KAIST FALL 2025

CS473: INTRO TO SOCIAL COMPUTING

SOCIAL.CSTLAB.ORG

Class 04:
Foundations and Growth II

2025.09.11

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ADMINISTRATIVE NOTES

- **DP0: Team Formation**
  - Due 9/12 (Fri) by 11:59PM
- Looking ahead: DP1: Ideation due 09/23

THE LIST GOES ON

62% of members of an online health support forum never log in again after their first day or participation [Yao et al. 2021]

19% of online groups have no activity after the day of their creation [Kraut and Fiore 2014]

40% of WeChat groups cease interaction within a week [Qui et al. 2016]

Two thirds of new Facebook members never post in their first two weeks on the platform [Burke, Marlow, and Lento 2009]

68% of newcomers to Usenet are never seen again after their first post [Kraut, Burke, and Riedl 2012]

46% of MMORPG guild members leave within a month [Kraut, Burke, and Riedl 2012]

40% of posts on 4chan get no replies [Bernstein et al. 2010]

~50% of Twitch streamers are streaming to nobody [Me]

TODAY'S QUESTION

How do we design environments that are bustling — promoting eyes on the street — and not ghost towns? And do so in a responsible way?

To answer this, let's get concrete with a definition.

Sociotechnical system

Social interactions define the system

Technical infrastructure defines the system

The two components are interrelated and both responsible

SOCIOTECHNICAL SYSTEM

Why we use this term: it captures that the technical elements of the system are not enough to determine its behavior or outcomes.

Wikis don’t imply Wikipedia as the outcome

Short text messages don’t imply Twitter as the outcome

“Sociotechnical systems” emphasizes that it’s the interplay of the tech and the people in the system that make it work.

SO... WHAT MAKES A SOCIOTECHNICAL SYSTEM SUCCESSFUL?

Individual factors:

- Intrinsic and extrinsic motivation

Social factors:

- Social loafing
- Reciprocity

Contribution pyramid

INDIVIDUAL FACTORS

WHAT MOTIVATES USERS?

Why do people contribute to…

- Wikipedia?
- Instagram?
- Lab Slack teams?
- TikTok?

People have lots of pressing things to do with their time. So we need to ask critically: why are they spending time in this socio-technical system?

INTRINSIC AND EXTRINSIC MOTIVATION

The distinction between intrinsic and extrinsic motivators helps clarify who is here, why, and what it implies for design.

Intrinsic motivation: derive from my own desires to complete a goal

Examples: pleasure, hobby, developing a skill, demonstrating a skill

Extrinsic motivation: don't derive from my relationship with the goal

Examples: money, graduation, points, badges

INTRINSIC / EXTRINSIC MOTIVATION

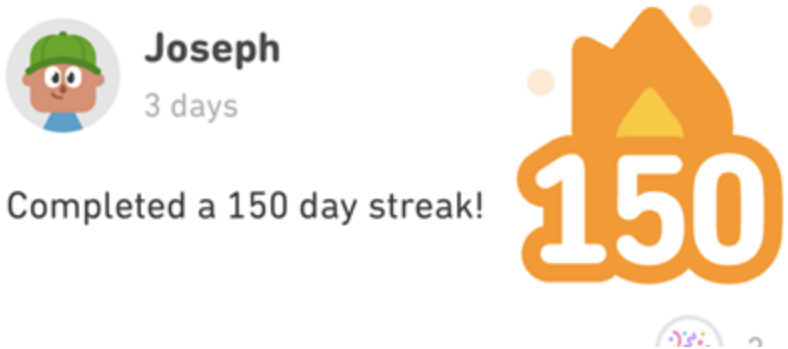
Which motivation is each of these most likely to tap into?

- Posting your music to Soundcloud as a new artist
- Answering someone's question on Stack Overflow
- Sharing memes with your friends
- Streaming a session for a successful Twitch streamer

GAMIFICATION?

Adding weak extrinsic motivations to tasks where there’s no intrinsic motivation can be counterproductive.

SOME DO THIS BETTER



DESIGNING FOR MOTIVATION?

Your most active user groups need to have a core intrinsic motivation.

Extrinsic motivation can be used to encourage consistent participation or (maybe) to increase participation a little bit.

COMMITMENT LOOPS

Adapted from Will Wright, creator of The Sims [Wright 2003]

Don’t design around an assumption that new users will come and put significant time into creating content from the start

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First loop: you have 60 seconds to communicate what this is, what they should do, and make them feel like they achieved something or benefited — intrinsic motivation.

COMMITMENT LOOPS

Adapted from Will Wright, creator of The Sims [Wright 2003]

First loop: you have 60 seconds

Second loop: you have 5 minutes to get them to experience or achieve something even more compelling—again intrinsic

COMMITMENT LOOPS

Adapted from Will Wright, creator of The Sims [Wright 2003]

First loop: you have 60 seconds

Second loop: you have 5 minutes

Third loop: you have 20 minutes

Fourth loop: you have one hour

etc.

BUT: MOTIVATION CROWDING

Mixing motivators is dangerous: taking an intrinsically motivated goal and adding extrinsic motivators to it may actually reduce the intrinsic motivation level.

RISKS OF MOTIVATION CROWDING

Begin with intrinsic motivation:

Having fun

Gain extrinsic motivation:

Followers or subscribers

Motivation crowding:

Lessen intrinsic motivation

SOCIAL FACTORS

SOCIAL PROOF

Using log data from 140k Facebook newcomers who lurk, what best predicts long-term sharing?

Seeing friends actively contribute.

[Burke, Marlow, and Lento 2009]

SOCIAL PROOF IN PRACTICE

SOCIAL LOAFING

When there are others contributing, we contribute less.

Experiment: blindfold a participant and get them to play team tug-of-war. [Ingham 1974]

Except… there's actually nobody else on their team, they just think so. (They're blindfolded)

People pulled 18% harder when they thought they were the only one on their team than when they thought there were 2-5 others.

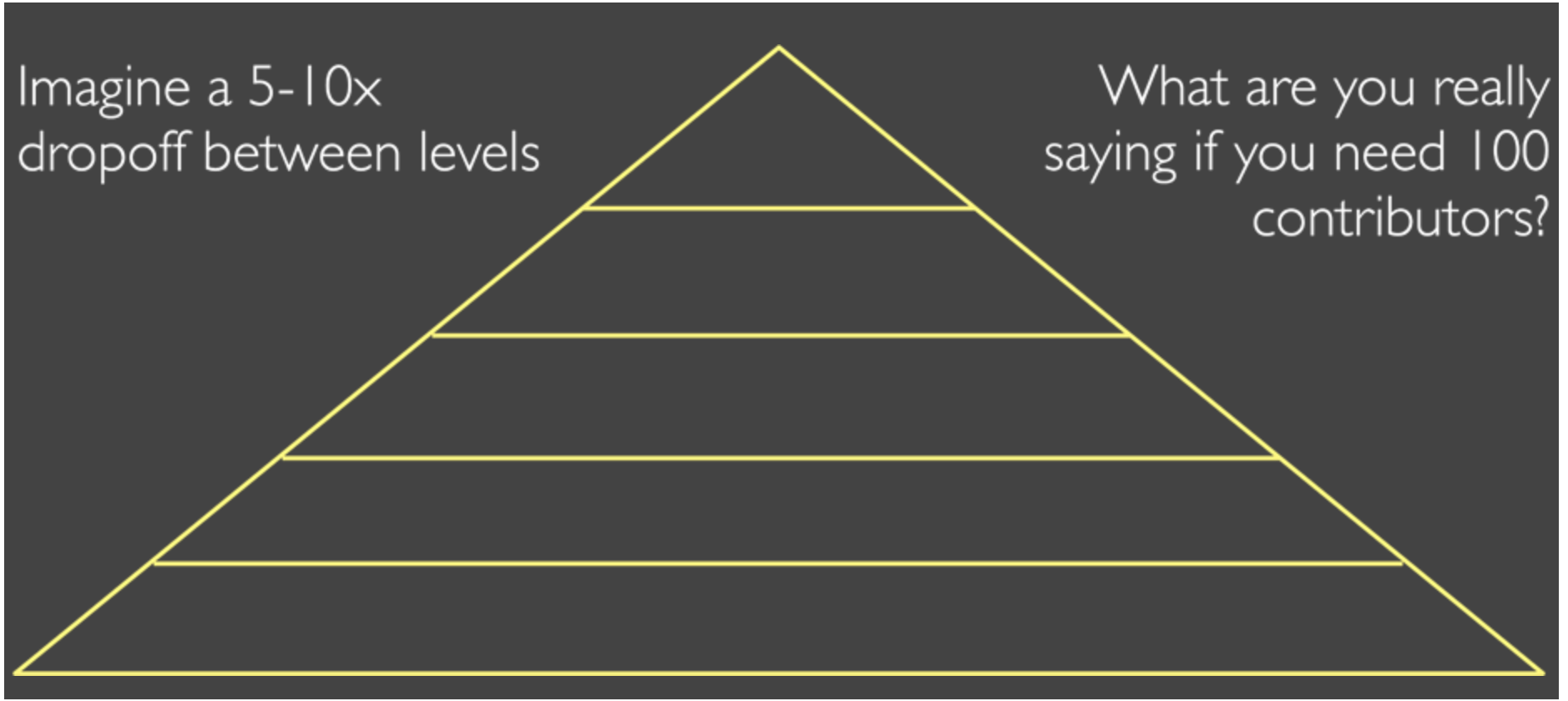
CONTRIBUTION PYRAMID

A COMMON MISTAKE

“It would be great if we could get 100 people posting on our app.”

= “We need 100 users.”

MICHAEL BERNSTEIN'S HIERARCHY OF CONTRIBUTORS



SUMMARY

How do I design environments that are busy, not ghost towns?

- Support the intrinsic or extrinsic motivations we bring to the system
- Combat social loafing and encourage positive reciprocal relationships
- Support autonomy and user/community control in whatever you design

“OK, I did that, but my system is still full of lurkers!”

That’s natural. Contributions are unequal. Recognize it and design around it.

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DESIGN PROJECT MILESTONE #I: IDEATION

Deliverables:

- In-class studio presentation on 09/23.
  - 5 mins presenting / 5 mins Q&A
  - All team members must participate in the presentation
- Report due by midnight 09/24.

The studio presentation is basically a draft/summary of the report. It's the same content, but presented for discussion. You should incorporate feedback from the studio into your report.

DESIGN PROJECT MILESTONE #I: IDEATION

What you need to do:

1. Problem statement
2. Problem background – (How do we know this problem exists?)
3. Motivation – (Why use social computing to solve this?)

   …
4. How Might We (HMW) Questions
5. Solution ideas
6. Storyboards

DESIGN PROJECT MILESTONE #I: IDEATION

"How Might We" Questions

"How might we" (HMW) questions are short questions that launch ideation. They're broad enough to include a wide range of solutions but narrow enough to impose helpful boundaries.

Between the too narrow "HMW create an ice cream cone that doesn't drip" and the too broad "HMW redesign dessert", is the properly scoped "HMW redesign ice cream to be more portable."

From d.school design thinking bootcamp

Challenge
Redesign the airport waiting space.

Point of View
A frenzied mother of three rushes to her gate to find out her flight is delayed. She has to entertain her playful children to avoid irritating already-frustrated fellow passengers.

How Might We
Alleviate tension: HMW separate the kids from fellow passengers?

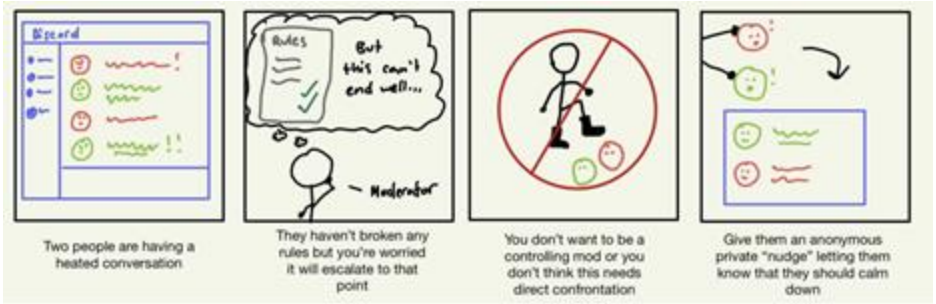
Explore the opposite: HMW make the wait the most exciting part of the trip?

Question an assumption: HMW remove wait time altogether?

Create an analogy from need to context: HMW make the airport like a spa? Like a playground?

Change a status quo: HMW make playful, loud kids less annoying?

DESIGN PROJECT MILESTONE #I: IDEATION



Seering et al. 2024, "Chillbot"

DESIGN PROJECT MILESTONE #I: IDEATION

Now: Take 3 minutes to read over DPM#1 on the website.

Any questions?