

# **IN4MATX 153: CSCW**

**Class 9:  
ONLINE work**

Professor Daniel Epstein  
TA Dennis Wang  
Reader Weijie Du

# Announcements

- A1 grades will be released after class today
  - Average 13.37/15 (89%)
- But, we still need to assess extra credit
  - We'll share the most popular memes possibly Wednesday, Monday at the latest
- A2 due in 1.5 weeks (May 8th)

# Today's goals

**By the end of today, you should be able to...**

- Articulate the typical technology design strategy of “being there” when supporting remote work, and argue for why technology should aspire to go “beyond being there”
- Describe the principle of social translucence, and how it informs the design of social systems for understanding what others are working on
- Explain the tension that arises between the needs of decision-makers and the needs of the typical user when adopting social tools for work

**This week: a break from social media.  
Instead, how do we get work done?**

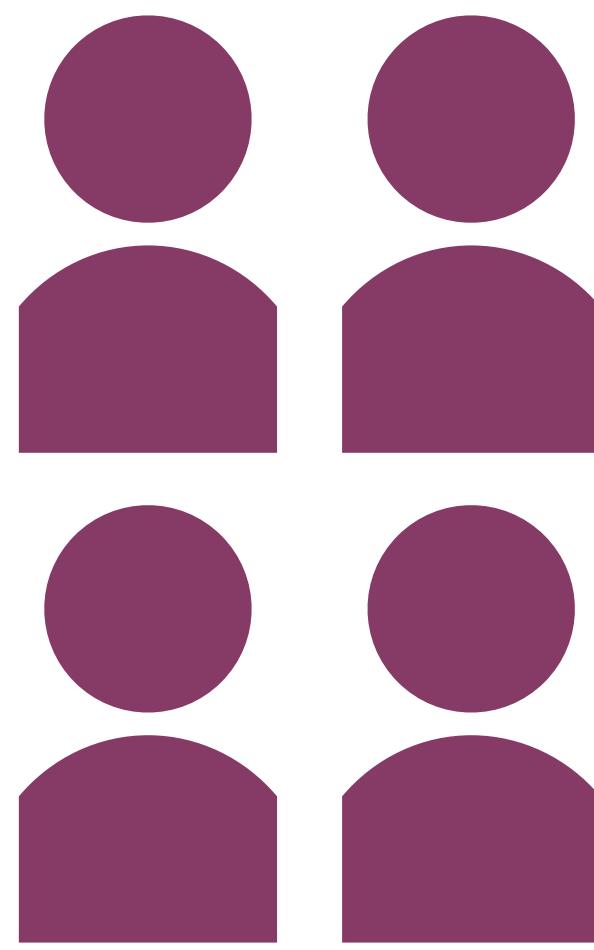
# Context collapse

It's not really relevant to today's topic, but it's my favorite work video from the early pandemic era.



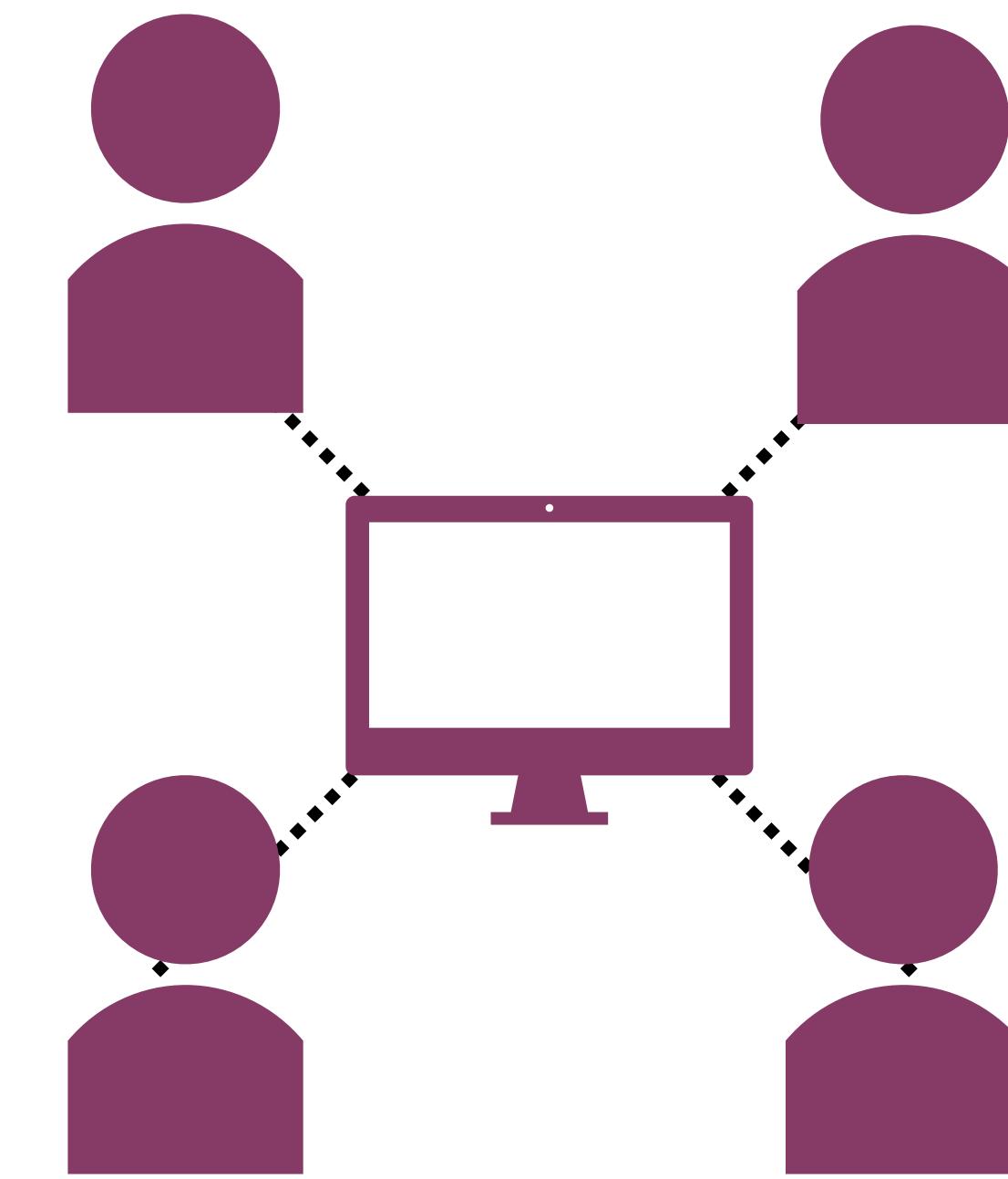
<https://www.nytimes.com/2021/02/09/style/cat-lawyer-zoom.html>

# Which team is more effective?



**Colocated team**

has: a room

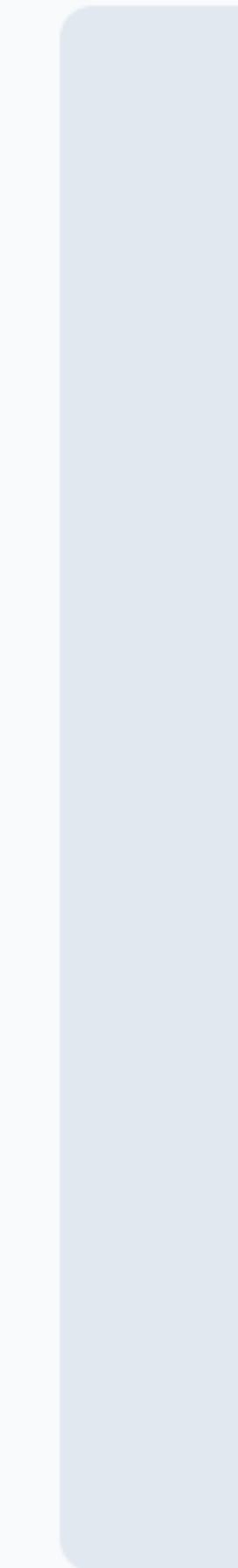


**Distributed team**

has: Zoom, Slack, Trello,  
Dropbox, GitHub, Asana,  
Google Docs, Jira

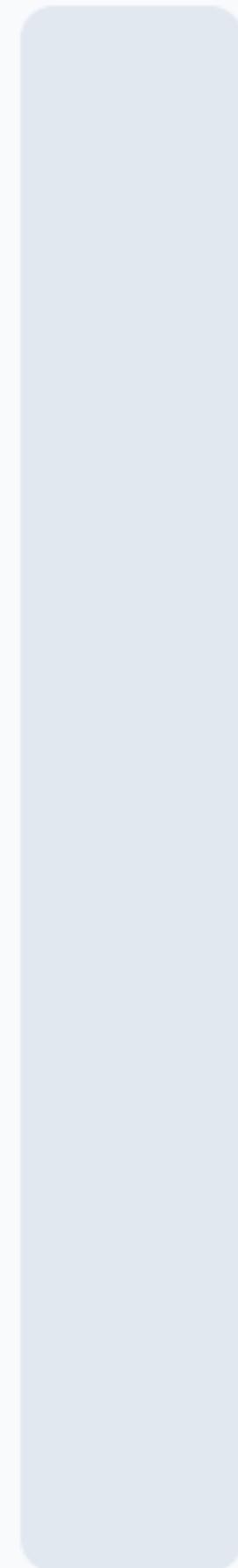
## Are colocated or distributed teams more effective?

0%



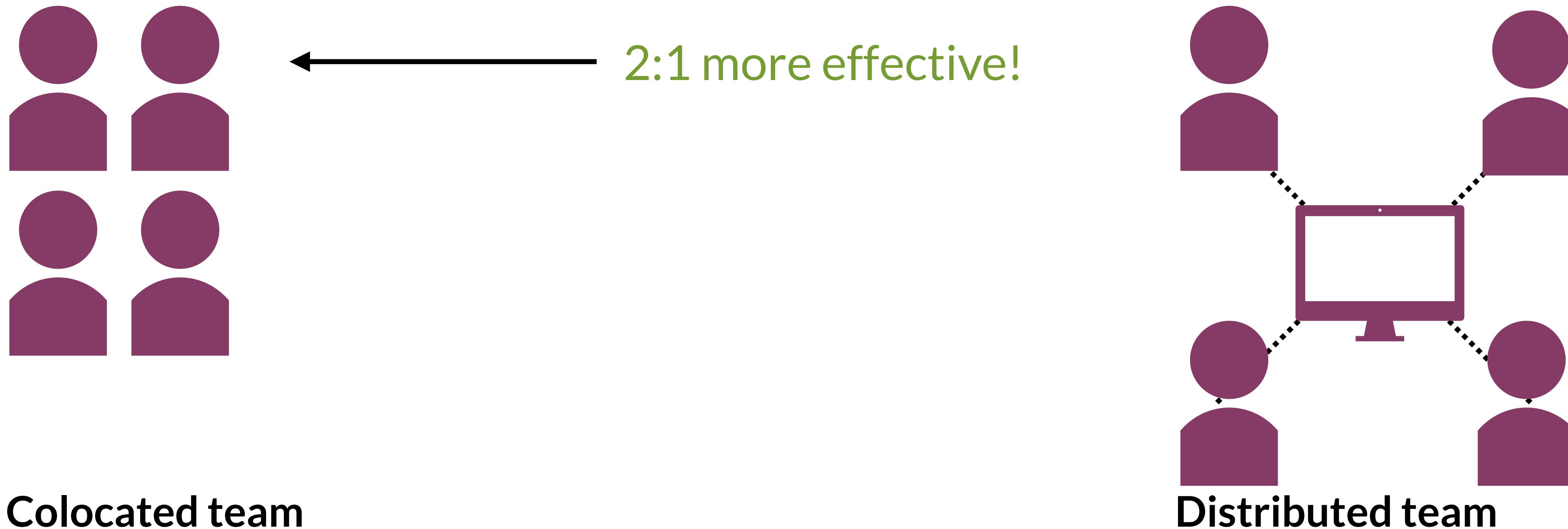
Colocated teams

0%



Distributed teams

# Which team is more effective?



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**Colocated teams are much more effective. Why? And what can we do about it?**

# Discuss: what design patterns make these tools successful?



# Designing for effective remote collaboration

- Beyond being there
- Social translucence
- Grudin's paradox
- Remote work

# **Beyond being there**

# Goal: being there

- Technology's main goal is often to increase *fidelity*: to try and make the channel have increased richness, allowing for more and more social cues
- Let's make Zoom and FaceTime have lower delays, higher resolution, and 3D VR or AR scenes
- Let's make coding collaboration tools as effective as if we were pair programming

Daft, R. L., & Lengel, R. H. (1986). Organizational information requirements, media richness and structural design. *Management science*, 32(5), 554-571.



**Collaborate online as easily as you do in person**

How to Have a Zoom Meeting That Is (Almost) as Good as Being There



Ian Gwin on March 14, 2020



FAST COMPANY

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## Being There

DreamWorks Animation couldn't find a videoconferencing system that made CEO Jeffrey Katzenberg happy—so it built its own.



Google The Keyword



Project Starline: Feel like you're there, together

# Beyond being there

- But, being there is often the **wrong goal**.
- We will never fully recreate the face-to-face experience
- There are too many subtle cues for us to fully model or recreate them, even with hypothetical future technology
  - Network lag
  - Immersion and comfort issues in VR
  - Lack of shared physical context
- So, we should stop trying.

Hollan, J., & Stornetta, S. (1992, June). Beyond being there. In Proceedings of the SIGCHI conference on Human factors in computing systems (pp. 119-125).

# Beyond being there

- Instead, let's try to design *beyond being there*: experiences that could never have been created face-to-face
  - How could remote video bring you closer in ways that face-to-face collaboration never could?
  - How could online coordination tools help us be more effective planners than we ever could with whiteboards and gantt charts?

Hollan, J., & Stornetta, S. (1992, June). Beyond being there. In Proceedings of the SIGCHI conference on Human factors in computing systems (pp. 119-125).

# Examples

- Skype translator: translation in real-time, producing foreign language speech in your own voice
- Finding just the right person to answer the hard question you are facing, immediately
- Others?

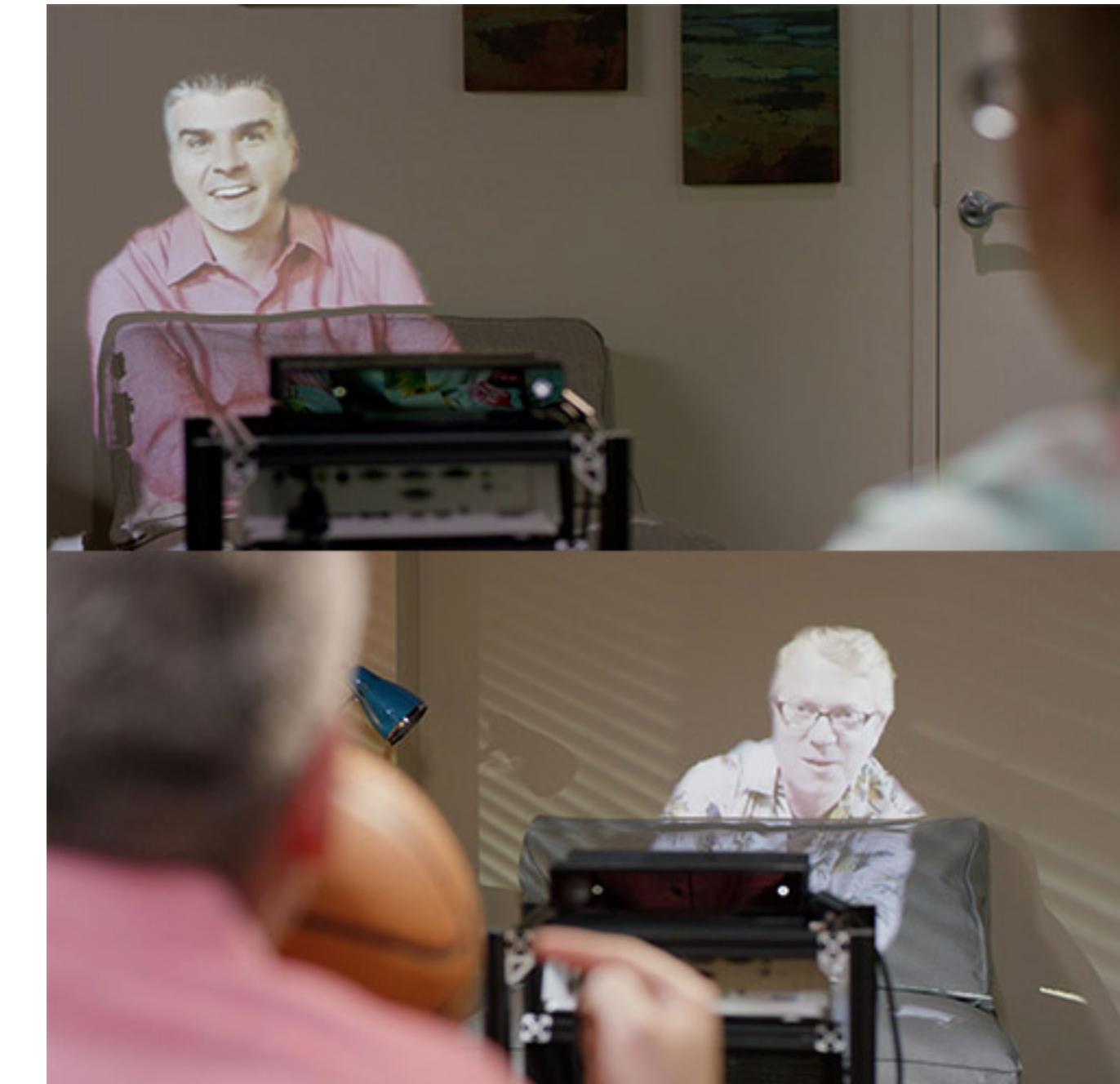
## Skype Translator

Whether you need to translate English to Spanish, English to French, or communicate in voice or text in dozens of languages, Skype can help you do it all in real time – and break down language barriers with your friends, family, clients and colleagues.

Our voice translator can currently translate conversations from following languages, including Arabic, Bulgarian, Catalan, Chinese (Simplified), Chinese (Traditional), Croatian, Czech, Danish, Dutch, German, Greek, English (UK), English (US), Spanish (Spain), Spanish (Mexico), Estonian, Finnish, French (Canada), French (France), Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Lithuanian, Latvian, Malay, Norwegian Bokmål, Polish, Portuguese (Portugal), Portuguese (Brazil), Romanian, Russian, Slovak, Slovenian, Swedish, Thai, Turkish, Vietnamese.

# Examples

- Room2Room: “being there”, just a little bit better?
  - AR as an improvement on videoconferencing
- Discuss: does Room2Room go “beyond” being there?

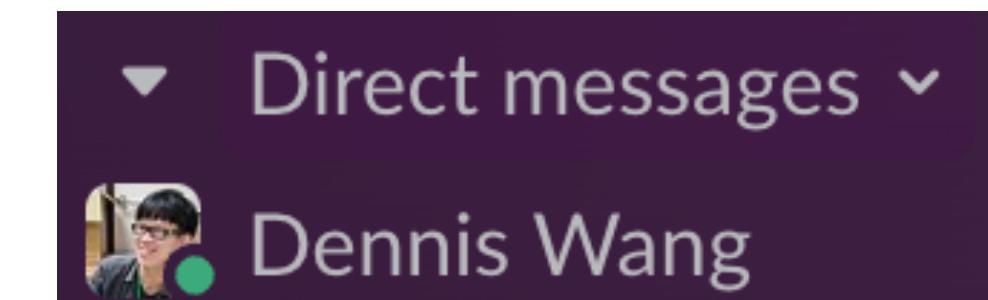


Pejsa, T., Kantor, J., Benko, H., Ofek, E., & Wilson, A. (2016, February). Room2room: Enabling life-size telepresence in a projected augmented reality environment. In Proceedings of the 19th ACM conference on computer-supported cooperative work & social computing (pp. 1716-1725).

# **Social translucence**

# Awareness

- Designs should allow people to understand each other's state and coordinate accordingly, to coordinate interdependencies
- This is typically achieved through the design pattern of *awareness*: visualization of others' activities



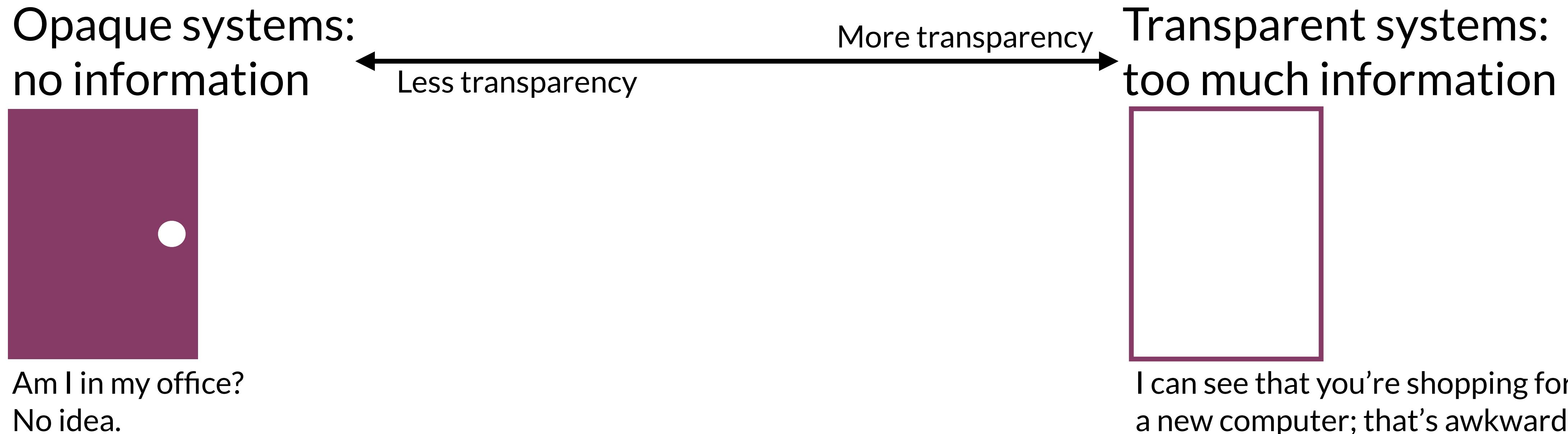
tools: our tool, [WatchMe](#), and [FitFace](#), a state-of-the-for drag & drop customization of Fitbit watchfaces. that on average participants took [mtd67](#) double the omizing a smartwatch face on [Watch](#) ([mtd67](#) minutes) to [Fitface](#) (15.86). Additionally, the [pa](#) found it more th regard to the Systems Usability Score

# But awareness can go too far

- You don't want collaborators to know everything...
  - Whether you're working at every moment
  - Draft emails you wrote when you were angry, and chose not to send
  - Dumb bugs that you wrote in your code, but fixed before you made a git commit
- So how do we walk this line?

# Social translucence

- Aim for socially translucent systems
  - Give enough information to let natural social cues take over

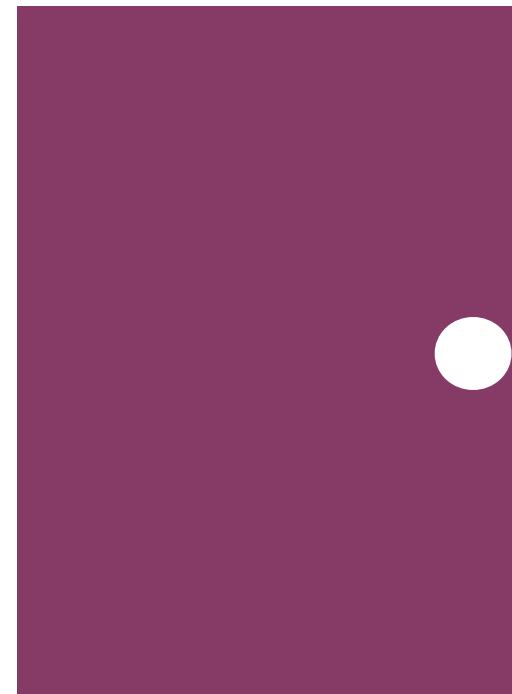


Erickson, T., & Kellogg, W. A. (2000). Social translucence: an approach to designing systems that support social processes. ACM transactions on computer-human interaction (TOCHI), 7(1), 59-83.

# Social translucence

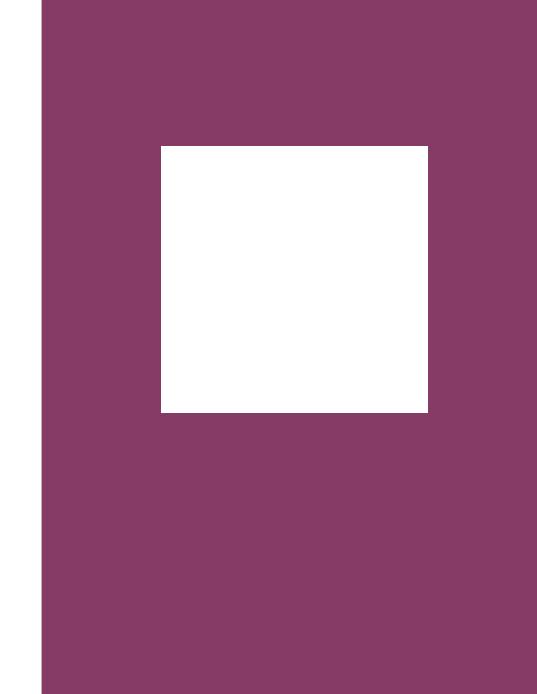
- Aim for socially translucent systems
  - Give enough information to let natural social cues take over

Opaque systems:  
no information



Am I in my office?  
No idea.

Translucent systems:  
just enough



Social cues prevail, I can decide  
whether to interrupt

Transparent systems:  
too much information



I can see that you're shopping for  
a new computer; that's awkward.

# Social translucence

- Aim for socially translucent systems
  - Give enough information to let natural social cues take over



Code isn't pushed yet...

Professor Epstein is editing **importantfile.py**. He is typing *I DONT KNOW IF THIS WILL WORK* over and over again into his code editor.

# Social translucence

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Transparent systems:  
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DONT KNOW IF THIS WILL WORK*  
over and over again into his code  
editor.

# Social translucence

- Two requirements for social translucence:
  - Awareness: others' activity can be seen, but only to an extent
  - Accountability: others know that their activity can be seen
- If done correctly, social translucence supports interdependent work while maintaining plausible deniability when necessary
  - If there's no plausible deniability in the system, people will abandon it

Erickson, T., & Kellogg, W. A. (2000). Social translucence: an approach to designing systems that support social processes. ACM transactions on computer-human interaction (TOCHI), 7(1), 59-83.

# **Grudin's paradox**

# Why do so many collaborative software systems get abandoned?

- Dead wikis and documentation at work
  - Or your clubs
- Calendars not reflecting actual person or room availability
- “*Oh, I don’t use that. Just text me instead.*”
- ... even though these systems may even provide social translucence and go beyond being there

# Grudin's paradox

- The socio-technical system may be benefitting everyone... **except the people who are actually expected to use it.**
  - What is in the product manager's interests may not be in the ordinary users' interests

# Grudin's paradox

- Examples:
  - The manager wants everybody's calendars to be up-to-date... but the programmers don't care, and just want to work on the project
  - We want an API to be documented and kept up-to-date, but the people who write and actively use the software don't need the documentation
  - Being on Slack is distracting for the people who need to be reached

# Grudin's paradox

- When a system falls prey to Grudin's paradox, it gets abandoned or circumvented
- How to avoid this?
  - The system needs to provide benefit to all users, not asymmetric benefits
  - And not just perfunctory benefit, enough benefit to justify the work and distraction that using the system might entail

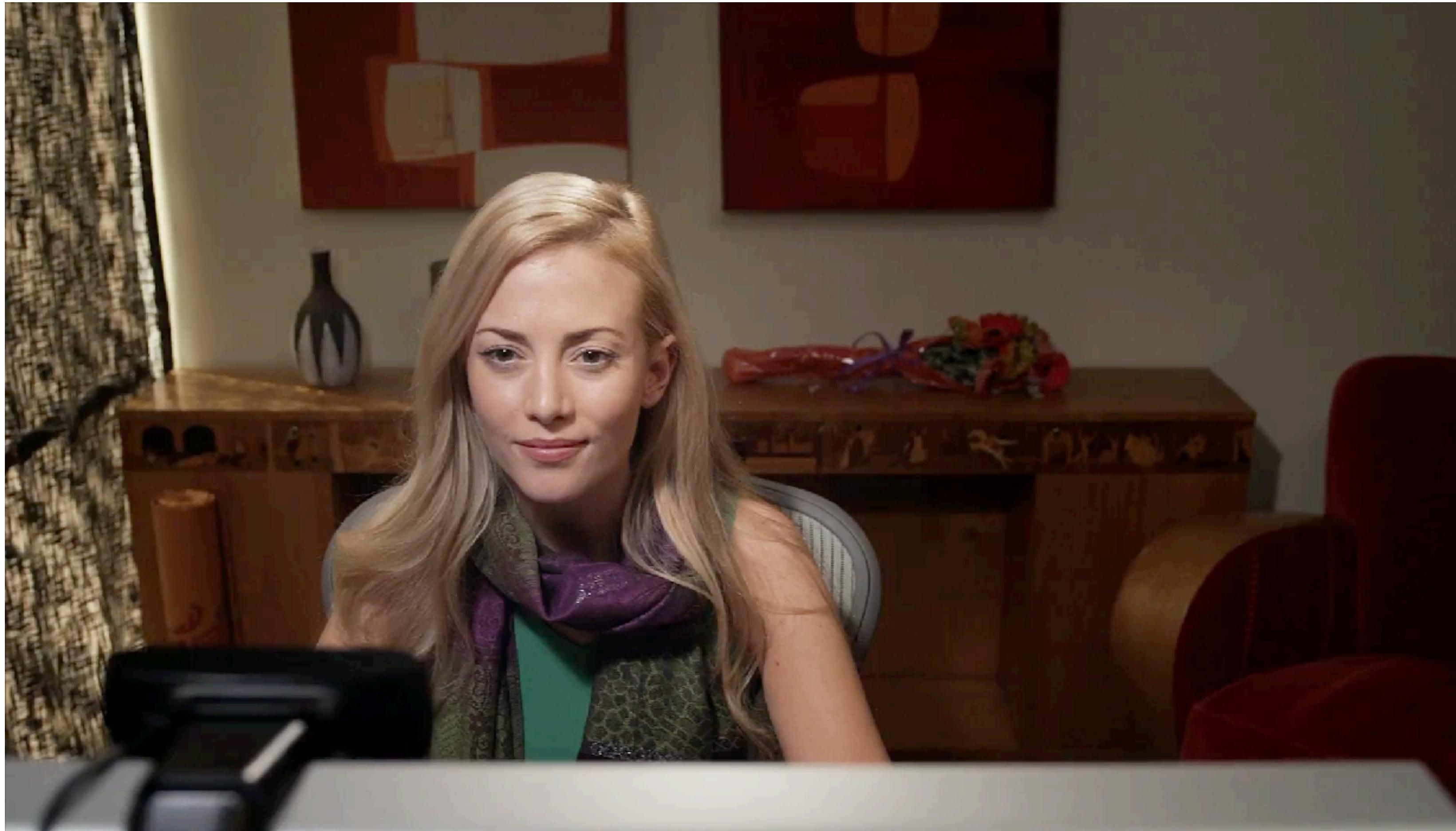
# So where are we going?



**Discuss:** based on today's concepts, will these succeed?

Meta Horizon Workrooms: VR remote conversations

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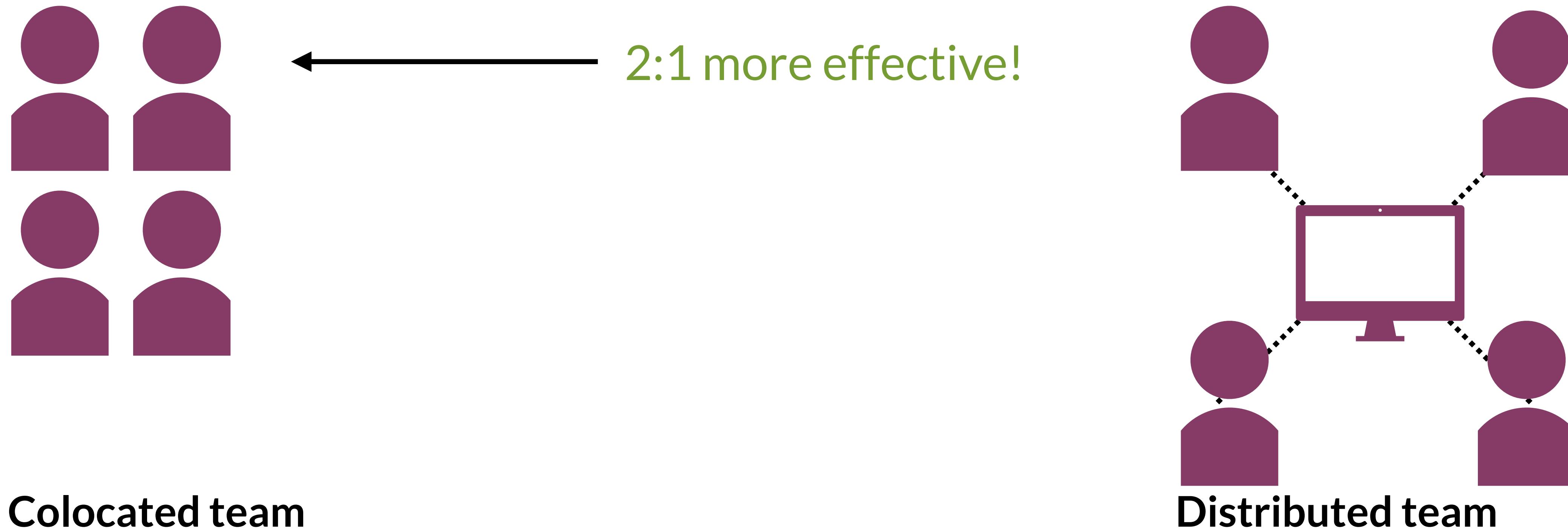


**Discuss:** based on today's concepts, will these succeed?

Beam: telepresence robots

# **Remote work**

# Back to the remote team...



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# Remote & hybrid work

- Remote work does not have a negative effect on *individual execution outcomes*
  - Productivity outcomes go up, possibly due to 40% of saved commute time being redirected to work
- But, remote work has a negative effect on *creative and social outcomes*
  - Firm-wide remote work makes collaboration networks more static and siloed, and reduces the creativity of ideas generated

Bloom, N., Liang, J., Roberts, J., & Ying, Z. J. (2015). Does working from home work? Evidence from a Chinese experiment. *The Quarterly journal of economics*, 130(1), 165-218.

Aksoy, C. G., Barrero, J. M., Bloom, N., Davis, S. J., Dolls, M., & Zarate, P. (2023, May). Time savings when working from home. In AEA Papers and Proceedings (Vol. 113, pp. 597-603). 2014 Broadway, Suite 305, Nashville, TN 37203: American Economic Association.

Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., ... & Teevan, J. (2022). The effects of remote work on collaboration among information workers. *Nature human behaviour*, 6(1), 43-54.

# Yes, even today.

- Improved remote work tools have made collaboration smoother *within teams*
  - But, they paradoxically make coordination worse *across teams*
- Example: what if UCI forced everyone to use the same Slack/Discord/iMessage platform for your projects?
  - You'd probably find it overwhelming and distracting
  - You'd probably find it a poor fit for many of your classes, clubs, etc.

**Discuss: You all are (generally) very positive about remote work!**

**What benefits aren't being captured by today's discussion?**

## What's a benefit of remote work?

---

Nobody has responded yet.

Hang tight! Responses are coming in.

# Benefits of remote work

- Accessibility
  - Digital tools for captions
  - Everyone can set up their home office space in ways which work for them
- Work-life balance factors
  - Reduced transit
  - Access to your snacks, lunch, etc.
  - Work when you want, not just 9-5
- Others?

# Benefits of remote work

- In-person work has benefits to *productivity*, which benefits executives and companies
- It's not necessarily about personal or holistic benefit to workers
- Grudin's paradox in a different environment: in the CEO's best interest, perhaps not the average worker

## Why CEOs Want Employees Back in the Office

As an increasing number of organizations call employees back into the office for three, four or five days a week, here's a full analysis of the C-suite's four biggest complaints about remote work.

July 18, 2023 | Patrick DiDomenico

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# Summary

- Group and team collaboration requires *interdependence*, which leads to a distinct set of design constraints and affordances
- Aiming just to replicate the experience of being there is impractical
  - Instead, aim to go beyond being there by looking for affordances unique to the digital realm
- Social translucence is a general principle for designing these systems with awareness and accountability
- If incentives are misaligned, these systems will get abandoned

# Today's goals

**By the end of today, you should be able to...**

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