POVs and Experience Prototypes for Hybrid Collaboration

Meet the TEAM

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Problem Domain

Learning Environments

Technology-Supported Mediation of Teamwork

Professional Environments

Initial POV

We met Tracy, a research-oriented PhD candidate in Consumer Behavior. Her research moved online due to the pandemic.

We were surprised to notice that Tracy felt like her research was able to improve and thrive in the new online setting due to increased reach and more access to participants. Similarly, her social connections with colleagues improved drastically as well thanks to her facilitation of bonding events.

We wonder if this means there are positive elements of the online work and social experiences that can transfer to a physical setting.

It would be game-changing to explore how flexibility and increased choice in online settings can be incorporated into hybrid collaboration experiences.
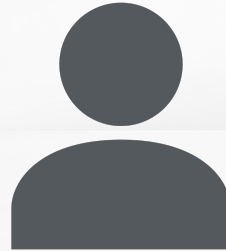
Additional Needfinding
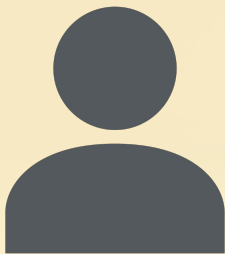
Additional Needfinding Interviews
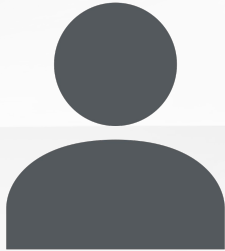
Tony

Buy-side Analyst at
Bloomberg HK

**Claire**

Fundraising Team for
US Senator

Claire

Fundraising Team
for US Senator

(Her team is in New
Hampshire while
she is in DC)

She uses a wheelchair, so the hybrid work environment makes life more **comfortable, convenient, and affordable**.

She uses the chat function on Zoom way more than her team.

Need: a way to simulate the 'vibes' of in-person collaborative campaign meetings
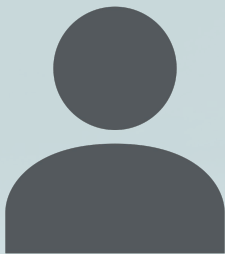
Tony

Buy-side analyst at
Bloomberg HK

(collaborates with
colleagues globally)

He relies on messaging and conferencing tools in Bloomberg Terminal for checking in and handovers with global colleagues on a daily basis.

He prefers built-in functions and simple UI.

"Clicking on something is more straightforward than typing the whole thing out."

Need: a built-in language/communication system that improves efficiency of team collaboration outside the context of his work

Participants in Needfinding

Learning Environments

E **T** **S**

Technology-Supported Mediation of Teamwork

Professional Environments

E **C** **T**
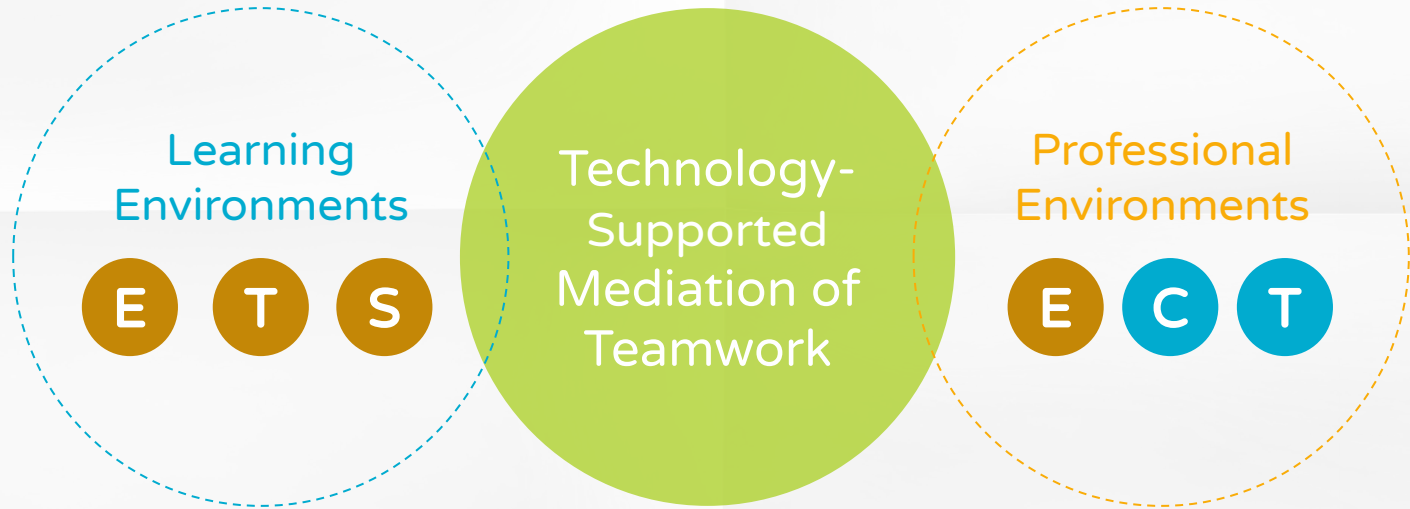
Revised POVs and HMWs

POV 1

We met Tracy, a PhD candidate in Consumer Behavior at Washington University whose entire lab moved online due to the pandemic.

We were surprised to notice that despite Tracy's reluctance to socialize with colleagues before the pandemic, her bonds actually improved in quality and quantity due to attending online social events with her labmates.

We wonder if Tracy feels she has formed better social bonds due to the more accessible nature of online social events.

It would be game-changing to utilize technology to create possibilities and remove restrictive barriers to social bonding within collaborative teams.

POV 2

We met Soren, a co-instructor of the Stanford LDT Master's Program and peer collaboration researcher.

We were surprised to notice that despite Soren's expertise in facilitating in-person student collaboration, he does not always implement this knowledge in online collaborative settings due to the more invasive nature of monitoring.

We wonder if this means he does not feel invited to engage in best monitoring practices in online settings.

It would be game-changing to explore how the more authentic feeling of monitoring in-person collaboration can be transferred to hybrid and online settings.

POV 3

We met Erika, an ear training professor at Stanford who is averse to using technology in her classroom and adapts her lesson plans based on real-time visual cues from students.

We were surprised to notice that despite her frustration with Zoom and her initial panic about having to teach online, she found that she was able to trust the technology to act as a co-facilitator of her students' learning experiences regardless of their skill level.

We wonder if this means Erika feels more supported as an educator in an online environment due to the addition of technology as a successful co-facilitator.

It would be game-changing to explore how technology can assist educators to accommodate students' individual needs in in-person learning environments.

POV 2 (Soren)

"

How might we facilitate trust-building between collaborative TEAMS and the technology they use?

POV 2 (Soren)

"

How might we translate natural visual signals into virtual cues?

POV 2 (Soren)

How might we encourage teams to be more vocal about their needs in learning experiences?

Solutions

Multisensory feedback system: sounds, colors, finger gestures used to indicate various emotions/states

HMW facilitate trust-building between collaborative TEAMS and the technology they use?

Virtual teammate pings the team to remind them of best collaboration practices

Anonymous reporting of feedback in groups: group gets alerted when someone would like to regulate the group dynamic/interject

Experience Prototypes

Experience Prototype 1

- **Solution: Virtual teammate** pings the team to remind them of best collaboration practices

- **Assumption:** Team members **do not feel distracted** by a 'virtual collaboration facilitator' that periodically sends prompts.
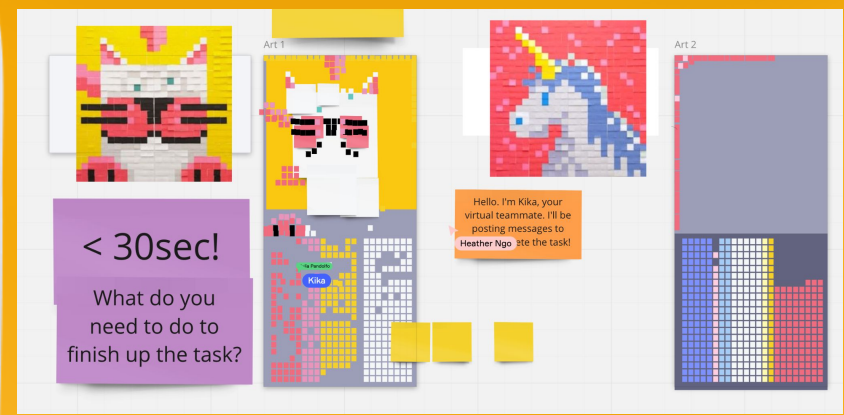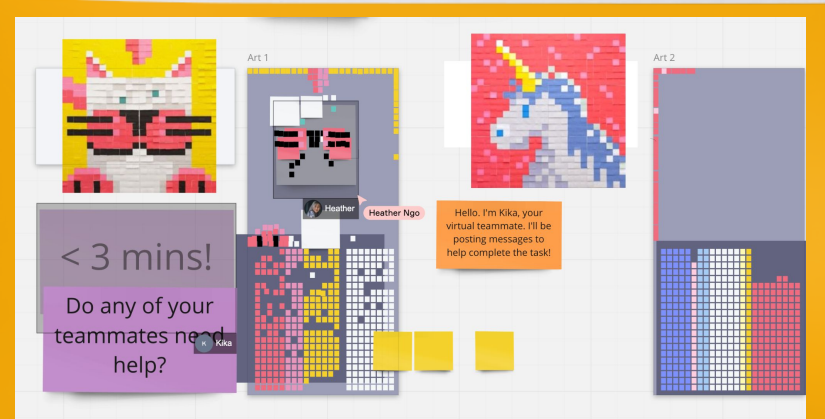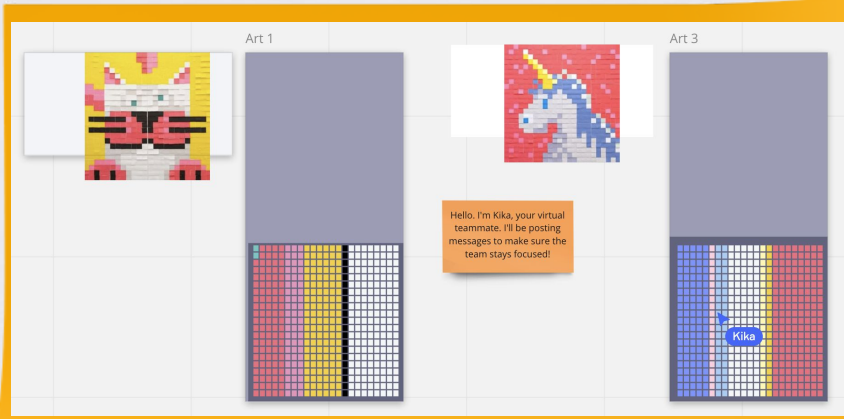
Collaborative task with Julia and Heather (non-Stanford participants) on Miro with a **Wizard of Oz virtual teammate** named Kika. (shown in the orange sticky note)

Kika would help the team keep track of time, progress of completion, and periodically provides prompts to ensure good collaboration. (shown in purple sticky notes)

Results and Insights

(participants did not interact with the virtual teammate at all) — FAILED

Julia: "Because we're doing a visual task it doesn't really make sense for the notifications to also be visual because then you're dividing our attention."

Julia: "Because heather and I were so focused on making [the artwork] I feel like I wasn't paying attention to really anything else that was happening"

Medium of the alert shouldn't match the medium of the task (e.g. visual task/visual note is not as good as visual task/audio alert)

Teams should have the ability to **'resolve' the comments** or make them go away

Preference for a virtual teammate may depend on the **nature of the task**.

Experience Prototype 2

- **Solution: Multisensory feedback system**: sounds, colors, finger gestures used to indicate various emotions/states

- **Assumption:** People are able to associate colors with particular emotions in a **consistent and widespread way**.

Naming Emotion to Color

Please name the FIRST emotion you think of when presented with the following colors. Thank you!

yujchen@stanford.edu (not shared)
Switch account

* Required

What emotion comes to mind when you see this color? *

Your answer
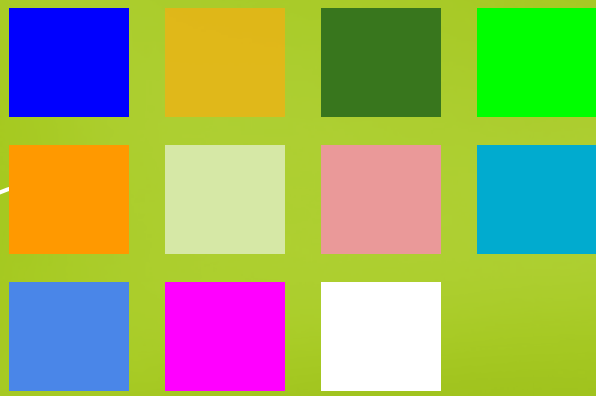
Widespread survey of color/emotion associations based on a total of 12 colors created with Google Form.

17 non-Stanford participants filled out the survey.

Results and Insights

Participants provided more consistent responses for colors that are common/frequently used.

Participants provided a wide variety of responses for colors that are less common.

People tend to associate **typical colors** (e.g. red, blue, green) with specific emotions in a consistent way.

Experience Prototype 3

- **Solution: Anonymous reporting of feedback in groups**: group gets alerted when someone would like to regulate the group dynamic/interject

- **Assumption:** People actually **feel comfortable interjecting** with feedback about group dynamics during collaboration sessions

M.S. student at Stanford

A video of a real-life "bad" team collaboration scenario

Have participants watch a video of bad collaboration over zoom and see whether and where they would feel comfortable butting in or giving feedback (by pressing the raising hand button ✋)

Results and Insights

"[Pressing a button] let me take a feeling before figuring out what I'd actually say."

"This did not feel as realistic."

"This is what I would ideally do. Not sure what I would realistically do in a situation like this."

Easing the feedback giving process may increase people's motivation in providing feedback.

People have **different reasons** for interjecting with feedback:

"I personally don't care as much about silence or conversations not being productive, I would say something when someone is being rude or the group dynamic is really off."

Revisiting the Assumptions and Validity

▨ **Assumption 1:** ~~Team members **do not feel distracted** by a 'virtual collaboration facilitator' that periodically sends prompts.~~

certain

▨ **Assumption 2:** People are able to associate ^ colors with particular emotions in a **consistent and widespread way**.

▨ **Assumption 3:** People actually **feel comfortable interjecting** with feedback about group dynamics during collaboration sessions. ✅

Solution and Summary

- Medium: revisit presentation of virtual teammate with an emphasis on trust–building among team members and between teams and technologies
- Interested communities: academic and professional teams

Thanks!

Any questions?

Additional Materials

List of Additional Materials

- Empathy map for additional needfinding
- Solutions brainstormed for our chosen HMWs

Empathy Map: Tony (Buy-side analyst at Bloomberg)

Say

"We have people with different specialties located in different office… It's important to draw on different teams' expertise."

"I value flexibility a lot."

"It's like zoom, but more simplistic. Each person has a conferencing room under their name. When we want to gather in a room, we don't need to generate a link."

"In in-person work, if I have something that I want to ask my colleague, I will walk towards the person and ask directly… Texting is simpler than having to walk all the way. ."

"When you want the other party to run the command, you will be able to send the code for them to click on instead of having to type the whole thing. This helps alleviate burden in communication because **clicking on something is more straightforward than typing the whole thing**. "

"When we are working in the office, I do find advantages because I can get someone's attention immediately."

Having the option to work from home has given him more flexibility and improved his productivity.

The internal communication tools (messaging and video conferencing) are very helpful in his work.

Having built-in features in a communication tool is effective and helpful.

Think

It's inconvenient to schedule meetings with the London office due to the time difference.

Simpler UI is more straightforward. (Dislikes that you need to remember different codes for Zoom meetings)

It's relatively easy to learn commands once you understand the logic of these commands.

Do

Collaborates with colleagues **globally** (HK, Shanghai, Singapore, London, US) using mainly Bloomberg Terminal

Uses messaging tool to send not only text messages but also files. Transfers files very frequently.

Frequently sends built-in commands of the Bloomberg terminal to expedite the communication process.

In contact with global colleagues and clients on a daily basis.

In the work handover process of client cases, he sends email updates when not urgent but utilizes the "work center (internal)" to ensure real-time handover during urgency.

Communicates and checks in with team members much more frequently when working from home.

Frustrated when scheduling with international teams due to time difference

More at-ease during communication while working from home because texting requires less effort than walking to the person.

Understanding perspectives of different client populations (cultural backgrounds) is important.

Response time for receiving text messages is much longer than talking in person.

Feel

Upset with the time wasted during commuting when having to work in the office

Relaxed when working from home. More focused when wfh (potential contradiction)

HMW facilitate trust-building between collaborative TEAMS and the technology they use?

let them read a story about the technology before they use it

Increasing positive affect towards technology via friendlier/personalized environment, names, labels, etc

Virtual teammate pings the team to remind them to monitor goals/norms

Virtual teammate pings the team to remind them of best collaboration practices

create a virtual assistant

provide a manual of functions (printed out) before use

technology is low barrier to entry

Technology becomes another teammmate; given a name, a role. More personalized and customizable

Tech alerts teams periodically to check in with each other

technology can be customized by users (educators or teams)

HMW translate natural visual signals into virtual cues?

Multisensory feedback system: sounds, colors, finger gestures used to indicate various emotions/states

physical emojis

Can send someone a color to represent emotion/valence

adds a sound effect system in virtual learning (for example, sigh, hmm? etc.)

have a translation code: Meow for confused, Squeak for repeat again, etc.

Translate visual signals into sounds.

Directly send text cues to all people in a video chat to indicate something

confusion or question button to gauge understnading of a topic - that is anonymous and only for presenter/teacher

Set team norms to speak up when someone notices a particular cue

eye emojis for eye contact

Create a "sign language": system where each finger means a different thing

The screen becomes a different color based on emotion/need

measure brainwaves

Computer vision technology for facial expression and gesture recognition

Use facial detection to identify when people are confused or have questions

Encourage people to look at the camera instead of themselves on Zoom

anonymous reporting of feedback in groups: teacher/group gets alerted when someone would like to regulate the group dynamic/interject

anonymous feedback: teacher gets a cumulative total of people confused, not the individuals so people don't feel embarrassed/singled out.

understand-o-meter

Create a guide for what different gestures and body language positions mean in virtual envrionments .

comfort meter (0-10)

multiple cameras for different angles to capture more movements

have computer vision to track eye contact and alert teacher

Screen or chat distorts when someone feels a particular emotion

HMW encourage teams to be more vocal about their needs in learning experiences?

areas of growth that group can mark up

active norms

built in self reflection

3 min reflection at end of every group session to vocalize needs

simultaneous feedback giving portal

Direct messaging the teacher at any point

sending paper notes to the facilitator

Have one person designated as the "needs vocalizer"

the norm guardian: guardian of the norms

Have a pre-generated list of needs for students to choose from

Needs AI surmises the needs of group and writes to teacher

shout it out at the faciliator whenever they want

Make a specific noise or do a specific movement to signal HELP

having one team member keep track of all points of confusion/concern for follow up

Within group: anonymous reporting to a "team lead"

automated feedback system

body movement to signal help (waggle)

Use a whiteboard at the front of class to write down any questions (visible to whole class)

have needs trophies that you can obtain

the team that has addressed the most needs gets the highest grade

Credits

Special thanks to all the people who made and released these awesome resources for free:
- ▨ Presentation template by SlidesCarnival