

# Towards social ergonomic understanding of advanced collaborative environments

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# An observation

- There is a major quality of experience problem in advanced collaborative environments
  - Bad lighting, bad camera angles, etc.
- Many of these problems are the same as typical video conferences
- These problems aren't unknown or new, but they aren't going away
  - Lumped into “production value”

# Beyond “production value”

- Production value is an evil construct
  - It declares solutions to these quality problems to be an art rather than a science
- Problems become tractable if we look at them a different way
- Social ergonomics is an alternate frame we can use to look at these design problems
  - Design characteristics of a system can directly influence social behavior around the system (e.g. Brown and Newman, 1985)

# Characterizing ergonomic breakdowns

- Looking across years of CSCW and HCI literature, themes emerge in the mechanisms that contribute to ergonomic breakdown
  - Information asymmetry
  - Cue interference
  - Cue distortion

# Information asymmetry

- Participants in a session have access to differing amounts of information due to the way the system is designed
- Examples
  - Lurkers and reciprocity failure (e.g. Fish et al., 1993)
  - Marginalization of remote participants (e.g. Bos et al., 2004)

# Channel limitation

- The cues/information provided by the system are not the same cues that people would rely on if co-present
- Examples
  - Body language as supplement to speech in cross-cultural discussion (Veinott et al., 1999)
  - Overemphasis on talking heads instead of work context (Whittaker, 1995)

# Cue distortion

- The system is designed such that cues are misrepresented, disrupting individuals abilities to act on them
- Examples
  - Latency and hesitation (Horn, 2001)
  - Camera angle (Huang, 2004)









# Solutions (?)

- Better understanding of the implications of system design will lead to an improved ability to address problems
  - Still, very difficult to evaluate in the field
  - Need controlled lab studies
- In some cases, problems are unavoidable, so we must find other ways to accommodate
  - Training

# Discussion

