DUB
DESIGN
USE
BUILD

W PAUL G. ALLEN SCHOOL
OF COMPUTER SCIENCE & ENGINEERING

CSE 440: Introduction to HCI

User Interface Design, Prototyping, and Evaluation!

Lecture 03: Ideation and Critique

Instructor: Amy Zhang, 1/12/2021
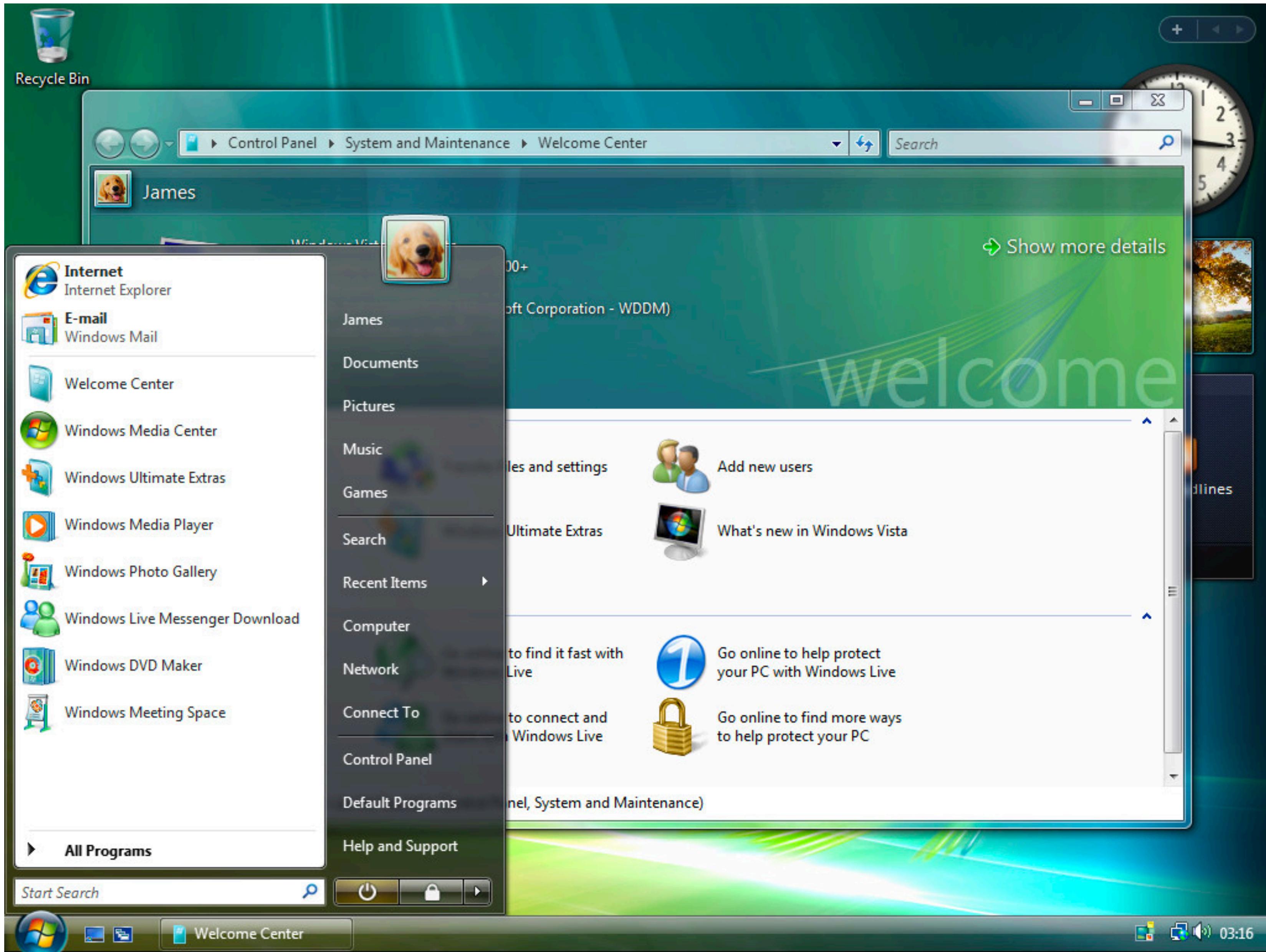
Today's Topics

- UI Hall of Fame or Shame

- Design Ideation

  - Creativity

  - Design Fixation

  - How do you get out of fixation?

  - Collaborative Ideation

- Critique

- Project idea presentations and feedback

UI Hall of Fame and Shame

Hall of Fame or Shame?

Recycle Bin

Control Panel ▸ System and Maintenance ▸ Welcome Center

Search

James

James

Show more details

Internet
Internet Explorer

E-mail
Windows Mail

Welcome Center

Windows Media Center

Windows Ultimate Extras

Windows Media Player

Windows Photo Gallery

Windows Live Messenger Download

Windows DVD Maker

Windows Meeting Space

All Programs

Start Search

James

Documents

Pictures

Music

Games

Search

Recent Items

Computer

Network

Connect To

Control Panel

Default Programs

Help and Support

oft Corporation - WDDM)

welcome

les and settings   Add new users

Ultimate Extras   What's new in Windows Vista

to find it fast with   Go online to help protect
Live   your PC with Windows Live

to connect and   Go online to find more ways
Windows Live   to help protect your PC

nel, System and Maintenance)

Welcome Center

03:16

Sean Lyndersay

Online
Messenger

Today, via Messenger

what are you up to?
9:17 AM

planning a trip with jetsetter. you?
9:17 AM

uhm. Working 😃. Speaking of which, have you played http://cuttherope.ie
9:18 AM

yeah, it's really addictive!
9:19 AM

what's your highest score?
9:19 AM

Sean Lyndersay is signed in to Messenger on a phone.

USA & Canada

Mexico & Caribbean

Central & South America

Europe

Asia

Elsewhere

Your Own Private Paris

Vacation Homes

Driving Distance

Collections

Search more destinations

# Mexico & Caribbean
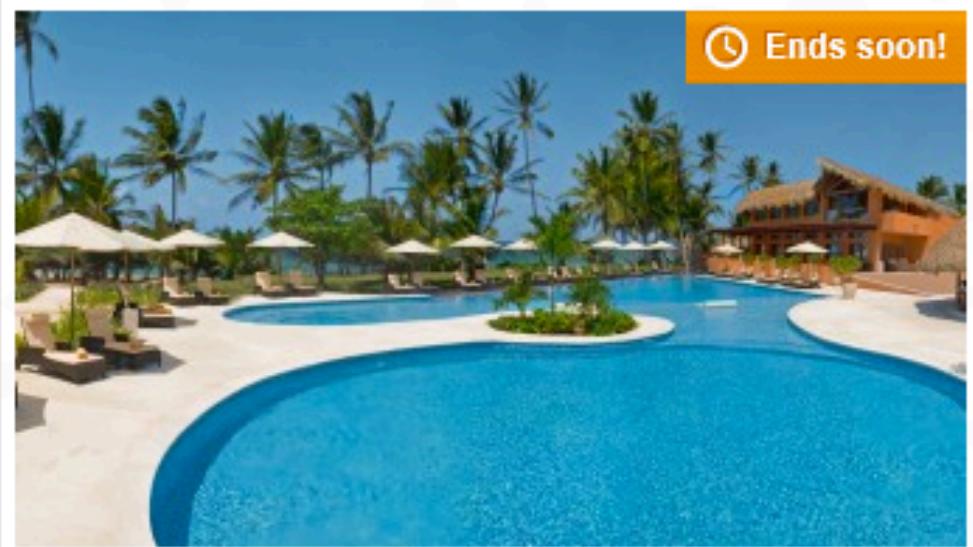
2 days left

Hotel Las Palmas
Zihuatanejo, Mexico

4 days left

LaSource
West Indies, Grenada

Ends soon!

Sivory Punta Cana Hotel
Uvero Alto, Bavaro-Punta Cana, Dominican Republic

Ends soon!

http://www.jetsetter.com/sales
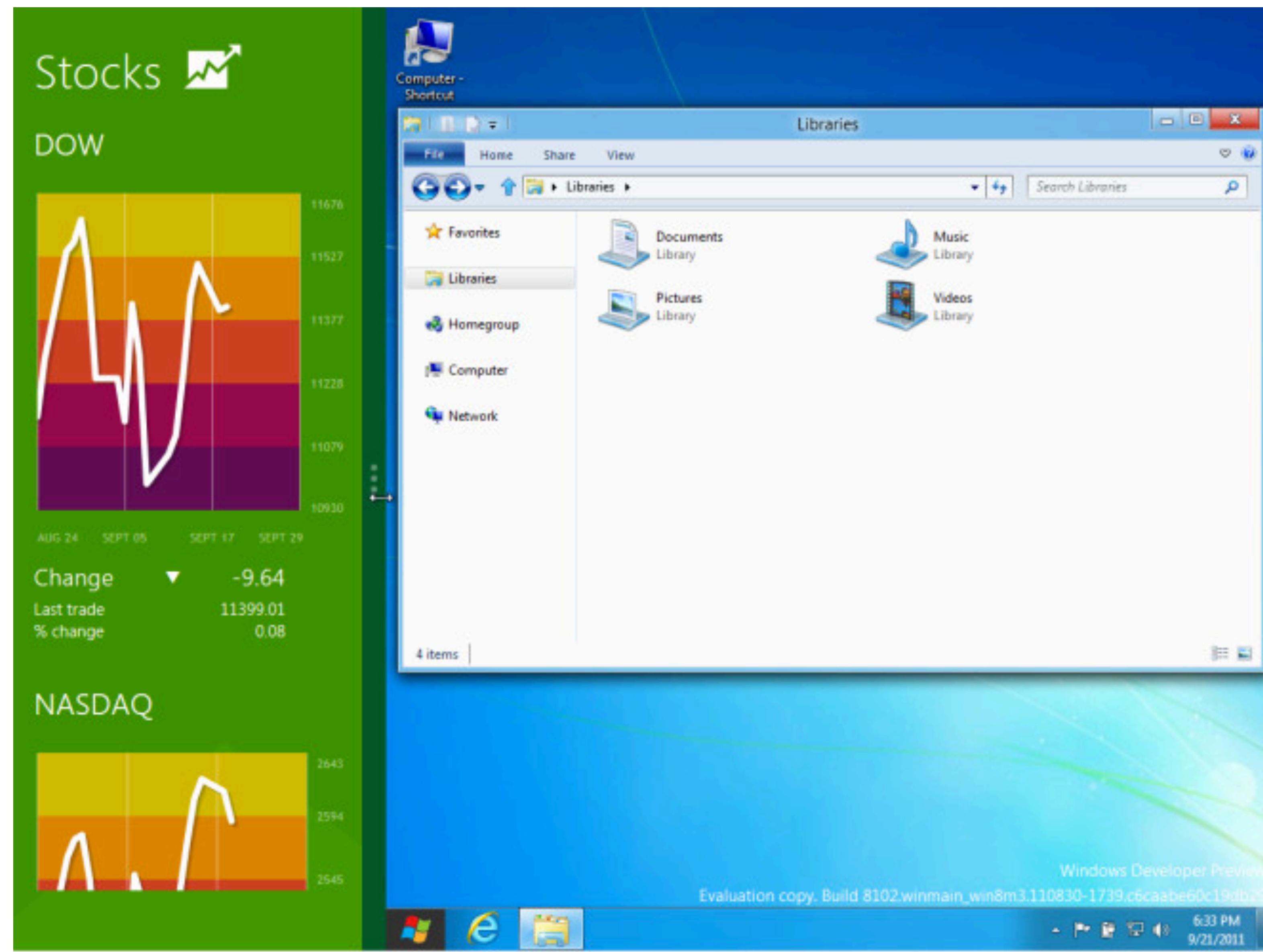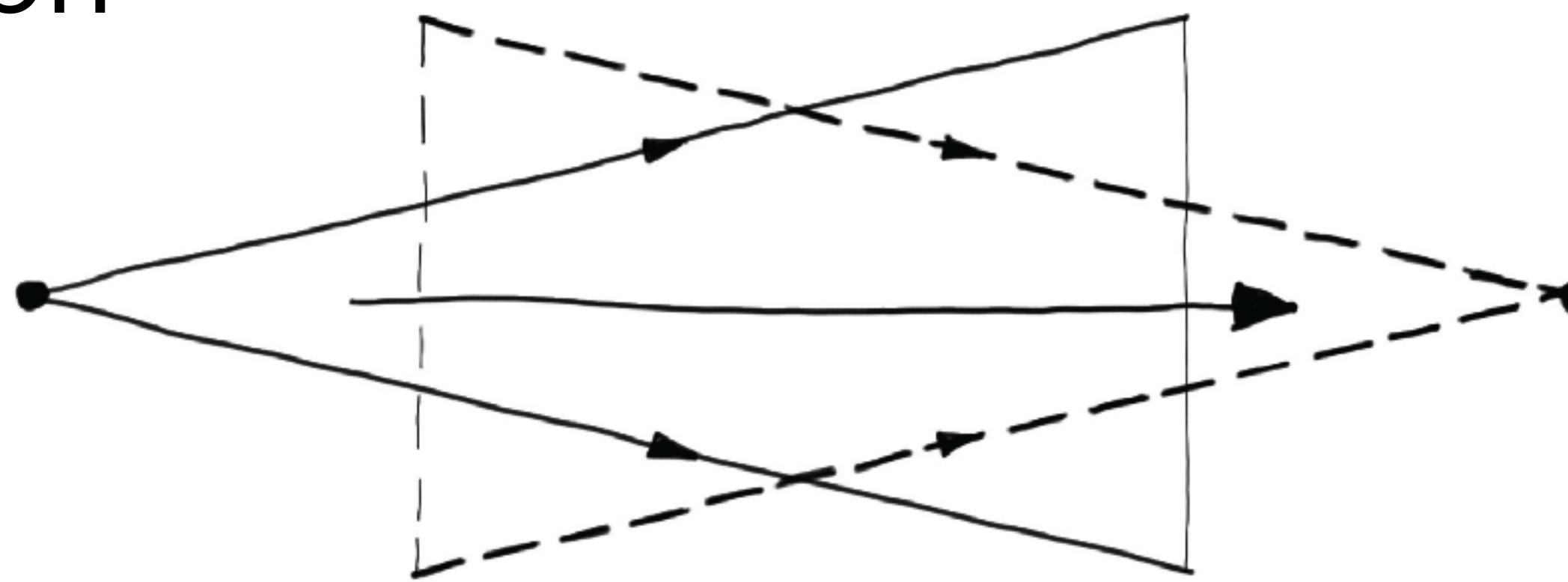
UI HALL OF FAME OR SHAME

Ideation   Critique

Design Diamond

Ideation

=

generating lots of diverse, creative ideas

Problem:
As many as 80% of children are scared of MRI machines.

Doug Dietz's TEDx talk: https://www.youtube.com/watch?v=jajduxPD6H4

Why is coming up with creative ideas hard?

	Lawful	Neutral	Chaotic
Good			
Neutral			
Evil			

liquid A liquid B

Watergun cup

7 tea bag slot infuser

straws

ice
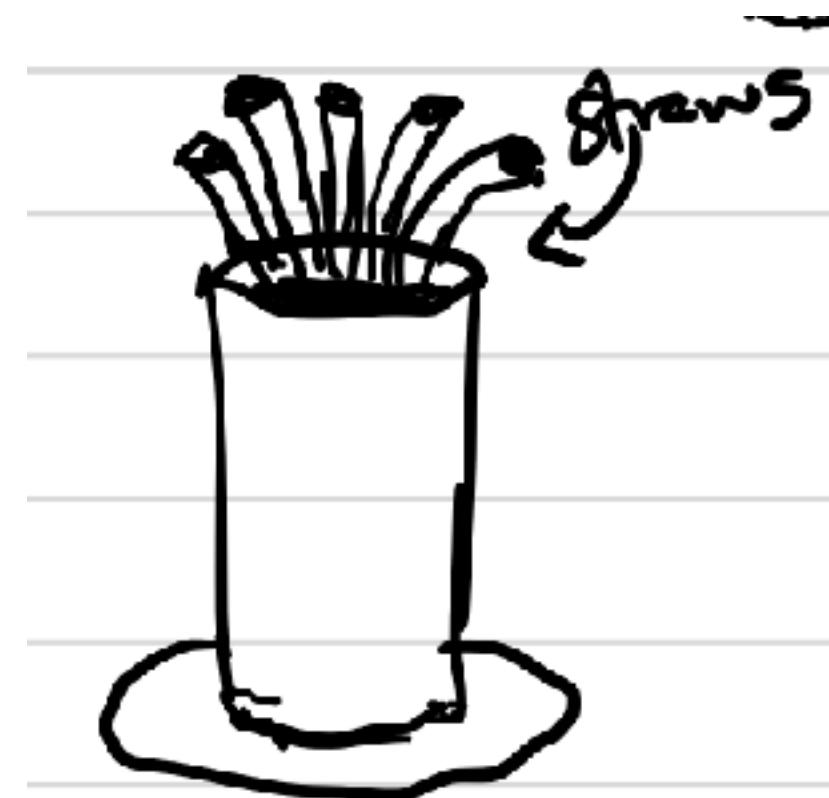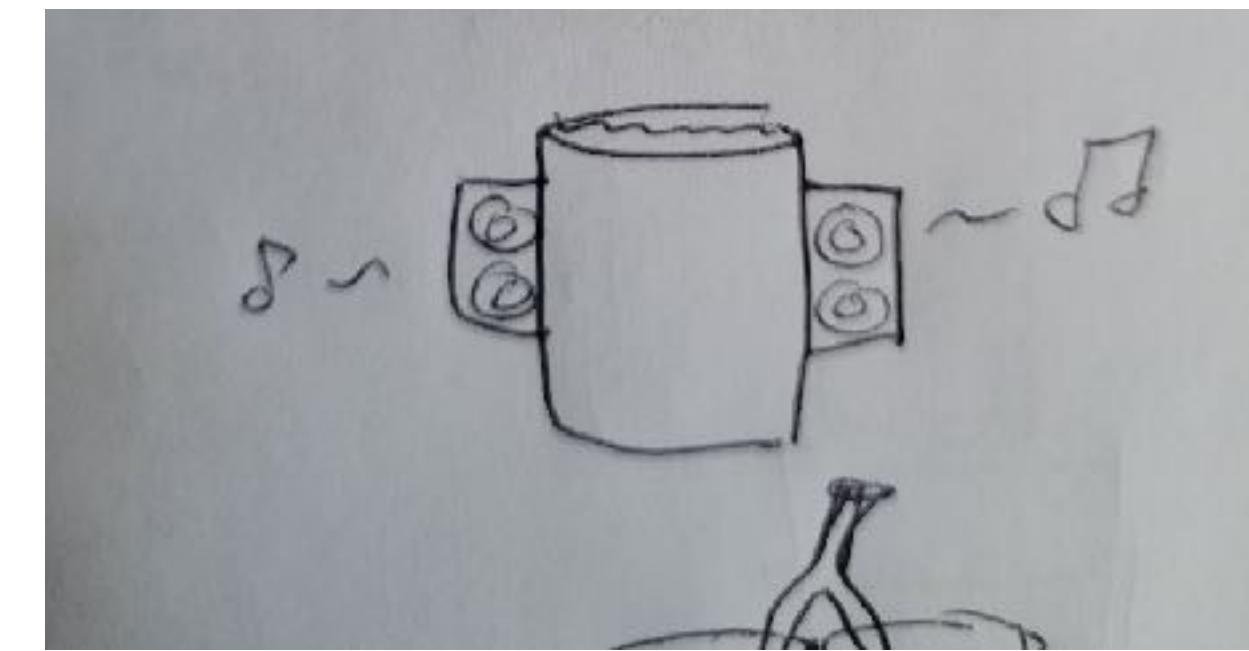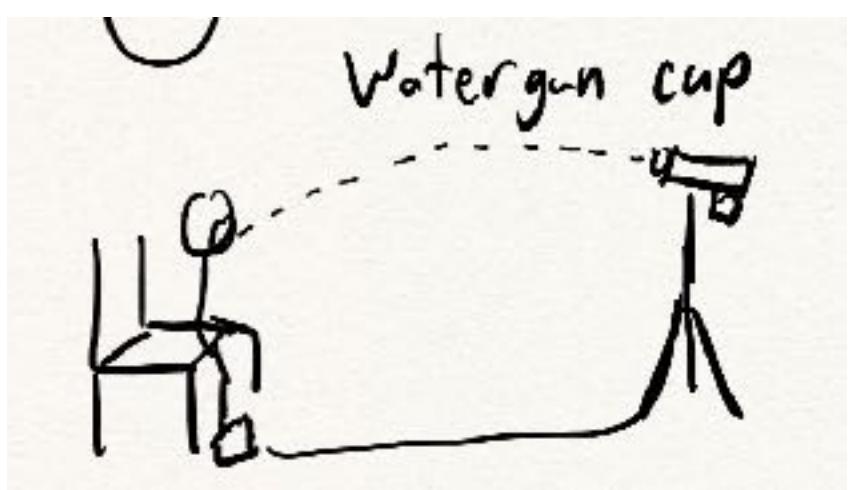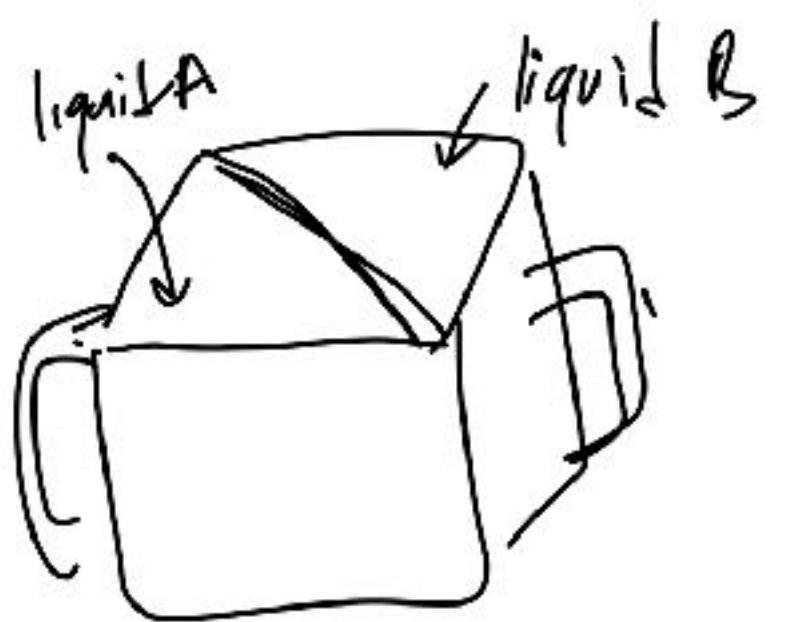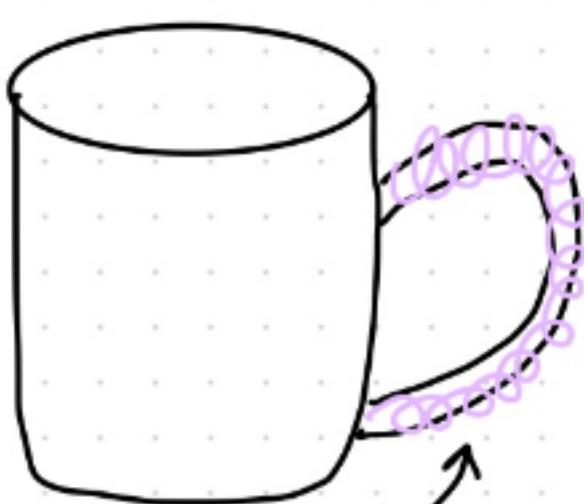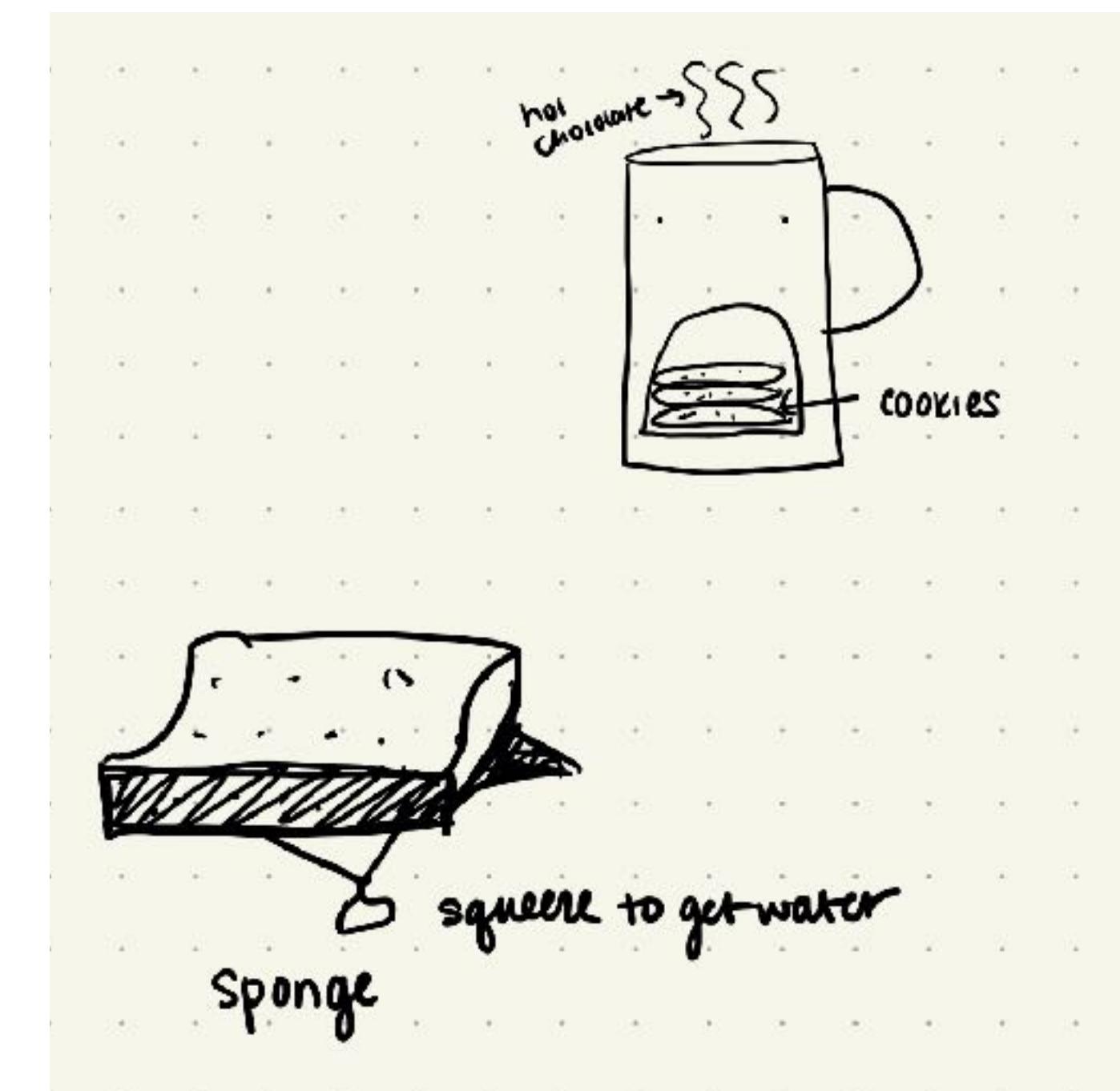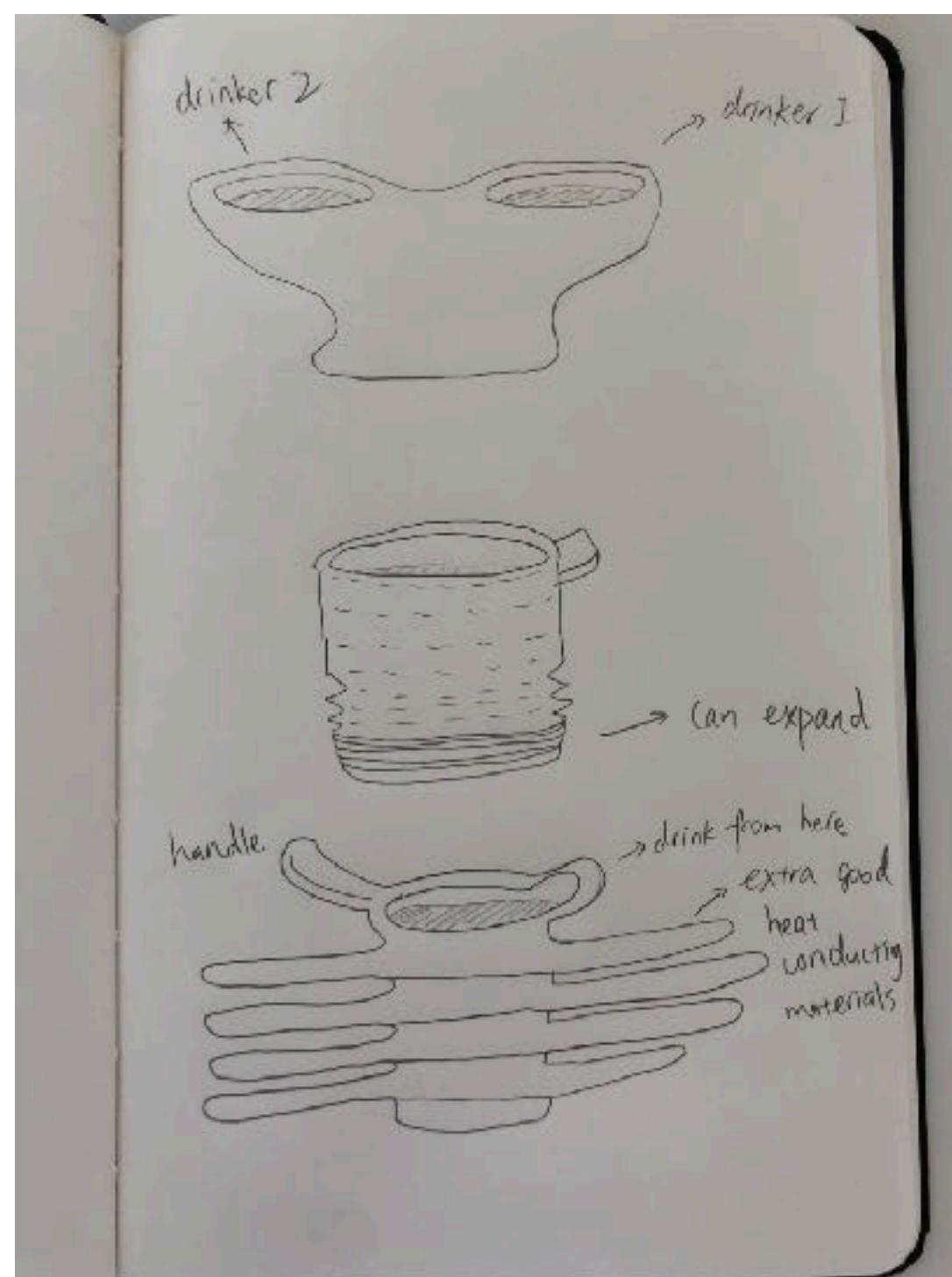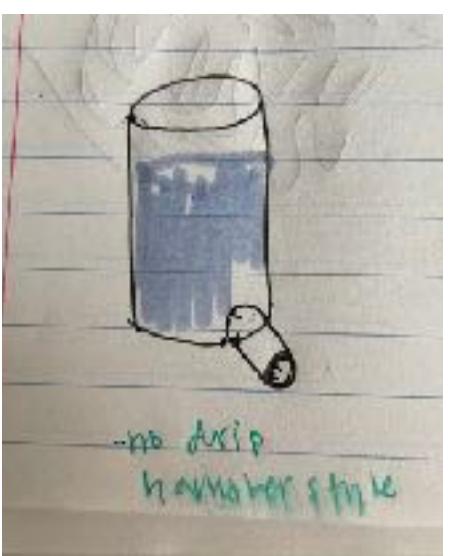
#1

fuzzy part that's heat protectant

no drip hand drip handwriter style

drinker 2   drinker 1

can expand

handle   drink from here   extra good heat conducting materials

hot chocolate

cookies

sponge   squeeze to get water

So is providing examples good or bad?

It depends!

Design Fixation

designification.cs179.org/df/draw

Experimentation @ Scale   Logged in as **test** | Log Out

Imagine a planet just like Earth existing somewhere in the universe. It is currently uninhabited. Your task is to design new creatures to inhabit the planet. *Duplication of creatures now extinct or living on the planet Earth is not permitted.*

Draw 3 new and different creatures.

Please draw your creature images and upload them individually via the file upload utility.

If you are drawing on a digital medium, simply save the file and upload it from your file system. If you are drawing on paper, take a picture of each drawing and upload it from your phone or camera.

If you are unable or unwilling to upload or cannot take pictures, continue to the questionnaire without uploading.

Proceed to File Upload

Left window:

Experimentation @ Scale
Logged in as **test** | Log Out

Imagine a planet just like Earth existing somewhere in the universe. It is currently uninhabited. Your task is to design new creatures to inhabit the planet. *Duplication of creatures now extinct or living on the planet Earth is not permitted.*

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If you are unable or unwilling to upload or cannot take pictures, continue to the questionnaire without uploading.

Proceed to File Upload

Right window:

Experimentation @ Scale
Logged in as **test2** | Log Out

Imagine a planet just like Earth existing somewhere in the universe. It is currently uninhabited. Your task is to design new creatures to inhabit the planet. *Duplication of creatures now extinct or living on the planet Earth is not permitted.*

Draw 3 new and different creatures.
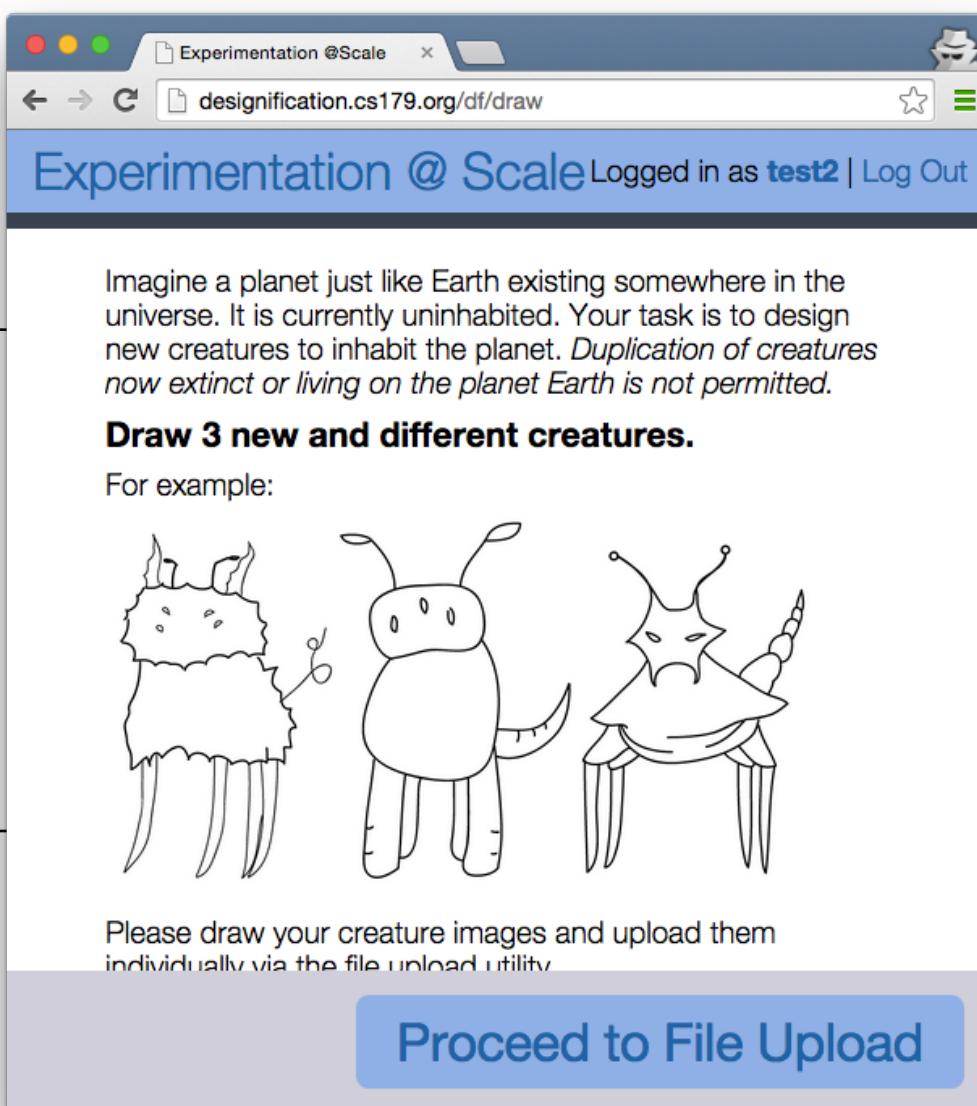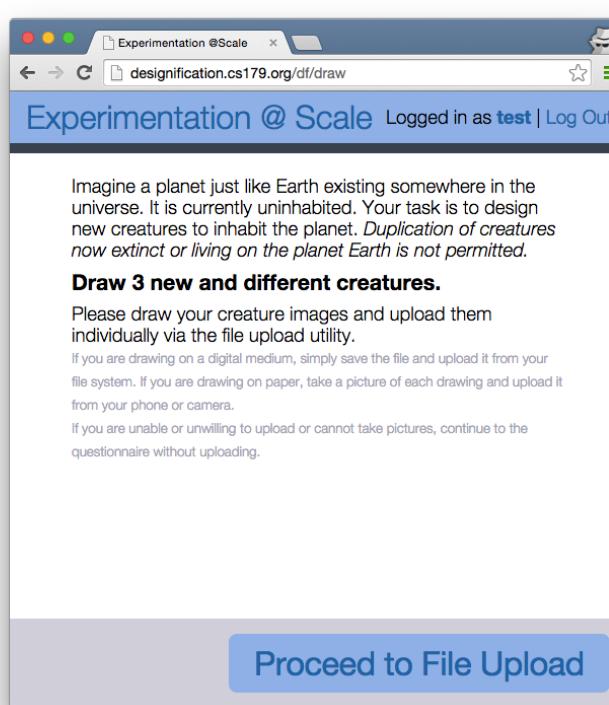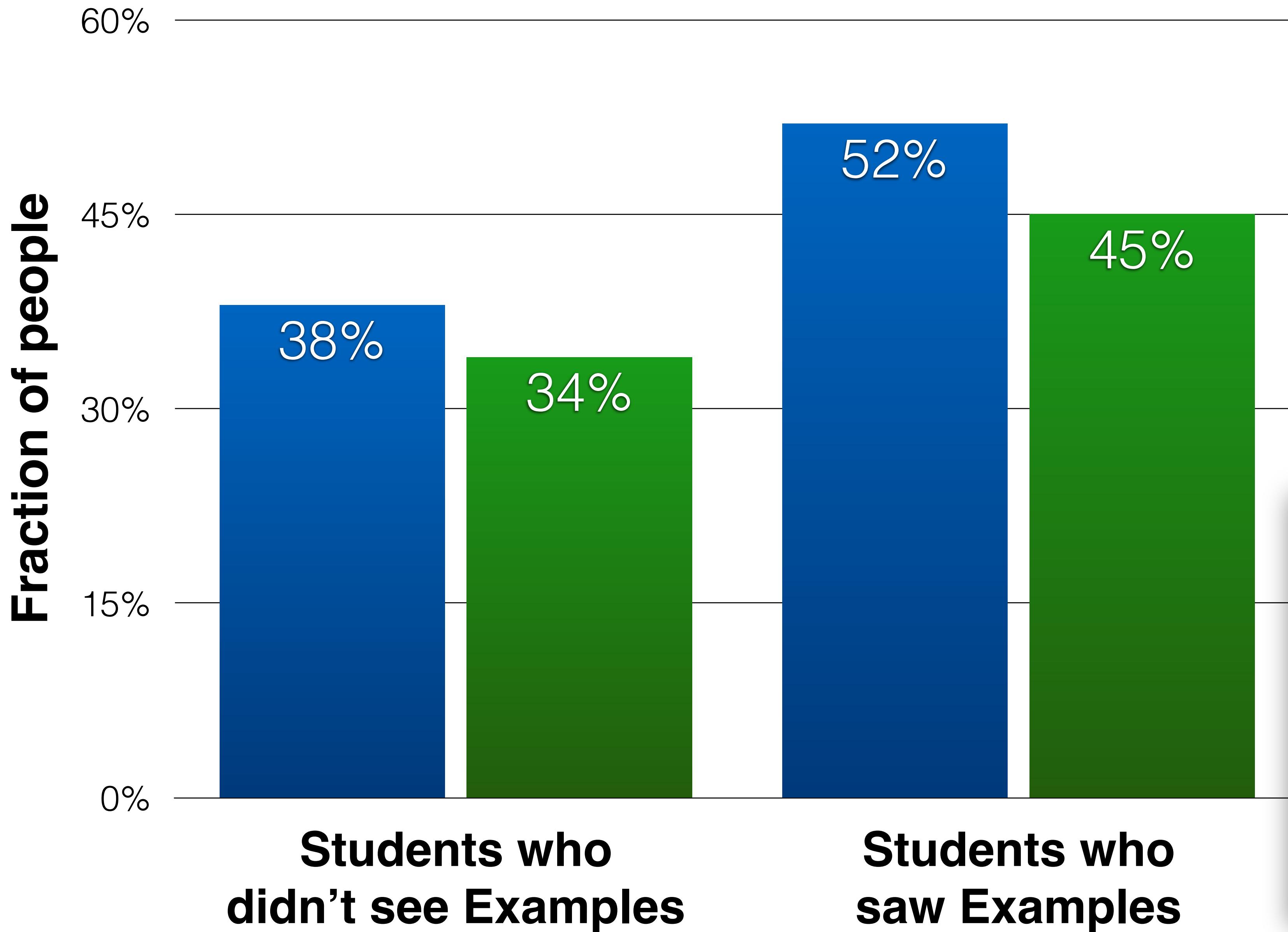
For example:

Please draw your creature images and upload them individually via the file upload utility.

Proceed to File Upload

By Derren Brown: https://www.youtube.com/watch?v=YQXe1CokWqQ

- Design fixation can come not just from examples right in front of you but from one's experiences in the *world*.

- We are primed to make certain associations quickly based on our past but not others.

- How can we draw on more diverse associations from life? [type in chat]
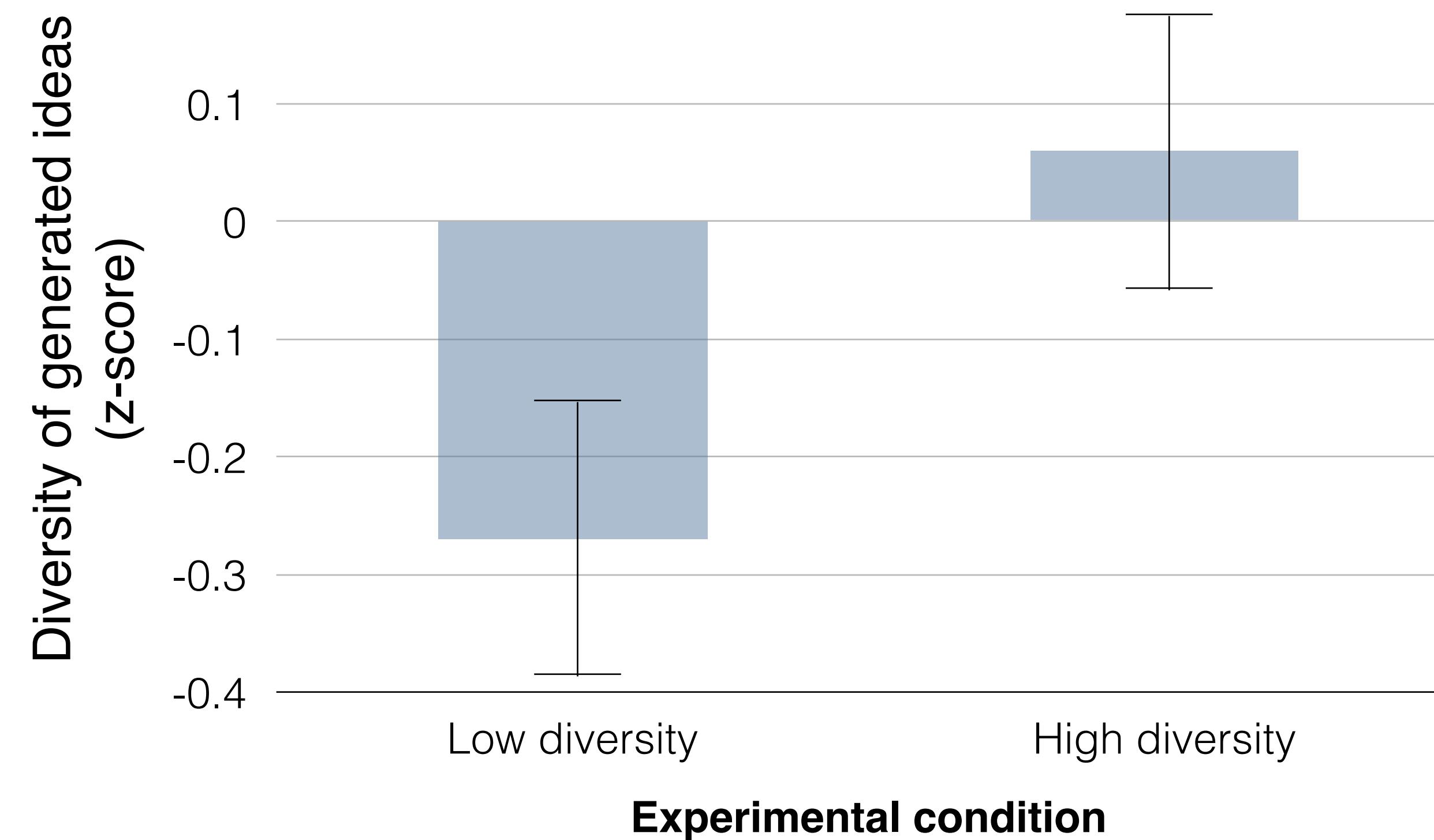
How do you get out of fixation?

Diverse Examples

Diverse Examples

- Task: "generate birthday messages for Mary, a firefighter who is turning 50"

- Experimental conditions

  - Low diversity: 3 similar examples provided

  - High diversity: 3 different examples provided

Kanya (Pao) Siangliulue, Kenneth C. Arnold, Krzysztof Z. Gajos, and Steven P. Dow. Toward collaborative ideation at scale: Leveraging ideas from others to generate more creative and diverse ideas. In Proceedings of CSCW'15, 2015.

People who saw diverse examples generated more diverse ideas

Kanya (Pao) Siangliulue, Kenneth C. Arnold, Krzysztof Z. Gajos, and Steven P. Dow. Toward collaborative ideation at scale: Leveraging ideas from others to generate more creative and diverse ideas. In Proceedings of CSCW'15, 2015.

Quantity over Quality

Quantity over Quality

- Pottery study:

  - On the final day of class, the instructor would bring in their bathroom scales and weigh the work of the "quantity" group: fifty pound of pots rated an "A", forty pounds a "B", and so on.

  - Those being graded on "quality", however, needed to produce only one pot – albeit a perfect one – to get an "A".

from the book "Art & Fear: Observations On the Perils (and Rewards) of Artmaking" by David Bayles

Quantity over Quality

- The quantity class produces better pots. Why?

- "While the quantity group was busily churning out piles of work and learning from their mistakes the quality group had sat theorizing about perfection and in the end had little more to show for their efforts than grandiose theories and a pile of dead clay"

Mapping the Design Space

The Tea Alignment Chart

	INGREDIENT PURIST (Must at least partly be produced by heat processing plant leaves)	INGREDIENT NEUTRAL (Can be any form of plant-based product)	INGREDIENT REBEL (Can contain literally anything, be it drinkable or not)
FORM PURIST (Must be a drink that is usually served warm in a handled cup)	"Black tea is a tea"	"Lemon water is a tea"	"Chocolate latte is a tea"
FORM NEUTRAL (Must be a liquid stored in a container convenient to drink from)	"Bubble tea is a tea"	"Minestrone is a tea"	"Gamer girl bath water is a tea"
FORM REBEL (Can be any liquid in a form not necessarily convenient to drink from)	"Tea tree oil is a tea"	"Natural resin is a tea"	"Battery acid is a tea"

Attribute Listing
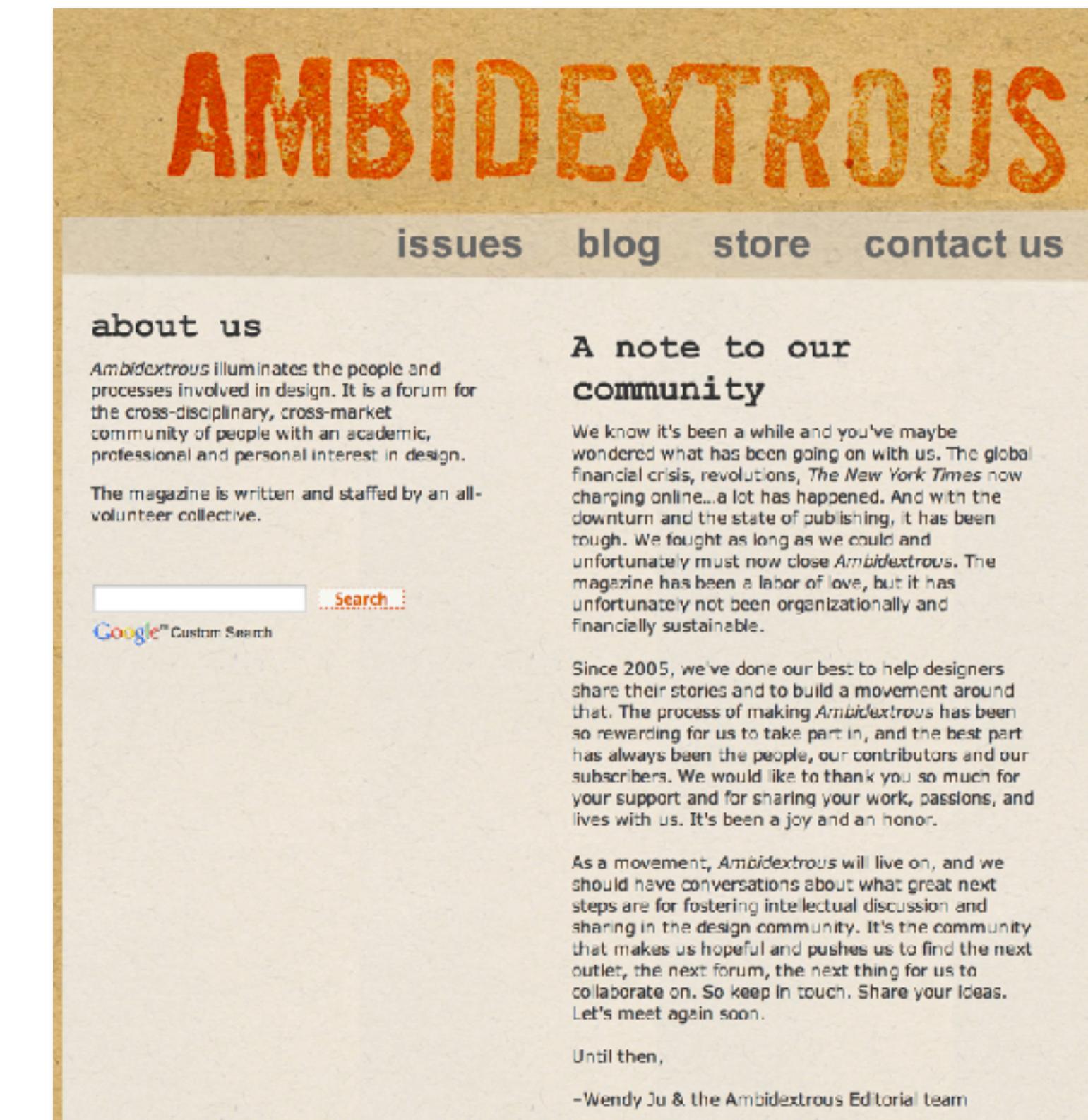
- Design a new technology that collects data about your physical activity in order to encourage you to be physically active.

- Examples:

  - A smart mirror that every morning, gathers the GPS tracking data off my phone from yesterday and gives me positive encouragement messages and advice

  - A heartbeat sensor that determines when I'm sedentary for too long, and alerts my friends to text me to go exercise

  - A wristwatch that collects my step count during exercise and then gives me electric shocks if I'm slowing down

  - A music player that collects my gym check-in data, and after I've checked out of the gym, plays congratulatory music

  - A phone app that takes in my calories burned per day and in the evening when I go to bed, it presents a visualization of calories burned over time
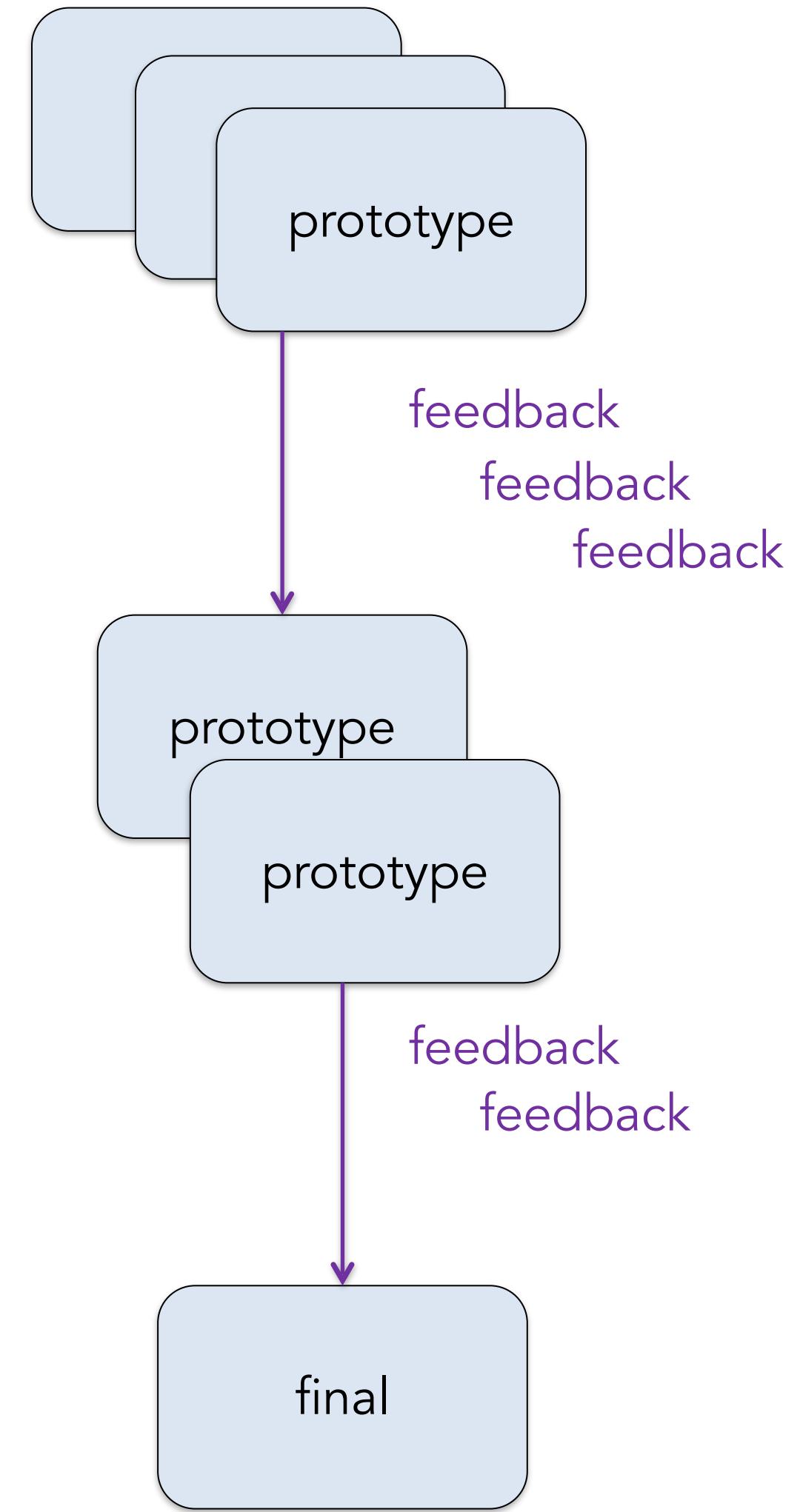
What Data Tracked	Time of intervention	Method of Feedback	Way of Delivering Feedback
1. GPS data	1. Every morning	1. Textual Information	1. Smart mirror
2. Heartbeat data	2. When sedentary	2. Social input	2. Text message
3. Step counter	3. During exercise	3. Physical sensation	3. Smart wristwatch
4. Check-in data	4. After exercise	4. Auditory sensation	4. Music player
5. Calories burned counter	5. Every evening	5. Visualization/statistics	5. A phone app

www.yellkey.com/sit

Parallel Prototyping
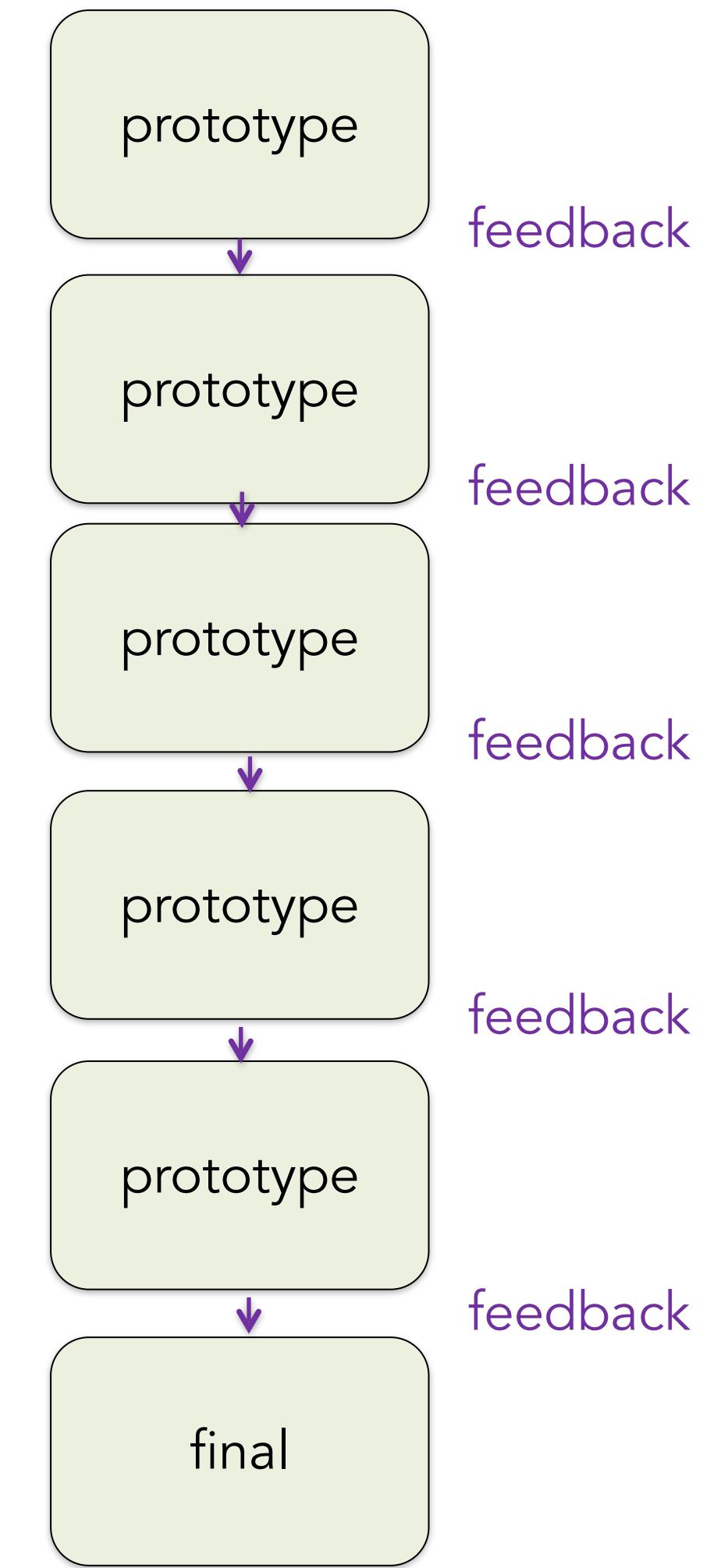
Parallel versus Serial Prototyping

- Task: create a web banner ad for Ambidextrous magazine

Dow et al. Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy. ACM Transactions on Human-Computer Interaction (2010) vol. 17 (4)
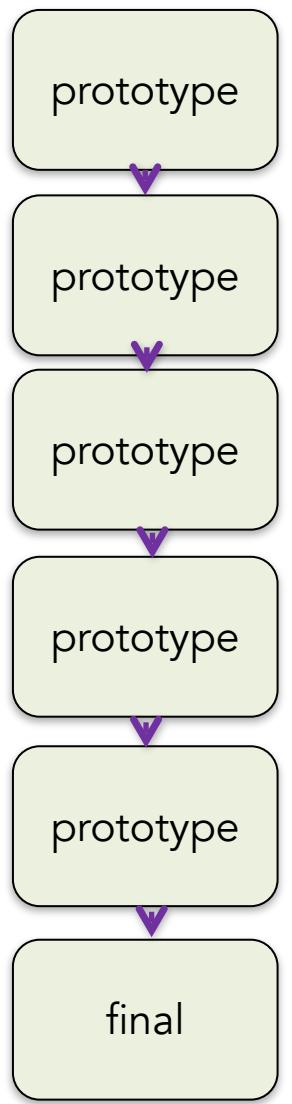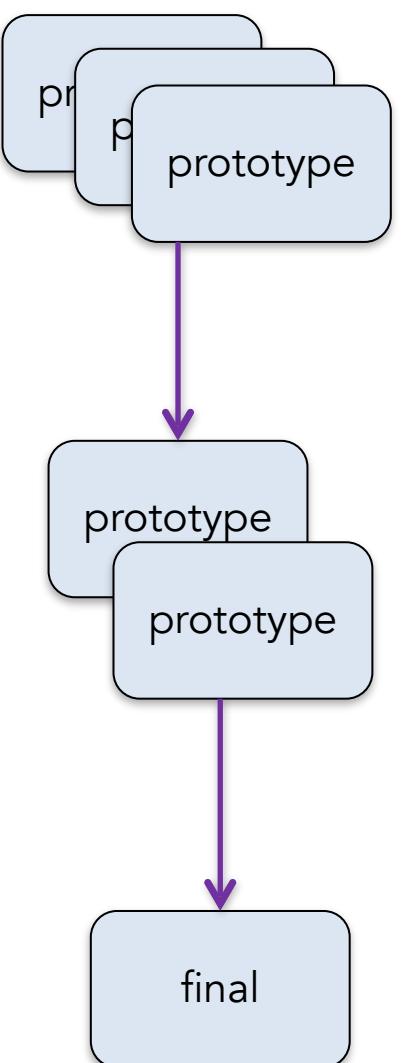
Parallel condition

Serial condition

Dow et al. Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy. ACM Transactions on Human-Computer Interaction (2010) vol. 17 (4)

serial
prototyping
condition

parallel
prototyping
condition

Summary

- Creativity is hindered by design fixation.
- How can you get out of design fixation?
  - Be presented with a diverse set of examples to start
  - Try to come up with as many ideas as you can until they're exhausted
  - Take ideas, map out the design space, and consider some under-explored parts of it
  - Wait to get feedback until you've come up with some ideas in parallel

Collaborative Ideation

Diverse Teams

Diverse Teams

Groups with...

...diverse cultural perspectives are more creative and innovative

....diverse skills are more productive

...gender diversity are 15% more likely to have returns above the industry mean

...ethnic diversity make fewer factual errors when discussing evidence in jury panels

https://hbr.org/2016/11/why-diverse-teams-are-smarter

# Designing for Diversity

You are not designing for yourself

"I have this problem, so surely other people feel the same"

"I like it this way, so other people will also like it"

"I find this useable, so others will as well"

Technology can prevent or discourage people from using it. So as to not introduce disparities, we need to find designs that work for people of different genders, cultures, ethnicities, ages, disabilities, personalities, etc.
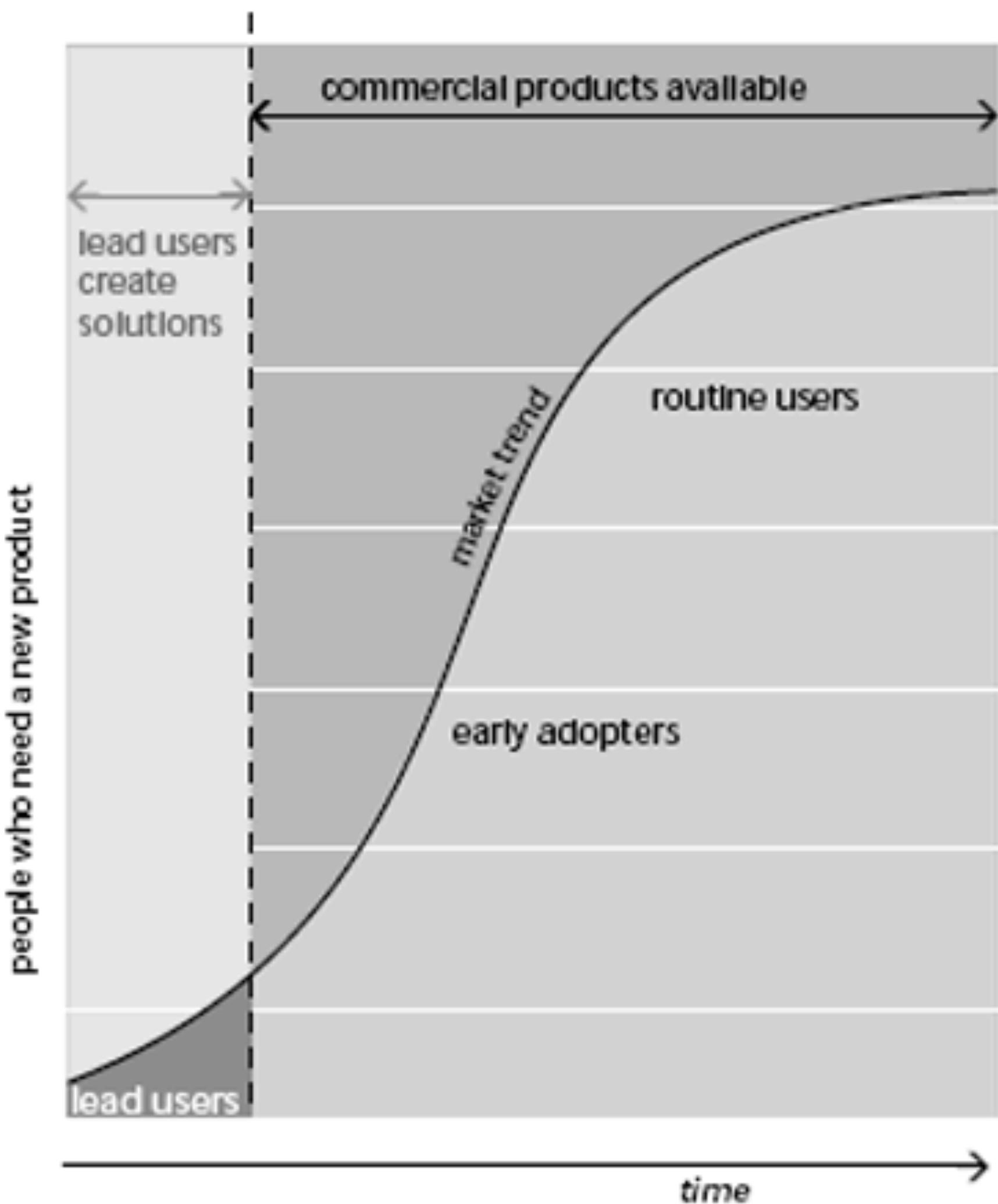
Participatory Design
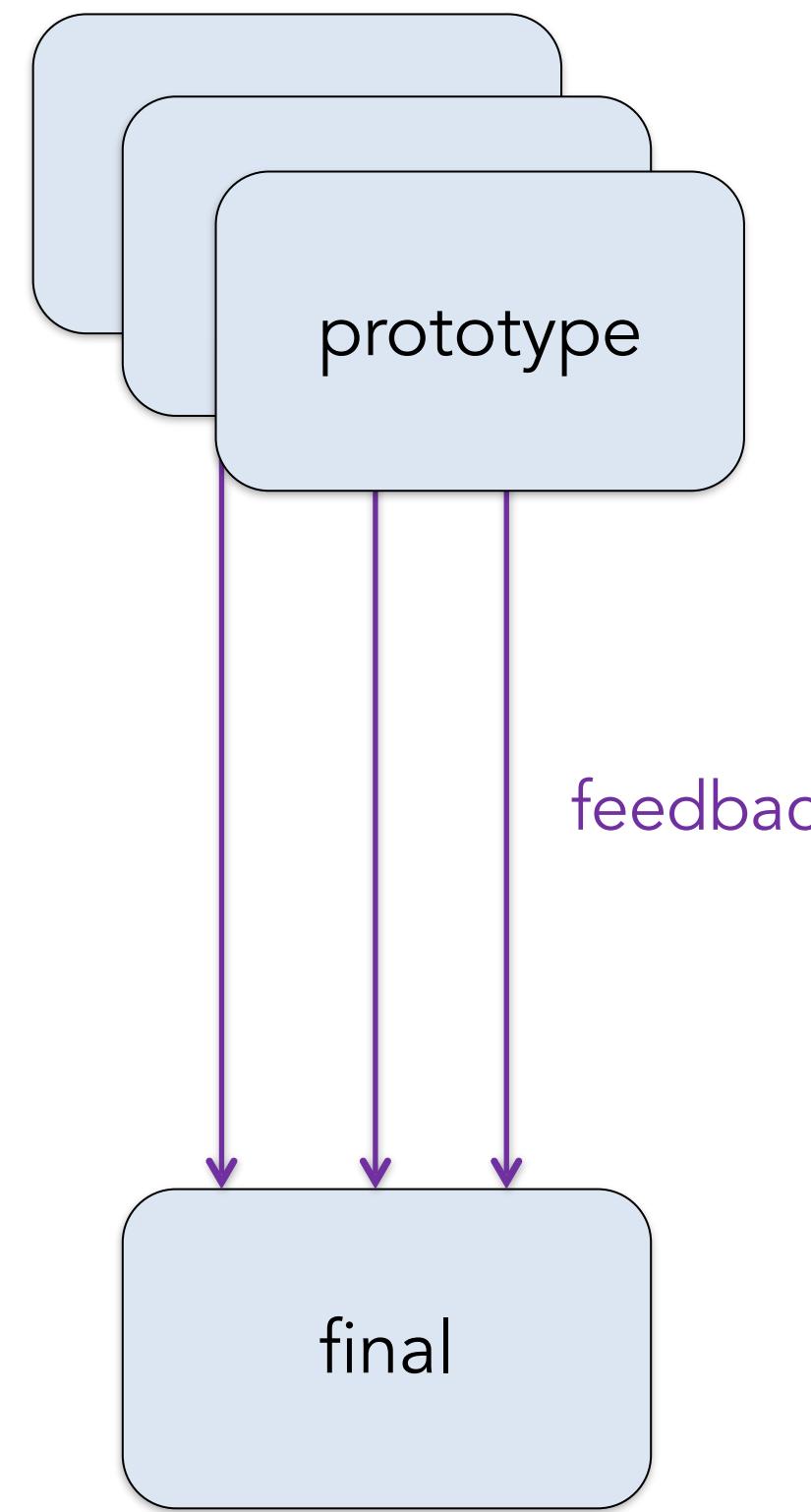
The Lead User Curve

The curve illustrates the shape of a market trend. Lead users have needs that are well ahead of the trend; over time, more and more people feel the same need.

https://hbr.org/1999/09/creating-breakthroughs-at-3m
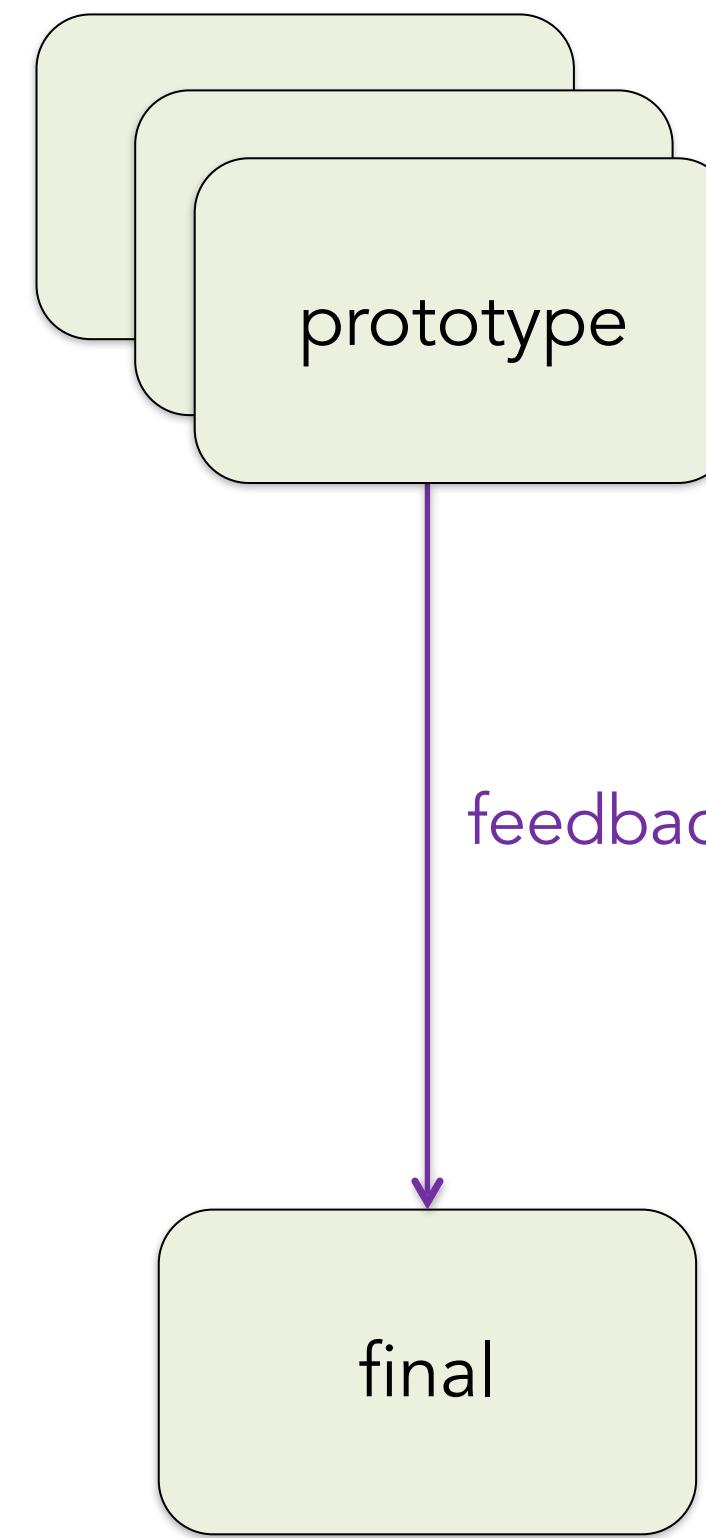
Eric Von Hippel, Democratizing Innovation. 2005

# Bring Multiple Ideas to the Group
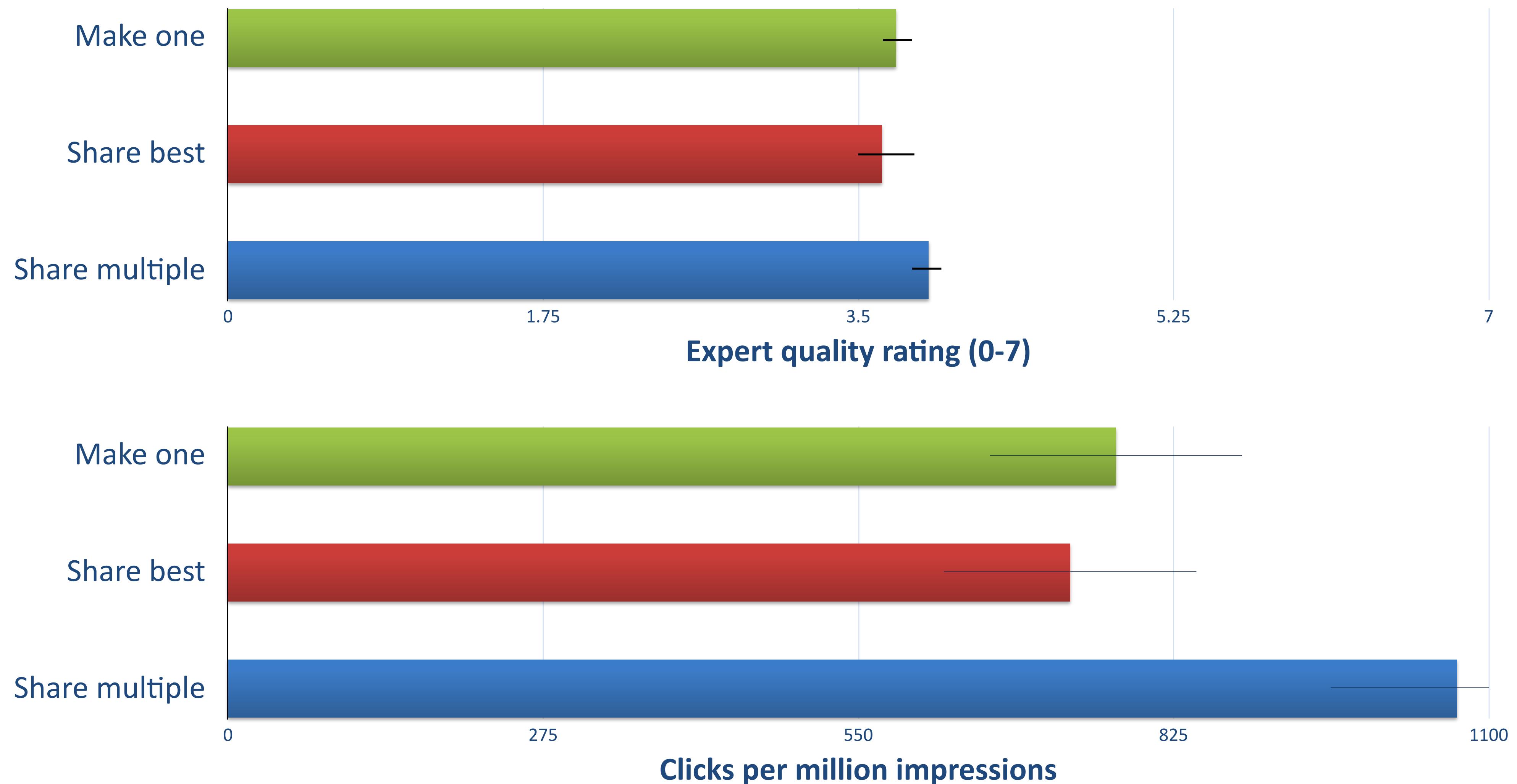
Share multiple
condition

Share best
condition

Make one
condition

Dow et al. Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy. ACM Transactions on Human-Computer Interaction (2010) vol. 17 (4)

Dow et al. Parallel Prototyping Leads to Better Design Results, More Divergence, and Increased Self-Efficacy. ACM Transactions on Human-Computer Interaction (2010) vol. 17 (4)

Takeaways
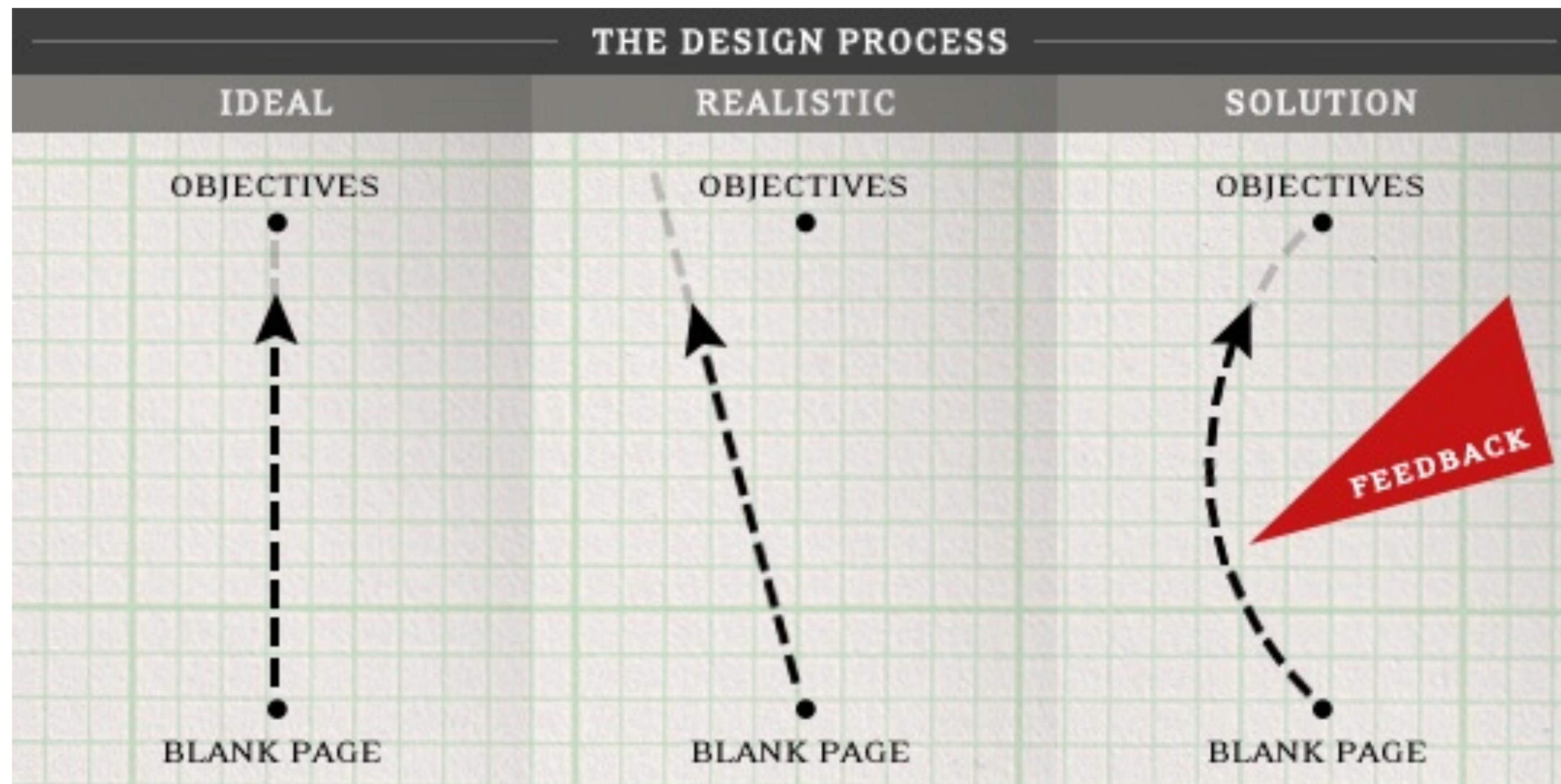
1. Team: clarify problem definition and constraints

2. Individual: Idea generation

3. Team: Share (multiple ideas per person) and critique

4. Team: idea generation (possibly with design space mapping)

"I received really negative comments saying [the clients] are looking for a creative and clever ad, which in other words is saying that this is stupid or ridiculous."

Participant in the Serial Condition

Critique

Why critique?

THE DESIGN PROCESS

IDEAL	REALISTIC	SOLUTION
OBJECTIVES	OBJECTIVES	OBJECTIVES
		FEEDBACK
BLANK PAGE	BLANK PAGE	BLANK PAGE

What is critique?

1. Presenters sit down with critics

2. Quickly explain their artifacts (e.g., in a few minutes)

3. Critics ask clarification questions, then give feedback

4. Presenters respond to questions, ask clarifying questions/specific feedback requests, and take notes on what is discussed

Presenter Tips

Dos

Design your critique

  What you show invites different forms of feedback

  Verbally indicate what kind of feedback you want, but also provide an artifact of appropriate form

  This course will guide you what feedback you invite at which stage

Take notes on people's feedback. Later you can go back over them to sort out contradictions and find common themes.

Don'ts

Don't take the feedback personally. This is hard, of course, but you want people's honest opinion.

You can ask clarifications, but don't push back on the feedback people give even if you think they're wrong.

 Taking advice is not giving up authorship You still make the final decision A half-baked suggestion does not contain all the details of a finished solution

Tips for critics

I like, I wish, What if method:

I like: Lead with something positive

I wish: Some criticism, often leading from what you like

What if: An idea to spark further conversation

Socratic method:

Identify an aspect of design and ask "Why?"

Can be good if unsure what else to say

Forces presenter to give, or develop, explanations for decisions

Avoids that the presenter gets defensive (gives him/her a chance to justify)

Limit your use of personal pronouns (e.g., "you")

Critique is about the artifact, not the designer!

A designer deserves honest feedback

Both positive and negative

Including clarity and rationale, don't just say "I like it"

"Instead of 'It sucks' you could say, 'It doesn't speak to me.'"

Summary and Breakout Time!

Fall out of love with the things you build
    Let others help you see past the infatuation

Get feedback early, often, and cheaply

Focus on improvement
    In brainstorming, we were not criticizing
    In critique, we are not defending

You will learn to both give and receive critique
    If you are having difficulties, please come
    talk to us