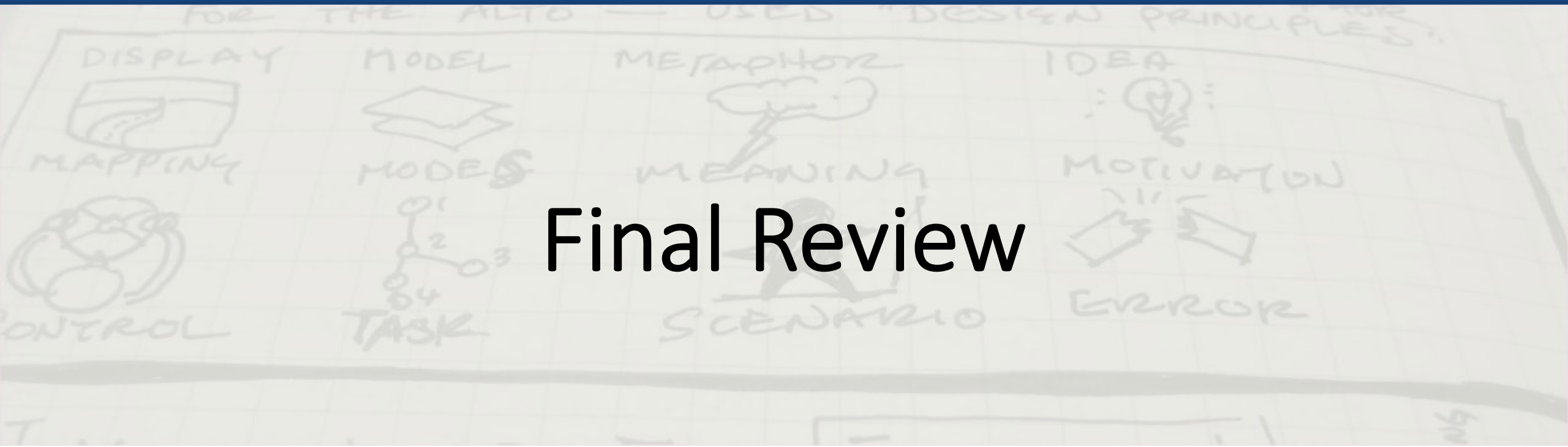
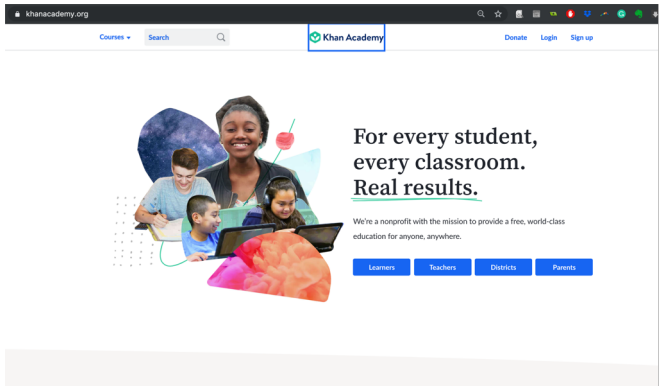


Final Review

Prof. Lydia Chilton
COMS 4170
22 April 2024

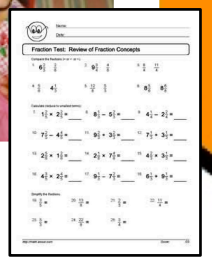
The biggest misconception about creativity

Idea



Product

Creativity is a Process



Person with a challenge

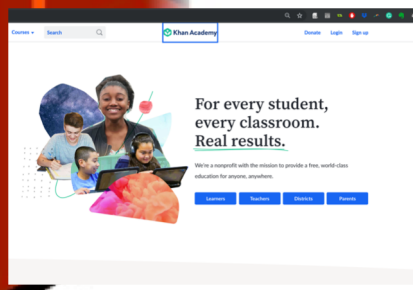
- Brainstorm
- Interview
- Research

Synthesize into insights and ideas

Ideas

- Prototype solutions
- Explore technical options

Test them

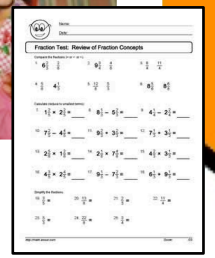


Product

Understand the problem

Solve the problem

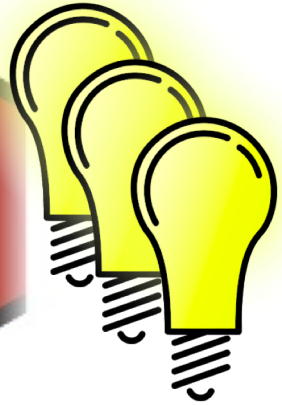
That process is iterative:
Design – Prototype – and Test



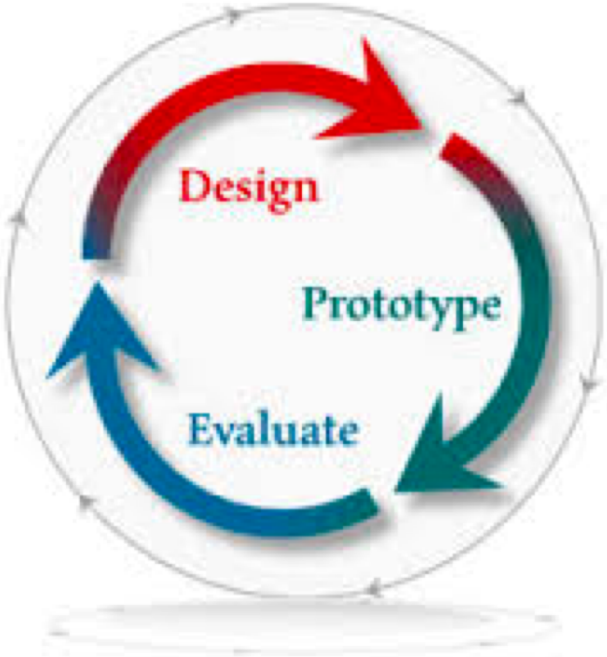
Person with a challenge

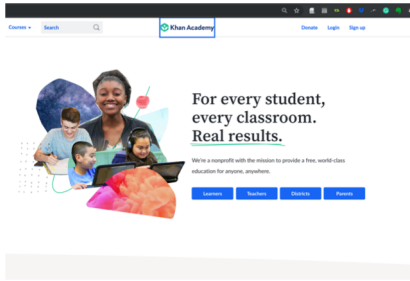
- Brainstorm
- Interview
- Research

Synthesize into insights and ideas



Ideas



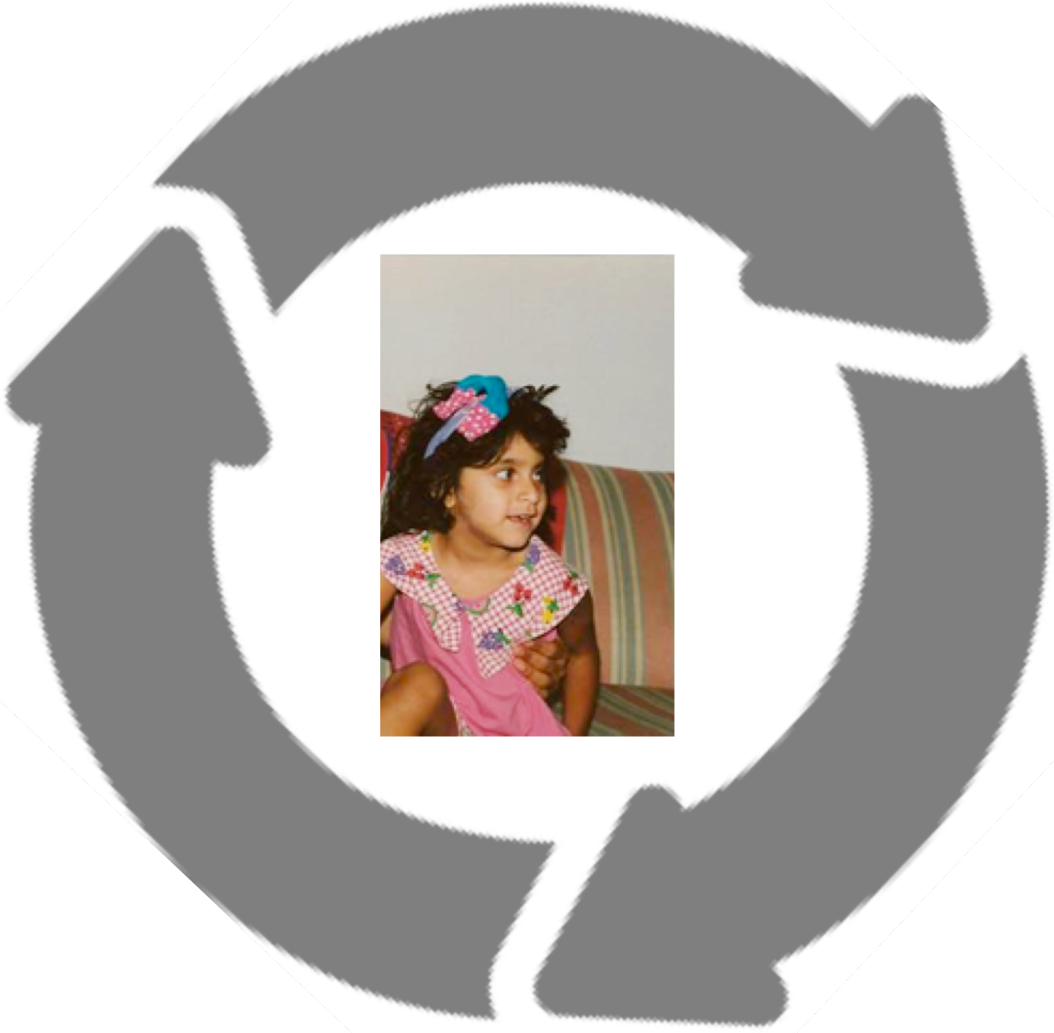


Product

Understand the problem

Solve the problem

The **user** is at the center of the process



Final Project:

- Design and build a **web** application
- To help a user learn an introductory topic **interactively**
- Within a **domain of your choosing**
- The interactive experience centers around **media** (image, video, audio..)
- And help them assess their learning with a **quiz**.
- And keep learning through **feedback** from the quiz.
- In under **10 minutes** total

Final Project Deliverable:
A demo video from the user perspective.

- A narrated YouTube video with a simulated user experience.
- “Show don’t tell”
- Let’s see two examples.

The video philosophy is “show don’t tell”

- Don’t explain what you app is (beyond 1 sentence about the goal), just show us.
- We **don’t** want to hear things like:
  - *“We’re democratizing lip reading”* -> just show the app
  - *“We uses interactive lessons and quizzes to help you assess your learning”* -> just show the app.
  - *“Learn to lip read in under 10 minutes!”* -> just show the app.
- This is not a pitch deck. If you want to make a pitch deck for your project and submit to YC, I can help you with that after the class is over.

Demo video checklist.

- Then start using the app exactly as you intend a user to. As you go through every screen, think out loud.
  - **Read aloud** everything that a real user would read.
  - **Think aloud** everything a real user would think.
  - **Click** everything a real user would click (and other interactions)
  - **Express the emotions** a real user would feel.
  - **Make mistakes** that a real user would make (on hard questions).
  - You must have at least one point where the user makes a mistake (and recovers from it) in the learning or quiz.
- The demo should last 8-12 minutes. Any more or less, and major deductions will be take.
- Every team member must turn in their own video with their own inaction and narration from the user perspective.
- Let’s see two examples (and evaluate them them on the checklist)

Lipreading Learn B Learn H Learn L Test

Welcome to **Lipreading**, your site for learning to read lips! Use the navbar above or click the button below to learn the how to lipread different sounds. When you're ready, try a test!

Start With B

Lipreading checklist

- Then start using the app exactly as you intend a user to. As you go through every screen, think out loud.
  - **Read aloud** everything that a real user would read.
  - **Think aloud** everything a real user would think.
  - **Click** everything a real user would click (and other interactions)
  - **Express the emotions** a real user would feel.
  - **Make mistakes** that a real user would make (on hard questions).
    - You must have at least one point where the user makes a mistake (and recovers from it) in the learning or quiz.
  - The demo must last 8-12 minutes.

Only 7 minutes – too fast!

(Post) Impressionism

Home Art Movements Comparison Quiz

Welcome to (Post) **Impressionism**.

The goal of this site is to help you **distinguish between two major art movements**, Impressionism and Post-Impressionism. Start by exploring each movement's defining features and artwork. After that, take our short quiz to test your knowledge!

Explore the Art Movements

(Post) Impressionism checklist

- Then start using the app exactly as you intend a user to. As you go through every screen, think out loud.
  - ✗ **Read aloud** everything that a real user would read.
  - ✓ **Think aloud** everything a real user would think.
  - ✓ **Click** everything a real user would click (and other interactions)
  - ✓ **Express the emotions** a real user would feel.
  - ✓ **Make mistakes** that a real user would make (on hard questions).
    - You must have at least one point where the user makes a mistake (and recovers from it) in the learning or quiz.
  - ✓ The demo must last 8-12 minutes.

Skipped reading in the learning phase

Your video will be graded on two things:

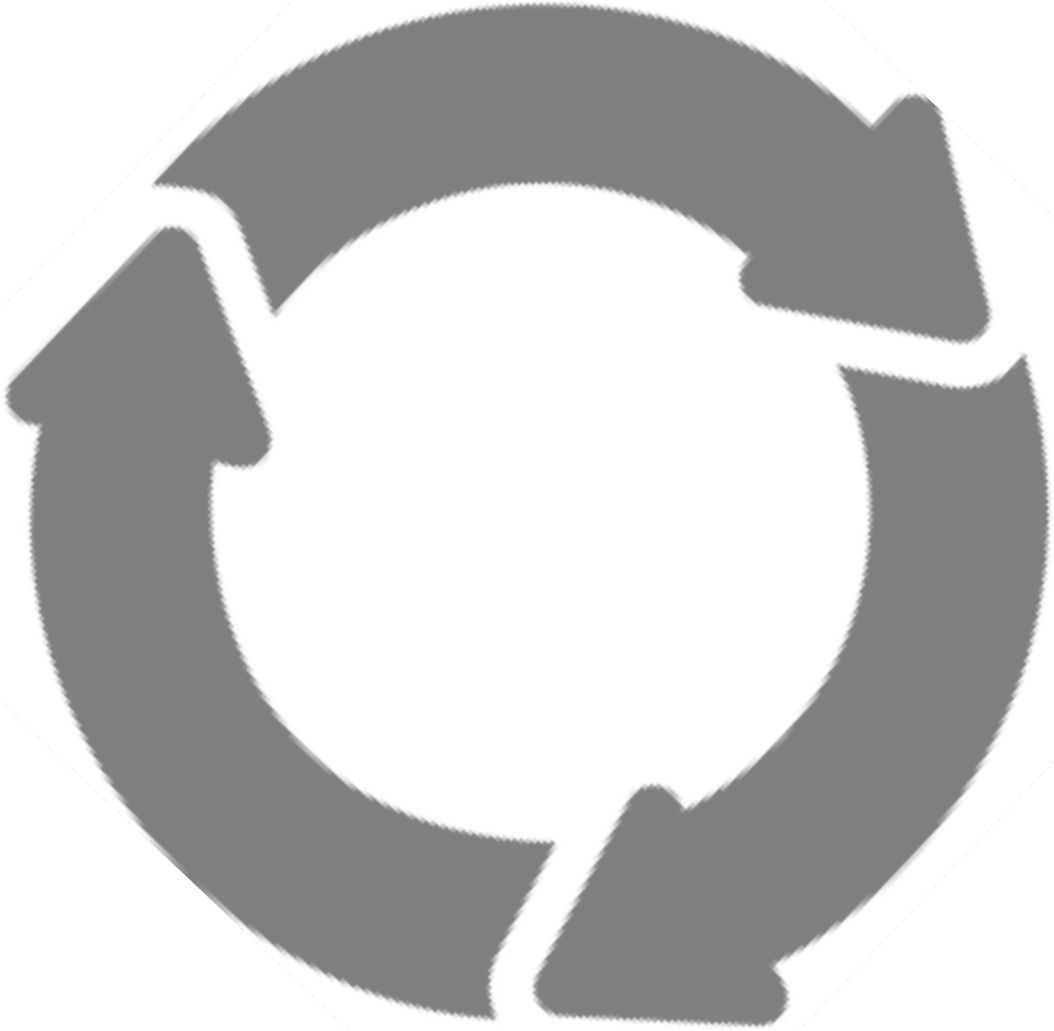
- **Did it meet the project requirements?**
  - Teach a topic interactively and allow users to access themselves with a quiz.
- **Did you iterate based on feedback to make a high quality, user-centered product?**
  - Idea
  - Content Design (stuff from google doc prototypes)
    - Clear navigation
    - No walls of text!
  - Technical Implementation
    - Quality of the interactive elements
  - Graphic Design and Usability

Teamwork with Individual videos.

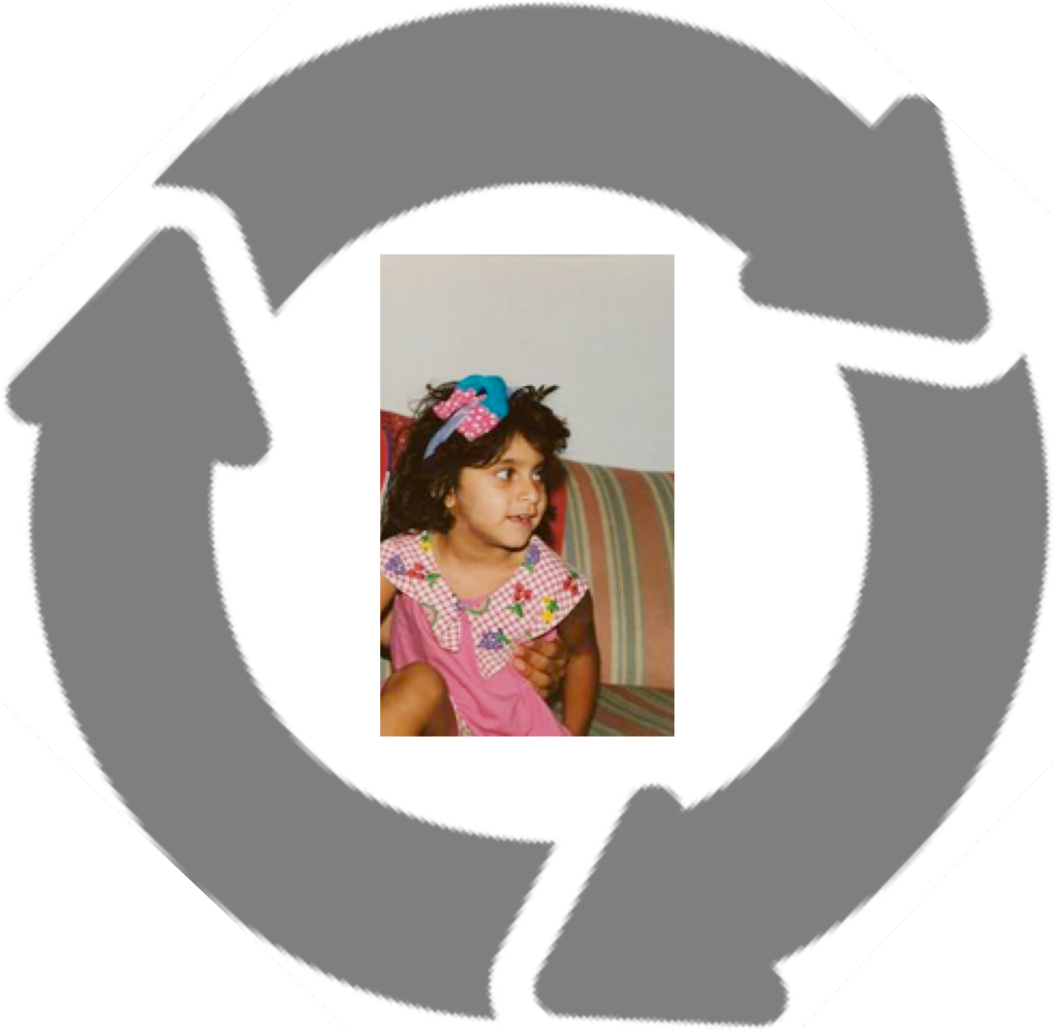
- Ultimately, you are graded individually based on solely on whether the final deliverable meets the expectations of the project.
- **Everyone turns in their own video with their own narration**
- This means that if you haven't seen one of your teammates since HW9, and they're assigned to do X, you are still responsible for X.
- If you are having trouble reaching a teammate or schedules aren't lining up, let your TA know.

1. Get started

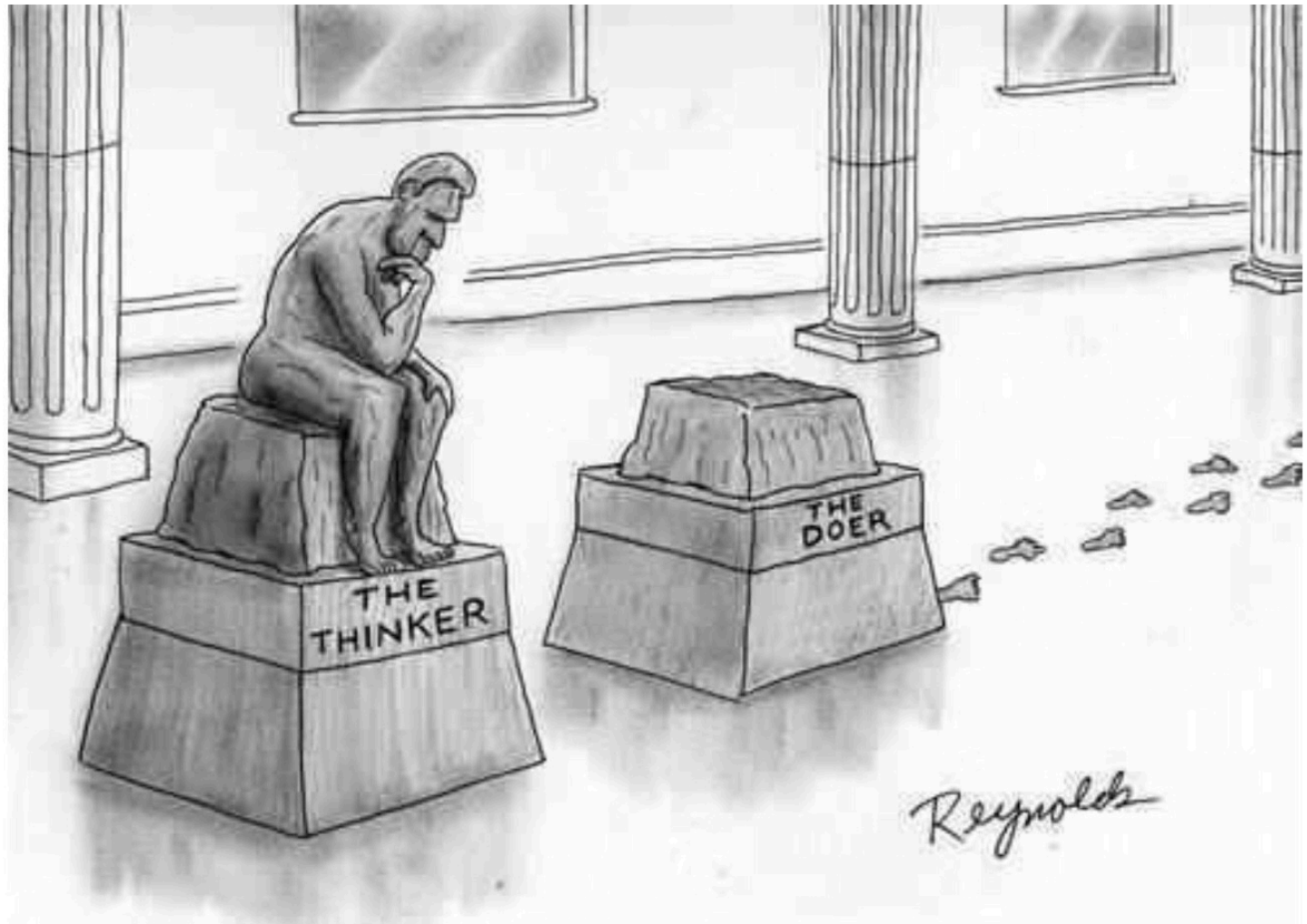
2. Plan for iteration



3. Keep the user at the center of the process



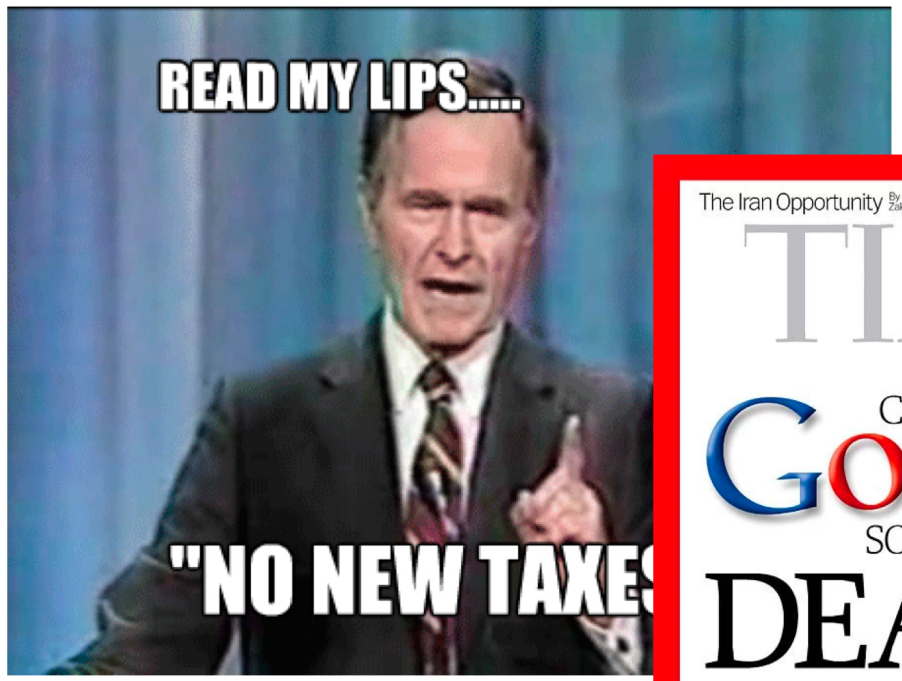
1. Get started

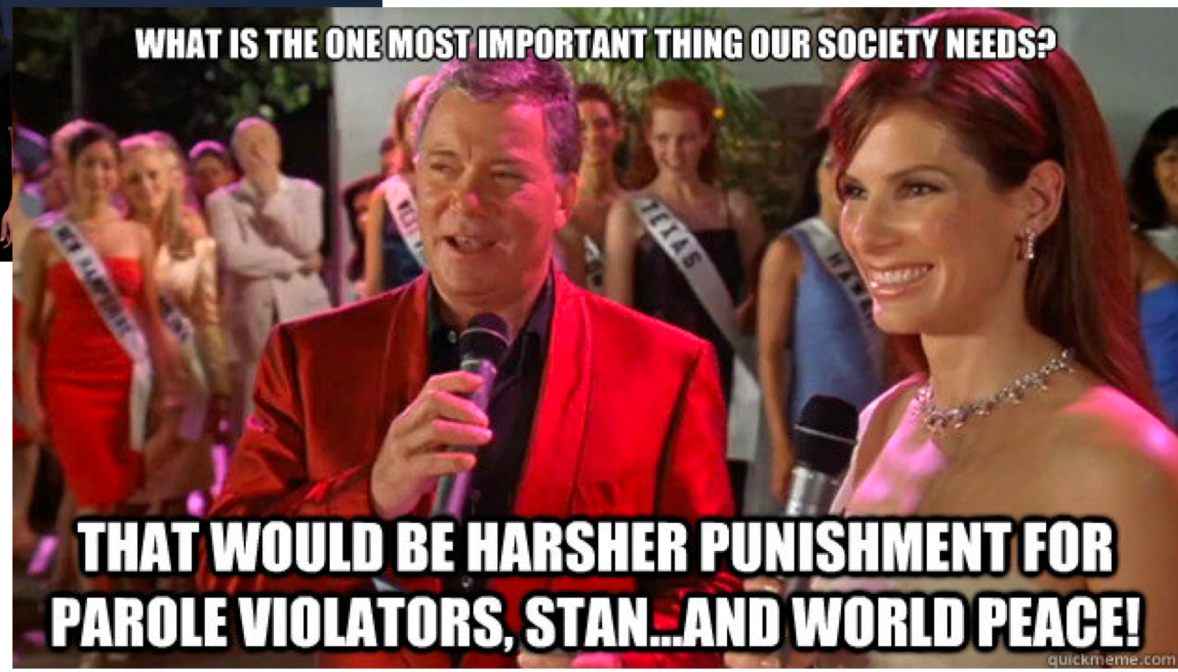

THE THINKER
THE DOER
Reynolds

We all have ideas, dreams, thoughts.
Most stay in our heads.
Challenge yourself act on it.

Discover if it is something great, or something you should move on from.

What's the trap of grand, general goals?





They aren't actionable.

How to get started

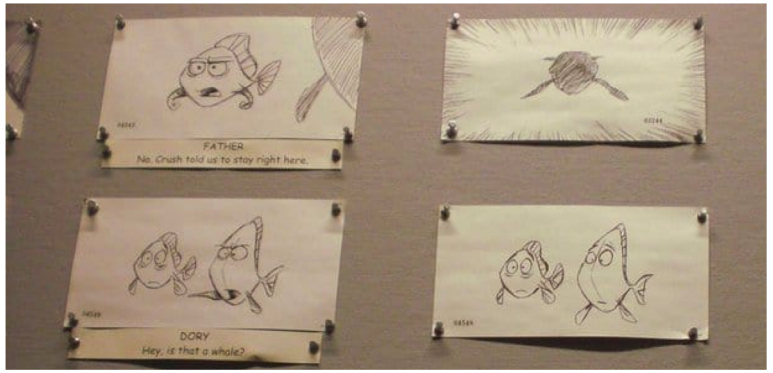
Find a user

Interview someone

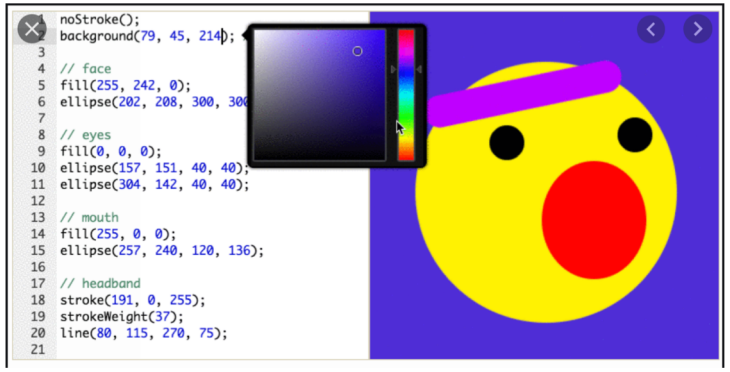
What's wrong?

I just don't get what to do.

Prototype it



Competitor Research



```
noStroke();
background(79, 45, 214);

// face
fill(255, 242, 0);
ellipse(202, 208, 300, 300);

// eyes
fill(0, 0, 0);
ellipse(157, 151, 40, 40);
ellipse(304, 142, 40, 40);

// mouth
fill(255, 0, 0);
ellipse(257, 240, 120, 136);

// headband
stroke(191, 0, 255);
strokeWeight(37);
line(80, 115, 270, 75);
```

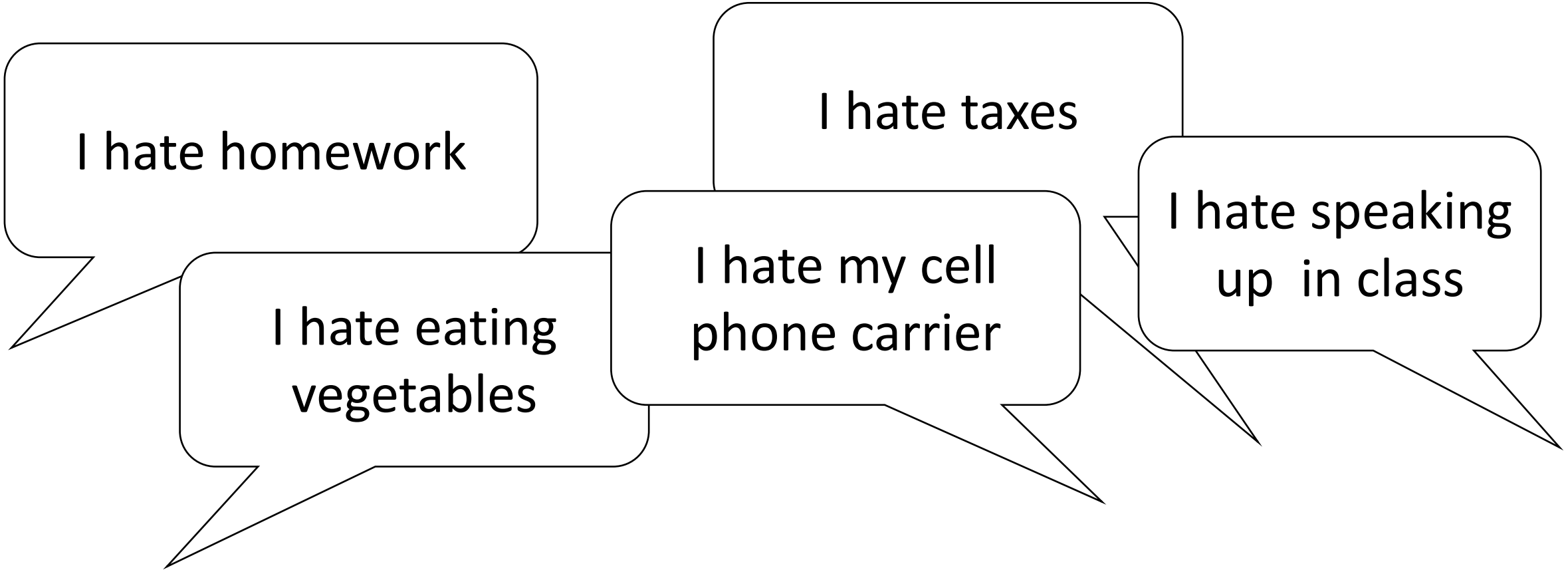
Break it down

Talk to users

- Don’t expect users to tell you what they need.
- Ask users tell you about their experiences, their thoughts, their feelings.
- You synthesize it into ideas that you bring back to them.

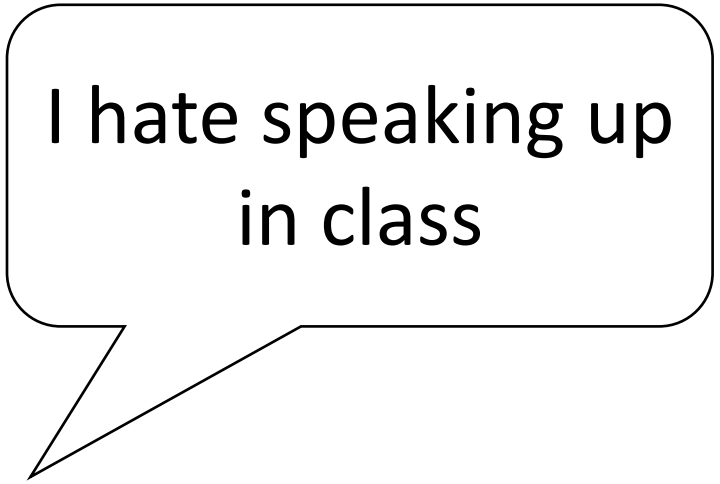
- Try Co-design. If users have the time and interest, include them in the design process.
  - Anyone can build a Google Doc prototype, or draw on a piece of paper.

If you ask “What are your problems?” you get things like this.



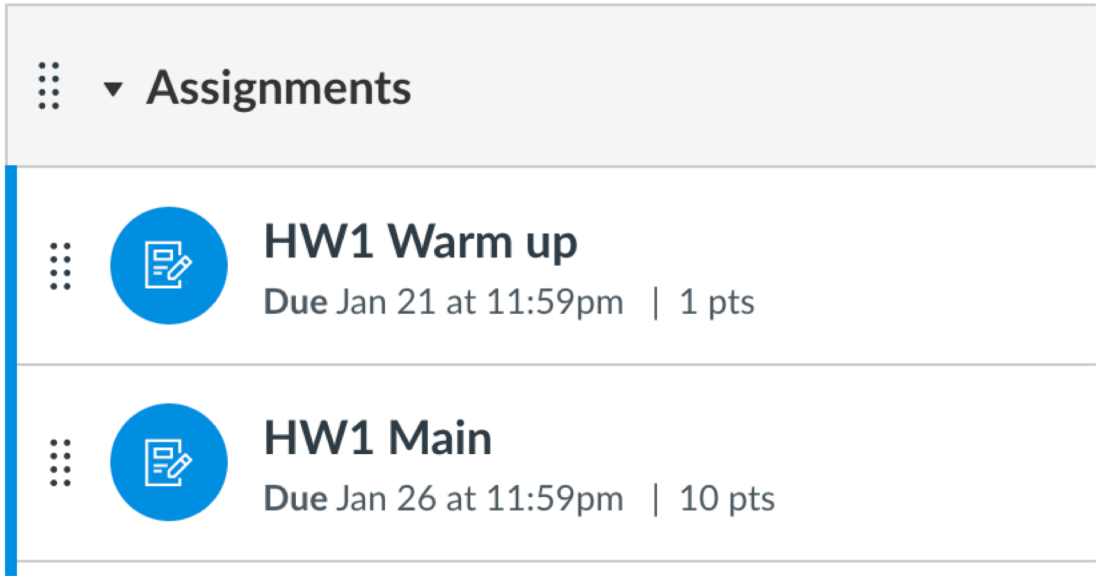
These answers doesn’t provide us with the details we need to understand the problem.

To find insights and opportunities to help users, we need to dig into the details of their experience.



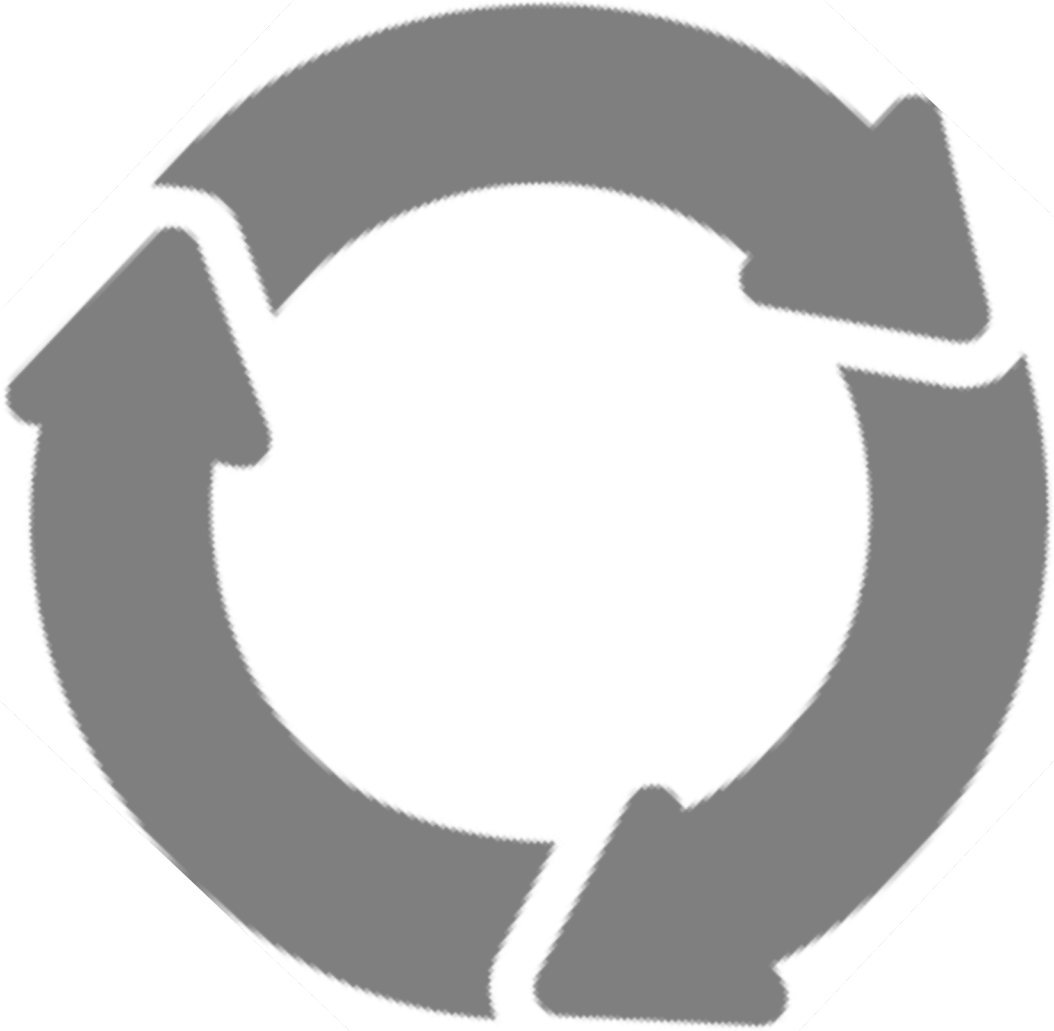
What’s the experience of speaking up in class?

The warm ups were an effort to get started on assignments

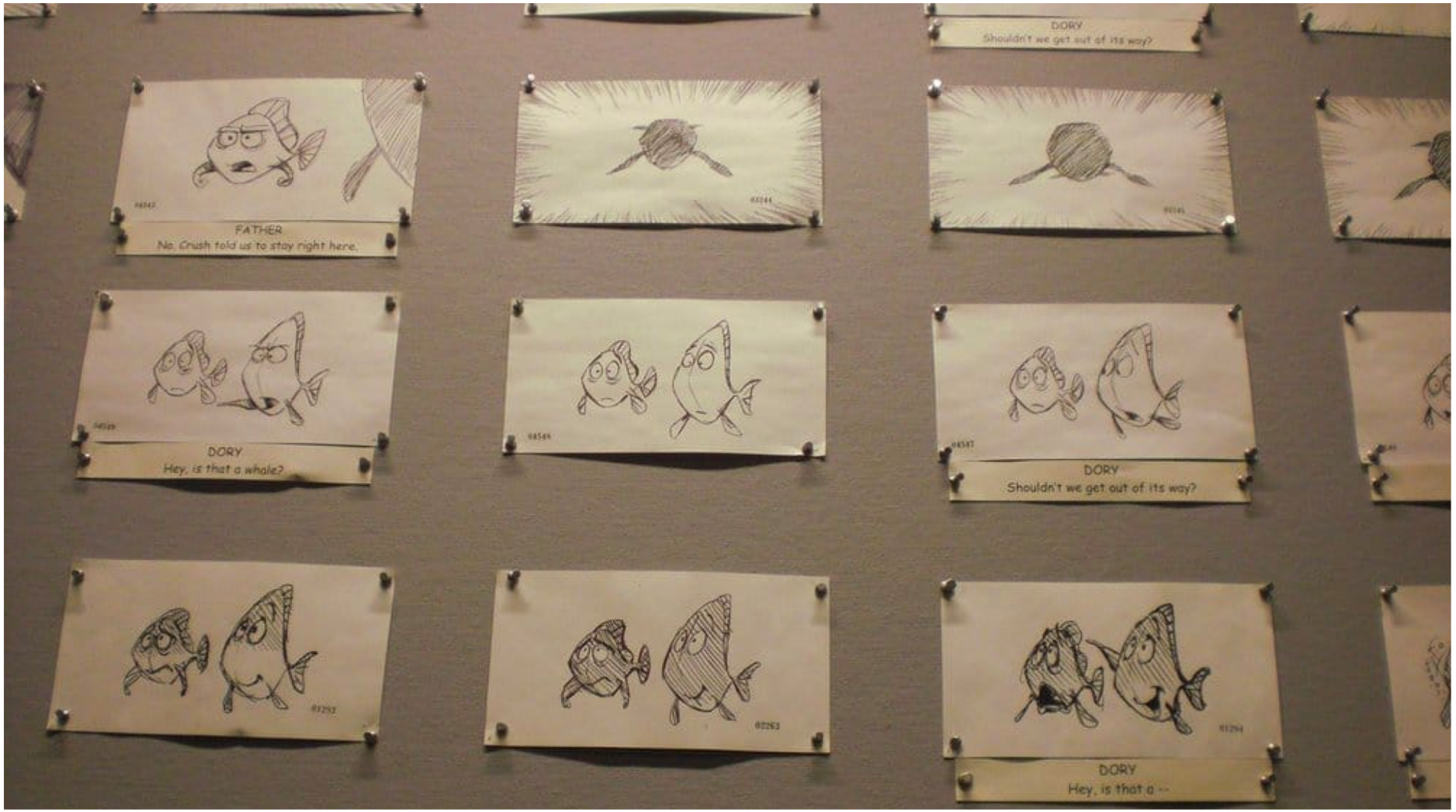


“Annoying but often useful.”

2. Plan for iteration

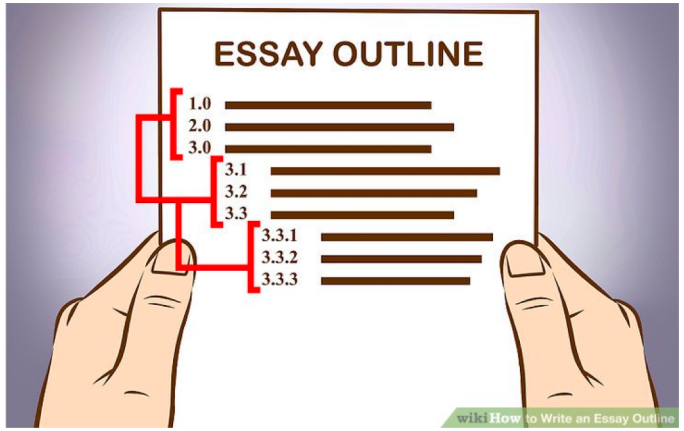


Pixar starts with a **storyboard** to test coherency



Other domains with low-fi prototypes to explore ideas and iterate.

Essays: outlines

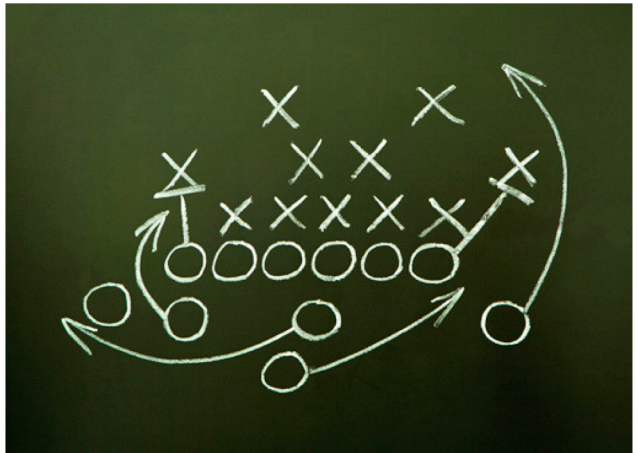


Acting: Table reads

Painting: Sketches

Fashion: Sketches

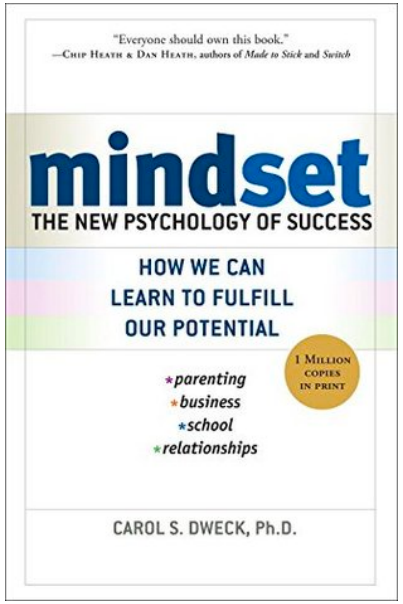
Sports: Diagram “plays”



Why do we need to iterate?

~~Because design is hard and you're stupid~~

Because design solutions are unknown, and you need to explore options.



Plan for iterations of your video.

Iteration 1

- **Just get started.**
- It will be terrible, but now you have something to start from.

Iteration 2

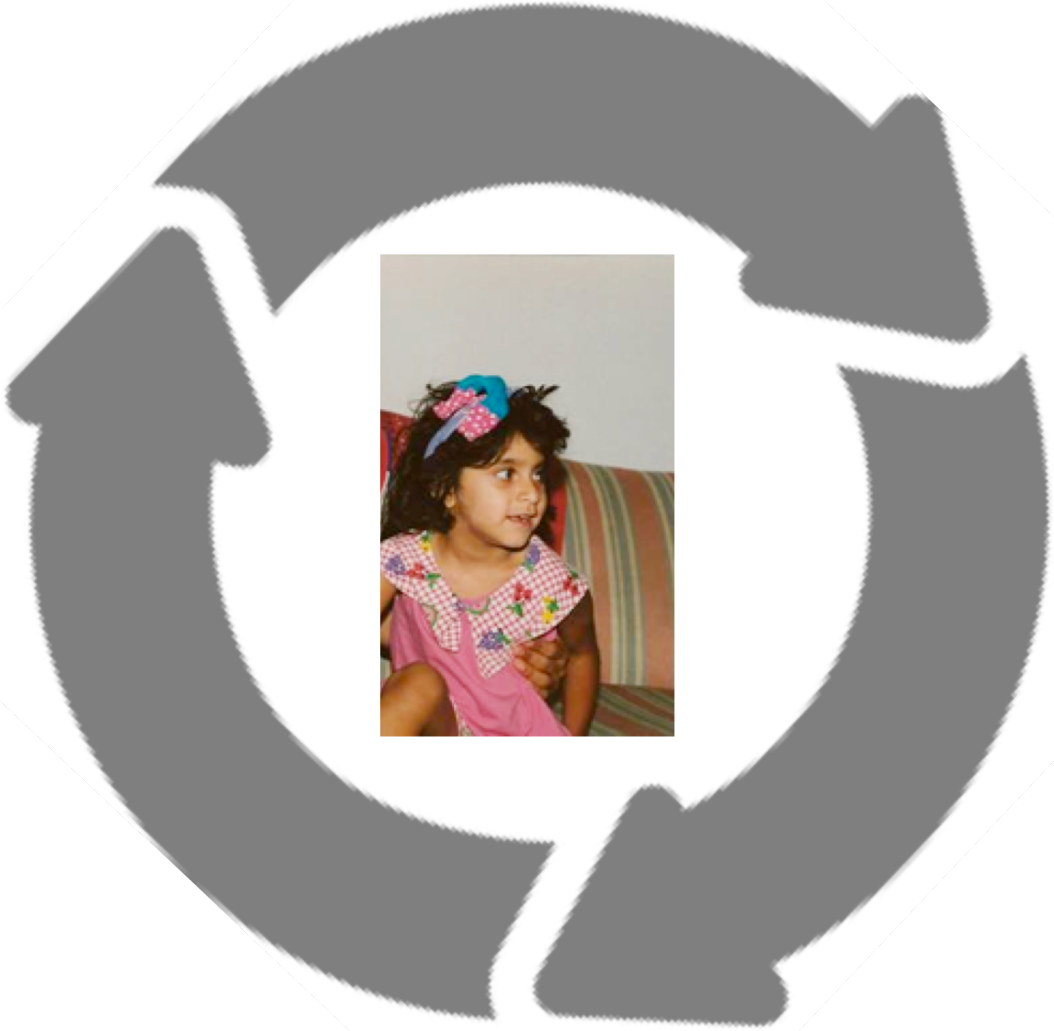
- **Less terrible.**
- Possibly has basic structure
- Smoothed out some local issues.
- Probably has some distracting problems on the details

Iteration 3

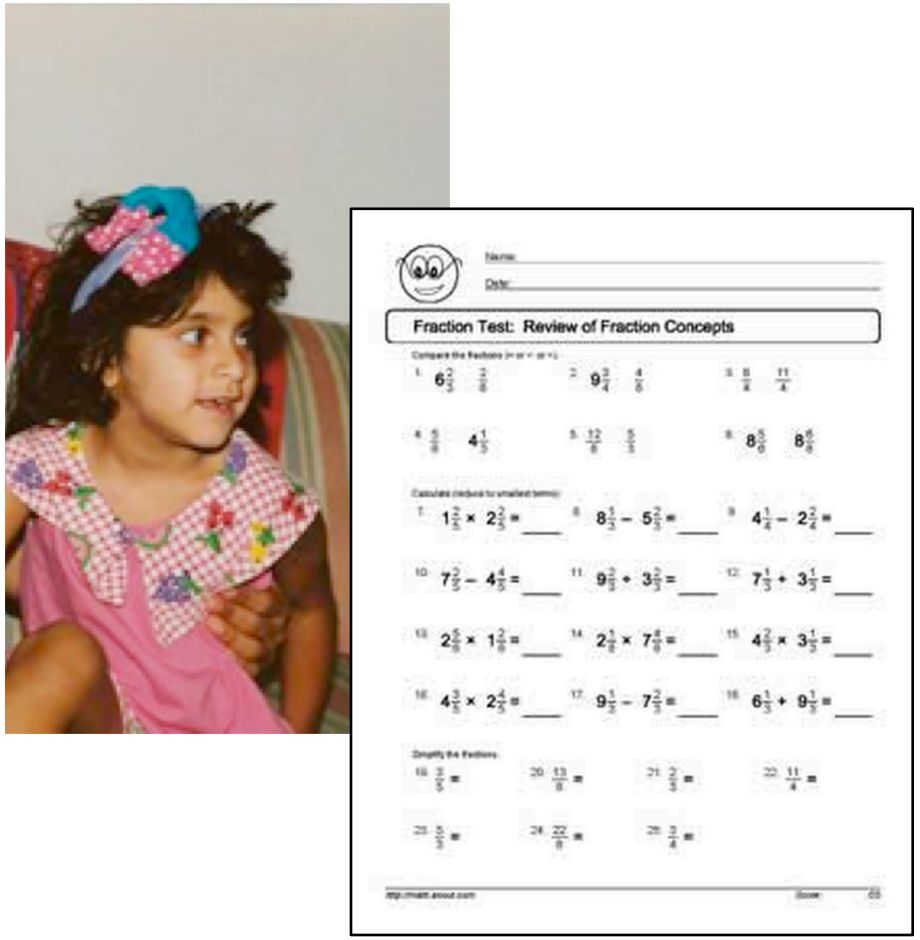
- **Viewer can get the basic ideas**
- Coherent story.
- No distracting errors
- Not perfect!

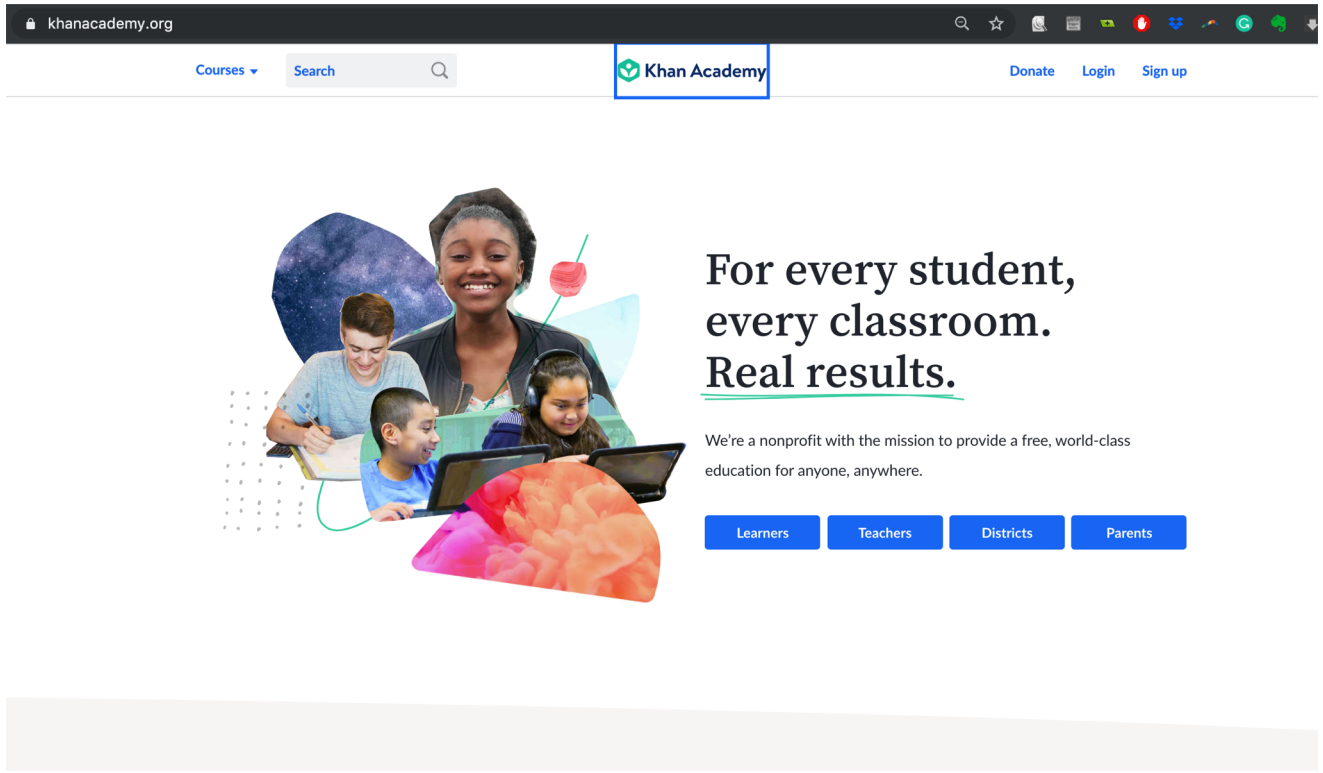
Iteration 4 TA feedback: nailing the important details.
(or finding our you're off base)

3. Keep the user at the center of the process

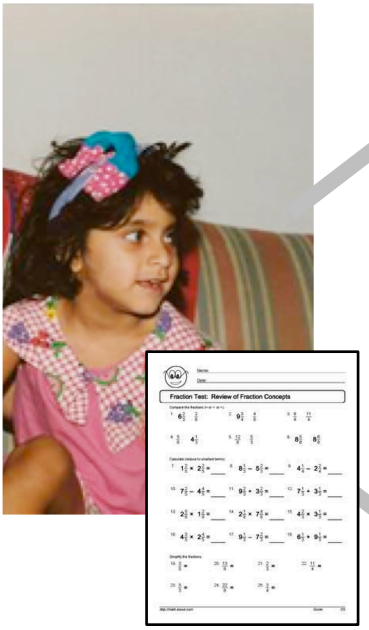


Starting with a specific person and problem allows you to understand the problem and test various solutions.





The Human-Centered Design Process



Identify **users**

- Interview **users**
- Research other products **user** use.
- Brainstorm (with **users**!)

Synthesize into insights and ideas

Ideas

- Prototype solutions
- Explore technical options

Get **user** feedback

Product

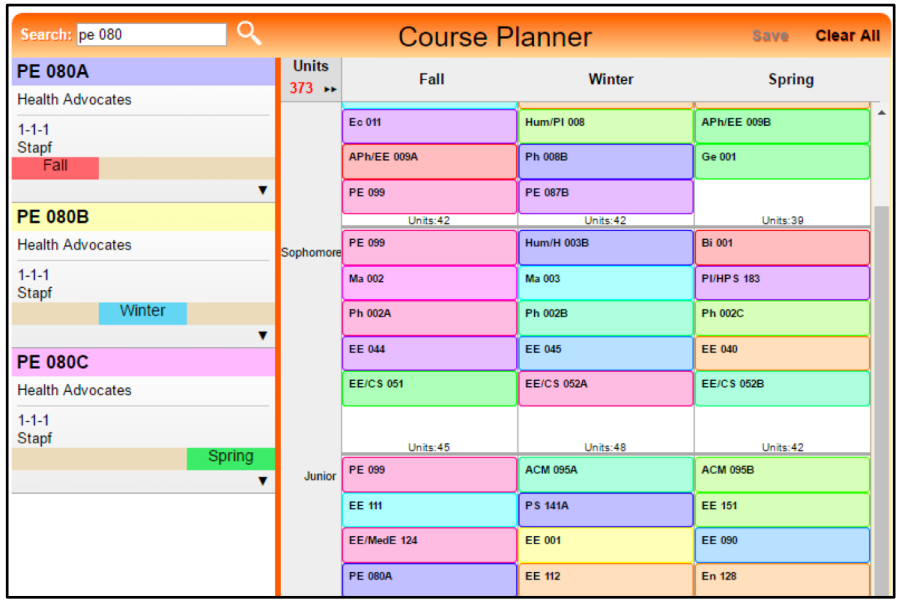
Understand the users problem

Solve the users problem

Examples from my students

Example 1: Coursedog

Justin made an app for students
to pick classes that don't conflict

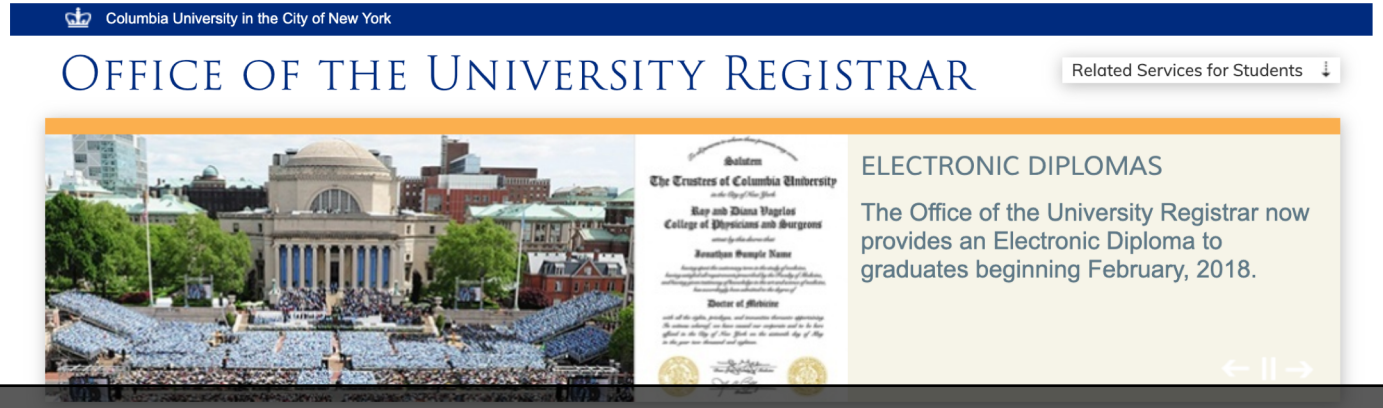


Nobody adopted it.

Students wouldn't
pay for it.

It's not a big enough need.

Interviews: What is peoples experience with scheduling?



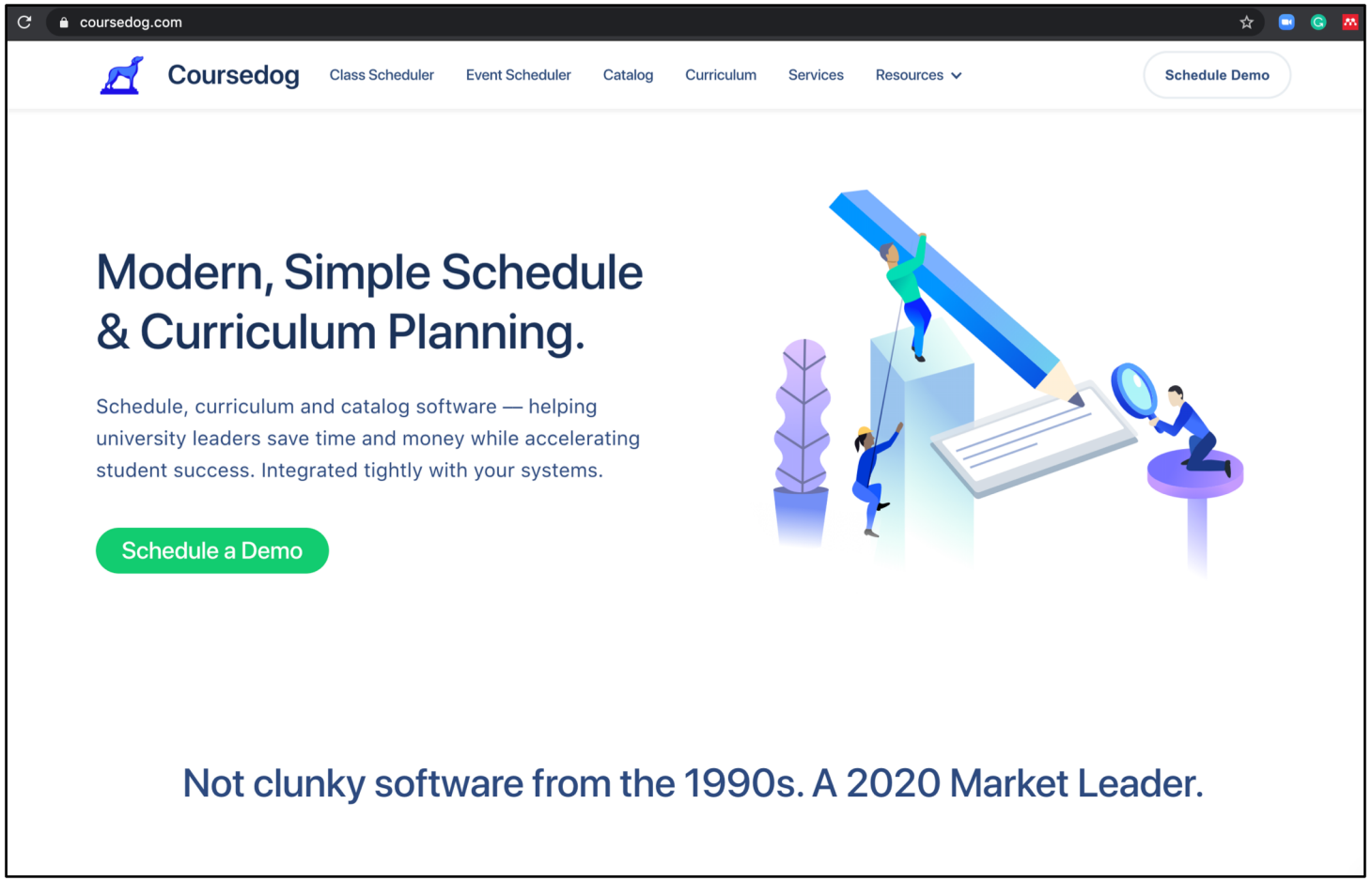
The registrar needs help with scheduling, not students.
And they **are** willing to pay for it.

Contact Us

Student Service Center

Location: 205 Kent Hall
Email:
registrar@columbia.edu
Website: ssc.columbia.edu

Coursedog



August 2017

We Welcome our first Partners.

Columbia Law School · SUNY · LCAD Laguna College of Art+Design

December 2018

Seed-funded and California-bound!

After closing seed funding led by Y Combinator and Ebay CEO Devin Wenig, the team heads out to California for 3 months.

2018 - 2019

Coursedog launches catalog, curriculum and event management solutions.

Coursedog signs on 62 new schools of all shapes & sizes in one year.

Brigham Young University Founded BYU 1875 Provo, Utah · University of Montana

Early 2019

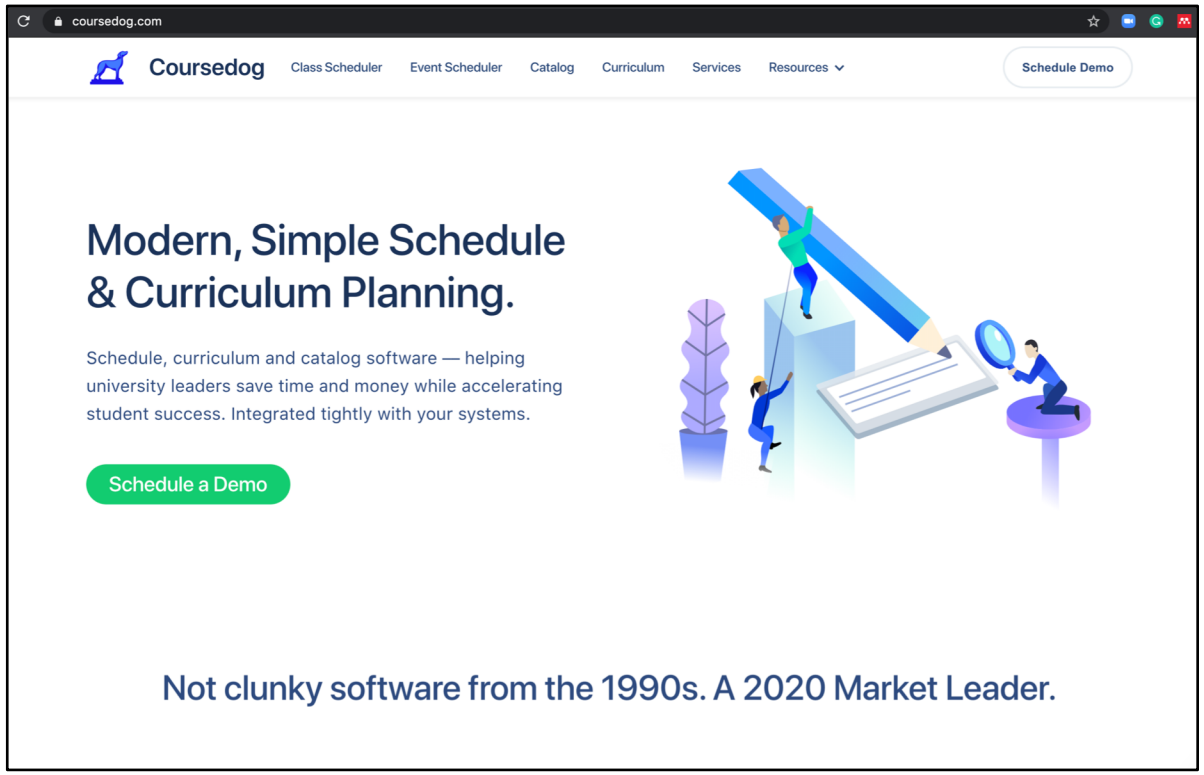
Coursedog raises $5.7M

See us featured in TechCrunch

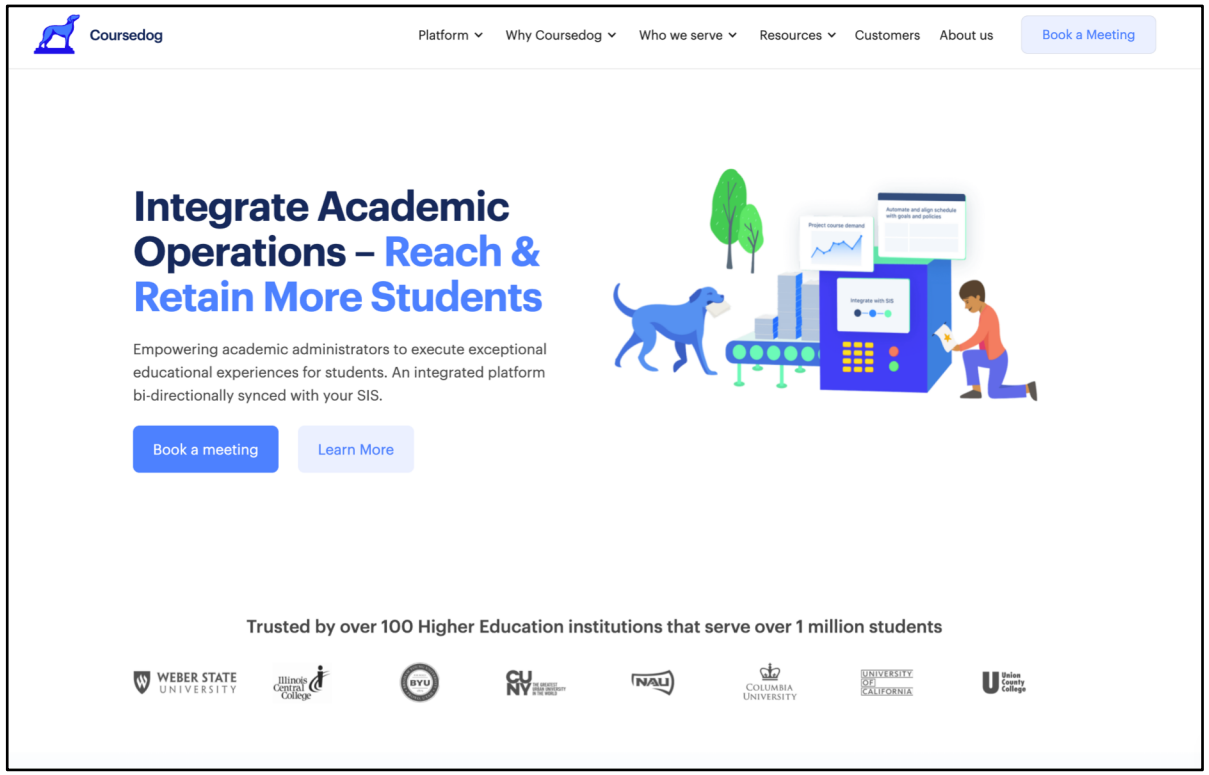
Trusted by over 100 Higher Education institutions that serve over 1 million students

Coursedog Raises $17M to Break Down Barriers in Higher Education

Generalize from “Scheduling” to “Academic Operations”

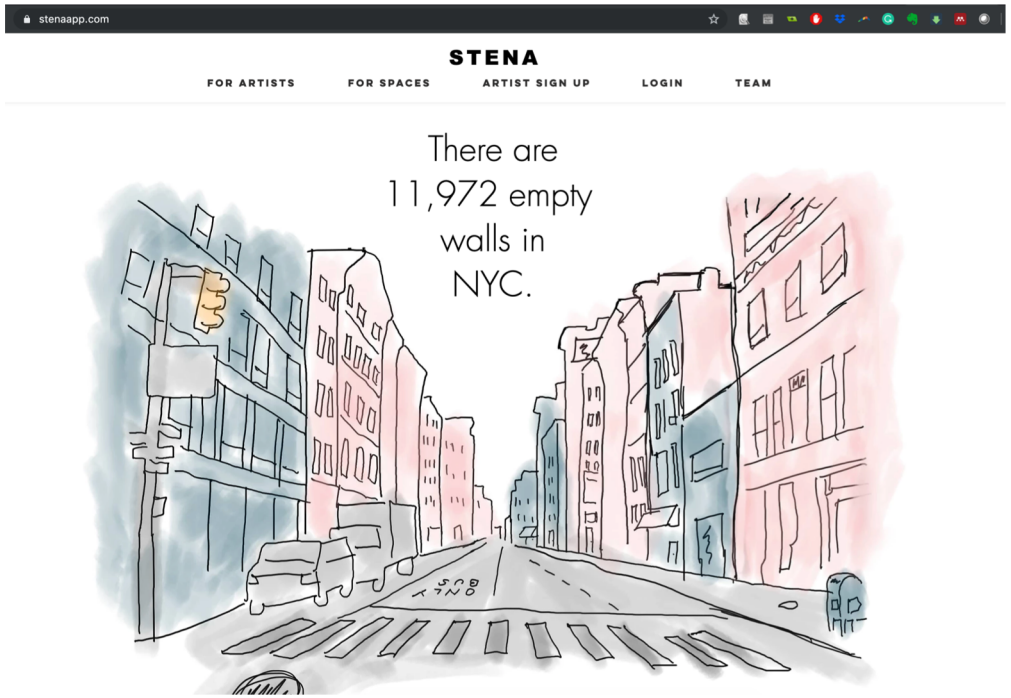


2019



2022

Example 2: Stena App

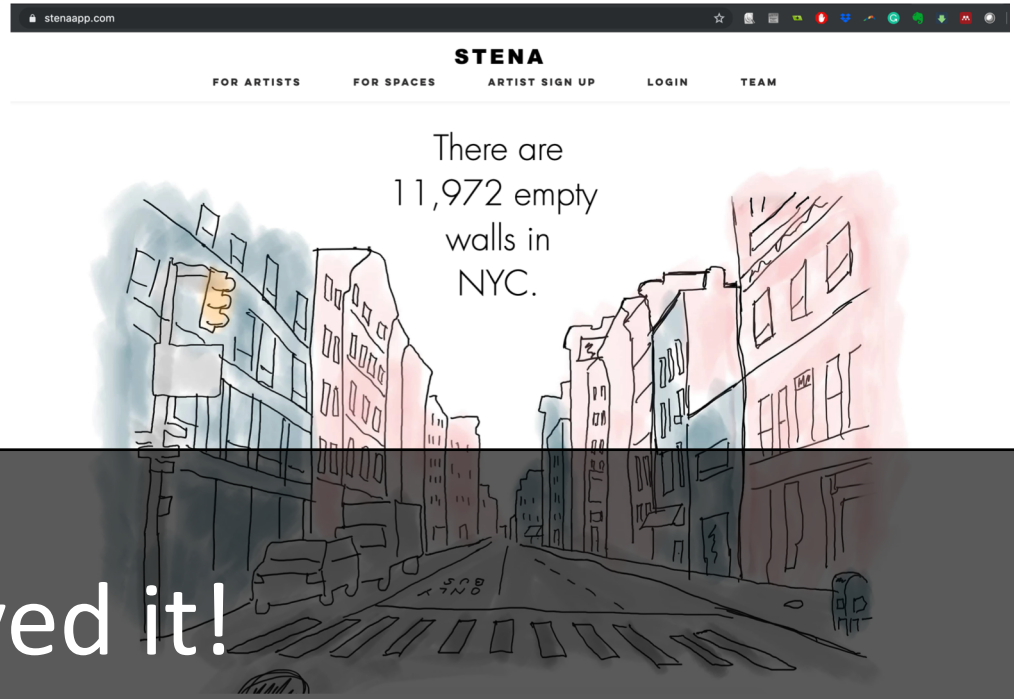


Why don’t more coffee shops sell art on their walls?

Would artists and owners be willing?

Stena Interviews

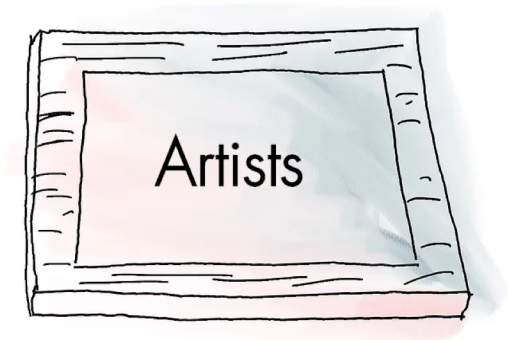
- Talk to:
  - Artists
  - Business
  - Potential buyers (coffee shop patrons)



Artists loved it!

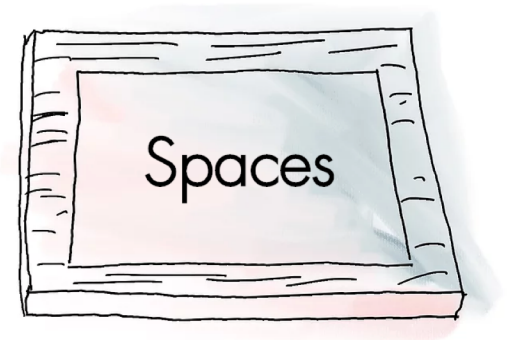
They have TONS of their art lying around.

Learn more.



If you're like Zak and have art you want to display and sell. Click here to learn more about becoming a Stena Artist.

For Artists



If you're like Susie and have some spare wall space. Click here for more information about becoming a Stena Space.

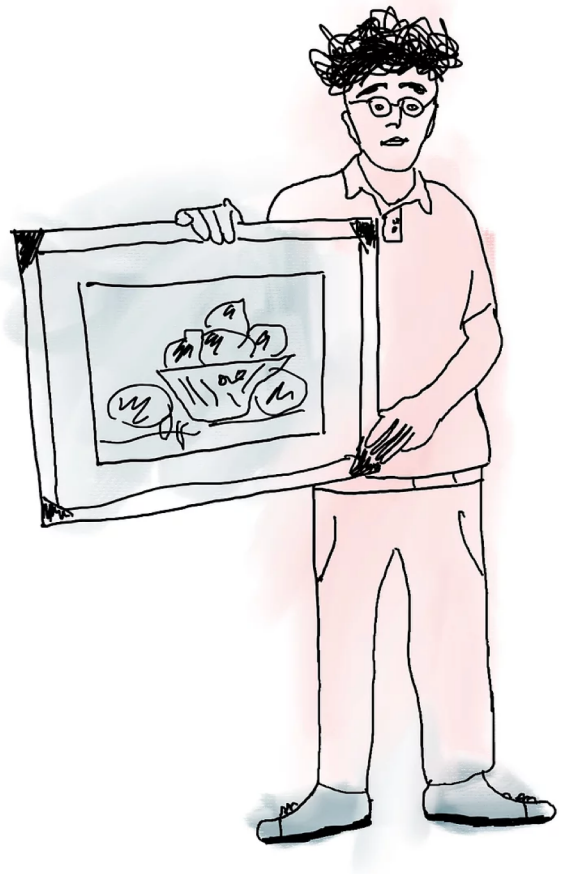
For Spaces

Zak created a Stena profile and uploaded his available art.

Susie saw his work on the Stena site and loved it.

In just a few days, Stena drafted a contract, printed hang tags and installed Zak's pieces in Susie's cafe.

The best part: Zak and Susie paid nothing upfront!

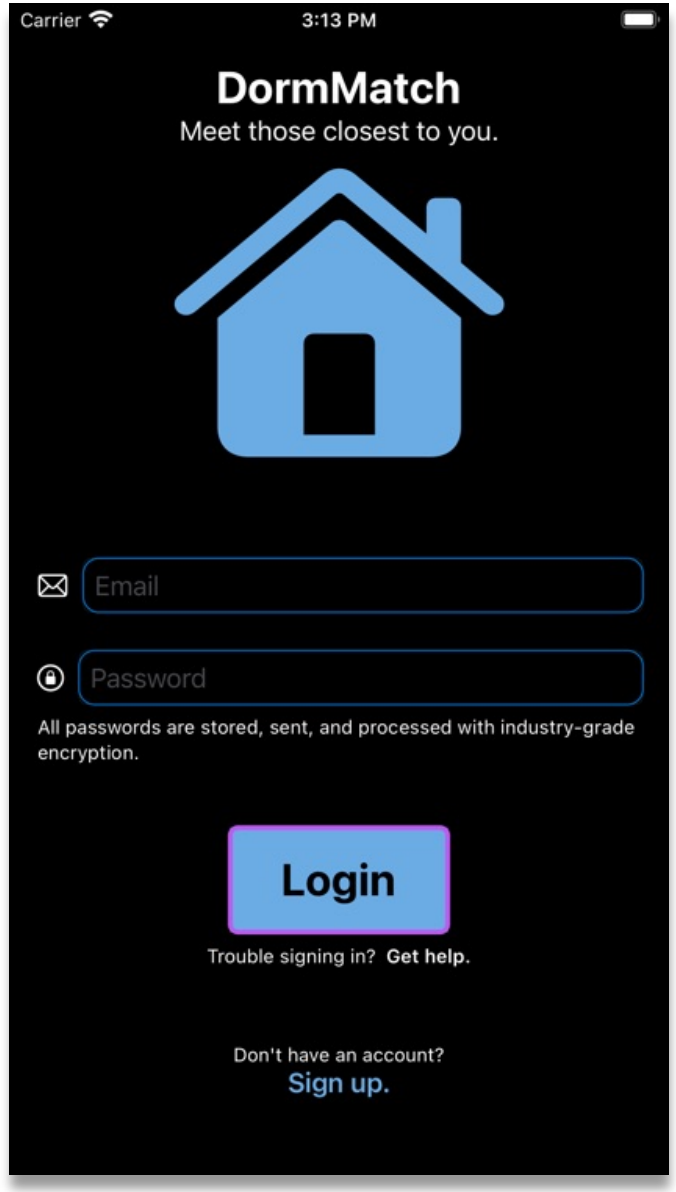


DEAR MAMA

specialty coffee bar

Example 3 : DormMatch

- **Idea**: Pair people up in the same dorm
  - UI Similar to Tinder, only see people in your dorm
  - Useful because of Covid restrictions junior year



What about AI and Design?

Are we going to have jobs in the future?

Designing for Generative AI

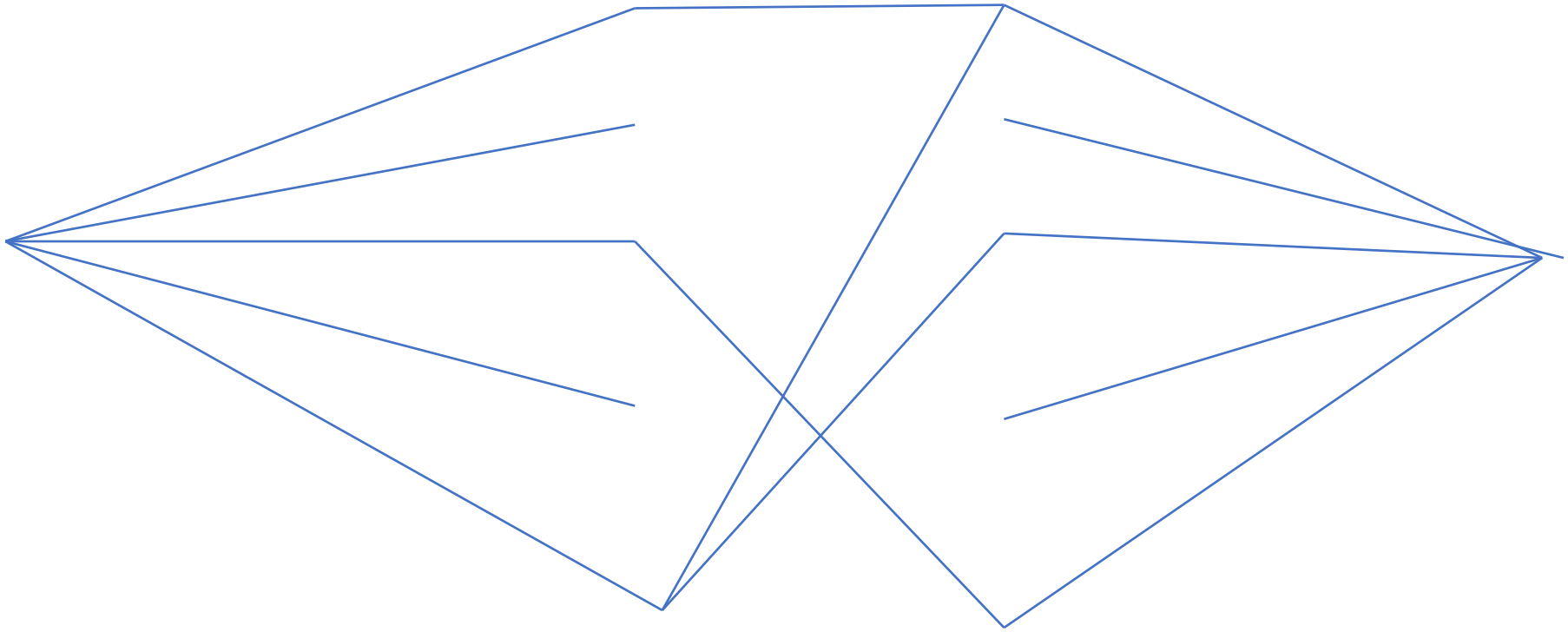
COMS 6998 sec 11 Fall 24

Prof Lydia Chilton

Designing for Emerging Technology is about matching between tech and people.

What can the tech do?

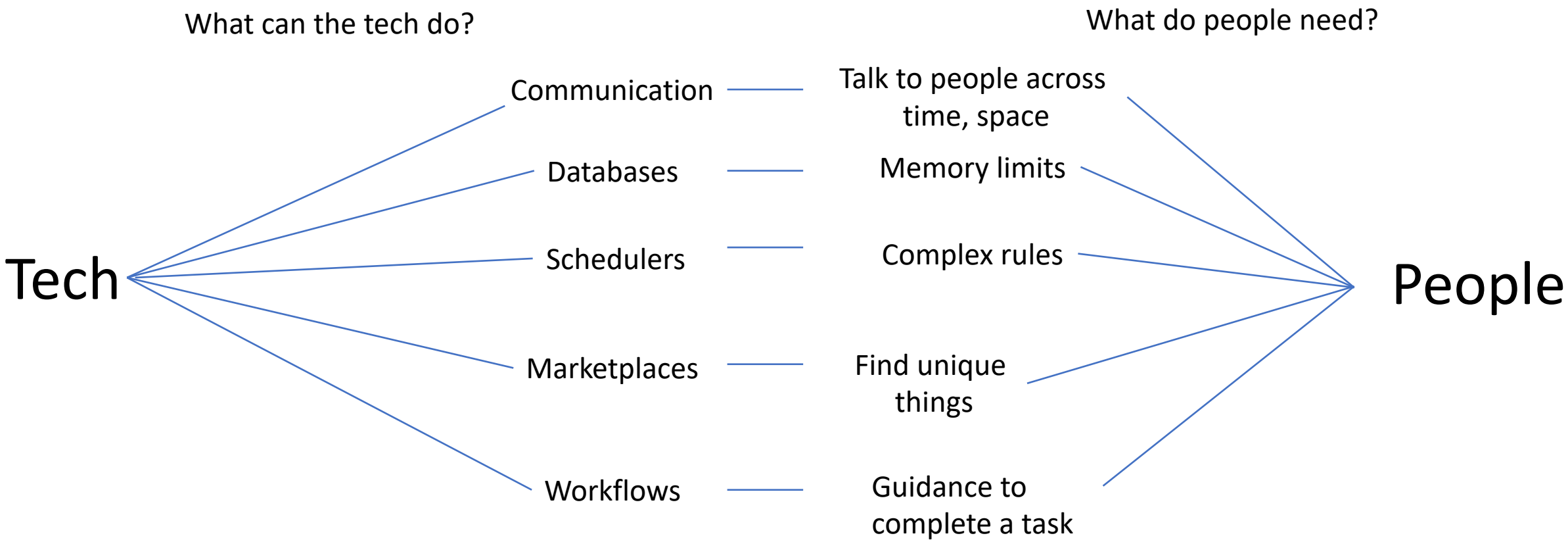
What do people need?



Tech

People

We analyze fundamental **needs of people** and fundamental **abilities of technology**.



There are typical things tech does well

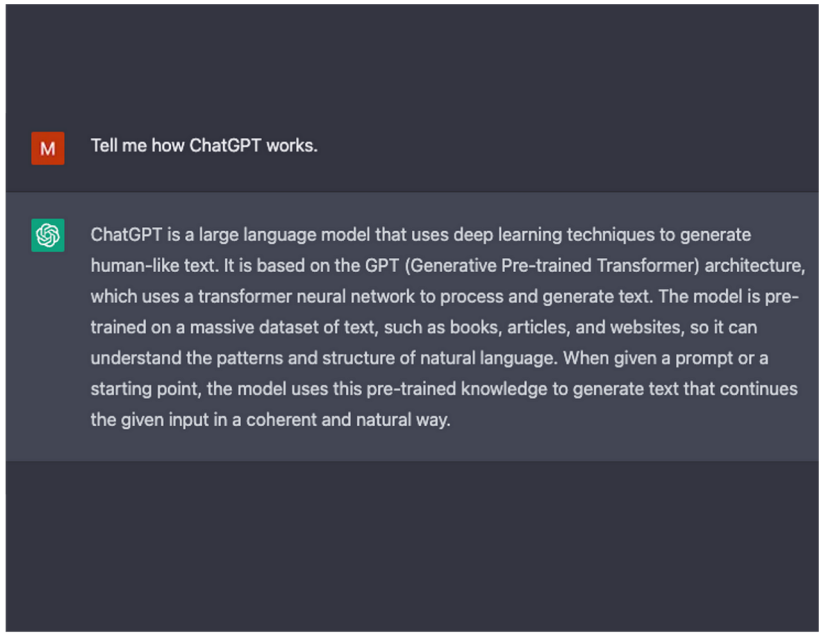
There are typical things people need

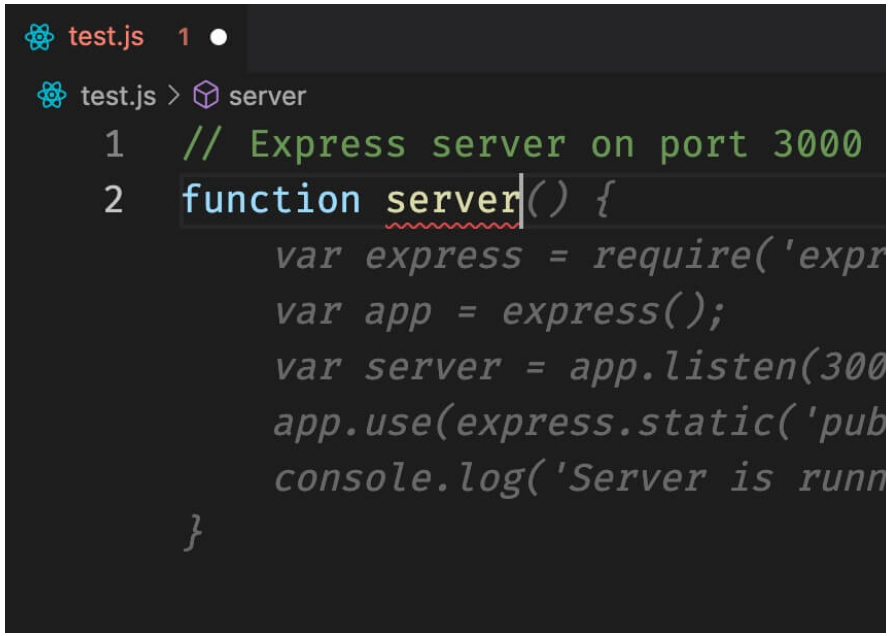
Mostly Staff Project Mentoring

- It’s like the second half of this class.
- We don’t teach (much) coding.
- We do teach qualitative research methods
  - How to interview
  - How to conduct observations
  - How to do competitor analysis
  - How to synthesize results

- We’ll try to accommodate as many students as we can.
- You cannot be admitted until you pass COMS 4170.

AI seems to be taking over the world





text

images

code

Everyone: AI art will make designers obsolete

AI accepting the job:

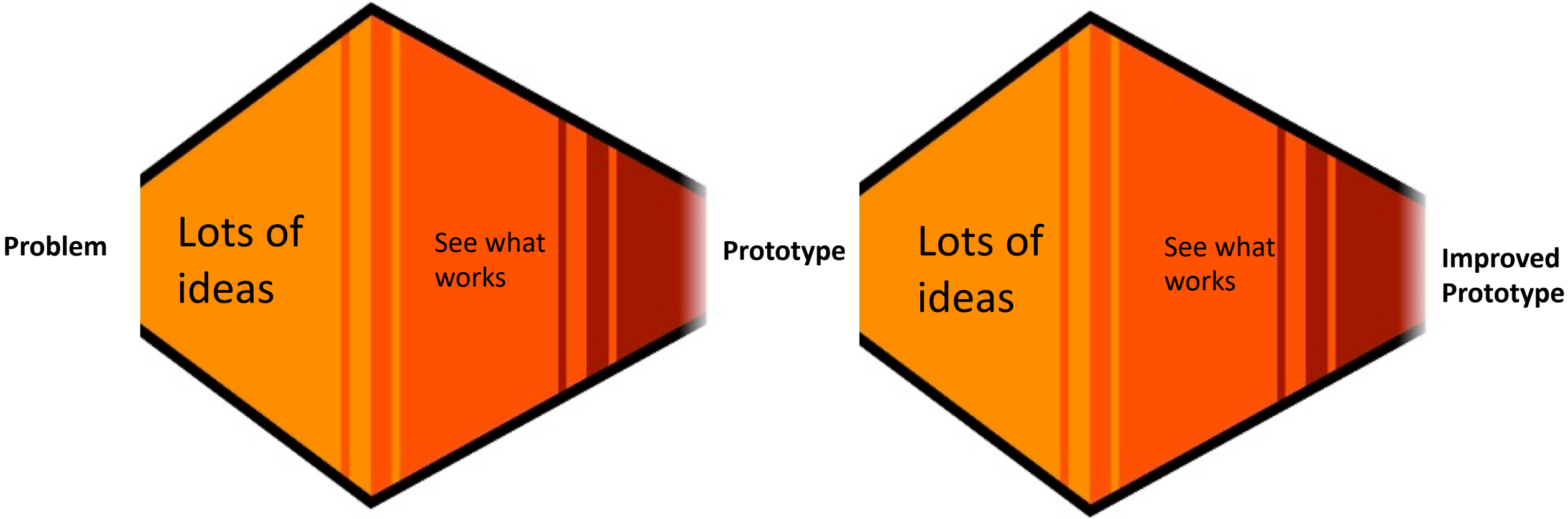
AI is impressive, but far from perfect

- It doesn’t know what’s true
- It can’t evaluate what outputs will resonate with people
- It’s answers are pretty basic - summarized from what’s already written.

AI needs people

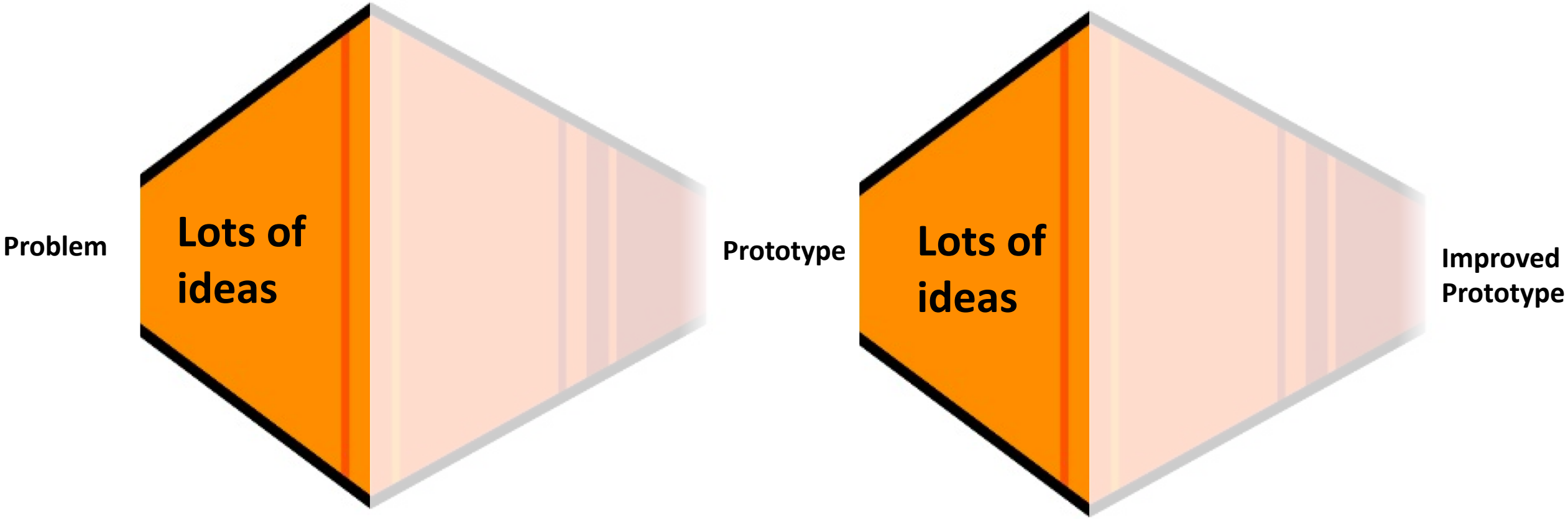
How do we structure human-AI collaboration?

The design process is a model for innovative and creative outcomes.



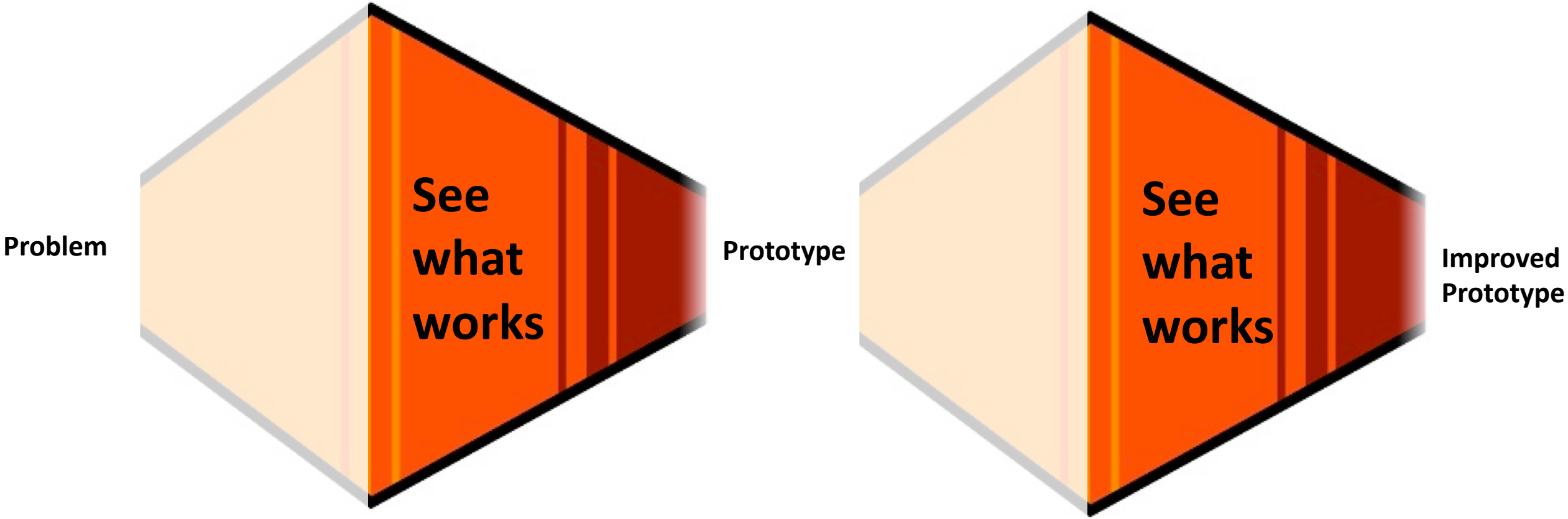
Psychology calls it divergent and convergent thinking
Designers call it flare and focus

In design, people struggle to generate many ideas and prototypes



People often fixate on a single idea…
But AI doesn’t

AI struggles to understand context and evaluate outputs



But people find evaluation much easier than generation.

Humans and AI have complementary skills

AI can help:

- **Explore** the design space.
- Provide a good **starting point**.
- Create many **prototypes** quickly.

People must:

- Understand the **context and goal**
- **Pick the direction**
- **Judge** the outputs
- **Ensure a cohesive** output.

To design together, humans and AI must have a **shared representation of the problem**.

News Angles: GPT to help journalists discover angles for press releases

View site information

- Main points of press release
- Potential sources of controversy
- Potential areas of investigation
- Potential negative outcomes
- Related news articles
  - Articles about: NYC + **agreement**
  - Articles about: NYC + **South Brooklyn Marine Terminal**
    - *Jacobs Will Redevelop South Brooklyn Marine Terminal* (Yahoo Entertainment)
    - *GE-BOND Consortium Awarded Landmark Contract to Build High-Voltage Electrical Systems for Empire Offshore Wind 1 in New York* (Business Wire)
    - *City calls for offshore wind facility dev on Staten Island* (The Real Deal)
    - *Getting Wind of It: NYC Seeks to Build Offshore Wind Facility on Staten Island* (Commercial Observer)
    - *Jacobs Will Redevelop South Brooklyn Marine Terminal* (PRNewswire)
  - Articles about: NYC + **offshore wind**

Mayor Adams Announces Agreement to Transform South Brooklyn Marine Terminal Into Leading Offshore Wind Hub

released: **03/03/2022**

New York City Mayor Eric Adams today announced an agreement that will transform the city-owned South Brooklyn Marine Terminal (SBMT) into one of the largest offshore wind port facilities in the nation. The agreement will help establish New York as a leader in offshore wind and help the New York City meet its nation-leading climate goals of 100 percent clean electricity by 2040.

As part of the deal finalized by the New York City Economic Development Corporation (NYCEDC), Equinor, its partner — bp — and Sustainable South Brooklyn Marine Terminal, L.P. (SSBMT) will upgrade and build out the terminal as an operations and maintenance base. The terminal will become a power interconnection site for the Empire Wind 1 project , and heavy lift platforms will be built on the 39th Street Pier for wind turbine staging and installation for Equinor and other developers. The port will serve as a hub to support the Empire Wind and Beacon Wind offshore wind farms.

NYCEDC also partnered with Equinor and the community to support workforce training for a diverse pool of local residents to bolster opportunities for New Yorkers created by investments in offshore wind infrastructure. The agreement expands the target of minority- and women-owned business enterprise (M/WBE) contractors based in and registered with New York City or New York State, with a 30 percent M/WBE participation goal; and will support technical assistance for M/WBE and Disadvantaged Business Enterprises to create more opportunities for participation in this sustainable growth industry. Additionally, the agreement ensures the development will be a low-emissions facility.

“With this investment, the South Brooklyn Marine Terminal will soon be transformed into one of the largest offshore wind port facilities in the nation,” said Mayor Eric Adams. “This site will be the launch of a whole new industry for New York City that will support 13,000 local jobs over time, generate $1.3 billion in average annual investment citywide, and significantly reduce our carbon footprint so that we can meet our climate goals of 100 percent clean electricity by 2040. This is a transformative moment for New York City and our clean energy future — a future of sustainable power, good-paying jobs, and climate justice.”

“This first major milestone in New York City’s Offshore Wind Vision Plan is a perfect example of how our economic and workforce development objectives must go hand in hand with our clean energy goals. By building this new industry in the right way, we will continue to advance an equitable recovery and make our environment healthier as well,” said Deputy Mayor for Economic and Workforce Development Maria Torres-Springer. “We thank NYCEDC and our partners at Equinor, bp, and SSBMT for coming together to transform the South Brooklyn Marine Terminal into a major offshore wind hub and make New York City a leading destination for this important and growing industry.”

“Economic, racial, and gender equity is what informs and drives our work every day,” said Magalie Desroches Austin, senior advisor to the mayor; and director, Mayor’s Office of Minority and Women-Owned Business Enterprises. “We’re excited to support and collaborate with our partners at the NYCEDC and at the South Brooklyn Marine Terminal on this highly important initiative. Not only is this a capital investment in New York City’s offshore wind energy, its accompanying infrastructure, and the emerging work force critical to the long-term sustainability of the greatest city on earth, but it also helps to meaningfully and positively move the needle on the mayor’s commitment to Minority- and Women-Owned Business Enterprises and the diverse workforce they employ. We look forward to the many long-term benefits this investment will have on New York City’s environmental footprint, its labor force, and the myriad of M/WBEs that make New York City unique.”

Equinor also committed to establishing a $5 million ecosystem fund to bring more New York City residents into offshore wind careers, propel offshore wind innovation, and support a just transition. Finally, Equinor is working to establish an offshore wind learning center — accessible to the community — within its Brooklyn office.

Today’s announcement is critical to the offshore wind priorities and investments of both New York City and New York State. The city has committed $191 million to offshore wind projects — including $57 million in support of SBMT and $134 million in new investments. The city expects these initiatives to remove more than 34 million tons of

News Illustrations: Make art for headlines

Climate change is speeding up sound in the ocean.

Keywords

global warming

marine life

fish whale dolphin

Tones

panic

horror

spider graveyard snake

Styles

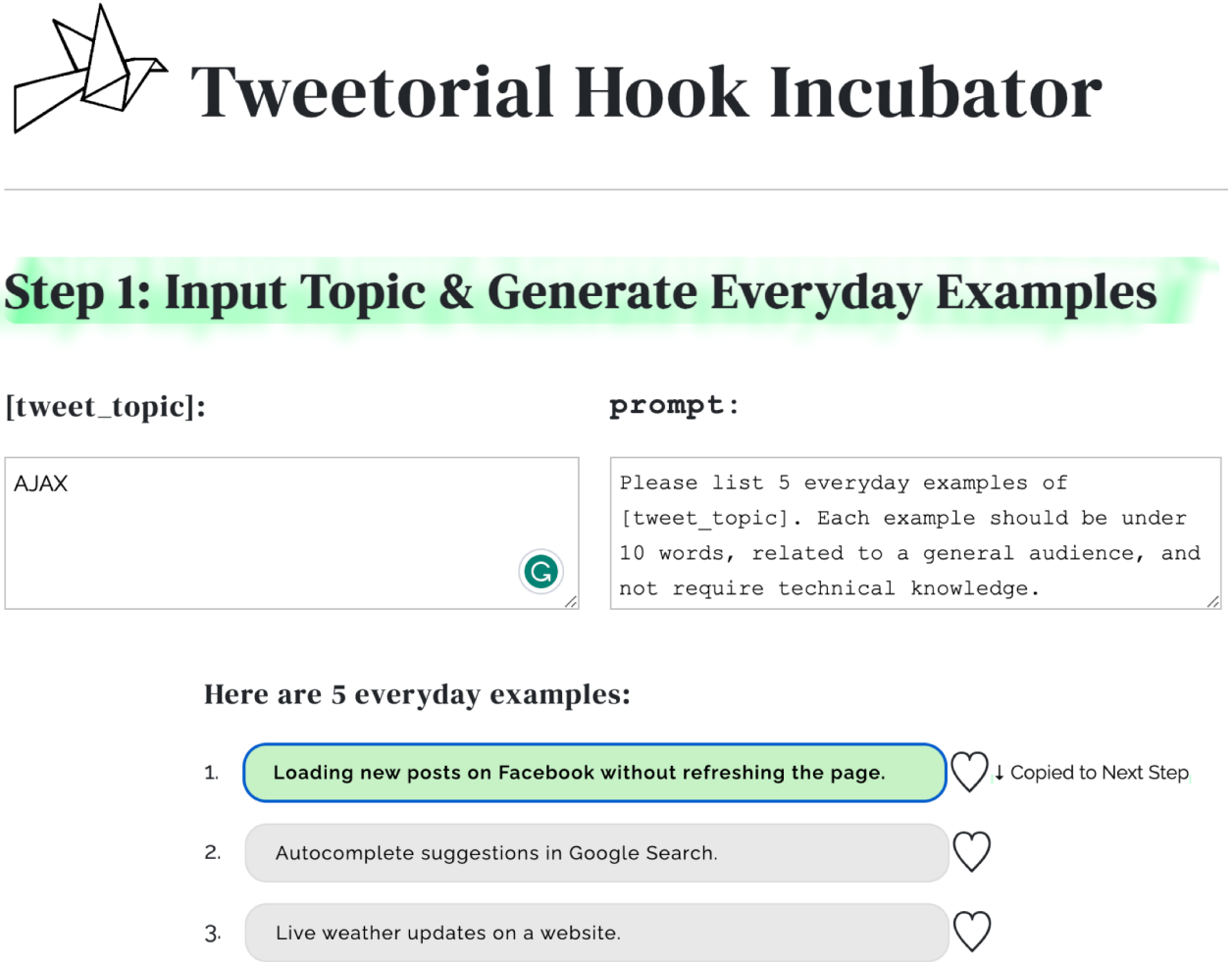
photo

b&w photo

Woodcutting

whale dying in a red ocean on fire, photo

Science Hooks: Explain science on social media using examples and stories



News Reels: Turn Print News Into TikToks

News Article

Don't Lose Your Credit Card, A New One Could Take Months

News Information

- ***Where?***: US
- ***Who?***:
  - Customer
  - Credit union
  - Supply chain professor
  - .....

Framing: *Narrative Framings*

- **Expository dialog**
- Reenactment
- Comedic analogy

Foundation: *Premise*

- *Characters:* Customer and Credit union
- *Plot:* an expert explaining to a naive newcomer
- *Setting:* inside a credit union branch
- *Key information:*
  - Fact1
  - Fact2
  - Fact3

Script

Framing: *Characters*

- Customer
- Credit union

Foundation: *Character board*

Appearance *Props* *Background*

MR DELANEY

- shirt
- glasses

EDIT UNION REPRESENTATIVE

- blazer
- pen

Storyboard

Shot description 1 | Shot description 2

Dialog 1 | Dialog 2

Shot description 3 | Shot description 4

Dialog 3 | Dialog 4

News Reel

LogoMotion:
Code Generation for *Semantic* Animation

LogoMotion:
Code Generation for *Semantic* Animation

LogoMotion:
Code Generation for *Semantic* Animation

LogoMotion:
Code Generation for *Semantic* Animation

What’s next?
How do I continue learning design?

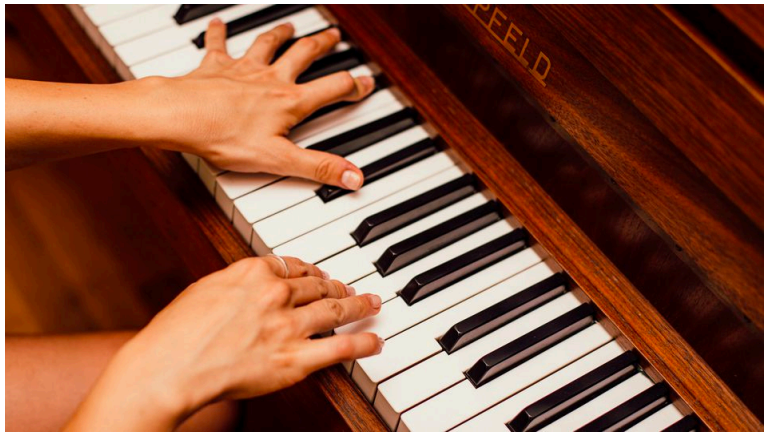
Not like this

Not like this

More like this

Design is a skill, not knowledge.
We learn it through **practice and feedback**

Sports



Playing an instrument

Languages

Cooking

Acting

Painting

Learn Design by Doing it

Paul Blaer, CS

Lydia Chilton, CS

Steve Feiner, CS

Brian Smith, CS

Gita Johar, Business

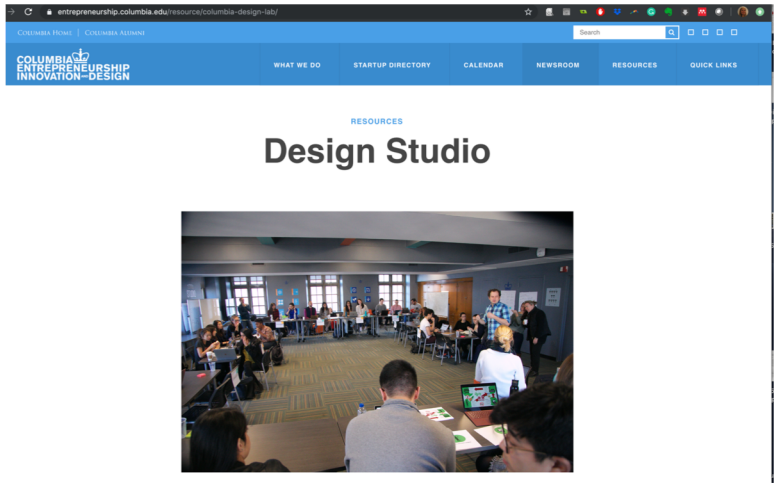
Mark Hansen, Journalism

Laura Kurgan, Architecture

Elizabeth Hillman, Biomedical Eng

Harry West MechE / IEOR

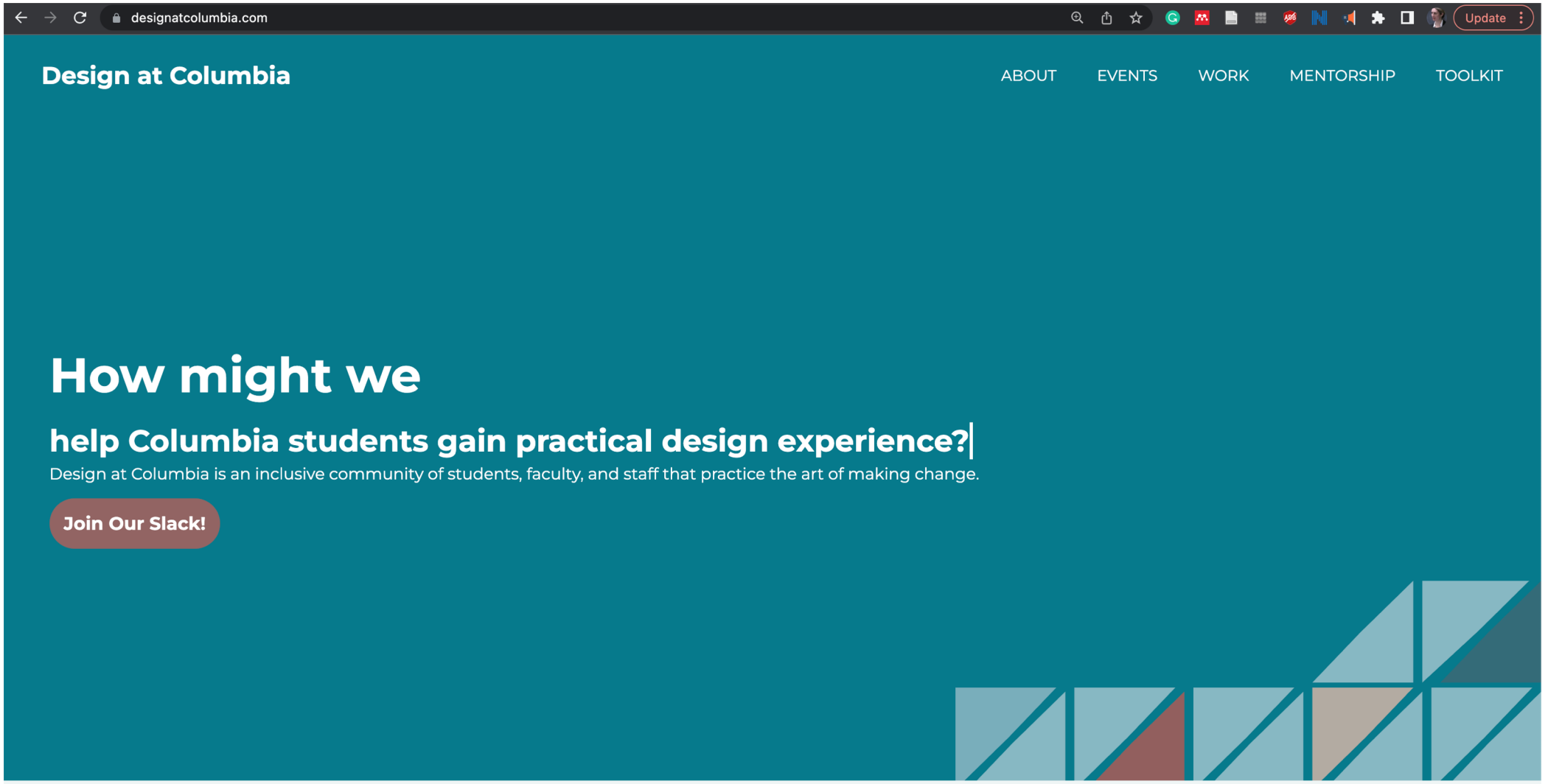
Chris Wiggins, Applied Math



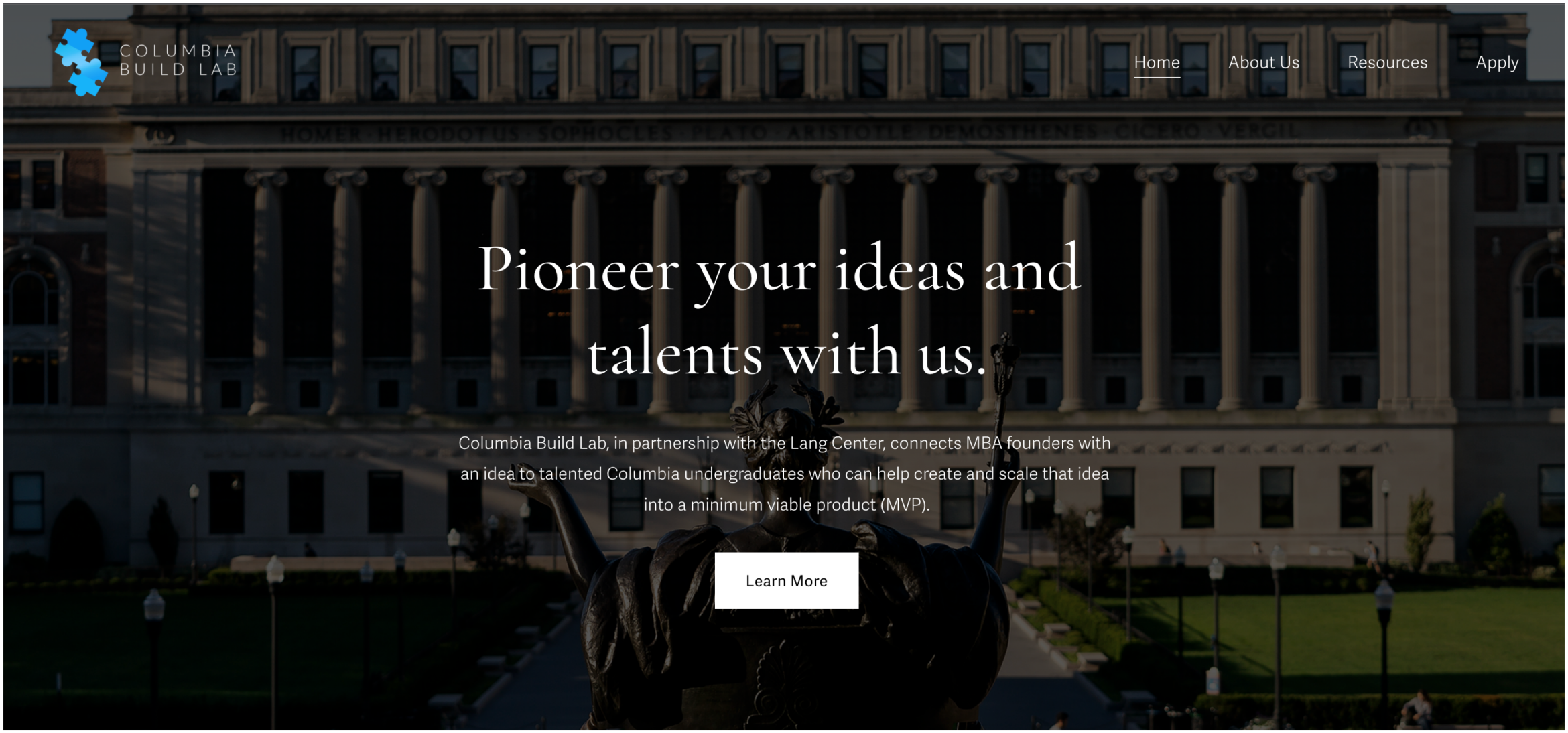
Columbia Design Studio

Other Design Opportunities

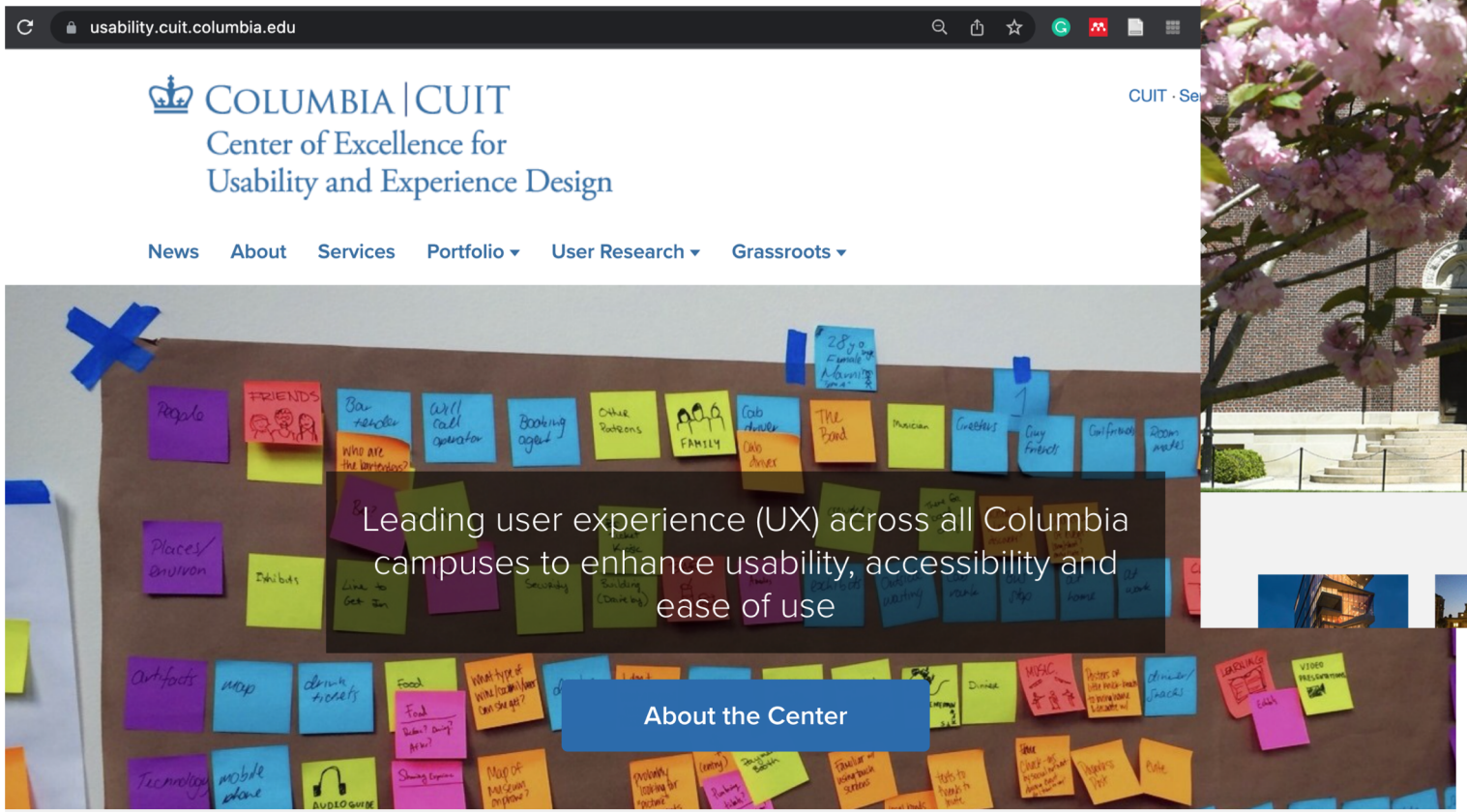
Design@Columbia

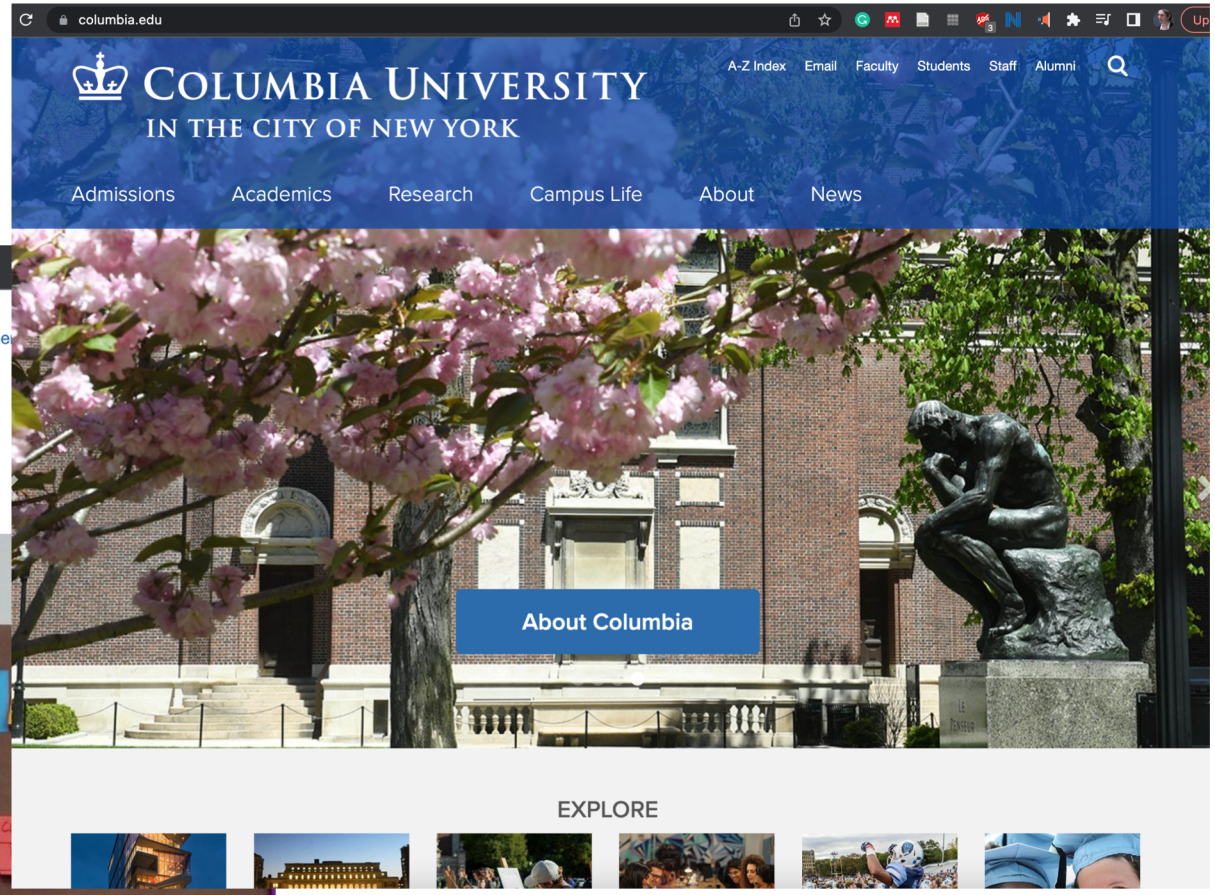


Columbia Build Lab



Columbia UX Team





OUR GOALS

We believe that by working together we can help shape the landscape of the University and moves towards a user-centered environment and provide our users with memorable experiences while interacting with our products, services or systems.

1. Human-Computer Interaction

Human–computer interaction (HCI) studies (1) what computers are used for, (2) how people interact with computers, and (3) how either of those should change in the future. Topics include ubiquitous computing, mobile health, interaction techniques, social computing, mixed reality, accessibility, and ethics. Activities include readings, presentations, and discussions of research papers. Substantial HCI research project required.

Section	Call Number	Semester	Instructor	Subject	Method of Instruction
001	12458	Spring 2022	Brian A Smith	Computer Science	In-Person

http://www.columbia.edu/cu/bulletin/uwb/#/cu/bulletin/uwb/subj/COMS/E6178-20221-001

Human-Centered Design with Harry West

IEME E4200 - Human-Centered Design and Innovation

Description

Open to SEAS graduate and advanced undergraduate students, Business School, and GSAPP. Students from other schools may apply. Fast-paced introduction to human-centered design. Students learn the vocabulary of design methods, understanding of design process. Small group projects to create prototypes. Design of simple product, more complex systems of products and services, and design of business.

Credits
2.7

Recent Professors
Harry West

Open Seat Checker
Get notified when IEME E4200 has an open seat

Schedule Planner
Add IEME E4200 to your schedule

Recent Semesters
Fall 2022, Spring 2022, Fall 2021, Fall 2020, Spring 2020

Offered
Tu, W, F

Avg. Class Size
44

Avg. Sections
2

Be a TA for COMS 4170

THANK YOU TO ALL 26 TAs!!!!

You are all collectively the best!!!!

Thank you for being a great class.

Putting up with warm ups!

Homework 4

Homework 5

Participating in class!

Homework 6

Engaging with the staff and the material

Homework 7

Working in teams!

Coming to Office Hours

Meeting with TAs

You have always got me.

My best selling product is pants,
But I'm trying to make shirts.

I'm trying to find a UX designer

I might be interested in grad school

I missed my flight,
what should I do?

I have a start up idea!

I can't get my site to run on digital ocean

I need feedback on my
summer internship project

I can't [random thing I downloaded] to run!

chilton@cs.columbia.edu