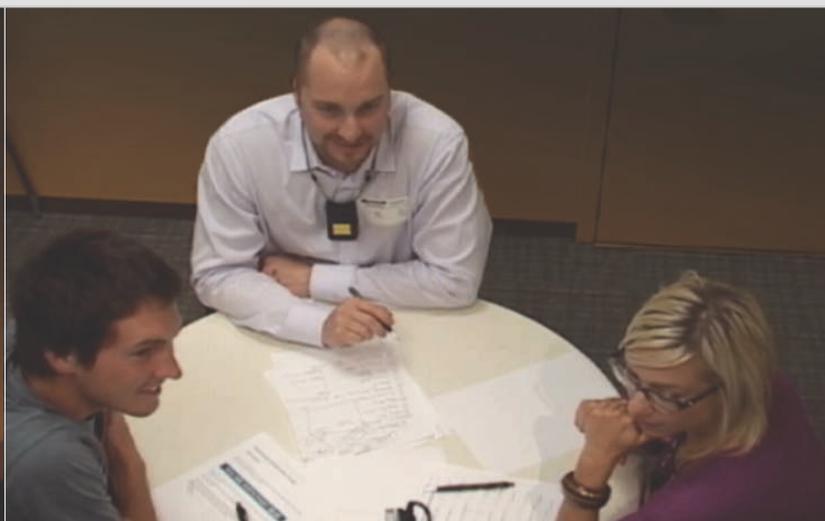


Microsoft
Research

David M Sirkin, George G Robertson, Gina Venolia, John Tang,
Kori Inkpen Quinn, Mara Sedlins, Bongshin Lee, Taemie Kim, Mike Sinclair

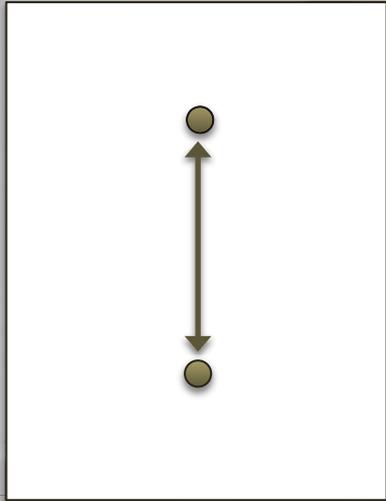
MOTION AND ATTENTION IN A KINETIC VIDEOCONFERENCING PROXY



COMMERCIAL PROXIES



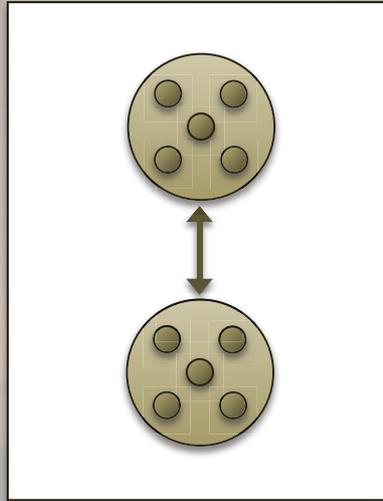




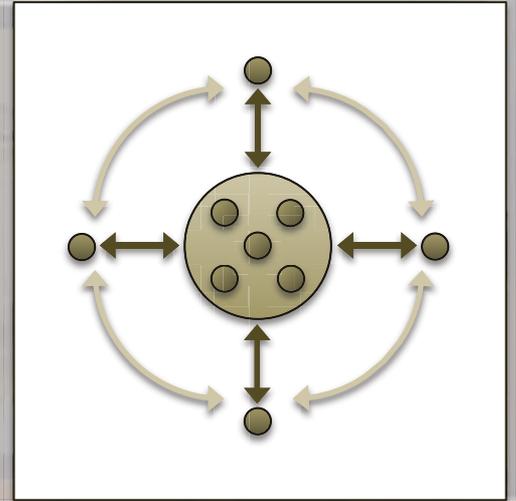
1 to 1



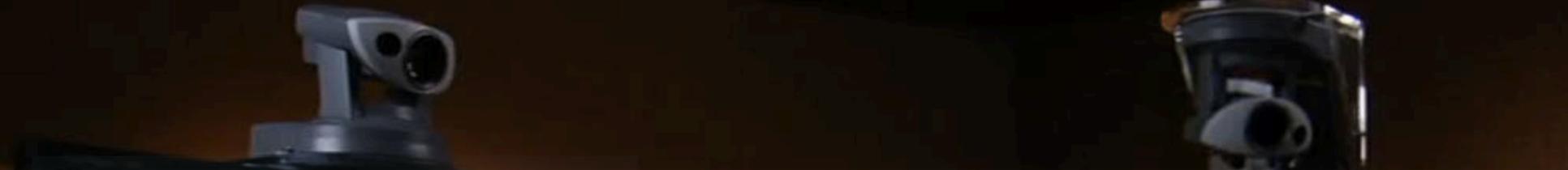
1 to Many

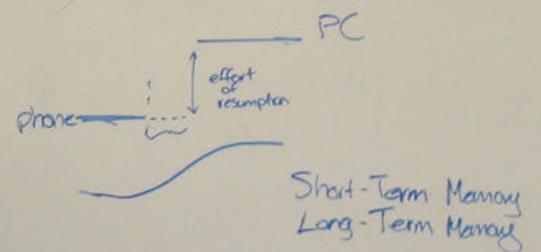


Many to Many



Hub-and-Satellite





STUDY QUESTIONS

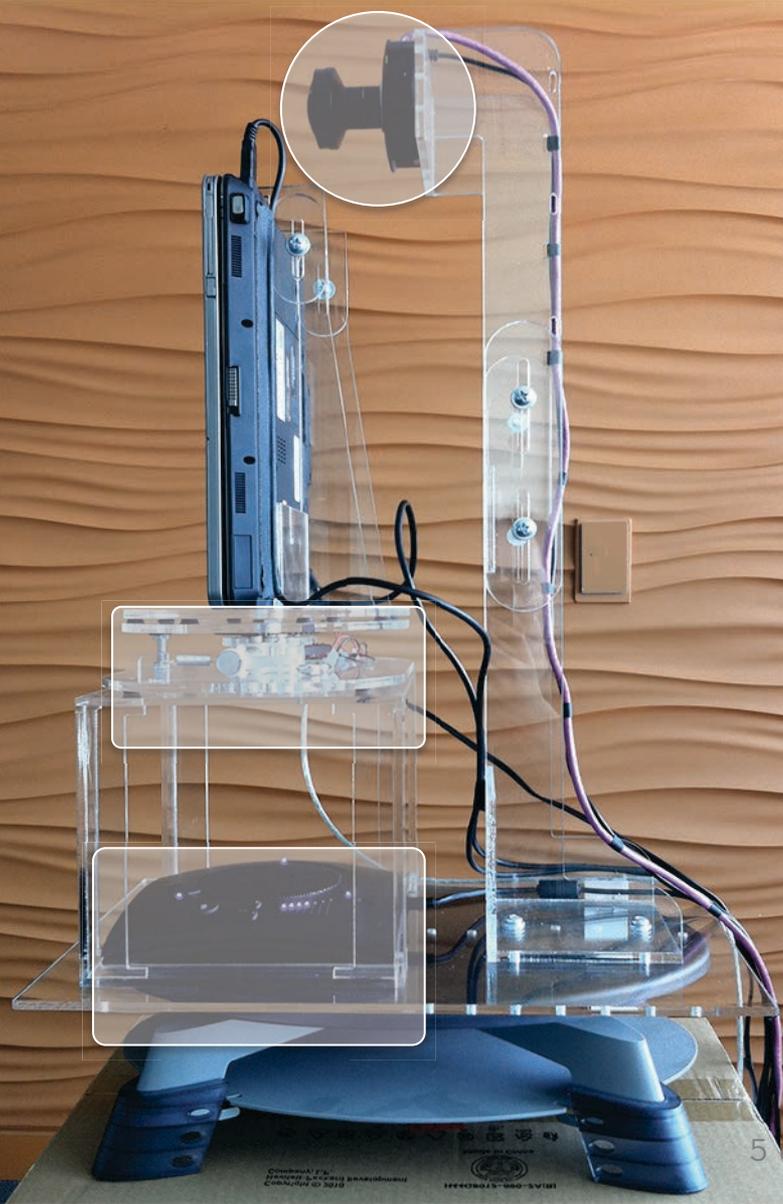
How should we control a *kinetic* proxy to work well for participants on both sides of the meeting?

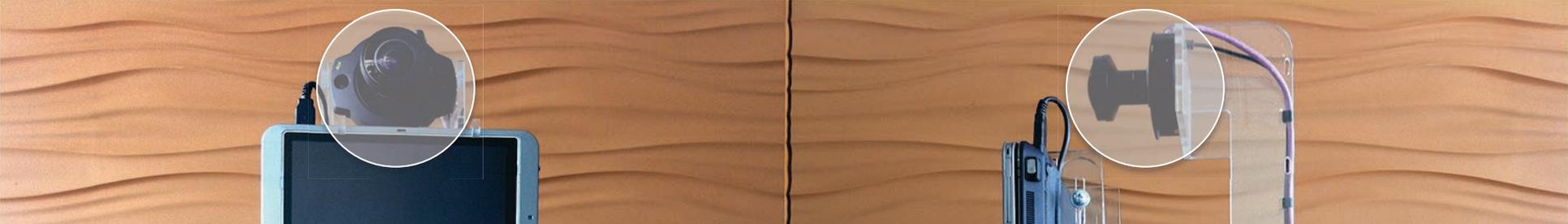
Intuitive, low cognitive effort, convey reactions

Which one works better: *explicit* or *implicit* control?

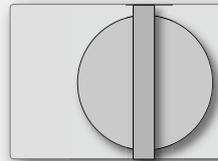
Explicit: manual control (like a mouse)

Implicit: does what you do (motion track)









Control

Study



PROCEDURE

3 activities, surveys during breaks, interview at end
Each was decision-making task with no right answer

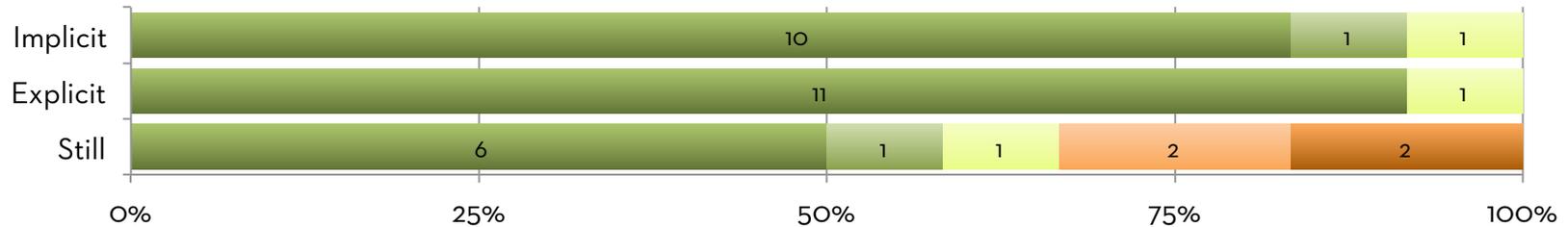


MOTION & ATTENTION

Responses to directed polling prompts such as “what do you think?”

■ Correct Responded ■ Correct Confirmed ■ Multiple With Correct ■ Incorrect Responded ■ No Response

Condition



Percent of Responses

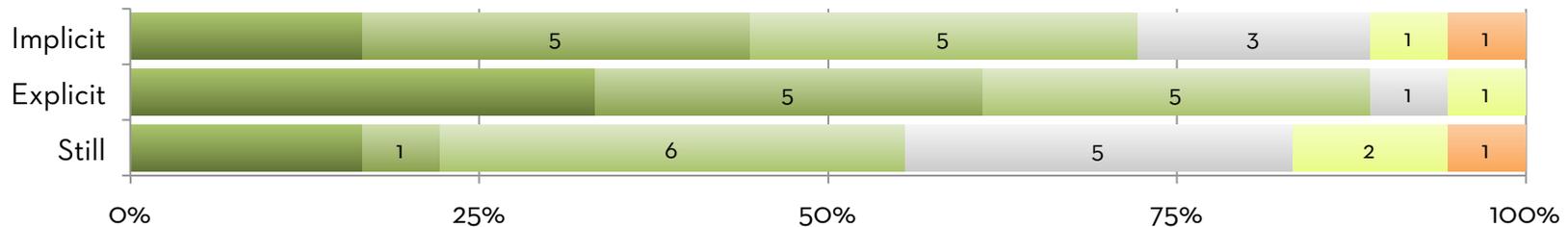
“Rotating made it more clear who the remote person was talking to.”
“When talking to other people, I couldn’t see her and felt excluded.”

ADVANTAGE: EXPLICIT

I could easily tell when the remote person was talking directly to me

7 (Most Positive) 6 5 4 (Neutral) 3 2 1 (Most Negative)

Condition

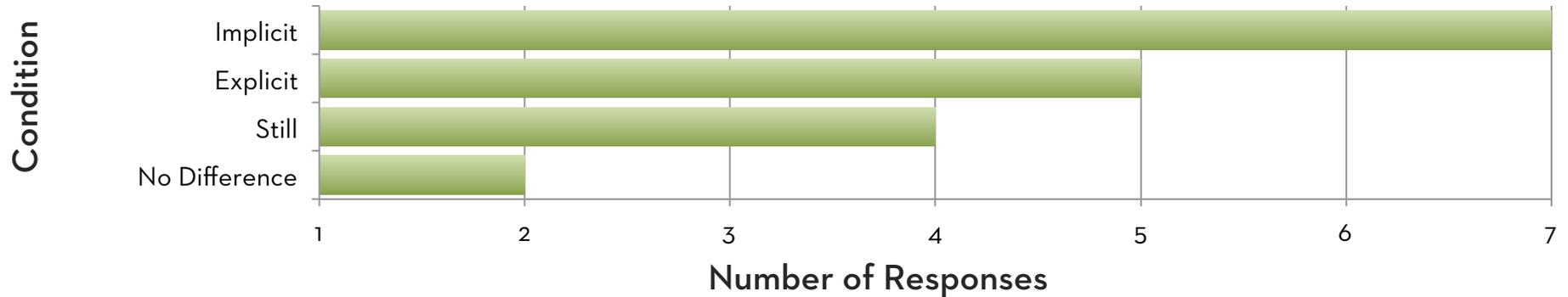


Percent of Responses

“There were less of the smaller subtle movements that I’d have to look up for and see *where’s she looking now?*”

ADVANTAGE: IMPLICIT

When did your group communicate best with the remote person?



“The robotic movement added a degree of personality that was lacking in the (still) condition”

TAKEAWAYS

Motion versus idle

- Better for projecting focus of attention and personality

- Has potential to be more exclusionary than in-person

Direct gaze line

- Proxy was able to project focus of attention without it

- Maybe not as relevant as for fixed conference displays

TAKEAWAYS

Explicit control

The remote operator found it easier to adjust to its use

Implicit control

Provides greater sense of remote person's personality

But incidental motion is interpreted as communicative

DESIGN IMPLICATIONS

Actuated motion

As nuanced as face-to-face, but with different 'gotchas'
Freedom from having to maintain direct gaze onscreen

Explicit interface

More stable and easy to acclimate: but for novice user?

Implicit interface

Track, but with a clutch; dwell time; recognize gestures

FUTURE DIRECTIONS

Alternative ways motion can indicate attention

Smaller gestures, maybe a 'weathervane' indicator

Alternative ways to represent a remote worker

Face-forward view, more expressive, ability to point

MOTION AND ATTENTION IN A KINETIC VIDEOCONFERENCING PROXY

Don't anthropomorphize computers. They hate that.

