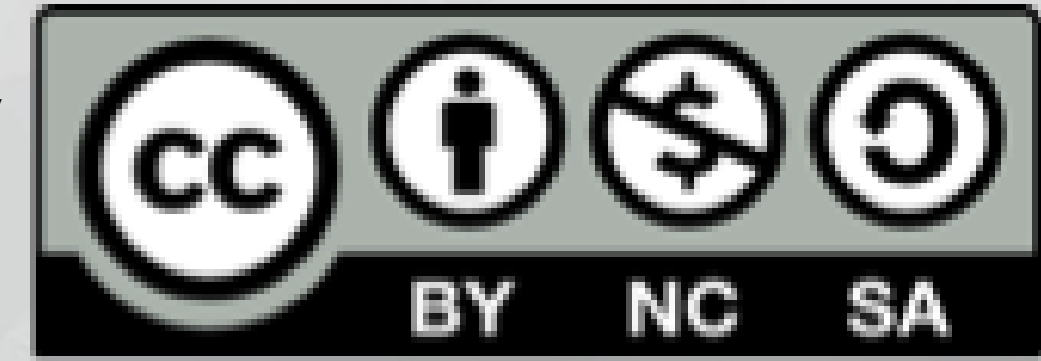


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Ideate

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2025
October 6, 2025

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

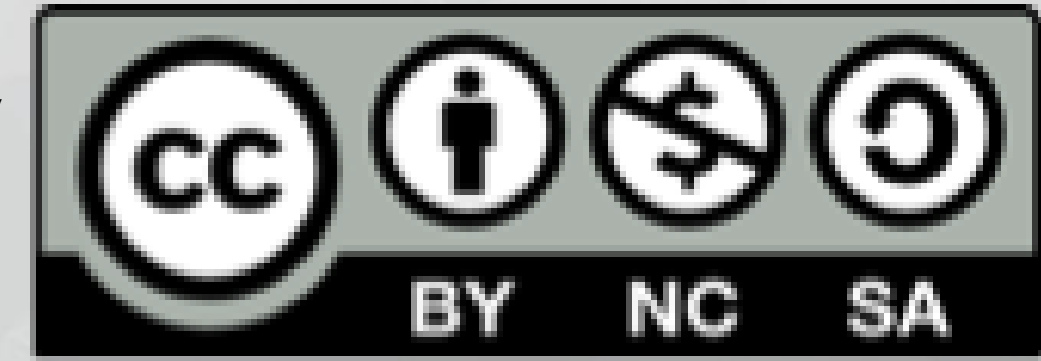
Many things require navigating menus

Text entry is almost impossible

So small that it is easily lost

But, common tasks easy

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Ideate

Prof. James A. Landay
Computer Science Department
Stanford University

Autumn 2025
October 6, 2025

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 . . .

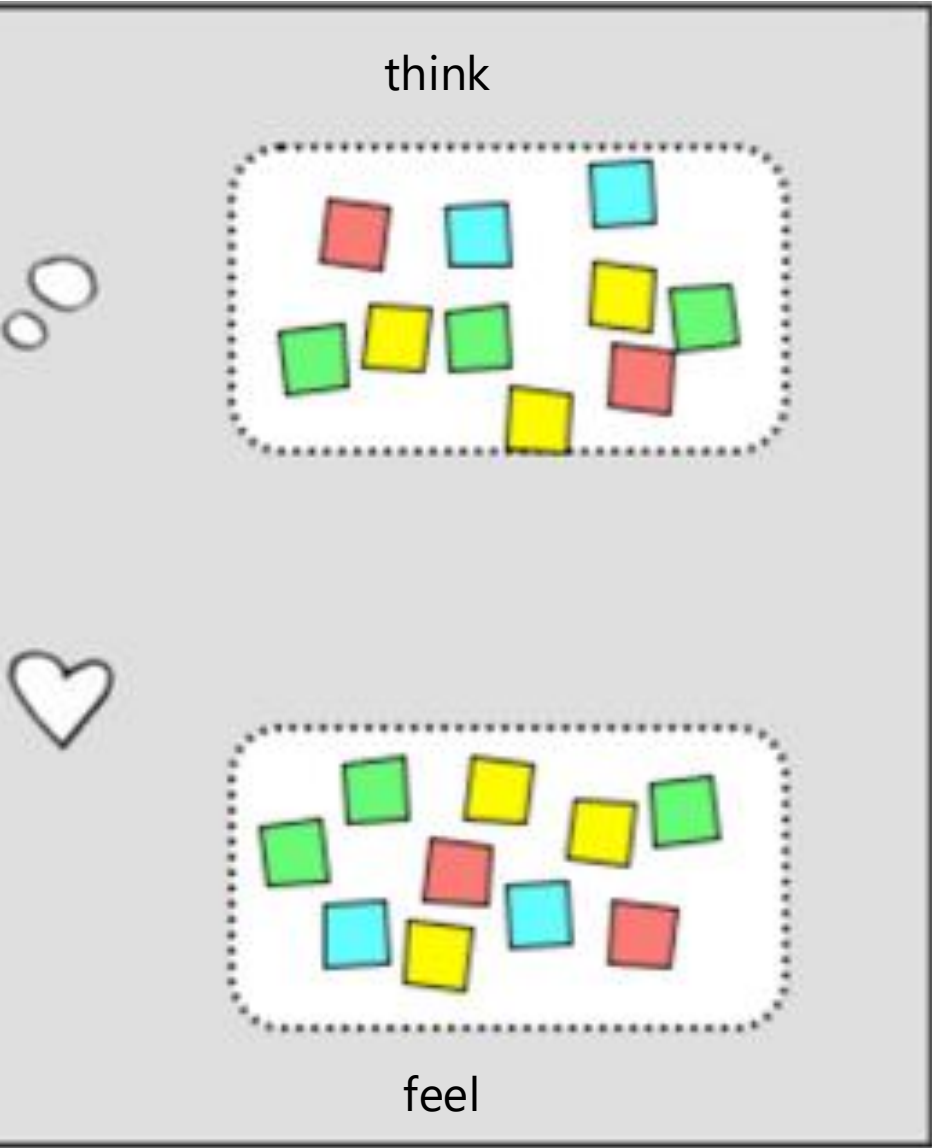
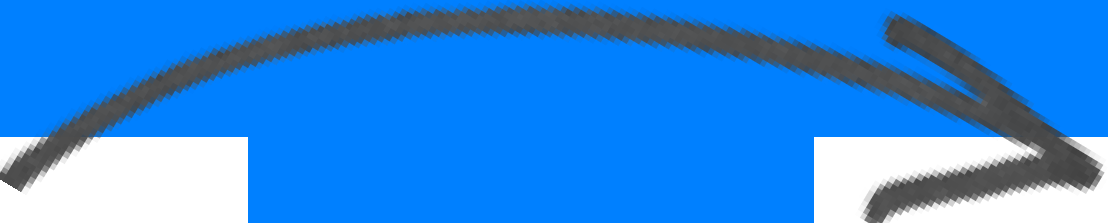
(what did you infer? **need**—verb reflecting user needs)

IT WOULD BE GAME-CHANGING TO . . .

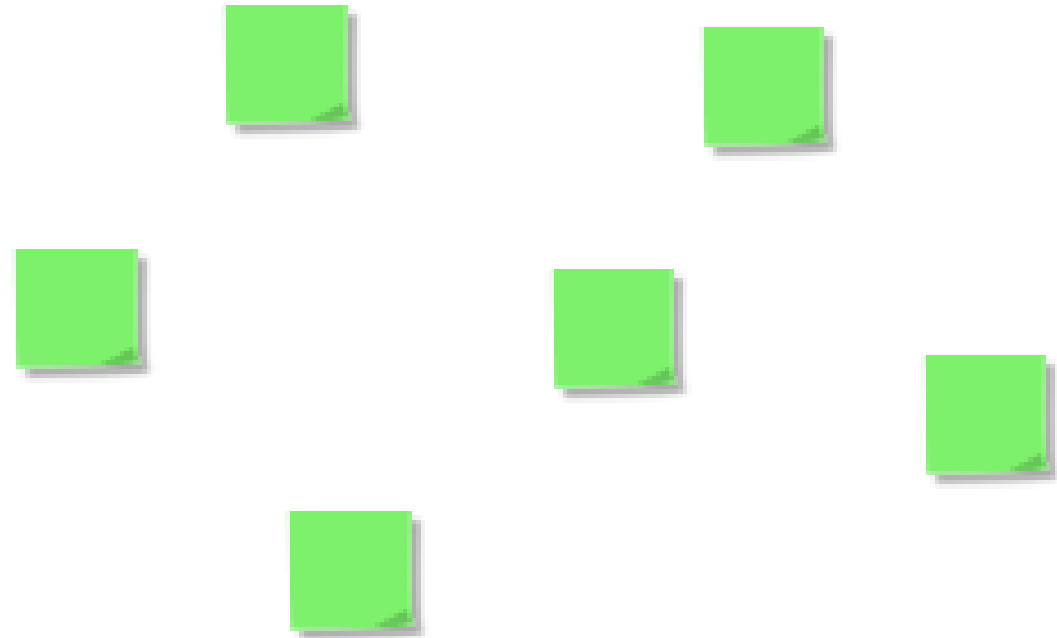
(Frame up an **inspired challenge** for your team.

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

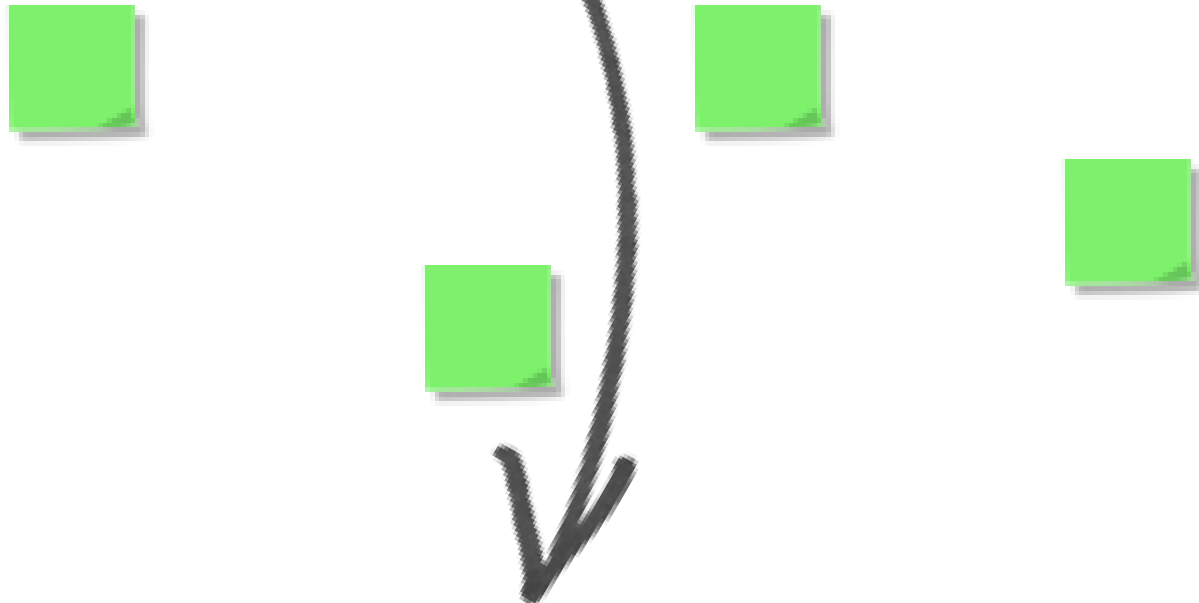
I wonder if this means . . .



TENSIONS,
CONTRADICTIONS,
SURPRISES



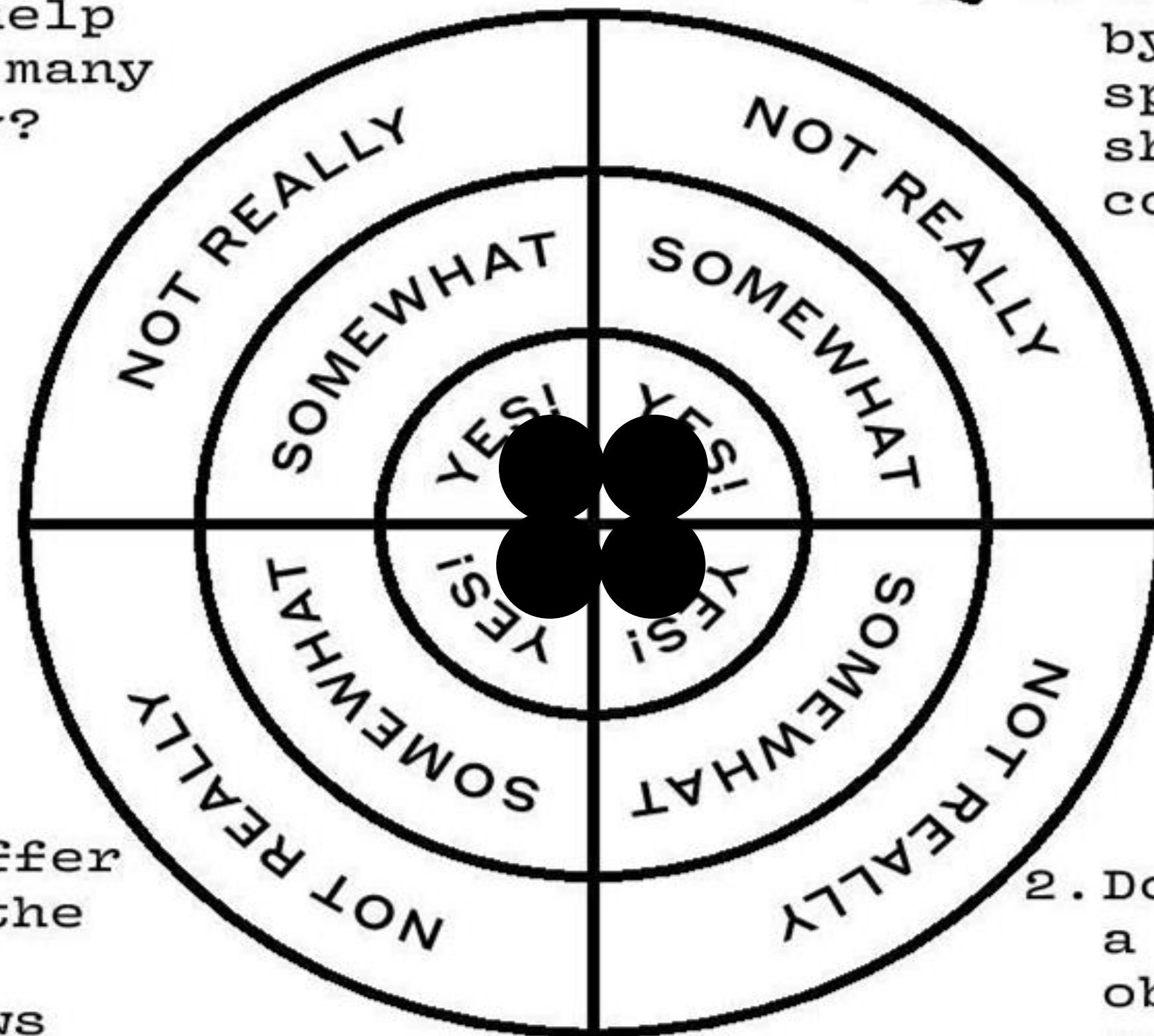
NEED



INSIGHTS

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?

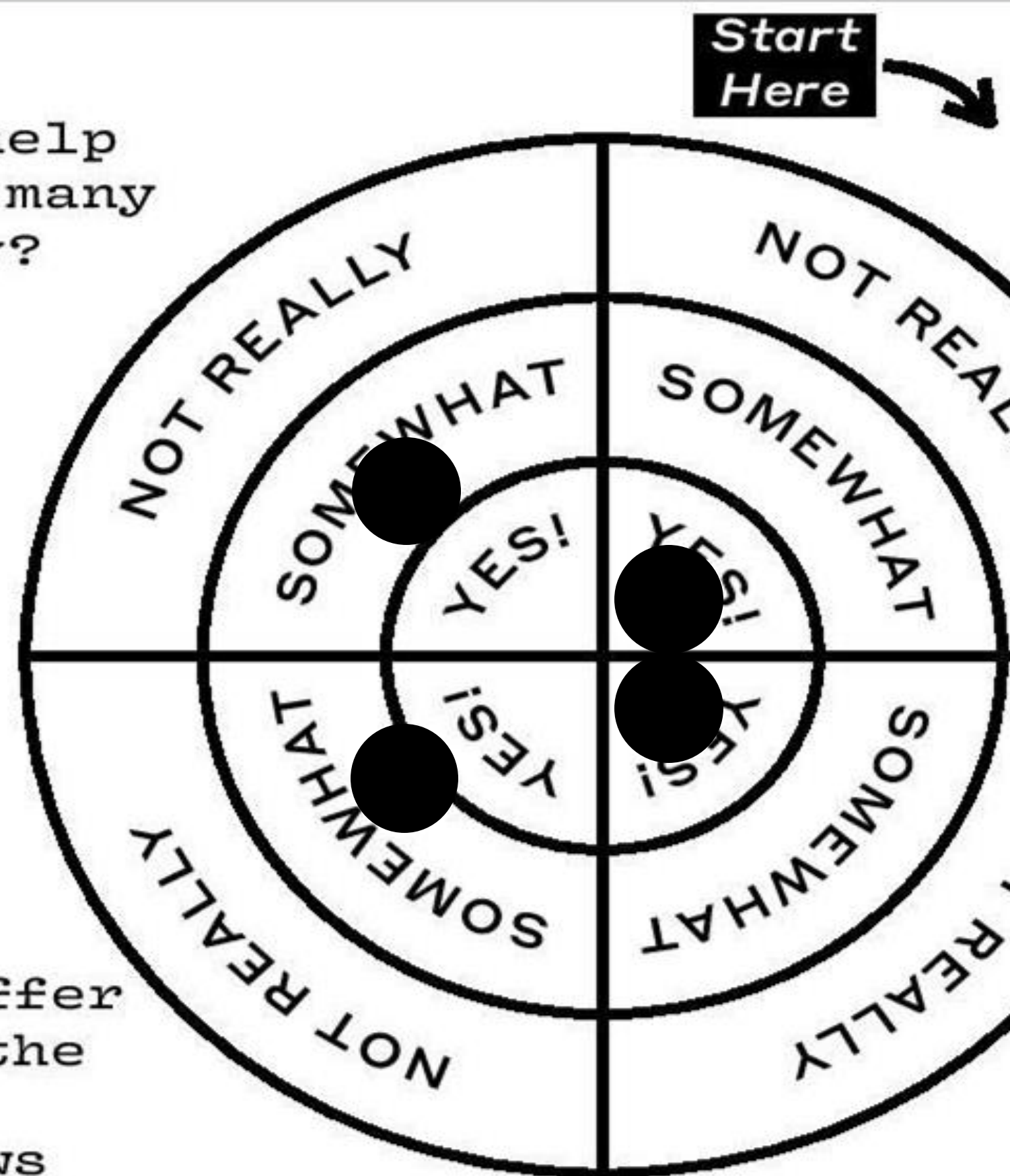
We met... a young female truck owner, with an ME background, who loves owning her truck & learning about it.

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.

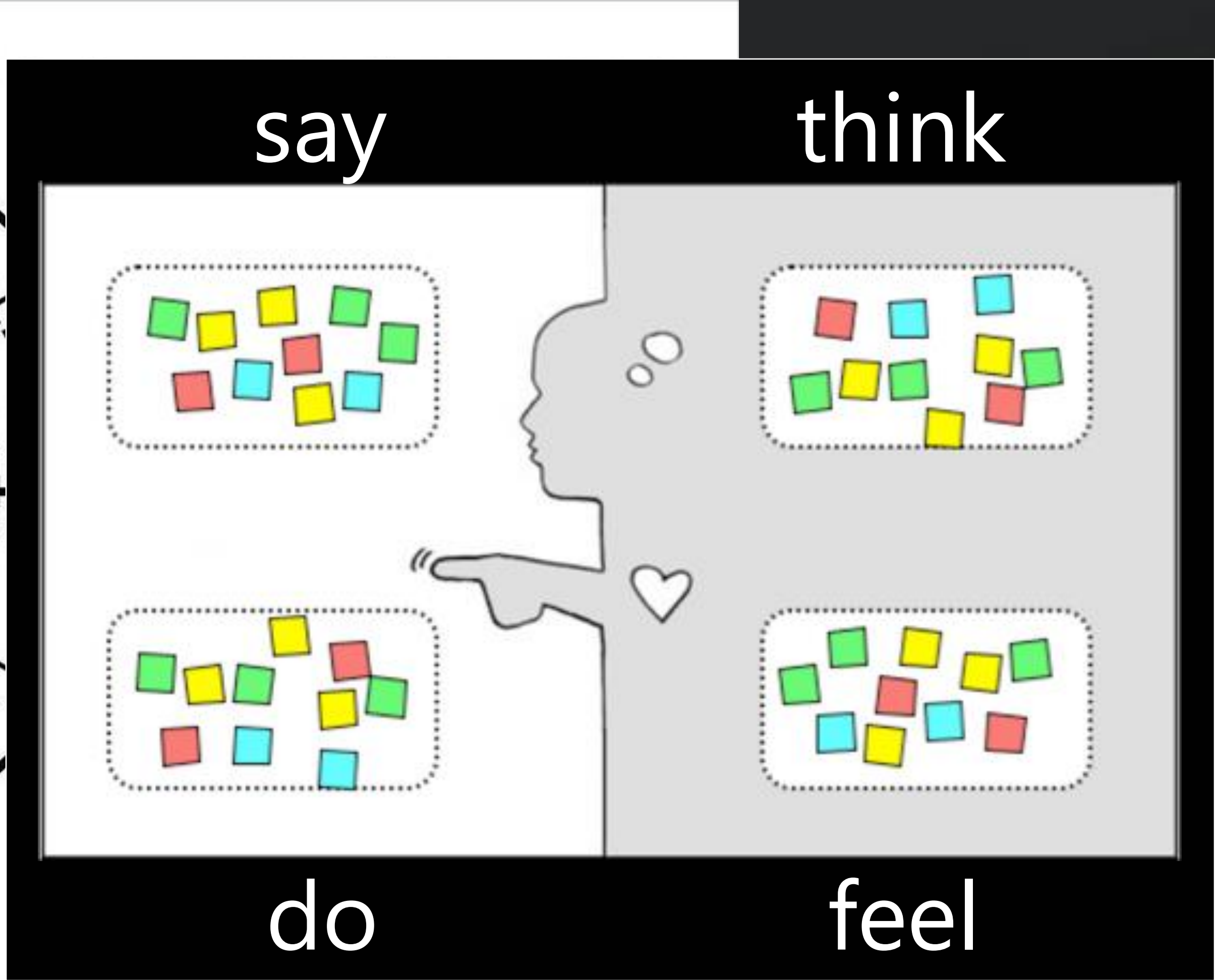
We wonder if this means... she is trying *to protect her persona and confidence* as a truck owner.

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?



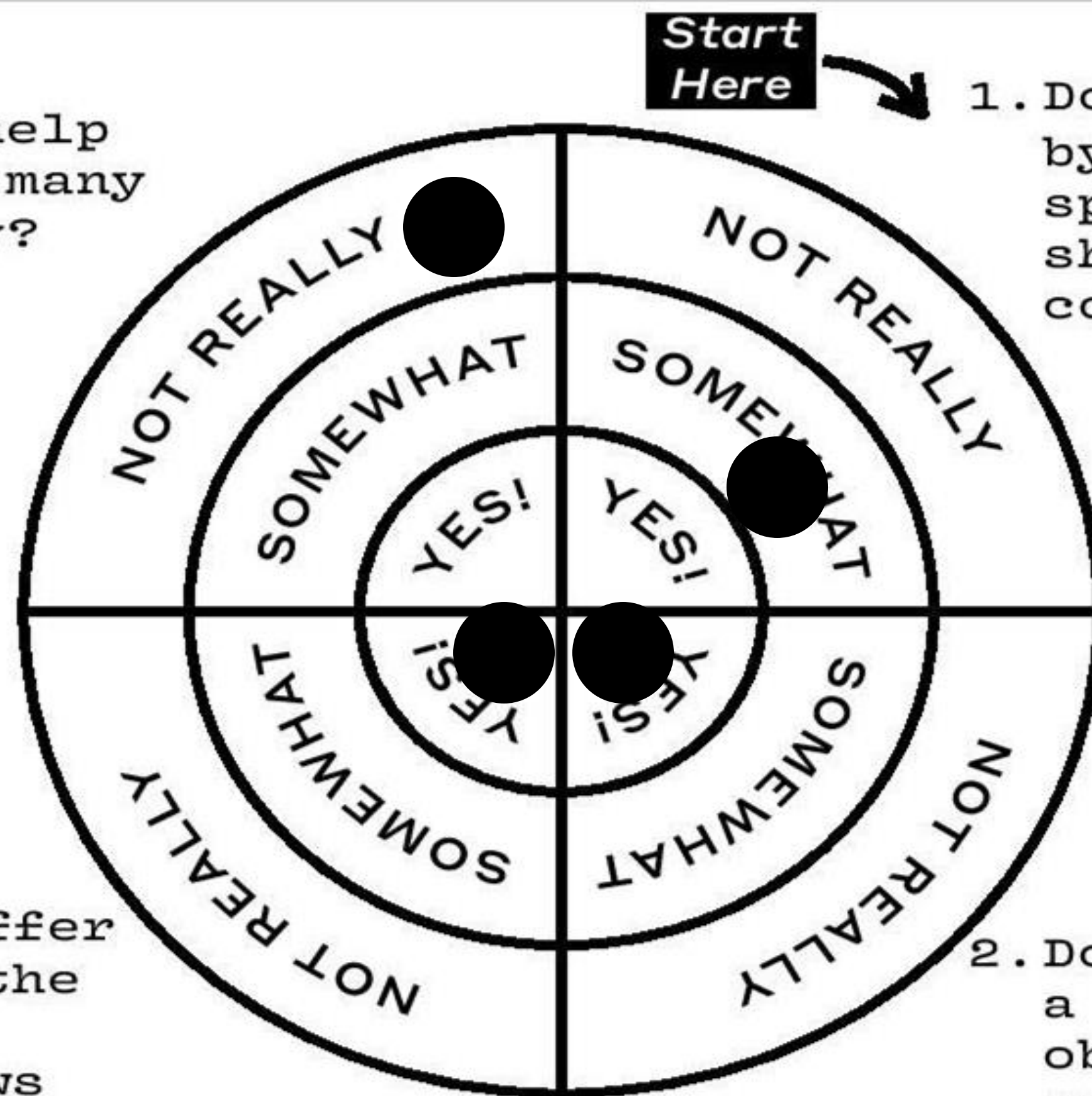
We met... a mechanical engineer who owns a truck that she really likes using and is interested in learning more about.

We were surprised to notice... she pretends to be already familiar with everything when she brings her truck in for repairs.

We wonder if this means... she wants to learn more about her truck.

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?

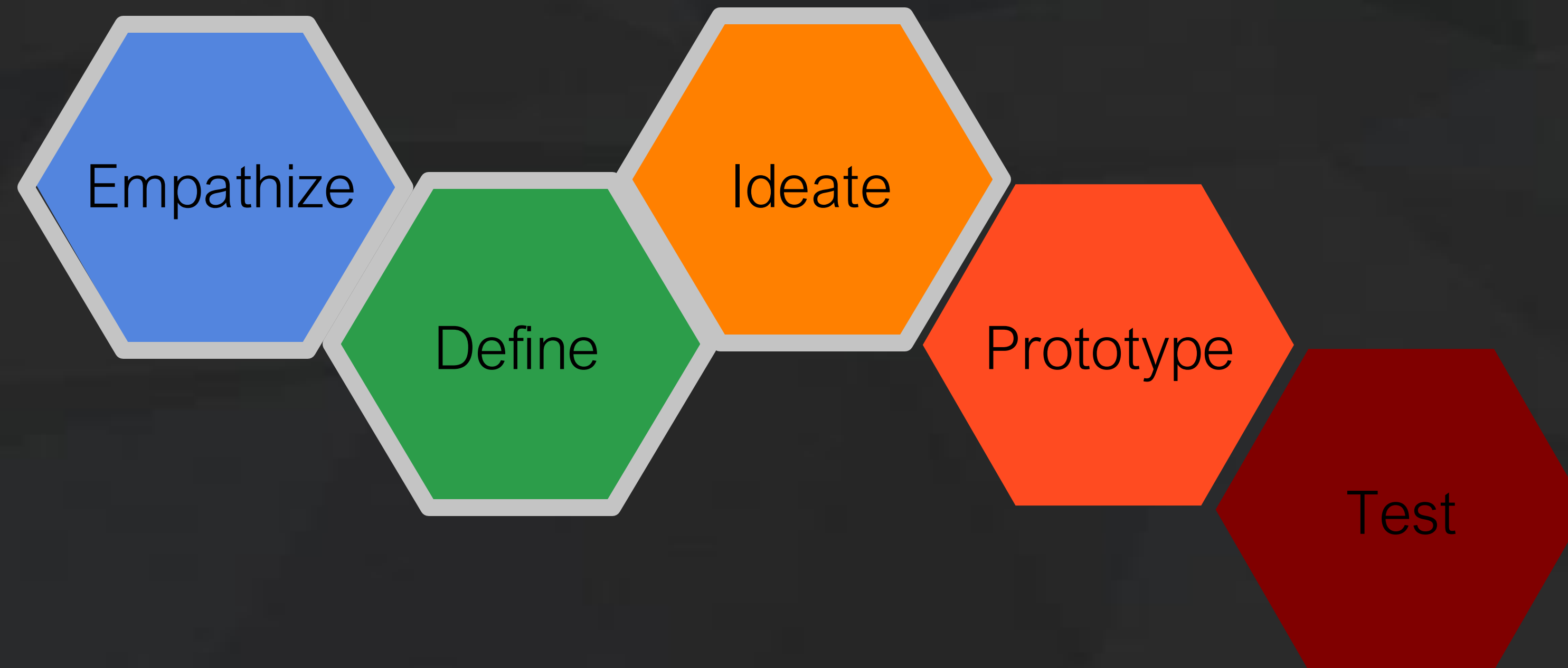
We met... a woman who drives a truck and is a mechanical engineer at Stanford.

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 wants to overcome her fear that 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).

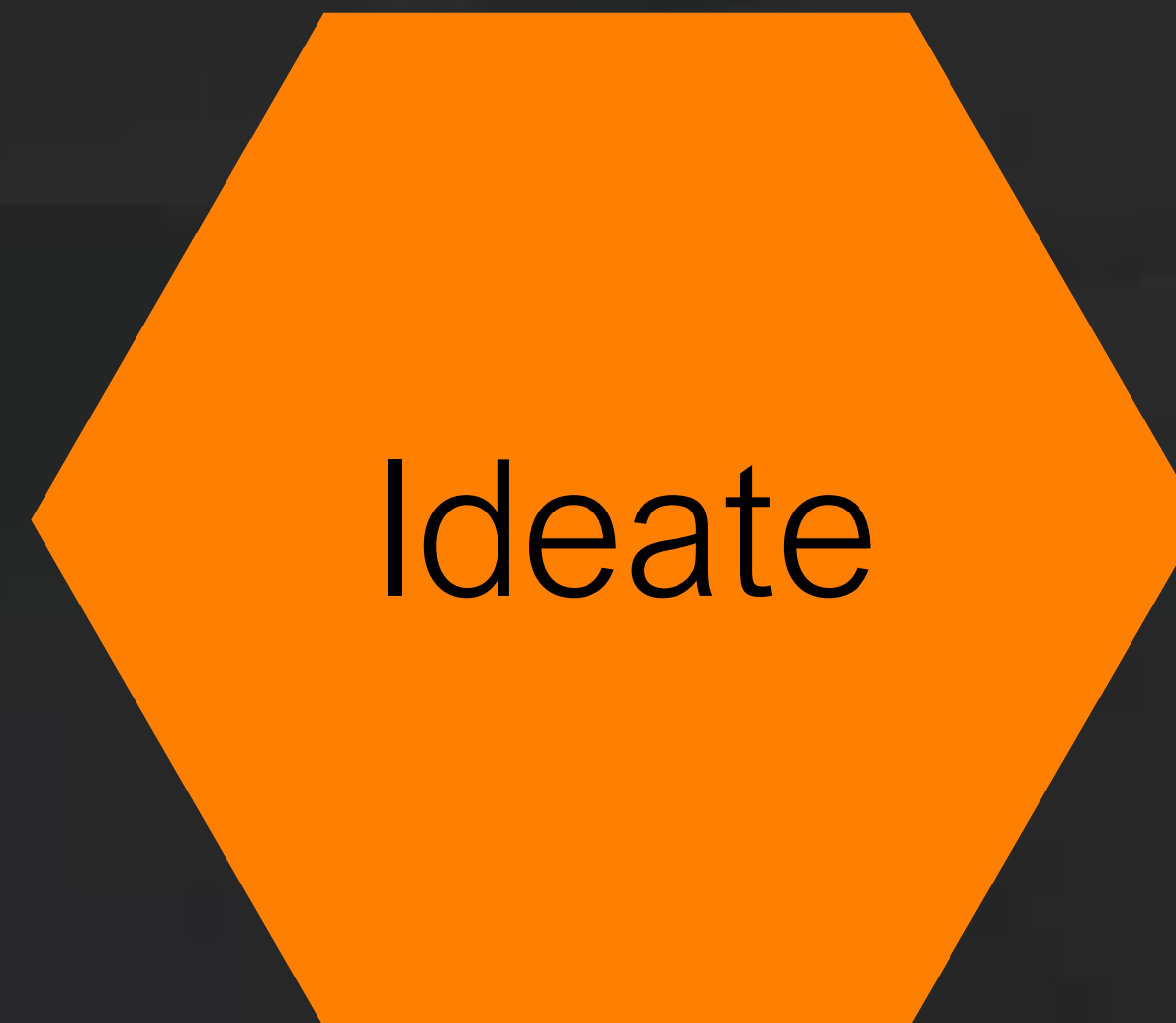
Design Thinking



Design Thinking



innovation
potential



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/cs147/2025/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/cs147/2025/au/readings/bootcamp_bootleg.pdf - page=29



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/cs147/2025/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?

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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 DEGREE OF
THE FISHING LIFESTYLE AND CONNECTION TO NATURE, HE HAD TURNED HIS LIFE
AROUND FROM DRUG ADDICT W/OUT A JOB TO SOMEBODY WITH SKILLS + CAPABILITIES

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)
less

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/cs147/2025/au/readings/bootcamp_bootleg.pdf - page=32



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/cs147/2025/au/readings/bootcamp_bootleg.pdf - page=31

Brainstorming Demo: two brainstormers

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>

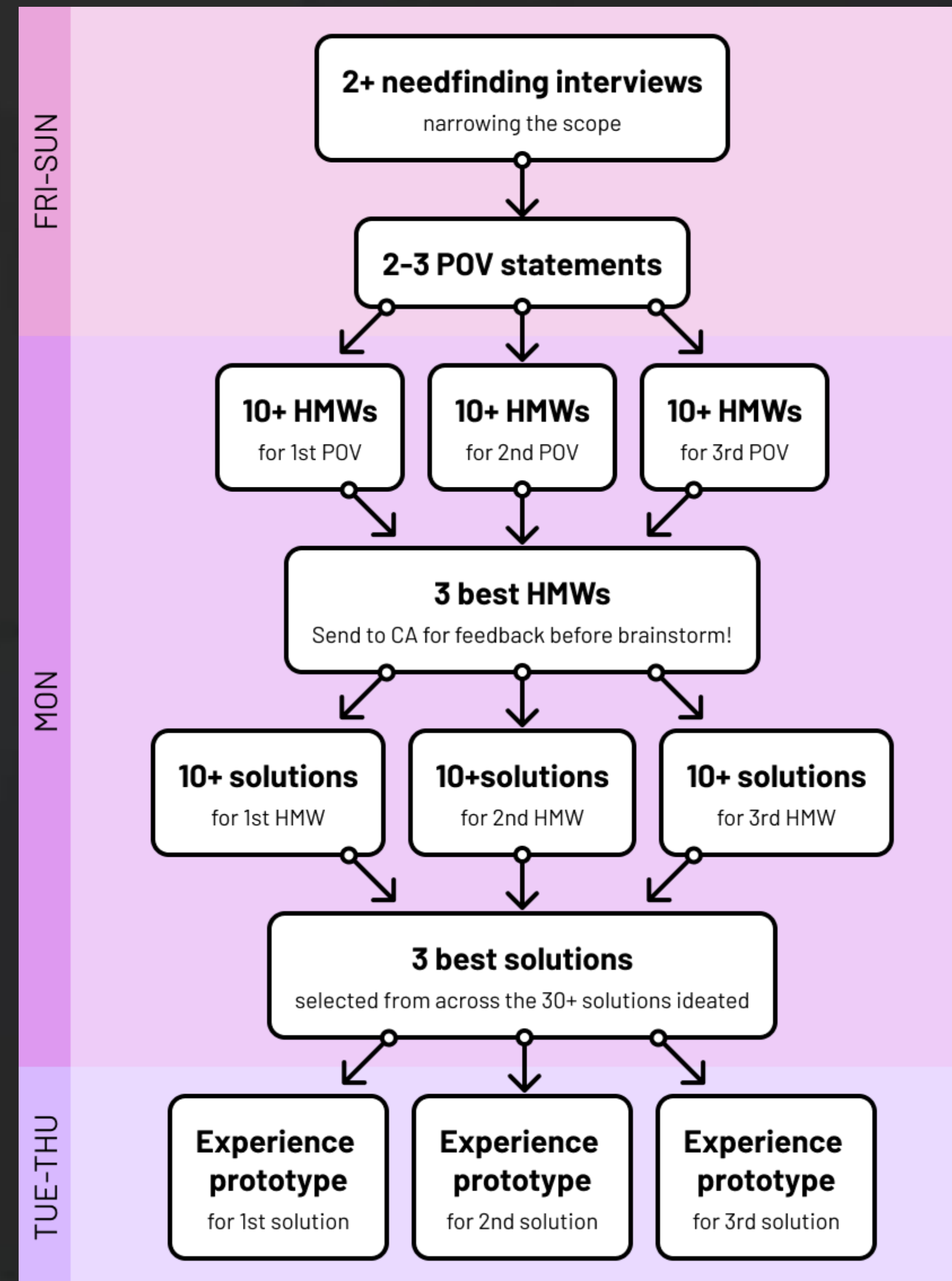
Administrivia

- Watch (if you haven't already)
 - *Experience Prototypes Tutorial*
by 2022wi Head CA Kristina Inouye (23 min)
<https://www.youtube.com/watch?v=QAWQleGon0k>
- Web workshop recording is up (see calendar page)
 - More workshops coming up led by our great CAs

Exit Tickets & Attendance

- Reminder that attendance is recorded at every lecture!
- There will be 1 exit ticket per lecture. You will have 24 hours from the end of lecture to turn it in.
 - exit tickets shouldn't take longer than 5-10 minutes to complete, and will be based on both lecture and readings/videos/podcasts.
 - exit tickets are graded on accuracy and will count as a part of your participation grade (participation worth 10% of your grade). – and we **drop your lowest exit ticket**
 - there is a feedback section at the end of every exit ticket; we encourage you to fill it out! We read all feedback!

Next Assignment (due this week's studio)

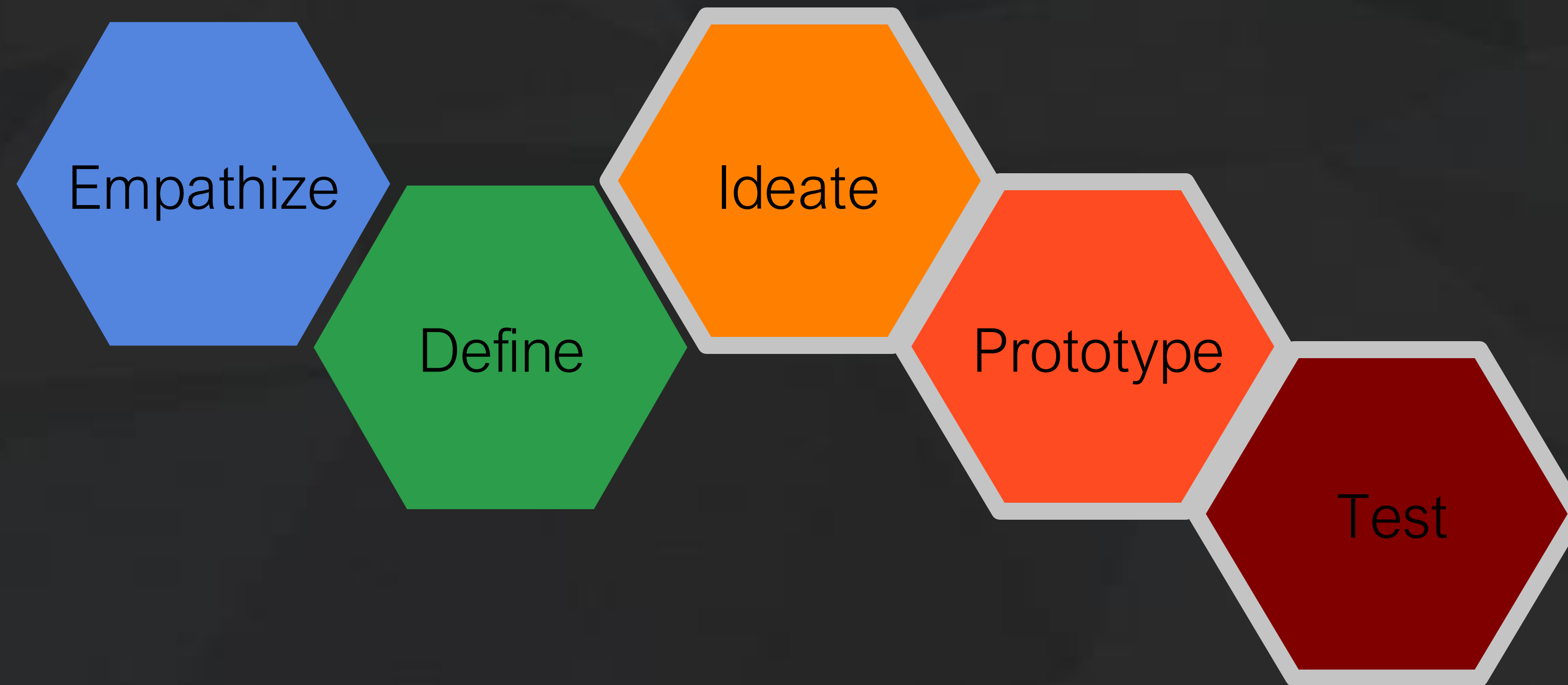


3-4 hours

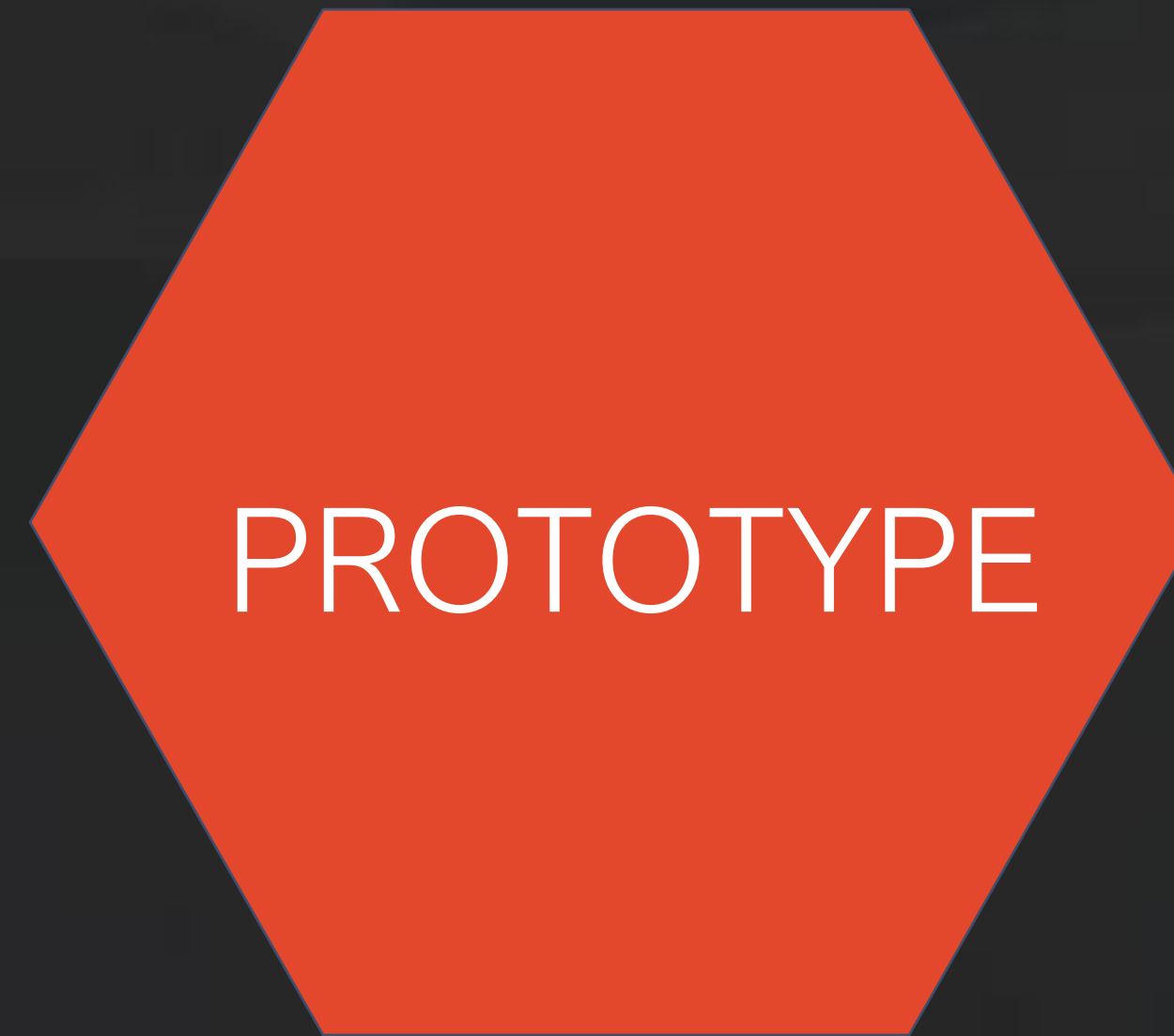
Team Break (15 min)

- Teamwork contracts (if not yet done)
- CAs will give live feedback on A1 (stay in the room)
- Generate POVs or HMWs for A2
 - Or revise the ones you have
 - Share on your studio slack to get feedback

Design Thinking



to think



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

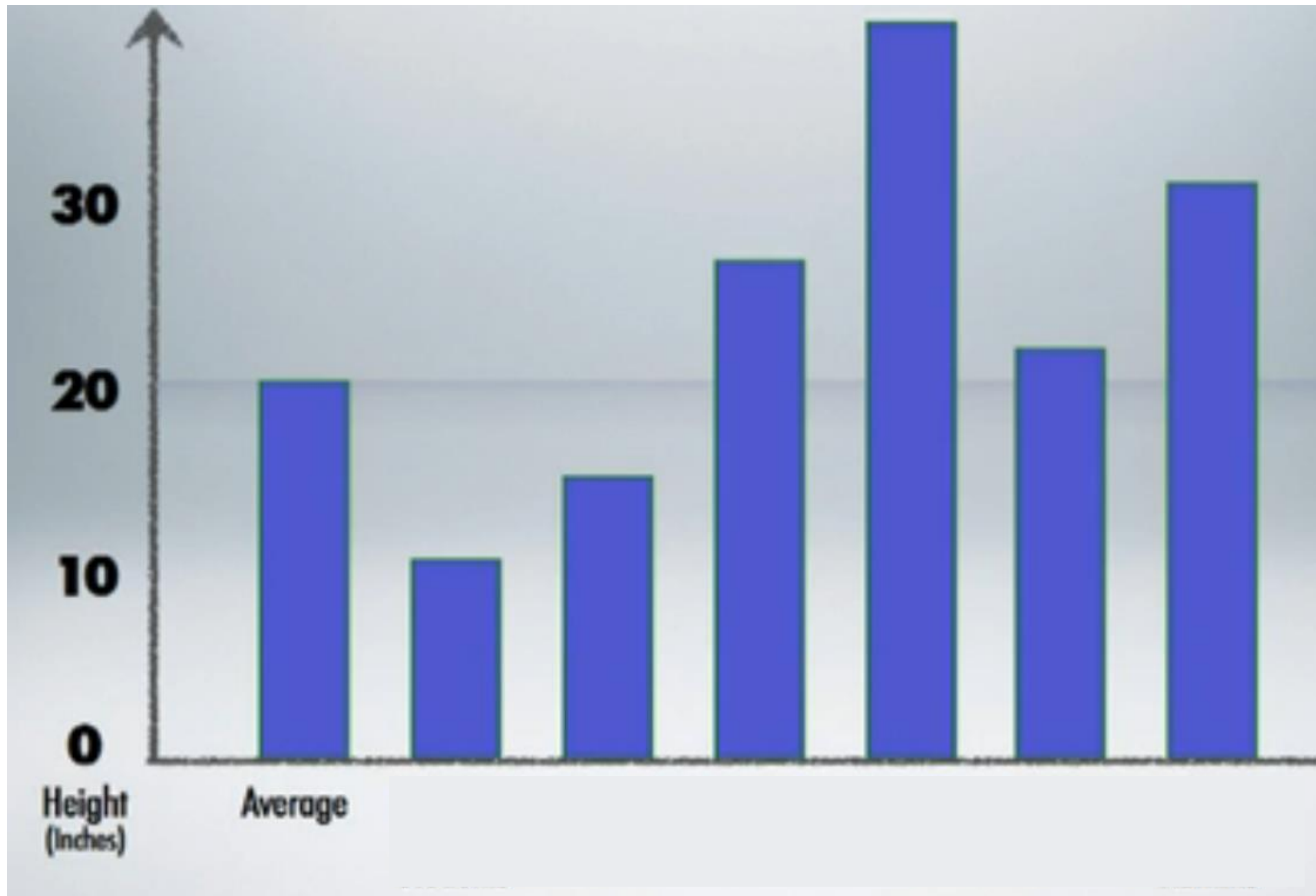
THE MARSHMALLOW CHALLENGE

TEST YOUR ASSUMPTIONS



THE MARSHMALLOW CHALLENGE

TEST YOUR ASSUMPTIONS



THE MARSHMALLOW CHALLENGE

TEST YOUR ASSUMPTIONS



0

Orient

Plan

Build

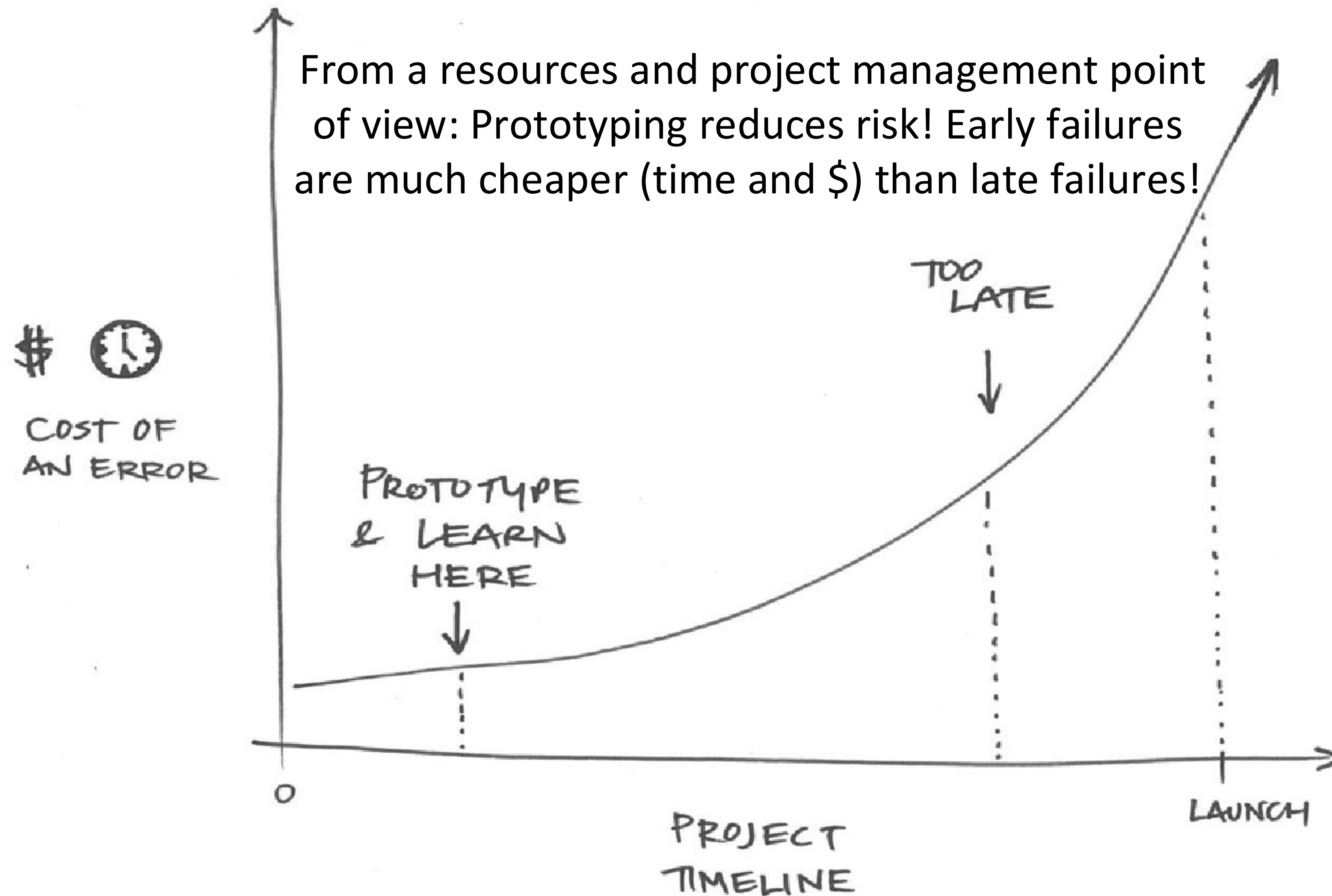
Oh-Oh!

18

Minutes

THE MARSHMALLOW CHALLENGE

TEST YOUR ASSUMPTIONS



prototype: **how?**

the bakery

the gym

EXPERIENCE RECEPTOR TO TYPE

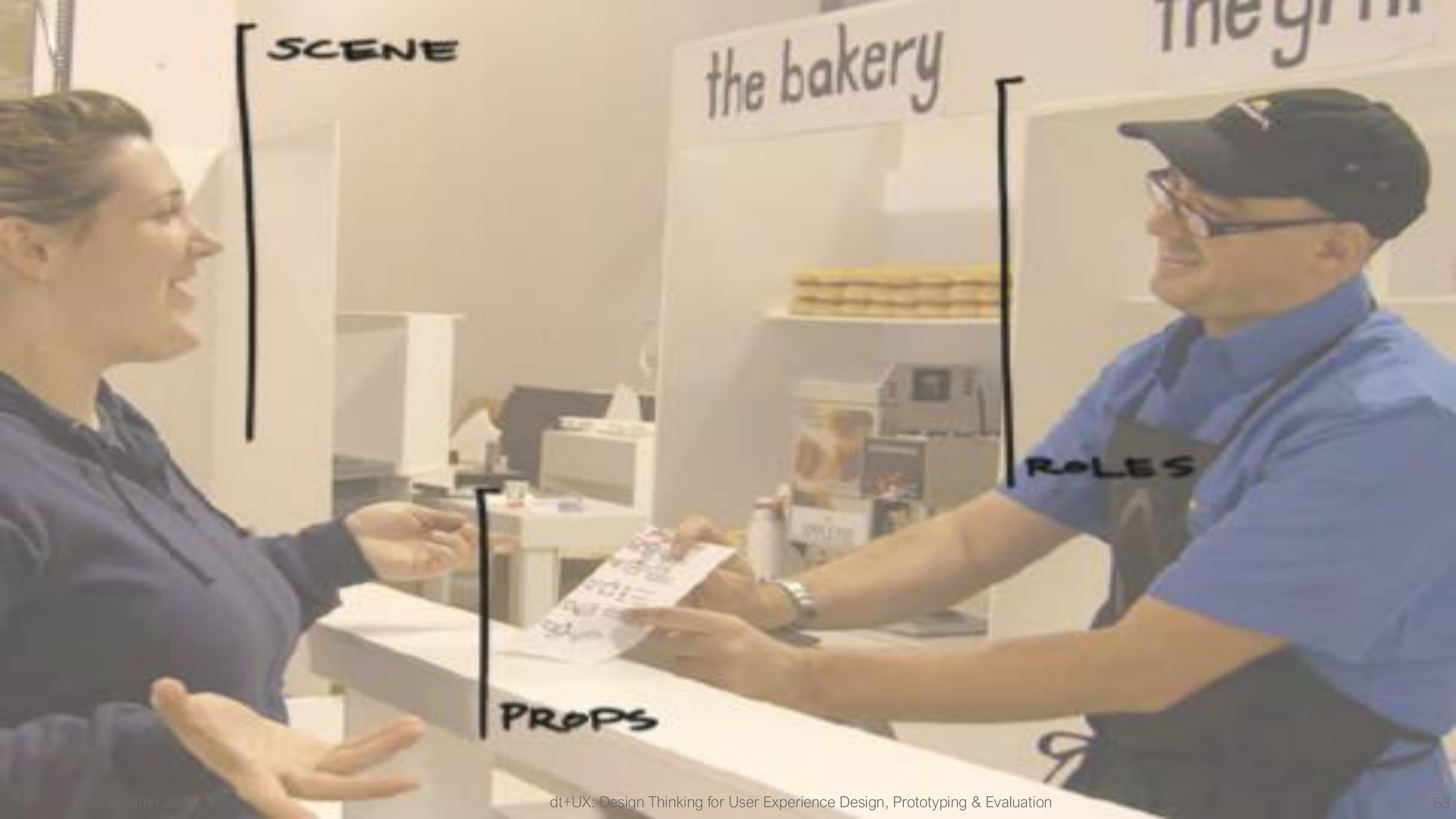


prototype: **how?**

the bakery

the gym





SCENE

the bakery

the bakery

ROLES

PROPS

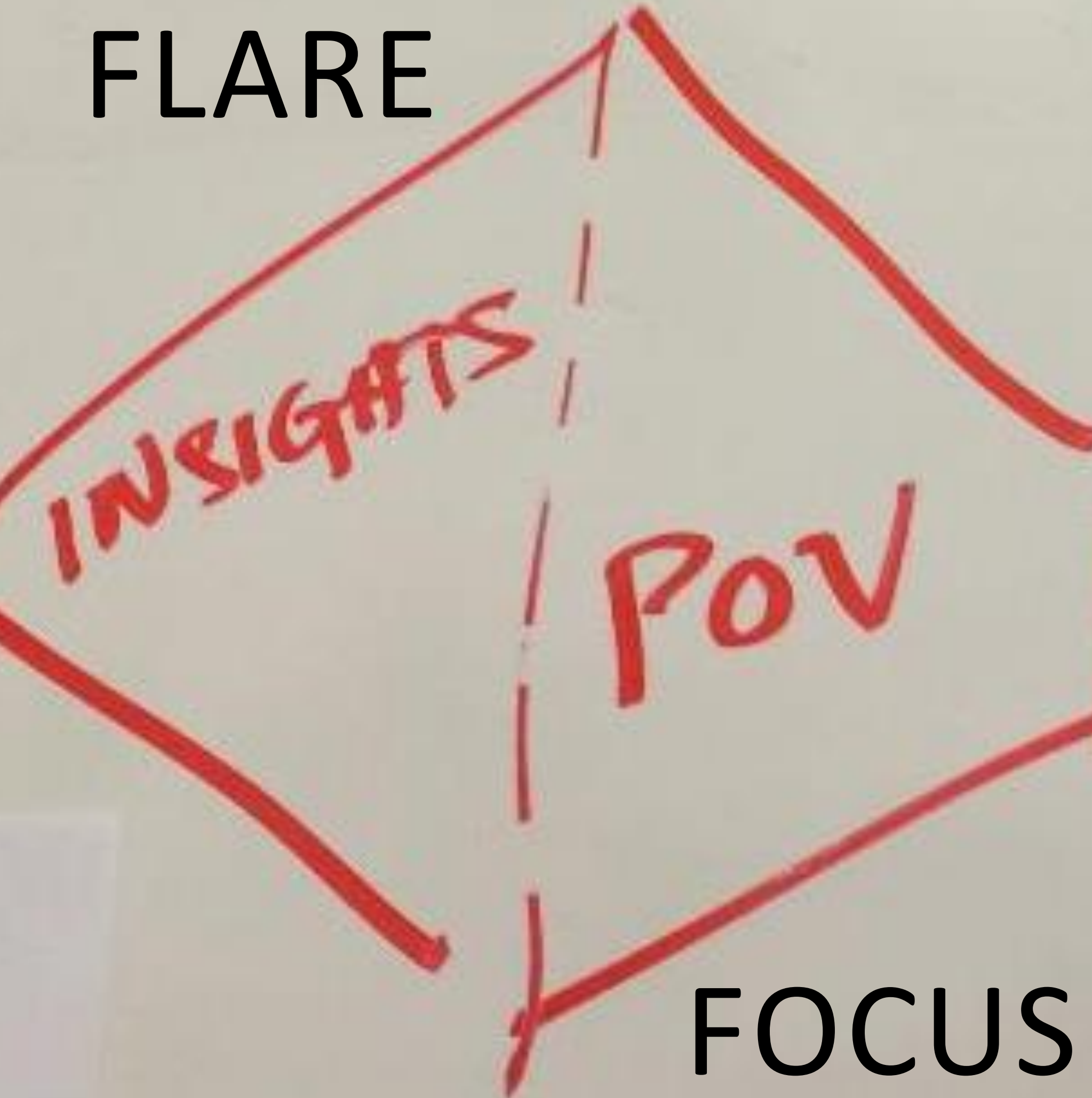
what new
information do you
have about the
user's **need**?



TEST

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

FLARE



POV

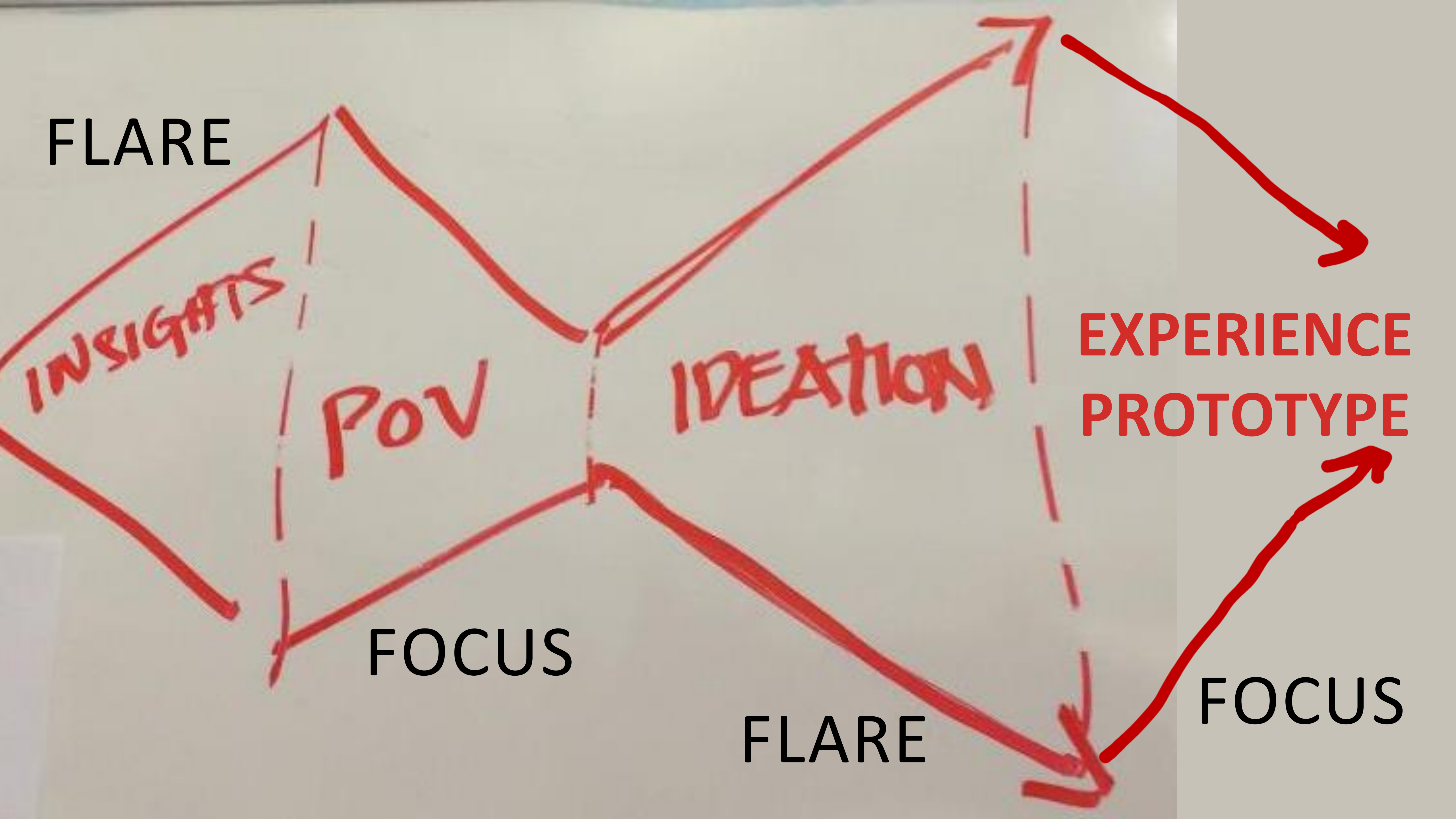
FOCUS

IDEATION

FLARE

EXPERIENCE
PROTOTYPE

FOCUS



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-guerr)
that will give them confidence
to hand over control!

INSIGHTS

AMICS

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 ^{label} help guests turn the unfamiliar to familiar instantly?
✓✓✓

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


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] ? ? ?

A collection of approximately 30 colorful sticky notes scattered on a whiteboard, containing various ideas and notes:

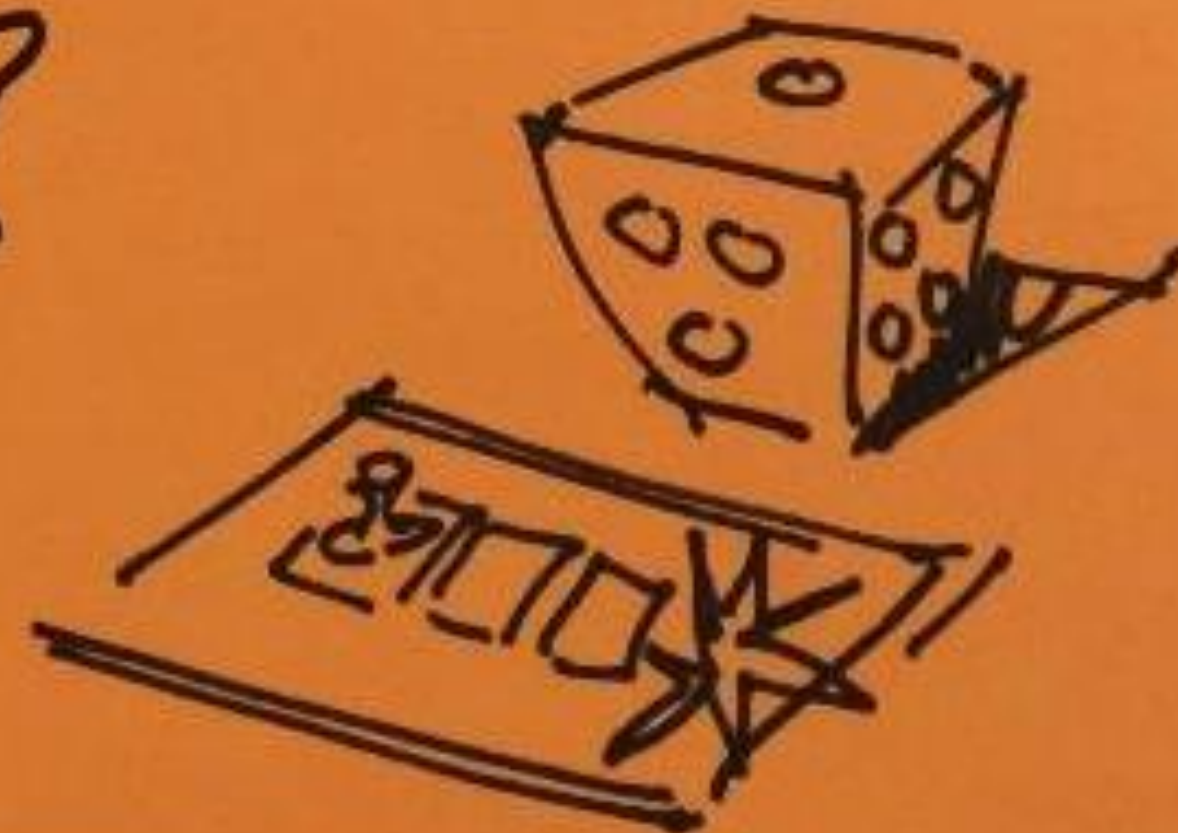
- App with Control Loop to auto
- Travel History
- Adjust as you go
- SPY MISSIONS
- NOTICE WHICH STAGE THEY LOVED TO ADAPT
- HOW MUCH TIME I HAVE 2 HOURS
- COMPUTE MISSION IS VARIATION → FRAME TRIP
- TRAVEL PROFILE
- BEAR WHAT PEOPLE CARE
- CONVERGE + RECONVERGE
- TAPE DESTROYS ITSELF
- DELIVERED IN ENVELOPE
- MON AS TOURGUIDE
- SEND GUIDES TO MOM'S KITCHEN
- VEGETABLE MOM (YOUR GUIDE)
- CONVINCE / CULTURAL ACHIEVEMENT
- ICONS FOR BERRY THING
- TRANSLATE SYMBOLS
- ADD SYMBOLS TO THE ENVIRONMENT THAT THEY CAN
- PICTURE IN ROOM WITH YOUR POINTS
- RELEASE THE MISSION
- KEEP GOING TO OTHER HOTELS
- HOTEL →
- ADJUST AS YOU GO
- TEAM BRANCHING AT STAYING POINTS
- HOW MUCH TIME I HAVE 2 HOURS
- COMPUTE MISSION IS VARIATION → FRAME TRIP
- TRAVEL PROFILE
- BEAR WHAT PEOPLE CARE
- CONVERGE + RECONVERGE
- TAPE DESTROYS ITSELF
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- ICONS FOR BERRY THING
- TRANSLATE SYMBOLS
- ADD SYMBOLS TO THE ENVIRONMENT THAT THEY CAN
- PICTURE IN ROOM WITH YOUR POINTS
- RELEASE THE MISSION
- KEEP GOING TO OTHER HOTELS
- HOTEL →

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

HMMW

HOW MIGHT WE?

"GAMIFY" THE TRANSITION
OF CONTROL?



2,
G TO:
(incl. non-guests)
confidence
ro!

points for risk taking

Remote places = more points

DANGER ZONE

MORE POINTS FOR # OF NEW PLACES

\$ credit back @end

AWARD THE STRONG UP

prize bin

Amazing race

SECRET CHANGES

DO IT WITH A TEAM

Escape from places

WATER PARKS

PAID LIFE MONEY

learn about your new group

PARADES

WEEK OFFICE COMPLAINTS CONFERENCE

Gen skills share team

Parade at of Plan

PRODUCE ABOUT MEAT

build on the ground

CAUSED HARM TO OTHERS

Live through P-10

DO NOT PAY IF YOU DON'T HAVE FUN

NO PROSTATE

\$1M

Money game



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

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
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.



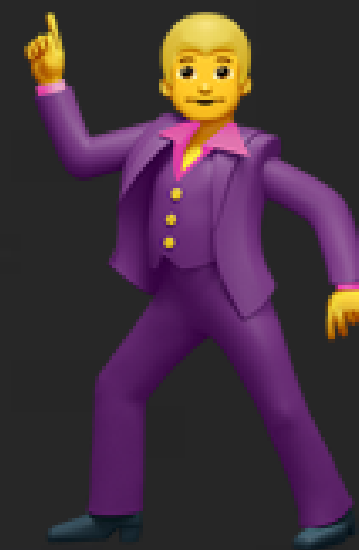
We wonder if this means... she is stressed that they will irritate fellow passengers if she's unable to distract them.



It would be game-changing... to bring the other passengers and the airport facilities into 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=QAWQIeGon0k>

Summary

Ideation lets 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

- Wednesday
 - Concept Videos
- Project & Studio (this week)
 - create/test experience prototypes for top 3 solutions
 - test each prototype with at least 1 target user (**new participants!**)
 - in presentation, get across what you **learned!** Were **assumptions valid?**
 - studio will be used to select the idea to move forward
- Watch/Read
 - video prototypes from prior courses (they are on the resources page)
 - 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



hci.st/cs147-25au-exit-3a-650