Redesigning Privacy with User Feedback:
The Case of Zoom Attendee Attention Tracking

Tony W. Li, Arshia Arya, Haojian Jin

UC San Diego

Researchers often attribute privacy issues to the lack of user feedback, but this study shows that **user feedback alone can't help engineers avoid these issues**.

Redesigning Privacy with User Feedback

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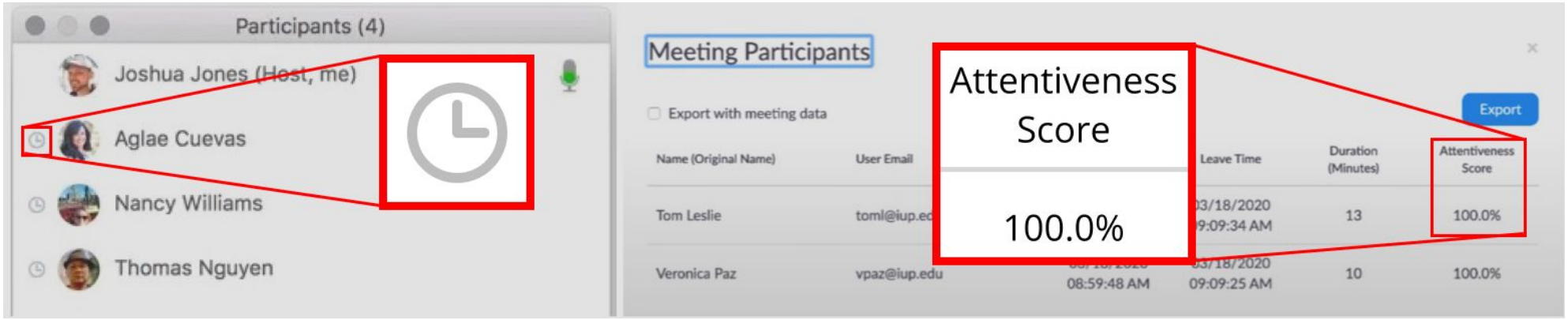
TL;DR

Researchers often attribute privacy issues in many products to the lack of user feedback.

This study shows that even if you give feedback to developers in advance, it is not easy to avoid these privacy issues.

Zoom Attendee Attention Tracking



Screenshots adapted from:

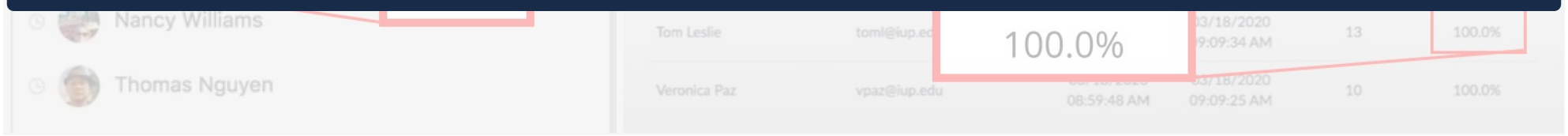
- https://www.huffpost.com/entry/zoom-tracks-not-paying-attention-video-call_l_5e7b96b5c5b6b7d80959ea96
- https://www.youtube.com/watch?v=o1lbmOWFRc8

Attendee attention tracking

English (Original)

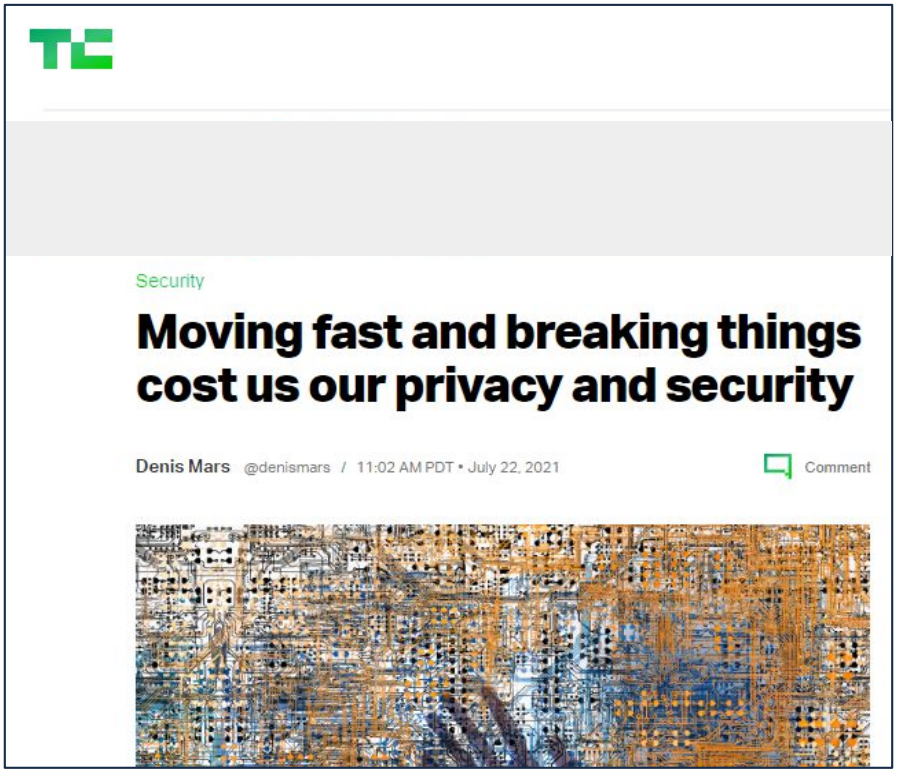
2024-01-11 16:58:20

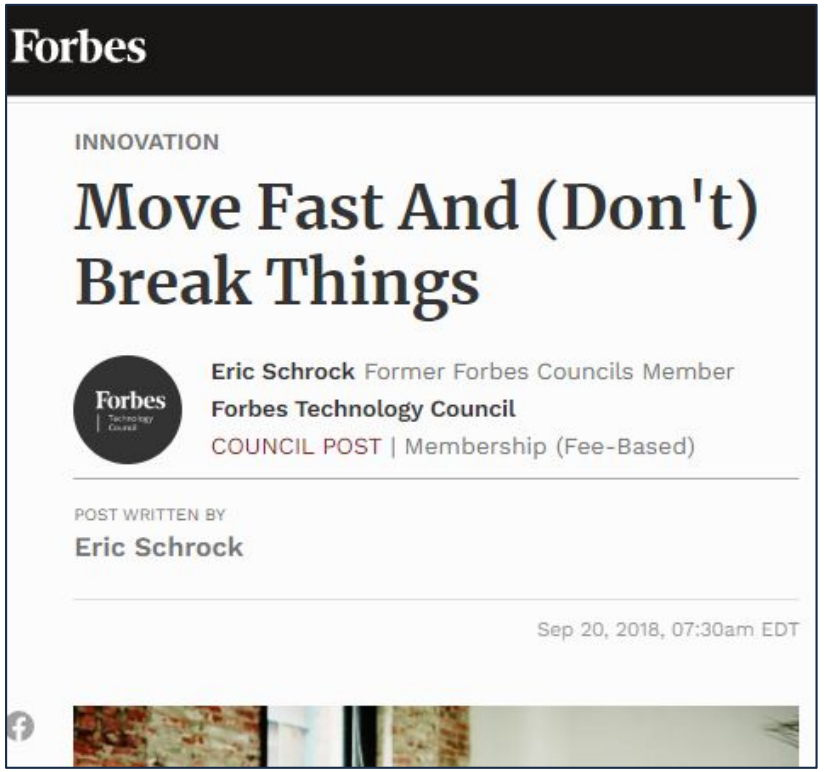
As of April 2, 2020, we have removed the attendee attention tracker feature as part of our commitment to the security and privacy of our customers. For more background on this change and how we are pivoting during these unprecedented times, please see a note from our CEO, Eric S. Yuan.



https://support.zoom.com/hc/en/article?id=zm_kb&sysparm_article=KB0069153

Moving Too Fast for Privacy?





- https://techcrunch.com/2021/07/22/moving-fast-and-breaking-things-cost-us-our-privacy-and-security/
- https://www.forbes.com/sites/forbestechcouncil/2018/09/20/move-fast-and-dont-break-things/?sh=7cc8eed60344

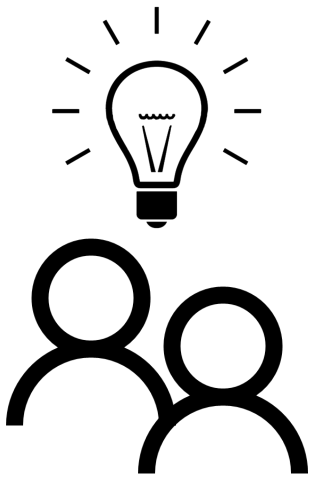
Related Work

- Collecting users' privacy feedback
  - Inform data practices in software, IoT, advertising, etc.
  - But how to translate **feedback → design decisions**?
- Privacy by design for developers
  - Critical in current privacy laws[2]
  - But what about **PbD in software products in practice**, e.g. Zoom's attendee attention tracking?

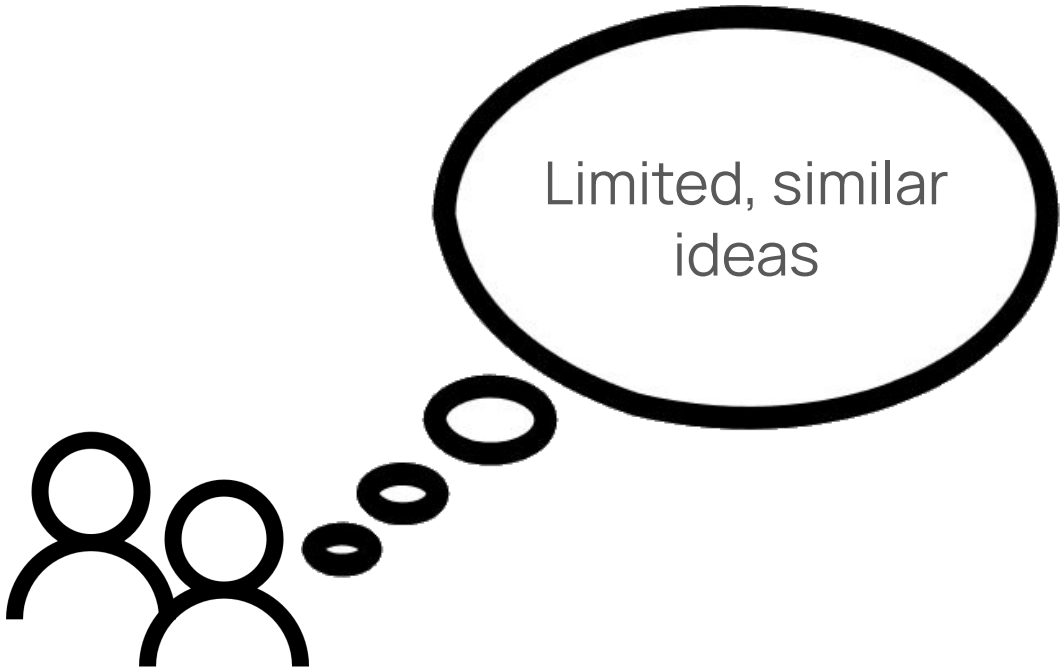
- Fazlioglu. IAPP Privacy and Consumer Trust Report – Executive Summary. 2023.
- [2] Rubinstein and Good. Privacy by Design: A Counterfactual Analysis of Google and Facebook Privacy Incidents. 2012.

Pilot Interviews: Methods

- Semi-structured interviews (N=5 software engineers)
- “Crazy Eights” brainstorm reimagination of Zoom attendee attention tracking, through informal role-play



Pilot Interviews: Results



Main Study: Motivation

Guide ideas with actual user feedback grounded on Zoom attendee attention tracking:

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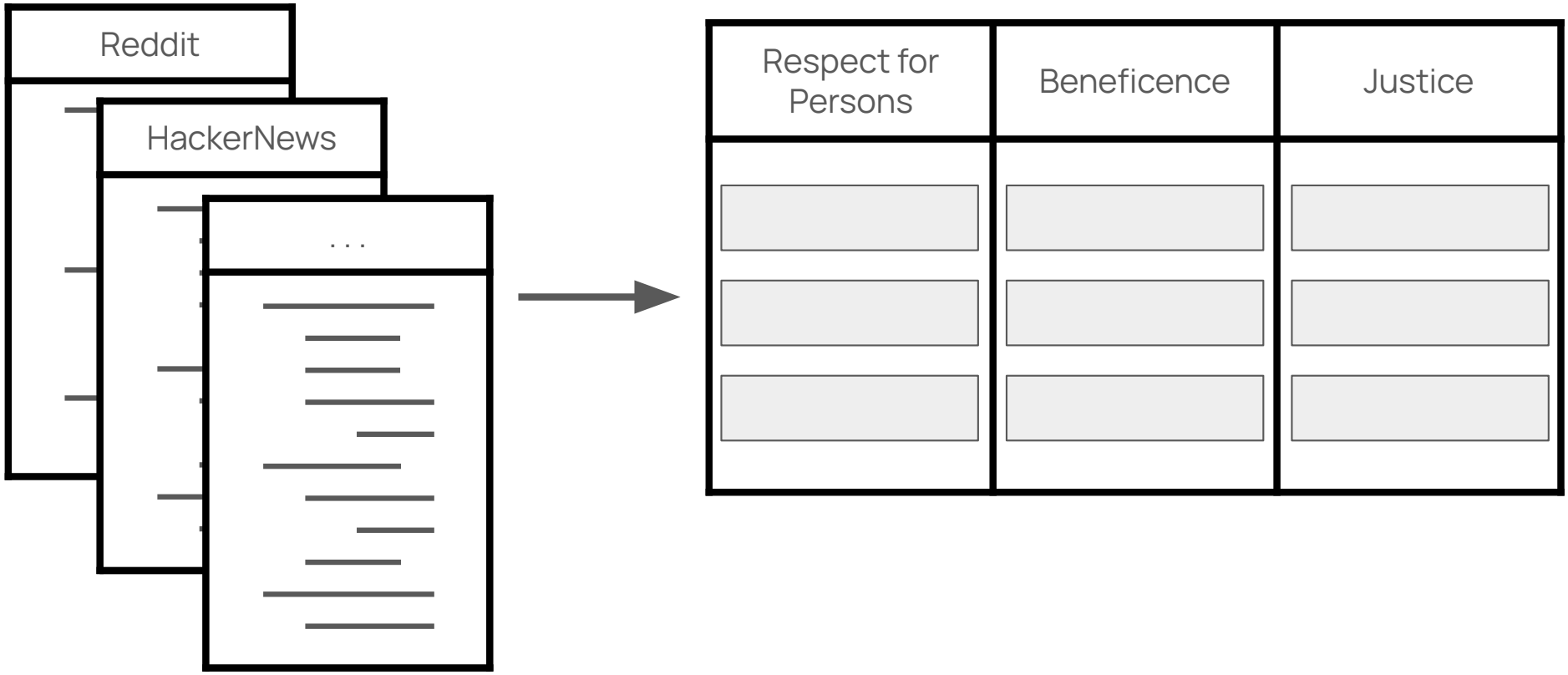
- RQ: How can **developers** effectively leverage **actual user feedback** to enhance the **privacy** of end user products?

Main Study: Data Collection

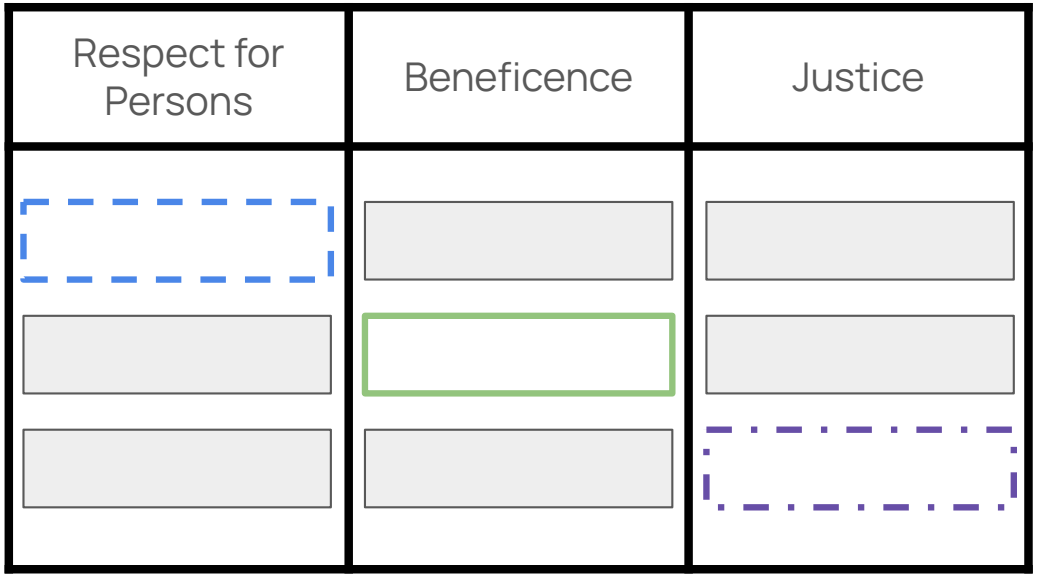


Main Study: Data Collection

"We wish Zoom would display a notification or let people on the call see whether it's enabled."

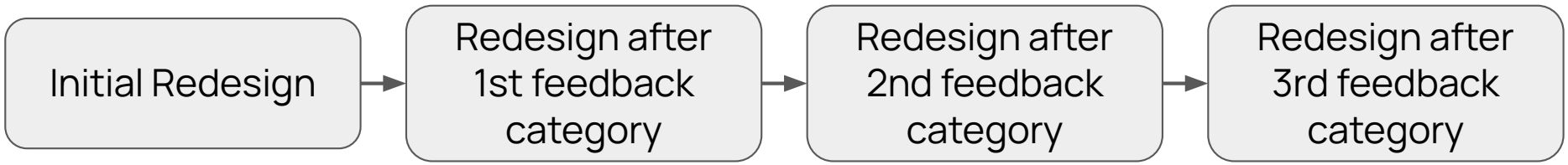
"If you have to track people to make sure they pay attention during the meeting, the meeting is pointless and too long."

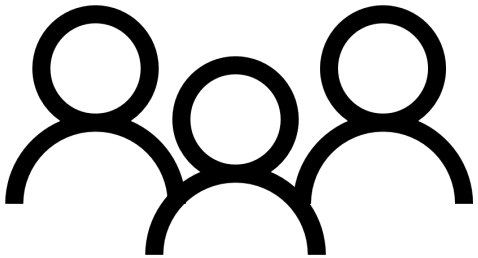
"Everyone in the meeting room, the host, the speaker, and the attendees should be able to see who's paying attention."



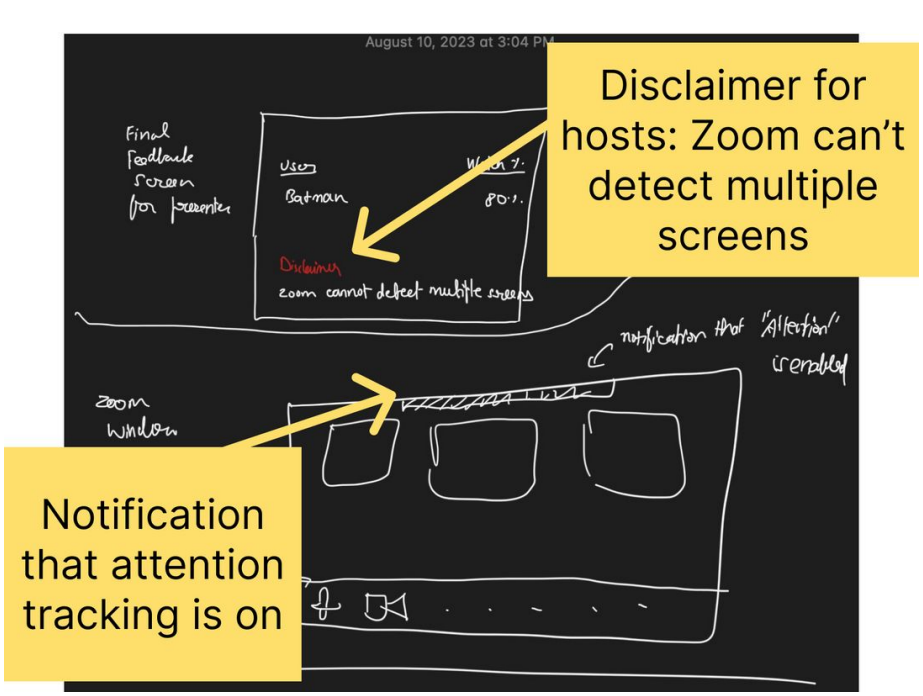
Main Study: Interview Protocol

Semi-structured interviews (N=18 software engineers)



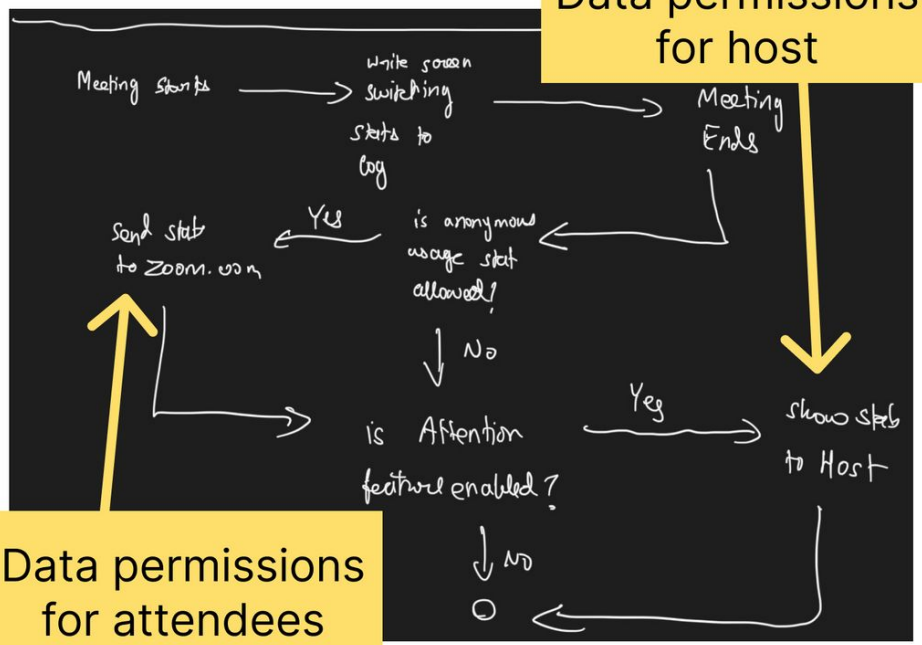


Example Participant Sketches



Disclaimer for hosts: Zoom can't detect multiple screens

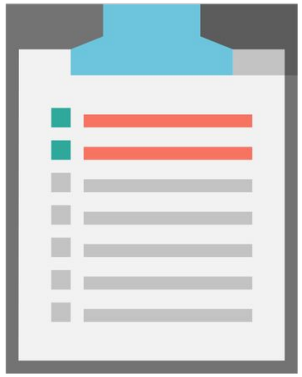
Notification that attention tracking is on



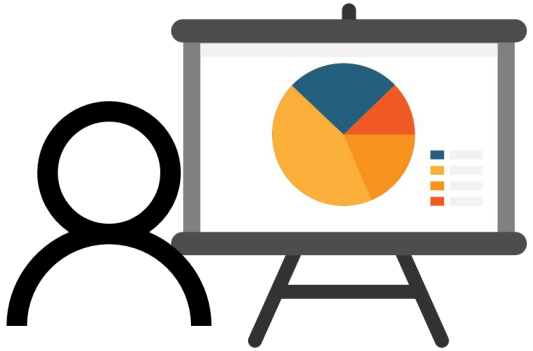
Data permissions for host

Data permissions for attendees

Results - Benefits of User Privacy Feedback



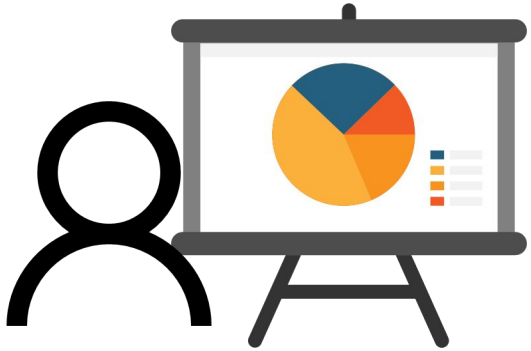
Checklist for Edge Cases



Evidence for Organizational Decisions

Results - Benefits of User Privacy Feedback

"It does give some more weight to have direct user feedback that goes along with [design decisions]. At least I feel that's how it operates in [my company]."



Evidence for Organizational Decisions

Results - Challenge 1: Polarized Design Suggestions

Minor frontend changes

"Instead of saying [attendees are] not paying attention, say they're not watching their screen, they could still be listening to you."

Fully deprecate

"I think anything that I would propose would be too invasive of privacy, and I would not be comfortable implementing that."

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Results - Challenge 2: Confirmation Bias

Agree - Confidence

"[B]eing able to compare [my design] against real user feedback made me realize it had accounted for a lot of the original feedback, so then it raised my confidence."

Disagree - Defer/Ignore

"I think I would essentially pass the buck to like PM's or UX researchers to essentially determine, is that a worthwhile business problem to solve?"

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Results - Challenge 3: Perceived Responsibility

Usage Out of Scope

“I don’t think we can address sort of, like, how it should be used. But we can provide enough information and enough clarity [...] for users of it to make sort of those decisions kinda outside of the feature.”

Defer to External Priorities

“It depends on who your highest paying customer is and what they want.”

“First, we have to make sure we follow the laws, regulations”

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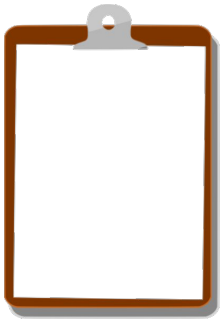
Discussion



More **standardized** protocol and format for presenting feedback

Foster developer **empathy** with users and their feedback

User feedback as **evidence** to inform product decisions and prioritize user concerns

Land Acknowledgement

We acknowledge Hawai'i as an indigenous space whose original people are today identified as Native Hawaiians. We recognize that generations of indigenous Hawaiians and their knowledge systems shaped Hawai'i in a sustainable way that allows us to enjoy her gifts today. For this, we are grateful as guests. Mahalo.

User feedback alone can't help engineers fix privacy issues

- We explored redesigning privacy with user feedback, through the lens of a Zoom feature and historical user feedback
- Benefits of user feedback:
  - Checklists for engineering edge cases
  - Evidence for high-level product decisions
- Challenges of utilizing user feedback:
  - Polarized design suggestions
  - Confirmation bias
  - Limits of perceived responsibility

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