

Differences in male and female perceptions of robot social intelligence

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Introduction

- Robots are interacting more with humans in tasks such as being a companion for senior citizens, teaching children, and helping in manual labor.
- Social intelligence in robots may lead to better human-robot interaction.
- The Perceived Social Intelligence (PSI) Scales (Barchard, Lapping-Carr, Westfall, Banisetty, & Feil-Seifer, 2018) measure humans' perception of social intelligence in robots in 4 different ways.
- As social robots have been steadily deployed into society, their interactions with humans have slightly varied based on gender (Kuchenbrandt, Häring, Eichberg, Eyssel & André, 2014)
- Understanding gendered perception of robots can assist in constructing a social robot that takes into account human gender in social situations.
- The present study seeks to investigate the possible gender differences in the perceptions of social intelligence of robots.

Method

- Adult MTurk workers ($n = 295$) completed a two-hour online study in return for \$15.
- Participants ranged in age from 19 to 72 years old ($M = 37.3$, $SD = 11.5$).
- Participants watched five videos in which a robot interacted with a person and rated those robots on the 20 PSI Scales which contained four items each (Table 1).
- Ratings are based on a five-point agreement scale.
- Conducted a Between-Within analysis of Variance (ANOVA).
- Mauchly's Test of Sphericity was used to determine if sphericity was violated.

Results

- Results show that 4 of the Scales showed a significant effect, those of which were Hostile, Conceited, Rude, and Identifies Humans.
- Males rated higher on Hostile, Conceited, and Rude, while women scored higher on Identifies Humans.
- Refer to Figure 1

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Males perceive Robots as more Conceited, Rude, and Hostile. Females, perceive Robots as better at Identifying Humans

Discussion

- The reason for these results may be:
 - Behavior and/or appearance are off-putting.
 - Female personality is more endearing than men.
- Factors may facilitate research on HRI.
- Developing an understanding of the scales on the PSI scales that differed between the two genders may facilitate in creating more positive HRI
- Researchers should seek to see what behaviors promote higher ratings on the PSI scales for each gender
- Perhaps robot designs, functions, and behaviors are perceived differently depending on gender.
- Understanding the causes of these perceptions of social intelligence can improve robot behaviors, which can lead to better Human Robot Interaction.

Scale Name	Definition	Single Best Item
	The robot appears...	This robot...
Social Competence	to have strong social skills.	is socially competent.
Recognizes Human Emotions	to detect people's emotions.	recognizes human emotions.
Recognizes Human Behaviors	to detect people's behaviors.	notices when people do things.
Recognizes Human Cognitions	to detect people's thoughts and beliefs.	can figure out what people think.
Adapts to Human Emotions	to adapt its behavior appropriately based upon people's emotions.	responds appropriately to human emotion.
Adapts to Human Behaviors	to adapt its behavior appropriately based upon people's behaviors.	adapts effectively to different things people do.
Adapts to Human Cognitions	to adapt its behavior appropriately based upon people's thoughts and beliefs.	adapts its behavior based upon what people around it know.
Predicts Human Emotions	to anticipate people's emotions.	anticipates others' emotions.
Predicts Human Behaviors	to anticipate people's behavior.	anticipates people's behavior.
Predicts Human Cognitions	to anticipate people's thoughts and beliefs.	anticipates others' beliefs.
Identifies Humans	to detect human presence.	notices human presence.
Identifies Individuals	to identify and recognize people as individuals.	recognizes individual people.
Identifies Social Groups	to discern which people are with each other.	knows if someone is part of a social group.
Friendly	to enjoy social interactions.	enjoys meeting people.
Helpful	to willingly assist in tasks.	tries to be helpful.
Caring	to care about the well-being of others.	cares about others.
Trustworthy	deserving of trust.	is trustworthy.
Rude	rude and disrespectful.	is impolite.
Conceited	overly proud of itself or its abilities.	thinks it is better than everyone else.
Hostile	antagonistic and violent.	tries to hurt people.

Note: Perceived Social Intelligence Scales, Definitions, and Best Items. Adapted from Perceived Social Intelligence (PSI) Scales Test Manual by Barchard, K. A., Lapping-Carr, L., Westfall, R. S., Banisetty, S. B., & Feil-Seifer, D. (2018).

Figure 1
Significant effect between the genders' mean ratings on four of the PSI Scales

