



TECHNOLOGY

Elon Musk calls himself a free speech absolutist. What could Twitter look like under his leadership?

October 8, 2022 · 4:57 PM ET

Heard on [All Things Considered](#)



Michel Martin

[10-Minute Listen](#)



NPR's Michel Martin speaks with Nina Jankowicz, disinformation expert and author of "How to Be a Woman Online," about abuse against women on the internet and Musk's planned buyout of Twitter.

[DONATE](#)

The Verge

TWITTER / TECH / ELON MUSK

Twitter abruptly bans all links to Instagram, Mastodon, and other competitors / Then seemingly reverses the decision with an apology from Elon Musk. It's been a wild 48 hours.

By [EMMA ROTH](#)

Updated Dec 18, 2022, 11:40 AM PST

197 Comments / 197 New



[Forbes](#)

FORBES > BUSINESS

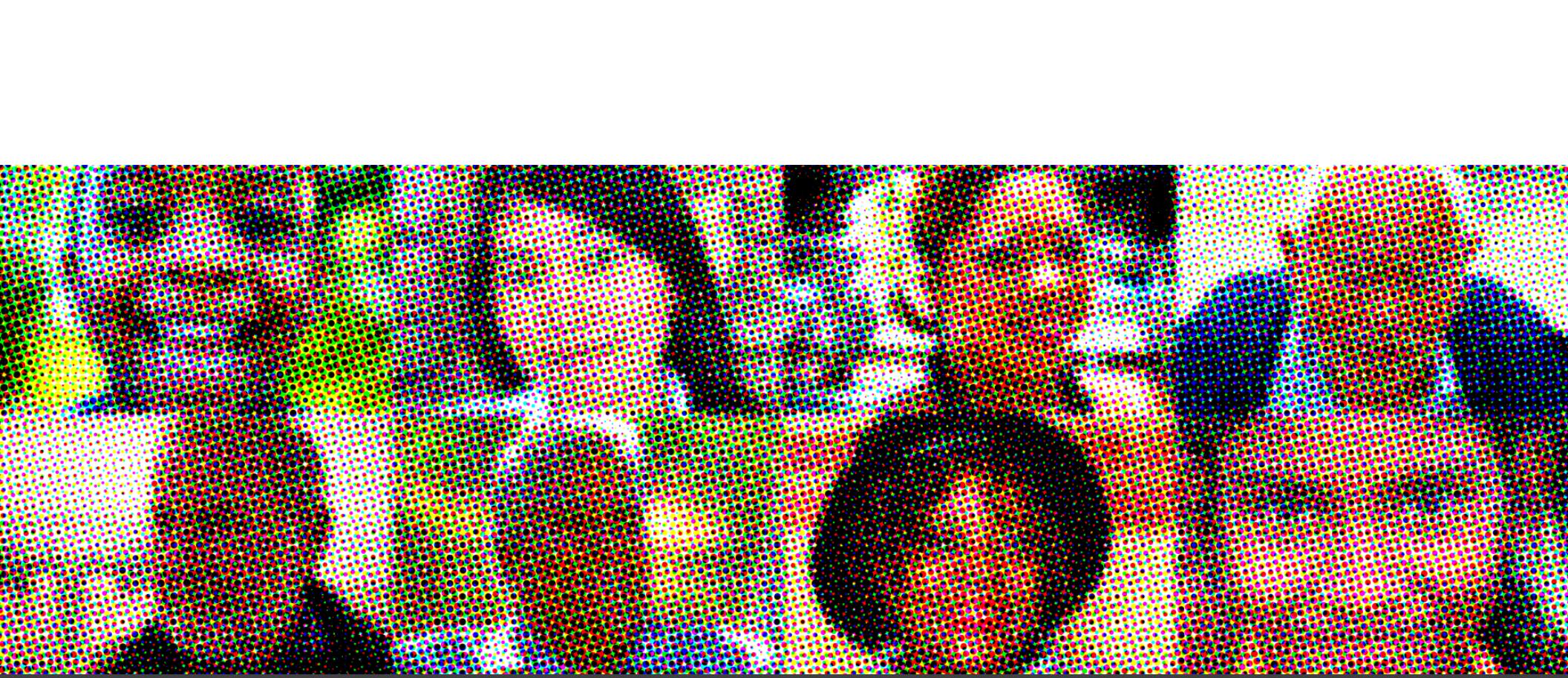
BREAKING



Twitter Restricts Posts Mentioning Substack — One Day After Substack Launched Rival 'Notes' Feature

1% extra credit
for examples
relevant to
recent or
upcoming
lectures. Submit
on Ed under
the “Lectures”
category

Example by Ian M. on the challenge of abruptly changing your promised norms: whatever you feel about Musk, he keeps changing the game.



Prototyping and Cold Start

CS 278 | Stanford University | Michael Bernstein

Announcements

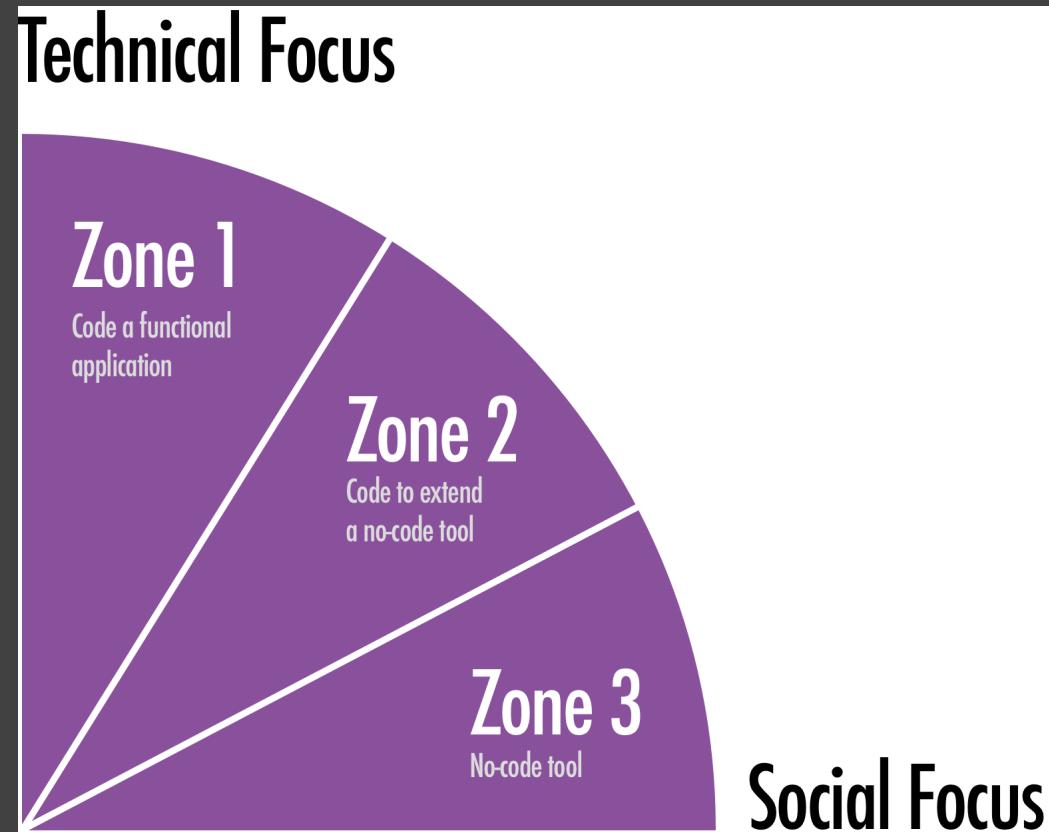
Sections starting today: waitlist
on Ed for switches

Project proposal

Pick a project

Pick a zone

Prototype



Last time: norms

We act differently in different spaces.

Norms — informal rules that govern behavior — play a massive role in determining how you act in a give space, giving the character to that socio-technical system.

Descriptive and injunctive norms operate differently, but people notice them remarkably quickly, and they are most influential when they are made salient.

Design defaults can influence norms; seeding the community can likewise set expectations.

I have an idea. Where do I start?

Why “build it and launch” is a bad approach, and how to do better.

Why? Because you never know where things will go...

↑ Posted by u/TncsTurtlJAH 19 1 day ago S

10.5k My professor wants us to make a meme for homework, can we make him the meme

↓ Meme





hj @ mh rise @chickfilasauced · Mar 31

...

my homework assignment for CS 278 is to go viral. please help me do well on this first homework assignment!

Assignment 1: Going Viral

Recognize how hard it is to do this well, and build intuitions for the challenges and opportunities in social computing design.

Goal: create a piece of content that goes viral.

You must create it. You may remix others' content. Make multiple attempts and iterate! No negativity; create joy, not pain.

Due next Monday at 11:59pm: submit meme to our class server, and submit reflections to Gradescope.

76

1.5K

10.9K

↑



hj @ mh rise @chickfilasauced · Mar 31

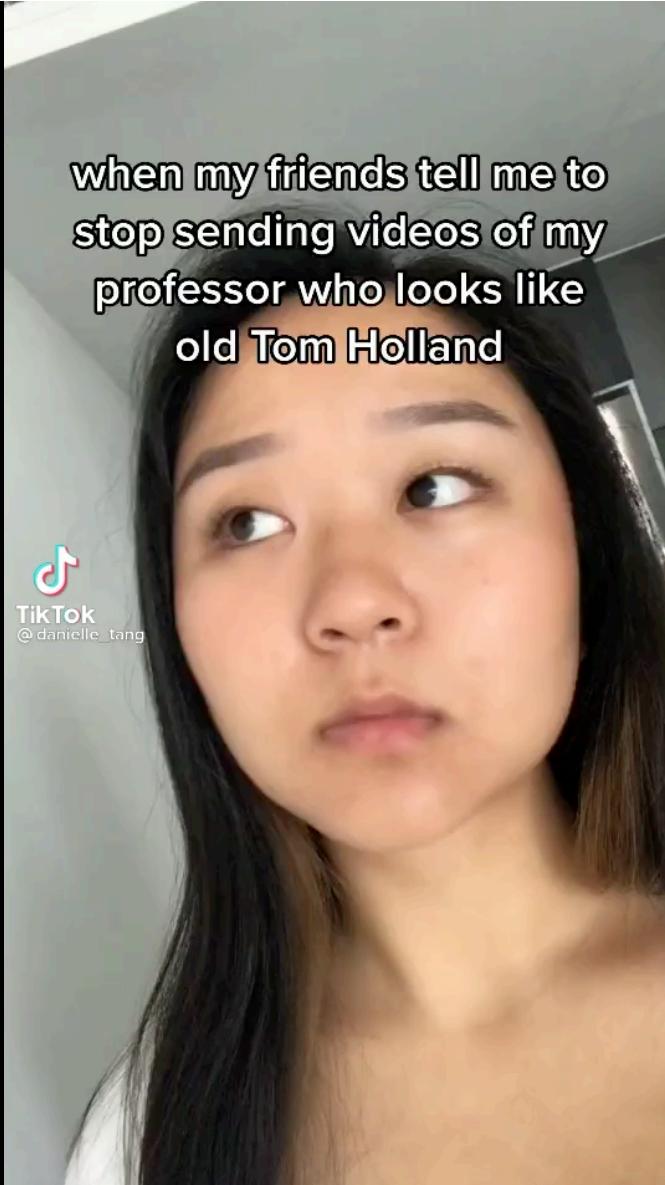
...

this is a real assignment, just not for a college i attend :3 i did not think this would get this far

hj @ mh rise @chickfilasauced · Mar 31

ok anyone reading this: my last tweet is not a northwestern assignment. it's a stanford CS assignment. im just trying to do "meta viral" tweet so that nobody else in the course can

← !?!?



when my friends tell me to
stop sending videos of my
professor who looks like
old Tom Holland

TikTok
@danielle_tang

grace :)
he just needs a better haircut 😭
3-31 Reply

Hamida
omggggg is he single @stopthissmadness
4-15 Reply

Julia
Omg 😱

Corporate needs you to find the differences between this picture and this picture.

They're the same picture.

A screenshot of a social media comment section. At the top, a user named grace comments that the person in the photo "just needs a better haircut" with a laughing emoji. Another user, Hamida, replies that the person is single and includes a handle @stopthissmadness. A third user, Julia, reacts with "Omg" and a shocked emoji. Below the comments is a composite image featuring two side-by-side photographs of Tom Holland. The left photo shows him from the chest up, wearing a dark button-down shirt. The right photo is a close-up of his face. At the bottom of the image, a woman with long brown hair, wearing a pink sweater over a white collared shirt, is looking directly at the camera. A caption above her reads "Corporate needs you to find the differences between this picture and this picture." and another caption below her reads "They're the same picture."

Today: getting started

Prototyping

The cold start problem

Prototyping social computing systems

HCI 101

If we've learned anything from human-computer interaction (HCI), it's that it's a really bad idea to have your idea and then Just Build It. 

Just Build It is an immense waste of time, energy and resources in order to find out that your idea was terrible.

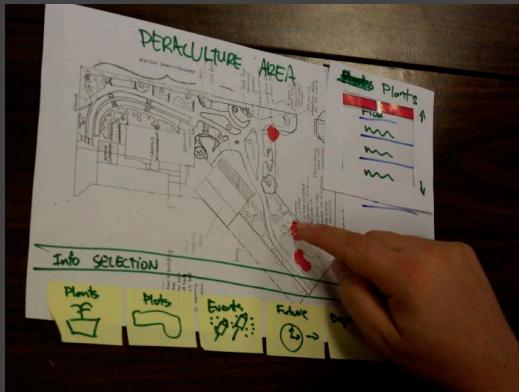
Instead of Just Building, HCI pushes for the concept of

prototyping.

Prototyping

Progressive fidelity increases as you gain confidence in your idea

Low-fidelity paper prototypes that are rapid to create and explore



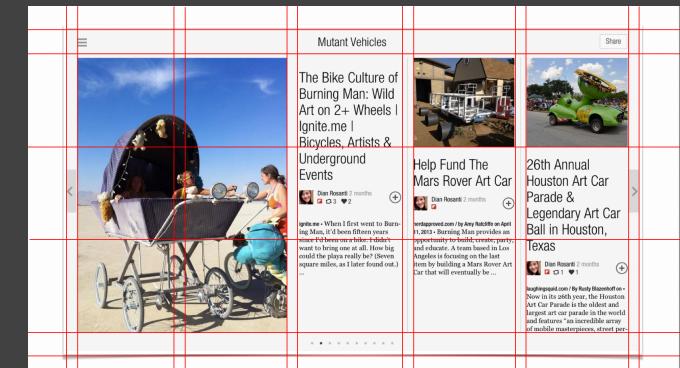
Flickr: Samuel Mann

Richer instantiations
that answer lingering
questions



IDEO

Detailed refinements of
the approach



Erin Malone

But traditional low-fidelity prototypes aren't the right fit here.



Why?
[1min]

The basic
interface
flows aren't
what need
to be tested.

Example: On-demand office hours

Imagine that the CS department had allocated a few floating TAs across classes to offer ad-hoc help/support/tutoring on demand.

Your idea is to create a social computing system where you can request help, and if any of the floating TAs had previously TA'ed the class you need help with, and are awake, they'll swing by.

Why is a paper prototype a waste of time here? [1min]

You're not really answering the question at the core of the idea.

A prototype answers a question

Prototypes shouldn't focus on a specific modality, e.g., paper.

Instead, prototypes should focus laserlike on what's the big risky unanswered question about the idea.

Typically, that question is not whether the interface is usable. It's **how** the social dynamics will play out.

Piggyback prototyping

Don't build the entire technical stack just to answer a question.
Instead, piggyback on existing social computing systems that get you similar affordances. [Grevet and Gilbert 2015]

In other words, layer your design on top of existing social platforms to prototype the social interactions.

Push messaging? Use texts.

Collaboration? Use GDocs or GSlides.

Chat? Use Slack or GroupMe.

In HCI parlance, piggyback prototyping can be thought of as a specific method for experience prototyping. [Buchenau and Suri 2000]

Layer
structure
into the
existing tool
to guide
behavior

The screenshot shows a web-based collaborative news editor titled "Piggyback Prototype: collaborative news". The interface includes a header with file operations like Save, Print, and Cloud, and a toolbar with various editing tools. A vertical sidebar on the left contains a list of articles and a three-line icon. The main content area displays two news articles. The first article is titled "Welcome to Stanford Slate: collaboratively edited breaking news at Stanford." It instructs users to read by scrolling down and adds new articles at the top. Below this, there's a section separator (-----) followed by a headline, tags, and summary sections. The second article is titled "Stanford Students Speak Out: *'Professor Bernstein Doesn't Actually Look That Much Like Tom Holland'*". It includes a headline, tags, and a detailed summary. The entire interface is styled to look like a Microsoft Word document.

Piggyback Prototype: collaborative news

File Edit View Insert Format Tools Extensions Help

Normal text Arial 11 B I U A

Welcome to Stanford Slate: collaboratively edited breaking news at Stanford. Read by scrolling down. Add any new article using the following format, putting the most recent news at the top:

HEADLINE

Tags: [campus events, tea, grad students]

[One-paragraph summary]

[Full article]

Stanford Students Speak Out: *"Professor Bernstein Doesn't Actually Look That Much Like Tom Holland"*

Tags: tea

The group was not happy. "I'm a Tom Holland stan," shouted Sanjay Kairam into a megaphone, "And comparing Michael Bernstein to Tom Holland is poisoning our parasocial relationships." Other students held up signs proclaiming "No, They're Entirely Different People" and "Ugh, Can't Unsee It".

On-demand office hours II

What's the big unanswered social dynamics question about the on-demand office hours idea?

How could we use piggyback prototyping to answer it in 24 hours?

[2min]

Pick the piggyback platform

Local news, but with
Wikipedia-style open
contributions

Communities for
tracking growth in
personal skills (e.g.,
fitness, practicing music)

Forum for feedback on
art work-in-progress

Google Slides
Google Form+Group Chat
YouTube
Google Docs

[3min]

(There is room for
more than one
reasonable approach for
each of these. Focus on
which platform provides
the best affordances for
testing the social
behaviors.)

Pick the piggyback platform

Local news, but with
Wikipedia-style open
contributions

Communities for
tracking growth in
personal skills (e.g.,
fitness, practicing music)

Forum for feedback on
art work-in-progress

Google Slides
Google Form+Group Chat
YouTube
Google Docs

Create a Google Doc
to track a specific topic
for a week and invite
folks to contribute

Pick the piggyback platform

Local news, but with
Wikipedia-style open
contributions

Communities for
tracking growth in
personal skills (e.g.,
fitness, practicing music)

Forum for feedback on
art work-in-progress

Google Slides
Google Form+Group Chat
YouTube
Google Docs

Sign up for a goal you're
interested in, populate
group chats by goal, and
post updates regularly to
that group chat

Pick the piggyback platform

Local news, but with
Wikipedia-style open
contributions

Communities for
tracking growth in
personal skills (e.g.,
fitness, practicing music)

Forum for feedback on
art work-in-progress

Google Slides
Google Form+Group Chat
YouTube
Google Docs

I “post” a WIP as a
slide, others edit the
slide with feedback

Approaches that are **not** piggyback prototyping

Not piggyback prototyping: running a survey to ask “would you use this system?” or “what would you do if you saw this interface?”

(Besides not getting an authentic sense of what the social behavior will be, asking questions like this is also unlikely to give you good data. Take CS 347 to learn why.)

Prototype simple social formulas

It's very tempting to try and design out an entire social ecosystem.

Don't.

Sounds like a Dungeons and Dragons campaign

“Oh we'll let people post photos of their dogs. If it gets more than 33.5% upvotes, it'll get a Pupper badge. But then others can sidevote the photos, and if there are enough sidevotes, it starts a chain. Chains are groups of Puppers that are displayed together and aggregate their upvote counts. If someone uploads an old Pupper, the mod (oh by the way there are mods. they're called Doggos.) can remove the sidevotes and...”

Prototypes

It's very tempting.
Don't.

"Oh we'll let them have upvotes, it'll give them photos, and groups of Punks counts. If some of them are mods. th-

My zombie apocalypse team

Fighter



Sniper



Zombie bait



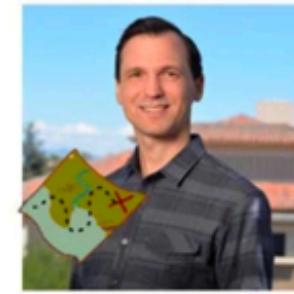
Insane guy



Driver



Navigator



Most likely to survive



Leader



mulas

al ecosystem.

dragons campaign

more than 33.5%

evote the

Chains are

gate their upvote

by the way there

tes and...

Prototype simple social formulas

Instead, identify the simplest set of social interactions that is possible. This focuses the social formula you're prototyping down to its core.

Prototype “the hard side”

[Chen 2022]

Think critically: whose contributions will be the most challenging to recruit?

in a student+faculty forum, it's hardest to get faculty to reply

in tiktok or wikipedia, it's the content creators

in an art feedback forum, it's: the artists, or the feedback givers?

My take: it's the feedback givers: they are the scarce resource

Nearly every system has different roles: always prototype the role representing “the hard side” — if that part fails, the whole thing fails

Bootstrapping content and interest

Prototypes do not magically become bustling spaces. Often they feel like ghost towns, because there's nothing there yet.

When prototyping, you will need to bootstrap the bustling spaces to help set the norms and encourage contributions.



Reddit co-founders initially pushed content until the community took over. (They used many sibyl accounts, which is...ill-advised...)

If it's a two-sided system — e.g., interns and mentors — be prepared to prop up one side of the system to make it useful to the other side.

The cold start problem

Close to 25,000 people had signed up for an account in Instagram's first 24 hours. The next day, "after getting three hours of sleep," Systrom recalls, "we were exhausted, but we knew we had created something different. We had a really good feeling about it."

This is an outlier.

Cold start problem

The problem: the social computing system isn't really very enjoyable or useful to anybody when nobody's there yet.

...but then, why would someone join and start populating it, if there's nobody there?

The entire effort struggles to hit critical mass, like how a car engine on a freezing day can't start up because it's too cold, and if it can't start up, it can't warm itself up to start. Thus, a **cold start problem**.

Cold start: how do you hit critical mass?

Critical Mass and Prisoner's Dilemma Problems

Most groupware is only useful if a high percentage of group members use it. Different individuals may choose to use different word processors but two coauthors must agree to use the same coauthoring tool! Achieving a “critical mass” of users is essential for communication systems [8]. Even one or two defections may cause problems for meeting scheduling, decision support, or project management applications. Even in an idealized situation in which every individual will benefit once critical mass is achieved, the early adopters may well abandon it before the critical mass of users is reached.

[Grudin 1998]



Going broad, and trying to get all users at once, typically fails.

Building a focused, engaged core initially is better design.

Why?

- The designer has a clear sense of who the users are, what issues they face, and what norms they expect
- Cliques help overcome the cold start problem
- This is an “atomic network”: aim to **create the smallest stable, self-sustaining group possible [Chen 2022]**

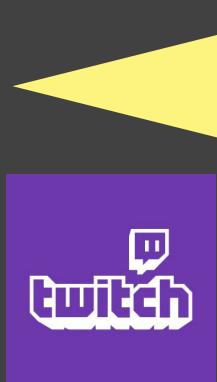


Harvard
undergraduates



handicraft meetups at local boutiques

launched as justin.tv,
tried to be relevant to
everybody, but failed



refocused

gamers

Affirm my identity

Alex Wolf (bossbabe.com): kickstart by creating a social space that affirms a group's sense of identity

Look for micro-cultures, e.g., a trend of millennial women graduating from college and not wanting to go the traditional route of subverting their femininity to be professional

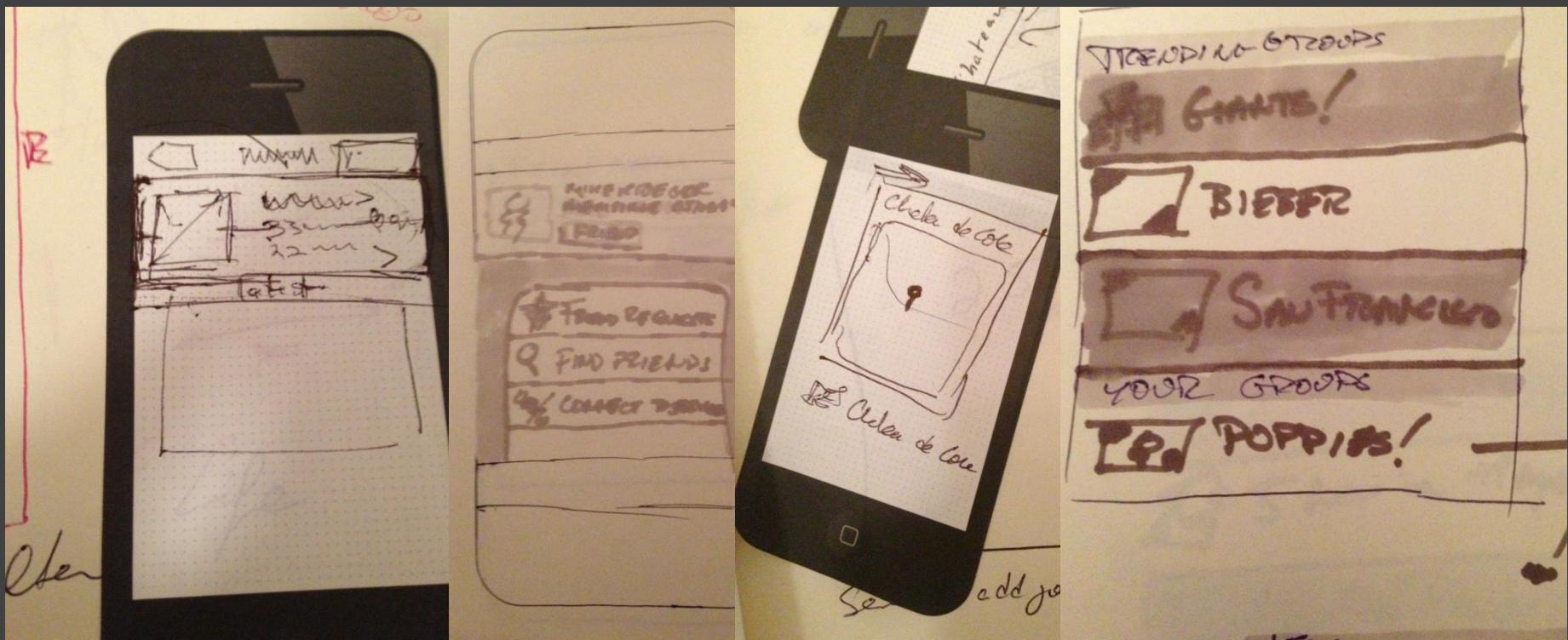
At its best, fashion operates similarly: identify micro-cultures that exist and create clothes that affirm that micro-culture's identity



@alexwolfco

Close to 25,000 people had signed up for an account in Instagram's first 24 hours. The next day, "after getting three hours of sleep," Systrom recalls, "we were exhausted, but we knew we had created something different. We had a really good feeling about it."

~~This is an outlier.~~
This is a lie.



Instagram grew out of a “failed” app called Burbn. Burbn was a mobile check-in app. They realized that people were ignoring the check-ins and just sharing photos, so they started over and built an app just focused on photo sharing.

Identify lead users

Pamela Chen (@NatGeo, then Insta, then HAI, now Apple): one of the first 100 employees at Instagram

On Instagram, one early community was surfers. IRL, there are lots of different kinds of surfers: the best one, the social one, the political one, the one with the surfwear line.

At Instagram, she identified and reached out to the leaders of the community who would be emblematic and shape how other surfers on the site should behave



@pc

Who is the assumed user?

Starting narrow helps in part because it provides a concrete set of user personas to focus on.

But it's also important to ask critically: who are we assuming is that prototypical user? Do they look like this?:

Who are we silently assuming is not the prototypical user, and are they often excluded from these dialogues?

Reflect on these questions before you prototype.

Hi, I'm a
white cis
CS guy



As you grow, how do
these techniques
change?

Are we breaking things?

Prototyping with piggyback prototyping sounds a lot like “Move Fast And Break Things”, Facebook’s motto that has been widely derided because...well, Facebook broke a lot of things.

However, there were a lot of outcomes that would have been fundamentally unknowable from a Harvard dormitory. So, how do we balance it?

One view: responsibility changes as scale changes

When Facebook was new and only launched to a few thousand people who knew it was an evolving experiment, I would argue that everything was still very liquid, and it's more reasonable to prototype and iterate rapidly

However, as the community grows, the system solidifies: responsibility grows for addressing the issues created by prior decisions, and for making the next decision more carefully

Summary

Prototyping social computing systems requires a different approach than usual. Use piggyback prototyping to tie together existing social systems with the goal of testing the social dynamics.

The cold start problem occurs when a system is too empty to attract initial usage, so it remains empty. Two solutions:

- Focus on a narrow group initially, and broaden out later

- Be prepared to bootstrap activity

References

- Buchenau, Marion, and Jane Fulton Suri. "Experience prototyping." Proceedings of the 3rd conference on Designing interactive systems: processes, practices, methods, and techniques. 2000.
- Chen, Andrew. 2022. The Cold Start Problem, Harper Business.
- Epstein, Daniel A., et al. "Revisiting Piggyback Prototyping: Examining Benefits and Tradeoffs in Extending Existing Social Computing Systems." *Proceedings of the ACM on Human-Computer Interaction* 6.CSCW2 (2022): 1-28.
- Grevet, Catherine, and Eric Gilbert. "Piggyback prototyping: Using existing, large-scale social computing systems to prototype new ones." Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems. 2015.
- Grudin, Jonathan. "Groupware and social dynamics: Eight challenges for developers." *Communications of the ACM* 37.1 (1994): 92-105.

Social Computing

CS 278 | Stanford University | Michael Bernstein

Creative Commons images thanks to Kamau Akabueze, Eric Parker, Chris Goldberg, Dick Vos, Wikimedia, MaxPixel.net, Mescon, and Andrew Taylor.

Slide content shareable under a Creative Commons Attribution-NonCommercial 4.0 International License.