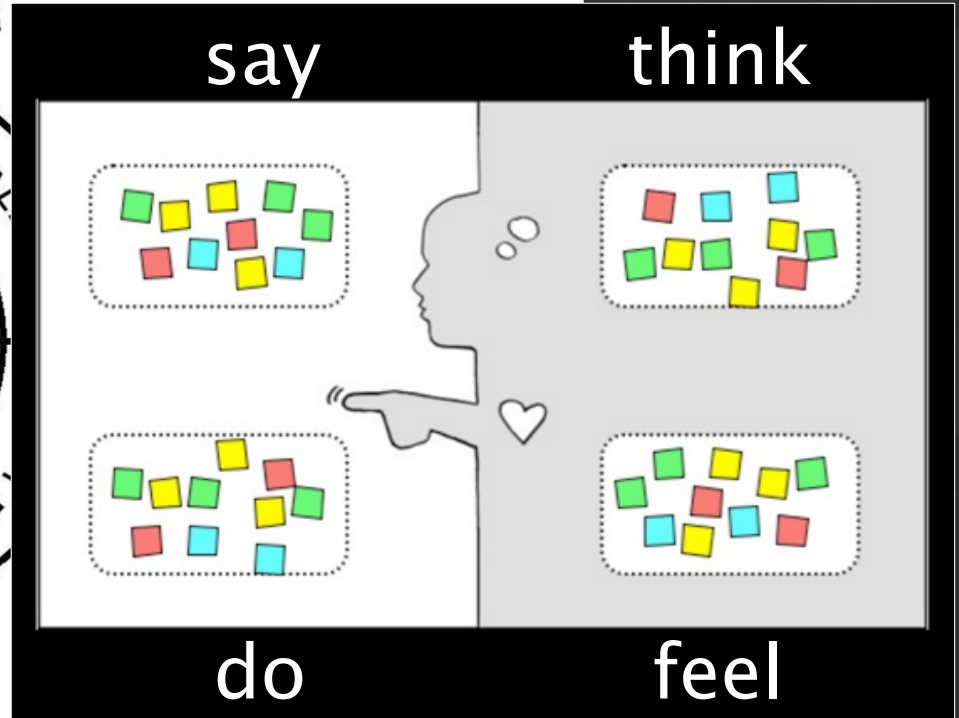
**We wonder if this means...** she is trying to protect her persona and confidence as a truck owner.

**It would be game changing to...** provide a detailed and accessible way for her to learn about truck mechanics in a style that doesn't make her feel self-conscious.

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



3. Does your frame offer an insight about the person that is emotional and flows logically from your surprise?

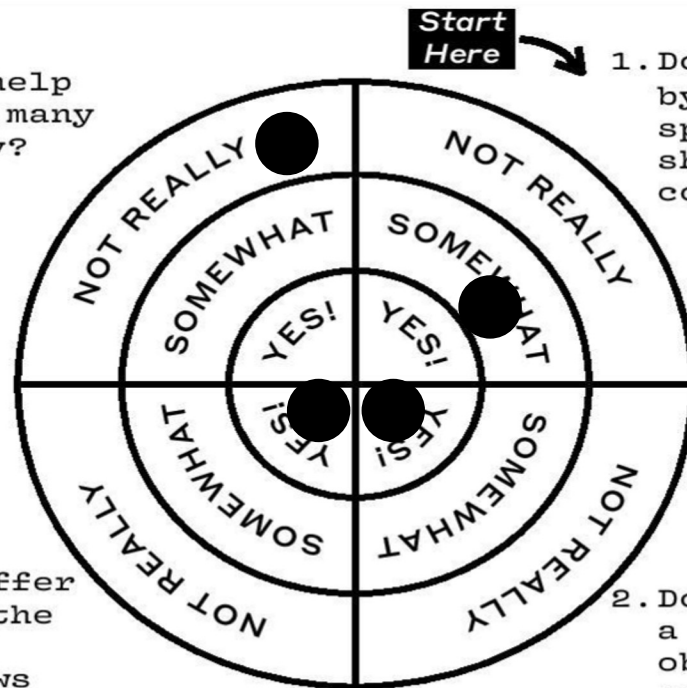


**We met...** a mechanical engineer who owns a truck that she really likes using and is interested in learning more about.

**We were amazed to realize that...** even though she wants to learn more about her truck, she pretends to be already familiar with everything when she brings it in for repairs.

**It would be game-changing to...** make it easier for truck enthusiasts (of differing levels of knowledge and understanding of mechanics) to learn about trucks and truck repairs.

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



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

3. Does your frame offer an insight about the person that is emotional and flows logically from your surprise?

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

**We met...** a woman who drives a truck and is a mechanical engineer at Stanford.

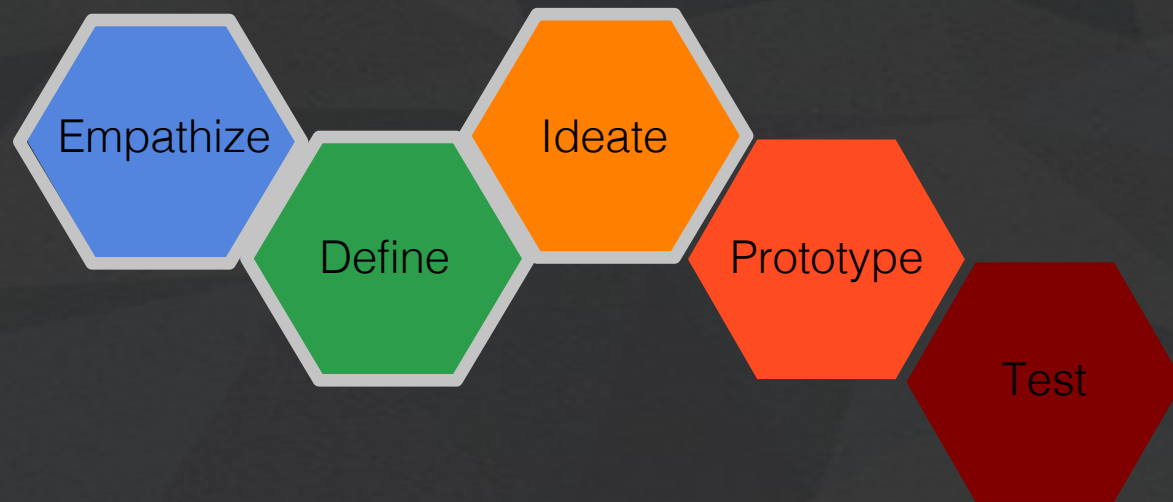
**We were surprised to notice that...** she didn't feel confident making decisions about the upkeep of her truck when talking with mechanics.

**We wonder if this means...** she is afraid she'd be seen as inexperienced or out of place at the repair shop.

**It would be game-changing if...** we could **provide a third-party resource** that could advise her on her truck's maintenance, making her more confident in her decisions without having to worry about misaligned incentives (e.g., upselling mechanics).



# Design Thinking



# Design Thinking





innovation  
potential

An orange hexagon with the word "Ideate" centered inside it.

Ideate

separate  
generation &  
evaluation

# How do we start?



# How do we start?



*Might* lets you defer judgment

helps people to create options *freely*

opens up *more possibilities*

# Another POV Example



**We met** Janice, a harried mother of 3, rushing through the airport only to wait hours at the gate.

**We were surprised** to notice the many games she makes up to entertain her children.

**We wonder if** she is stressed that the kids will irritate fellow passengers if she's unable to distract them.

**It would be game changing** to bring the other passengers & the airport facilities into helping families have a better travel experience.



POV: We met Janice, a harried mother of 3, rushing through the airport only to wait hours at the gate. We were surprised at the many games she makes up to entertain her children. We wonder if she is stressed that the kids will irritate fellow passengers if she's unable to distract them. It would be game changing to bring the other passengers and the airport facilities into helping families have a better travel experience.

### *Break POV into pieces*

HMW entertain kids? HMW slow a mom down?

### *Amp up the good/Remove the bad*

HMW separate kids from fellow passengers?

### *Explore the opposite*

HMW make the wait the most exciting part of the trip?

### *Question an assumption*

HMW entirely remove the wait time at the airport?

[https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp\\_bootleg.pdf#page=29](https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp_bootleg.pdf#page=29)

POV: We met Janice, a harried mother of 3, rushing through the airport only to wait hours at the gate. We were surprised at the many games she makes up to entertain her children. We wonder if she is stressed that the kids will irritate fellow passengers if she's unable to distract them. It would be game changing to bring the other passengers and the airport facilities into helping families have a better travel experience.

### *Go after adjectives*

HMW we make the rush refreshing instead of harrying?

### *Identify unexpected resources*

HMW leverage free time of fellow passengers to share the load?

### *Create an analogy from need or context*

HMW make the airport like a spa?

### *Change a status quo*

HMW make playful, loud kids less annoying?

[https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp\\_bootleg.pdf#page=29](https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp_bootleg.pdf#page=29)

# Anatomy of a Strong HMW Question

- Who
- What
- When
- Where
- Why

Best to have at least 3 W's in a good HMW question





one conversation at a time

go for quantity

headline!

build on the ideas of others

encourage wild ideas

be visual

stay on topic

defer judgment

[https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp\\_bootleg.pdf#page=31](https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp_bootleg.pdf#page=31)

# DO IT NOW:

Generate HMW statements for the airport mom POV!

POV: We met Janice, a harried mother of 3, rushing through the airport only to wait hours at the gate. We were surprised at the many games she makes up to entertain her children. We wonder if she does this so that they don't irritate frustrated fellow passengers. It would be game changing to bring the other passengers and the airport facilities into helping families have a better travel experience.

*Break POV into pieces*

HMW entertain kids? HMW slow a mom down?

*Amp up the good/Remove the bad*

HMW separate kids from fellow passengers?

*Explore the opposite*

HMW make the wait the most exciting part of the trip?

*Question an assumption*

HMW entirely remove the wait time at the airport?

*Go after adjectives*

HMW we make the rush refreshing instead of harrying?

*Identify unexpected resources*

HMW leverage free time of fellow passengers to share the load?

*Create an analogy from need or context*

HMW make the airport like a spa?

*Change a status quo*

HMW make playful, loud kids less annoying?

# POV: Harried Mother at Airport



# Brainstorm: “How Might We’s” → Solutions

**WE MET ...**  
(extreme user you are inspired by)  
A HOMELESS GUY ON A FISHING BOAT, WHO JUST A YEAR  
AGO WAS GIVEN A SECOND CHANCE AT LIFE

**WE WERE AMAZED TO REALIZE ...**  
(what did you learn that's new?)  
THAT THANKS TO THE BOAT OWNER'S MENTORSHIP, TRUST, AND GUIDANCE OF  
THE FISHING LIFESTYLE AND CONNECTION TO NATURE, HE HAD TURNED HIS LIFE  
AROUND FROM DRUG ADDICT W/OUT A JOB TO SOMEONE WITH SKILLS + COMPASSION

**IT WOULD BE GAME-CHANGING TO ...**  
(frame up an inspired challenge for yourself  
don't dictate the solution.)  
ALL OF US COULD TAKE A RISK TO SEE A SPARK IN OTHERS AND  
NURTURE IT INTO A PURPOSEFUL TRANSFORMATION.

HMW bring  
routine (and  
discipline)  
to  
homeless  
people?



# Constraints Can Energize

“How would you design it with the technology of 100 years ago?”

“What if we had to spend at least a million dollars?”

“Only ideas that would get you fired”

“All ideas must use magic.”

[https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp\\_bootleg.pdf#page=32](https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp_bootleg.pdf#page=32)



one conversation at a time

go for quantity

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build on the ideas of others

encourage wild ideas

be visual

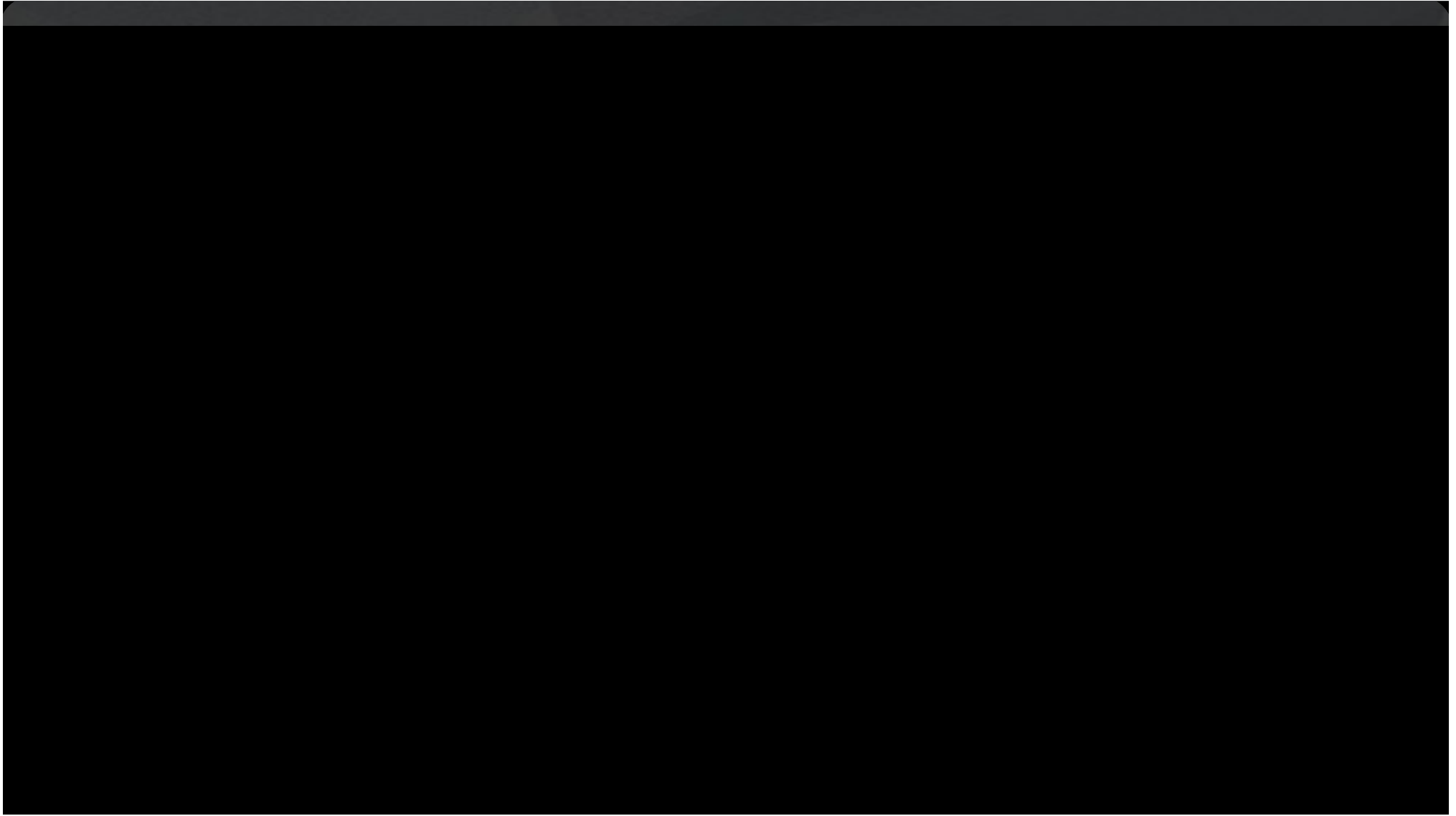
stay on topic

defer judgment

[https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp\\_bootleg.pdf#page=31](https://hci.stanford.edu/courses/cs147/2023/au/readings/bootcamp_bootleg.pdf#page=31)

# Brainstorming Demo: two brainstorms







# Selecting a Good Problem, HMW, or Solution Idea

- Frequency
  - want something that occurs often
- Density
  - lots of people experience it
- Pain
  - more than a small annoyance
- Interested
  - your team is motivated to work on this problem
- Could this be harmful to individuals & communities? (is it ethical?)



\* see Manu Kumar's blog post on this topic: <http://www.k9ventures.com/blog/2015/02/10/finding-problem-worth-solving/>

# Downselecting Ideas

- Celebrate success of brainstorm, take a break, vote!
- Option 1: Heat map voting
  - everyone starts with unlimited number of votes (small dots – stickers or pen)
  - then everyone gets 3 final votes on absolute favorites (large dots) and 1 bonus dark horse
- Option 2: Category voting
  - each person gets specific # of votes (i.e., 5)
  - specific categories
    - most feasible idea, craziest idea, best long shot, my favorite but improbable, short term solution, etc.
- Option 3: Each person picks 3 favorites



<https://medium.com/product-design-foodora/how-to-solve-a-problem-and-make-decision-in-a-big-team-without-getting-mad-9a37f9d5e100>

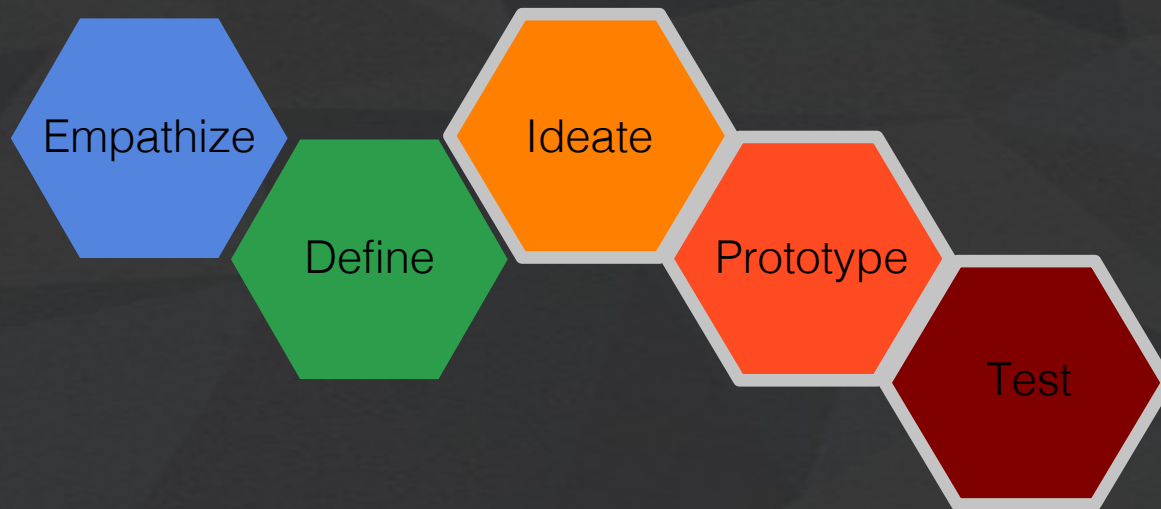
# Administrivia

?

# Team Break (25 min)

- Work on
  - starting slides for Thur/Fri studio presentation
  - needfinding unpacking
  - plans for more interviews
- TAs will go around & give you feedback

# Design Thinking





to think

PROTOTYPE

to learn



## THE MARSHMALLOW CHALLENGE

# TEST YOUR ASSUMPTIONS

In 18 minutes, build the tallest free-standing structure out of 20 sticks of spaghetti, 3 feet of tape, 3 feet of string, and one marshmallow. The marshmallow must be on top.



20 sticks of spaghetti



+ one yard tape



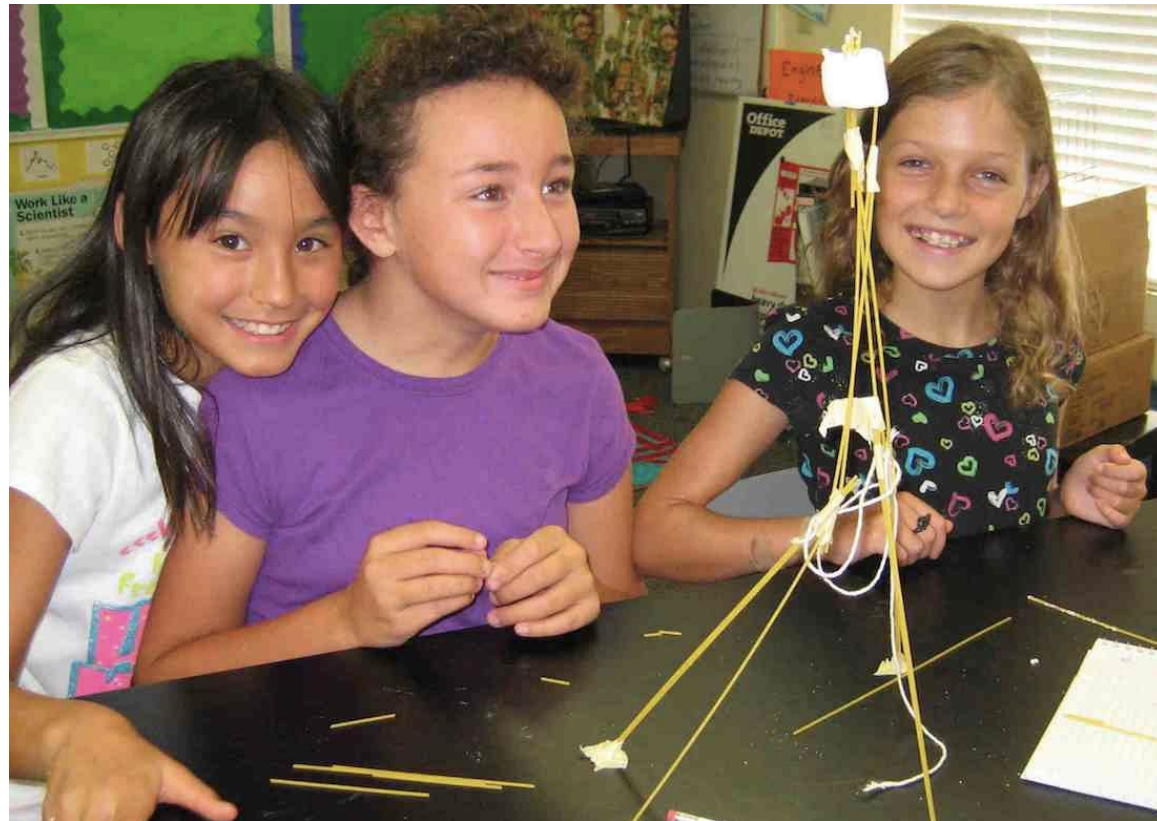
+ one yard string



+ one marshmallow

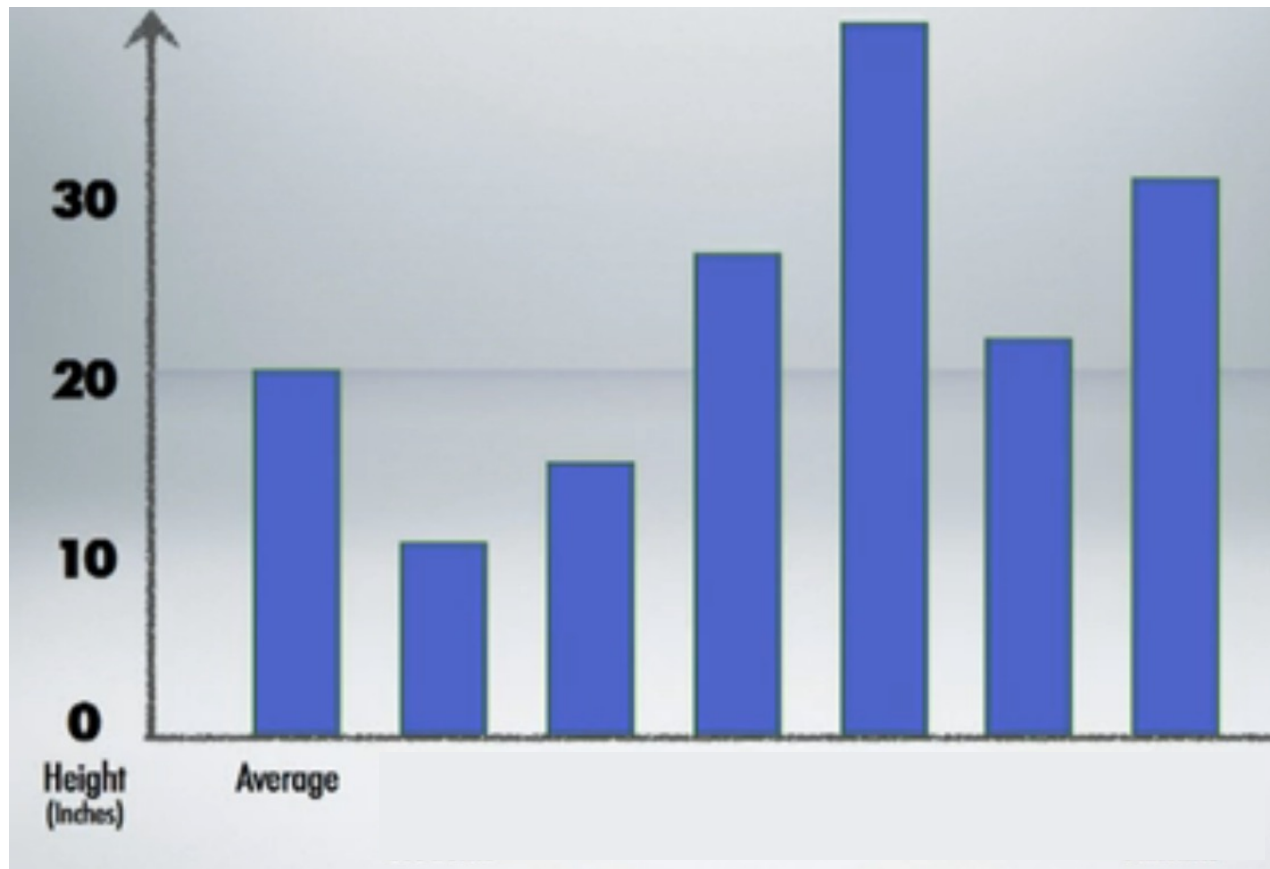
## THE MARSHMALLOW CHALLENGE

# TEST YOUR ASSUMPTIONS



## THE MARSHMALLOW CHALLENGE

# TEST YOUR ASSUMPTIONS



## THE MARSHMALLOW CHALLENGE

# TEST YOUR ASSUMPTIONS



**0**

Orient

Plan

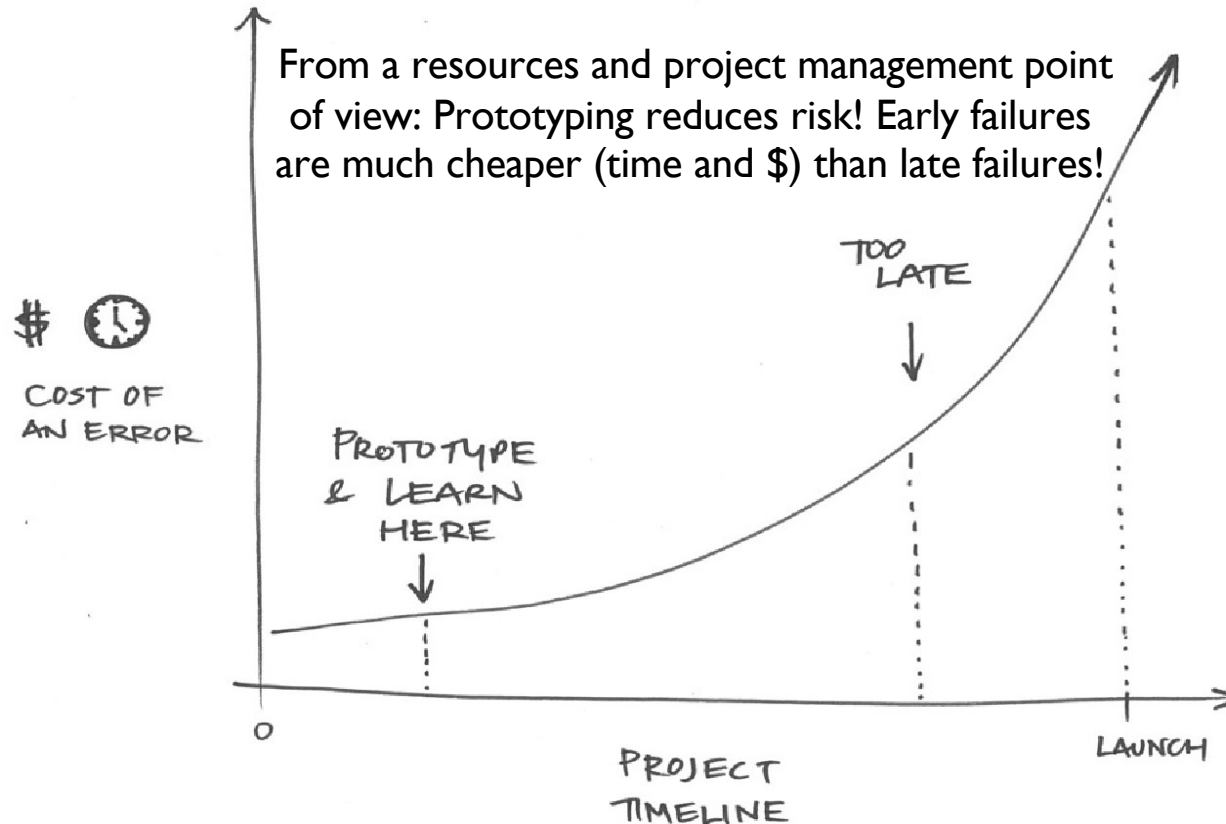
Build

Oh-Oh!

**18**  
Minutes

## THE MARSHMALLOW CHALLENGE

# TEST YOUR ASSUMPTIONS





prototype: how?

the bakery

The grin

# EXPERIENCE PROTOTYPE

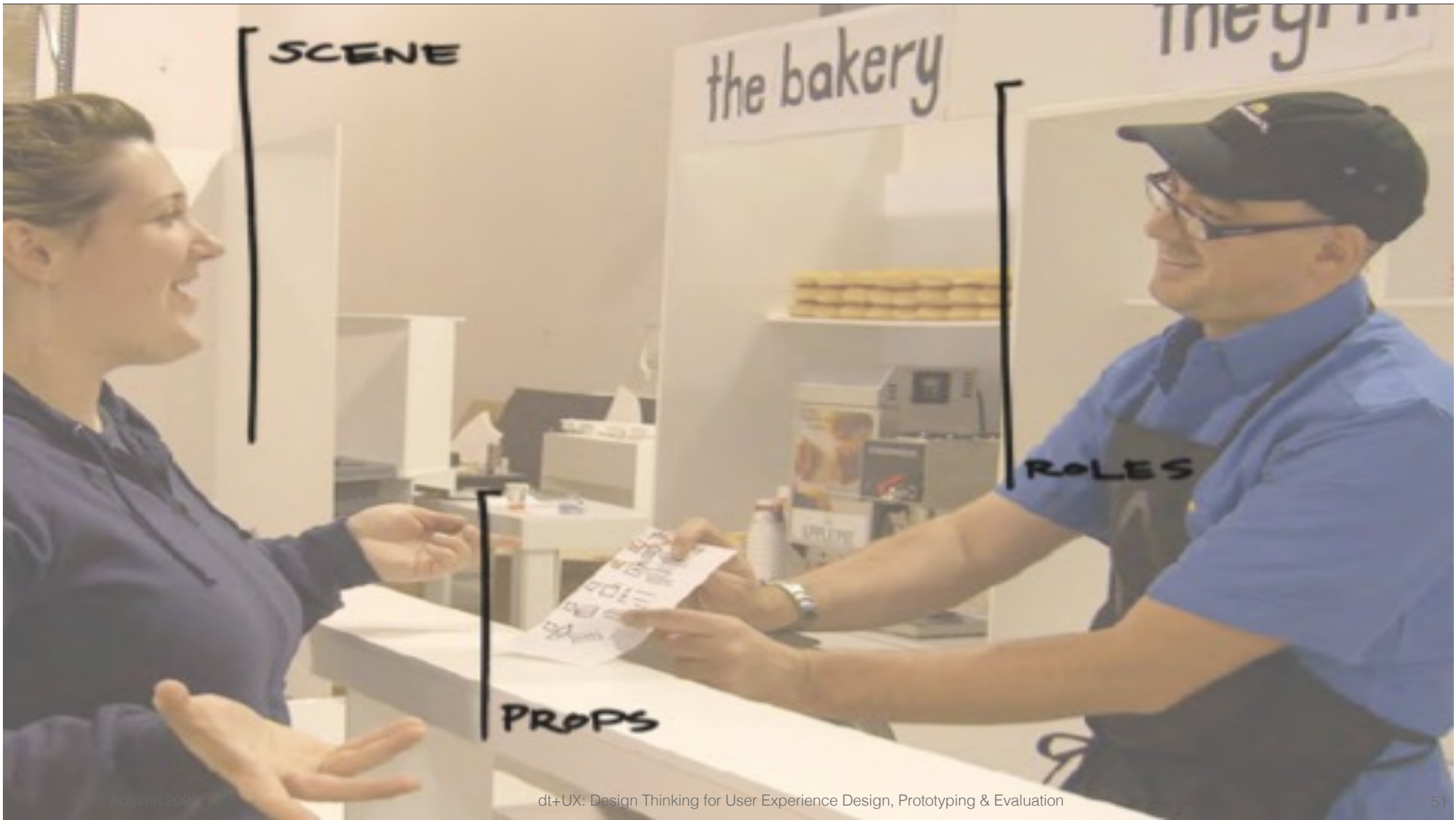
prototype: **how?**

the bakery

The grin





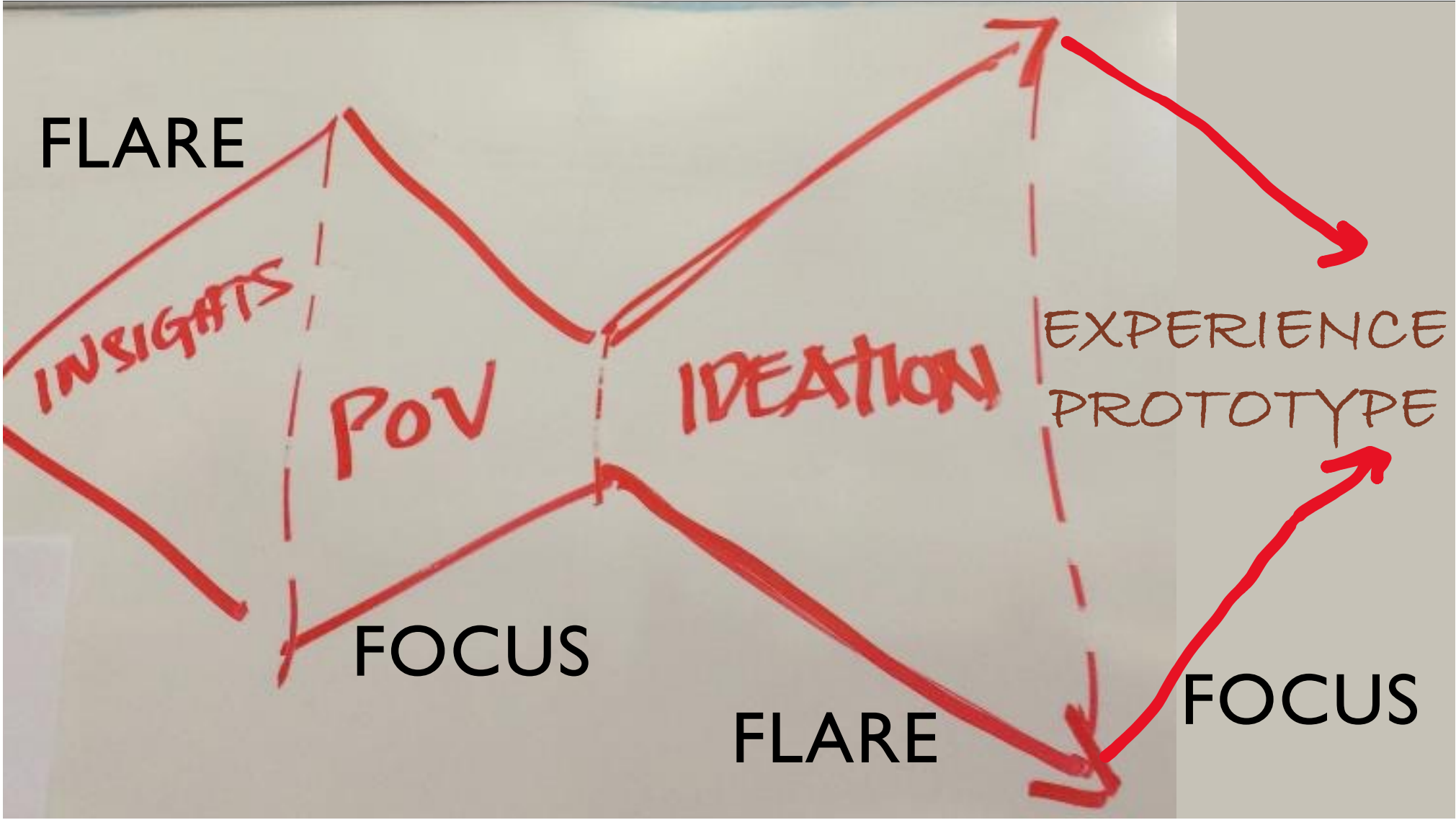


what new  
information do you  
have about the  
user's **need**?



TEST

what new  
information do you  
have about how your  
**solution** addresses  
the need? Are your  
**assumptions** correct?



**WE MET:**

Sandy +  
Christine

Globe-trotting golden canaries

**AMAZED to realize:**

They hated "canned"  
treatment, but are willing to lose  
control to get a refined,  
unique experience.

**GAME CHANGING TO:**

Have services for all (incl. non-guen)  
that will give them confidence  
to hand over control!



## WE MET:

Globe-trotting golden girls

## AMAZED TO REALIZE:

They hate "canned" treatment, but are willing to trade control for a more authentic, surprising experience.

## GAME CHANGING TO:

Trust us to delight them beyond the Hyatt walls.

How might we help guests turn the unfamiliar to familiar instantly?  
✓✓✓

HMW:  
Create an Adventure that changes based off participant direction?  
✓✓

HMW  
How might we?  
Create kiosks on the travel path?

HOW MIGHT WE?  
ALLOW PEOPLE TO TELL US THE TYPES OF EXPERIENCES THEY LIKE, BUT HAVE US CREATE GOOD ONES THAT ARE SURPRISING?

How Might we  
Help people start small and end big [learn to lose control] ? ? ?

Picture in Room with your photo's

ADD SYMBOLS TO THE ENVIRONMENT THAT HELP

App with Release the MIA's

App with Control Loop

CONTROL LOOP

Travel History

KEEP GOING TO OTHER HOTELS

PROBABLE HISTORY

Adjust as you go

KEEP GOING TO OTHER HOTELS

CIA SIX MISSIN

Adjust as you go

Team brainstorm of 17 why notes

How much time I want to spend

Icons are busy today

TRANSLATE SYMBOLS

NOTICE WHICH STAGE THEY LOVED TO ADAPT

REVEAL IN ENVELOPE

SECRET BUTLER

COMPARE WILSON VS. VILKOVIC -> frame trip

Can't come in tonight

TOP FROM MOM

MOM AS TOUR GUIDE

REVEAL IN ENVELOPE

TAPE DEPTOHS SPACE

TRAVEL PROFILE

TIE A TO GUEST THEY'RE HERE

Sand guide to Mom's kitchen

PERSONAL MOM (YOUR COOPER)

Creating a central account

DIVERGENT + RECONVERGE

HEAR WHAT PEOPLE LOVE

CRITICAL MOM

MOM

PERSONAL MOM (YOUR COOPER)

Creating a central account

DIVERGENT + RECONVERGE

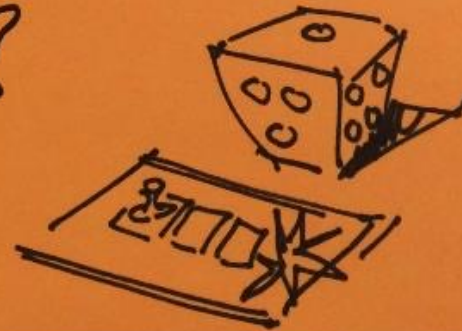
HEAR WHAT PEOPLE LOVE

CONSTRAINTS TOOL  
Continue your brainstorm: How might we...

HMW

HOW MIGHT WE?

"GAMIFY" THE TRANSITION  
OF CONTROL?





TO:  
(incl. non-guests)  
confidence  
rol!

points for risk today

remote places - more points

DANGER ZONE

MORE POINTS FOR # OF NEW RACES

\$ credit back @end

AWARD FOR STORIES LP

prize bin

Amazing race

STORY CHANGES

DO IT WITH A TEAM

Escape from places

NO MORE POINTS

NO LIFE MONEY

Learn about your new group

AWARDS

LET'S STRENGTHEN CONFIDENCE

Team skills - team it

Presented out of Plan

Produce results

Build on what you know

CAUSED HAPPEN TO OTHER

Let's High P-11

ONLY PAY IF YOU DON'T HAVE FUN

NO PROBLEMS

I'M THE BEST



How might we help  
help guests turn  
the unfamiliar to  
familiar instantly?

How  
Create an adventure  
that changes how off  
participant direction?

How  
How will we?  
Get people on the  
panel path?

How might we  
allow people to  
take in the mess  
of the messages  
there's love, gut  
there's great good  
there's the good

How might we  
Help people turn  
mess and end up  
[down to low mess?]

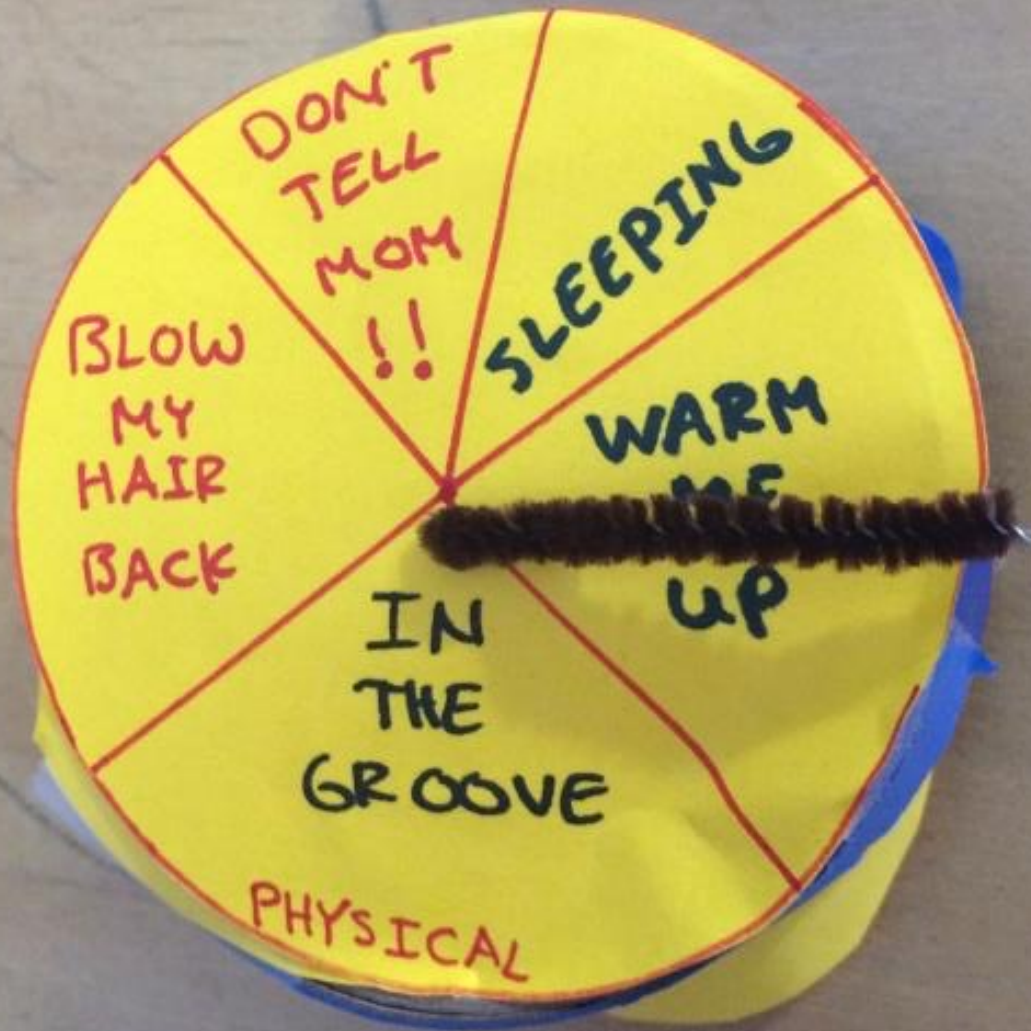
INTENTION  
ON CRITERIA  
to succeed  
to delight our user  
through it...

Criteria your intention: How might we...  
A. Every idea must cost at least \$1 million to create.  
B. Every idea must get you in touch with your idea.  
C. Every idea must break the law in some way.









DON'T  
TELL  
MOM  
!!

SLEEPING

WARM  
ME  
UP

IN  
THE  
GROOVE

PHYSICAL

BLOW  
MY  
HAIR  
BACK





# Creating an Experience Prototype

- Analyze the assumptions your solution is making
- How do you know they are true?
- Test with an experience prototype



## IMPROVISING TOOL

How to improvise to bring an experience to life

### **SET THE SCENE**

Imagine yourselves in a specific location.

*("Okay, we are at the \_\_\_\_\_ . . .")*

### **DEFINE ROLES AND START PLAYING THEM**

Just jump into what makes sense.

*("I'm the \_\_\_\_\_ person and you are \_\_\_\_\_ . . .")*

### **IMPROVISE TO DISCOVER**

Build on each other's ideas and keep the scene alive.

Try out ideas by playing through them.

## SCENE-PROPS-ROLES TOOL

**SCENE**  
of the experience

how do you make where  
you are feel like the  
“real” setting/context?

---

**PROPS**  
in the experience

what are the rough  
versions of the physical  
things?

---

**ROLES**  
involved in experience

what are the roles of those  
“creating” the experience?  
who are “receiving”  
the experience?  
(save these roles for testers)

# Assumptions



# Experience Prototypes

*Verify our assumptions*



Remember Janice in the airport from earlier...



**We met...** Janice, a harried mother of 3, rushing through the airport only to wait hours at the gate.



**We were surprised to notice...** she makes up many games to entertain her children during the wait.



**We wonder if this means...** she is stressed that they will irritate fellow passengers if she's unable to distract them.



**It would be game-changing...** to bring the other passengers and the airport facilities into the helping families have a better travel experience.

How might we...  
make the wait the most *exciting* part of the trip?







**So we came up with a bunch of solutions**



## **Our Solution**

An app that leads kids on a scavenger hunt adventure around the airport.

## ASSUMPTION #1

Parents and kids are willing to move a lot during a long wait.

## ASSUMPTION #2

Kids are interested in adventuring in unfamiliar places.



## Experience Prototypes

Let's test our assumptions!

- ✓ particular concerns
- ~~✗ the entire solution / idea~~



## EXPERIENCE PROTOTYPE EXAMPLE

**Assumption #1:** Parents and kids are willing to move a lot during a long wait.







## EXPERIENCE PROTOTYPE EXAMPLE

**Assumption #2:** Kids are interested in adventuring in unfamiliar places.

# Do It Now

Come up with an **assumption** and **experience prototypes** to test this assumption

## Solution

An app that leads kids on a scavenger hunt adventure around the airport.

# Parallel Experience Prototyping Goal

Prototype to **test an assumption**

Prototype should usually be a **piece of an idea** rather than a complete solution

Think of it as a **needfinding** technique

Do **not** make a low-fi prototype

# Experience Prototypes Tutorial by Previous Head TA Kristina Inouye (23 min)

<https://www.youtube.com/watch?v=QAWQleGon0k>

## Summary

Ideation let's us use brainstorming to *separate* idea generation from idea evaluation.

“How might we’s” let us brainstorm solutions to a more specific set of problems.

Experience prototyping allows us to try many ideas quickly, test assumptions & learn more about the problem & solution space (*prototype to learn*).

# Next Time

- Monday
  - Concept Videos
- Studio
  - Present your initial needfinding results & work in studio on initial Point of Views
- Watch/Read
  - [video prototypes from prior courses](#) (they are online in the schedule)
  - [Ways to Create Ecosystems](#) (5:43), Sharon Vosmek, Astia
  - [Experience Prototypes Tutorial](#) by Former Head TA Kristina Inouye
  - Optional Watch: [Ways of Working](#) (5:50), Sue Siegel, GE
  - Optional Read: [Design critiques at Figma](#) by Noah Levin



# Exit Ticket

<https://bit.ly/CS147-2023au-exit-ticket-2-274>