

“What an Emotionless Robot!”: Visuomotor Priming from Video Stimuli Influences Emotion Recognition

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Emotion Recognition

- From as early as 12 days old, humans are able to correctly identify facial expressions corresponding to an emotion (Silver & Oakes, 2001).
- Evidence suggests that people generally perceive emotions from facial expression in a similar manner, including across cultures (Cowen et al., 2021).

Emotion Priming

- **Priming** has been linked to emotion recognition, where the pairing of a priming stimulus (e.g. word) and a target (e.g. facial expression) that shares a common emotional category yields better performance (Carrol & Young, 2005).
- People viewing videos of dogs report **increased wellbeing** compared to those watching equivalent control videos (Finkbeiner et al., 2016) and this emotional reaction may trigger or **prime emotion processing systems** (see Attention Restoration Theory; Kaplan, 1995)

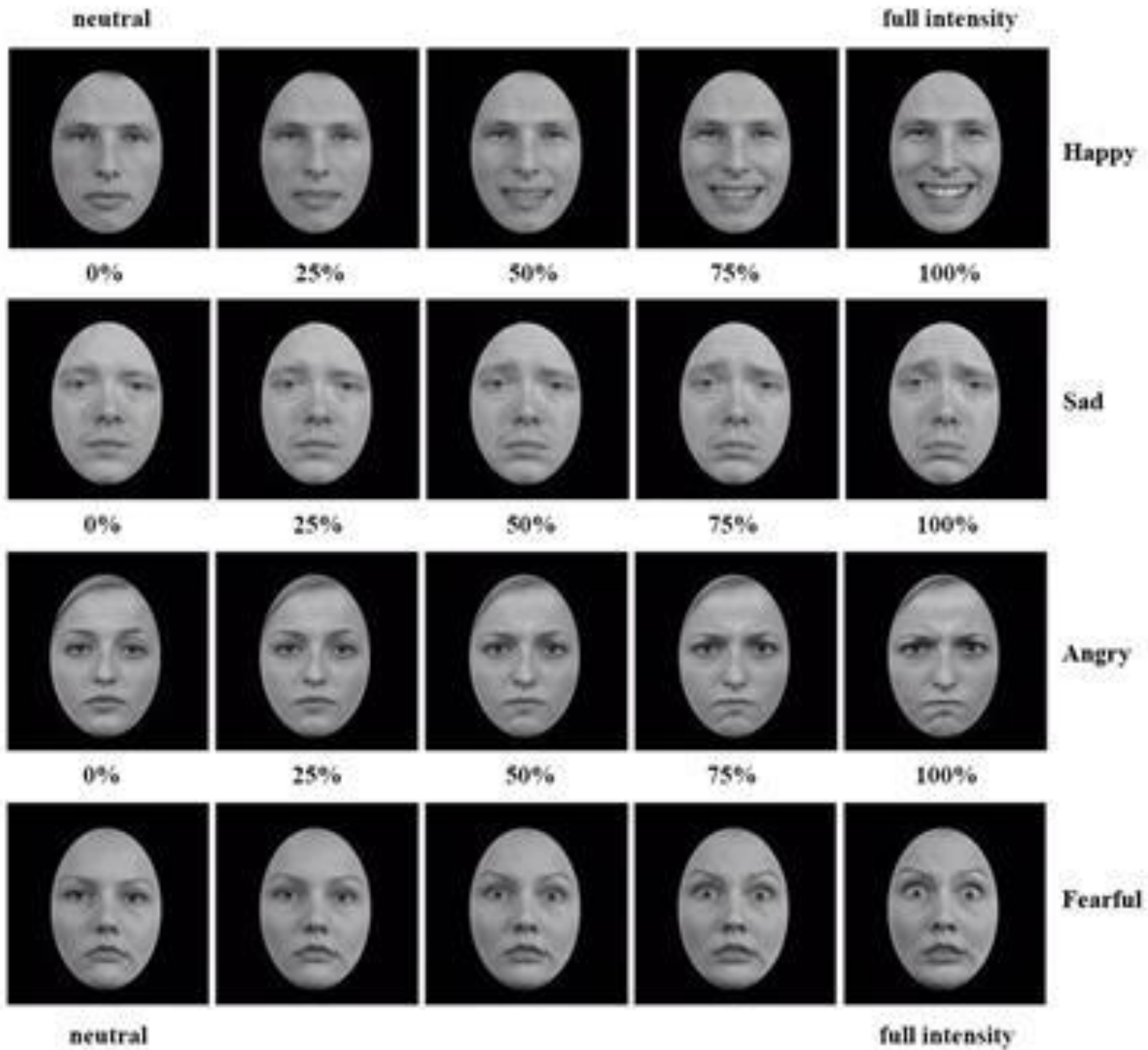
Research question

Can exposure to dog videos not only improve subjective wellbeing, but also prime a rater to more accurately detect facial expressions?

In the current experiment, it was thought that participants watching videos of dogs will be more likely to correctly recognize the emotion portrayed by a human facial expression than people primed with videos of robots or a control (random movement of lines).

Study 1

- Fifty nine students (8 males, 51 females), ages ranging from 16 to 44 years (M = 20.15 years, SD=3.89) volunteered to participate in the study.
- DANVA 2 (Nowicki & Carton, 1993) = Diagnostic Analysis of Nonverbal Accuracy
 - **Adult facial expressions**
 - **Emotion**
 - Happy, sad, anger, fear
 - **Intensity**
 - Low intensity
 - High intensity



Design

VIDEO
~4min

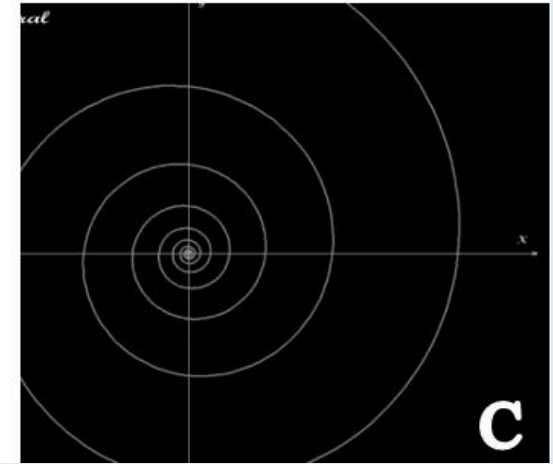
16 DANVA
FACES 2

VIDEO

16 DANVA
FACES 2

VIDEO

16 DANVA
FACES 2

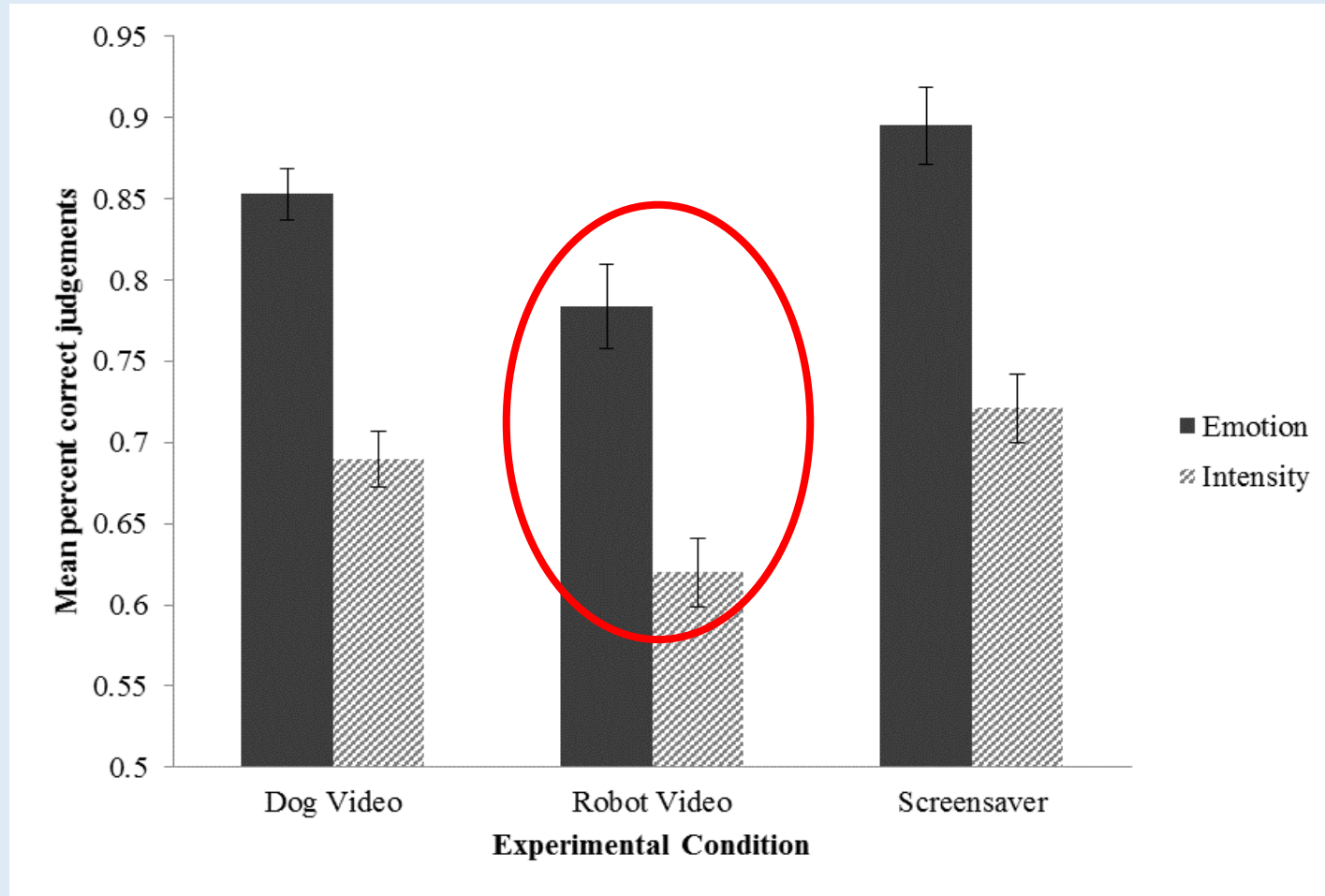


Diagnostic Analysis of Nonverbal Accuracy

Rate:

- (1) Emotion
- (2) Intensity

Results



While there was no statistically significant effects found for the dog priming or the control group, **the robot group performed significantly worse on the DANVA, which was surprising.**

Study 2

- 184 students (53 males, 131 females), ages ranging from 17 to 58 years ($M= 22.01$, $SD= 6.93$) were recruited from psychology courses at University of Canterbury to participate.
- New priming videos included for the dog group, robot group and control group

Design

VIDEO
~10min

16 DANVA
FACES 2

VIDEO

16 DANVA
FACES 2

VIDEO

16 DANVA
FACES 2

Rate:
(1) Emotion
(2) Intensity



Results



Similarly, there is a statistically significant difference between the robot group (worse performance) than the other groups, $p < .05$.

What might be happening?

Conclusion

- Contrary to the hypothesis, dog videos viewed before classifying the valence and intensity of emotions portrayed in still photographs of human facial expressions *did not enhance* either accurate identification of emotions or their intensity.
- When participants were primed with robot videos in both studies, accuracy of emotion identification reduced relative to dog and control videos.

Why?

- Some kind of priming mechanism...
 - Visuomotor priming – behavioural mimicry, act “robotically”
 - Inhibition of emotional processing networks (brain imaging recommended)
 - Pre-existing attitudes towards robots
- Does long term interaction with robotic agents impair emotional processing? Similar questions have been raised about long-term video game playing impairing empathy and increasing “dehumanization” (Bartholow et al., 2005; Hare & Tomasello, 2005)
 - Further research is necessary to determine if this is an acute or potentially chronic effect

Questions?