



# Differences in Male and Female Perceptions of Robot Social Intelligence

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# Introduction

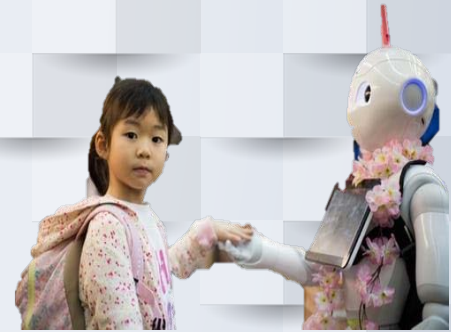


- Robots are becoming increasingly common in society:
  - Creating additional opportunities for human -robot interaction (HRI)
  - Some are positive (e.g. robot companions)
  - Some are negative (e.g. job loss)
- As robots have been steadily deployed into society, their interactions with humans have slightly varied based on gender.

**Present study:**

**Investigate possible sex -  
differences in perceptions of  
the social intelligence of  
robots.**

# What are the PSI Scales?



- PSI = Perceived Social Intelligence
- The PSI scales were designed to measure four aspects of social intelligence:
  1. overall social competence
  2. the ability to identify humans, individuals, and groups
  3. the ability to recognize, adapt to, and predict human behaviors, cognitions, and emotions
  4. the ability to present oneself as a desirable social partner

# Methods

- **Participants:**
  - 295 participants (150 Males, 145 Females)
  - Ages 19 to 72 (M = 37, SD = 11.5)
  - All were MTurk Employees
- **Study:**
  - Participants watched five videos in which a robot interacted with a person.
  - Participants rated each robot on the 80 items of the 20 PSI Scales ( See Table).
- **Data Analysis:**
  - We conducted a between -within analysis of Variance (ANOVA) to see if differences exist.
  - We then ran 20 one -way ANOVAs to determine specific differences between the ratings of the sexes.

Table 1

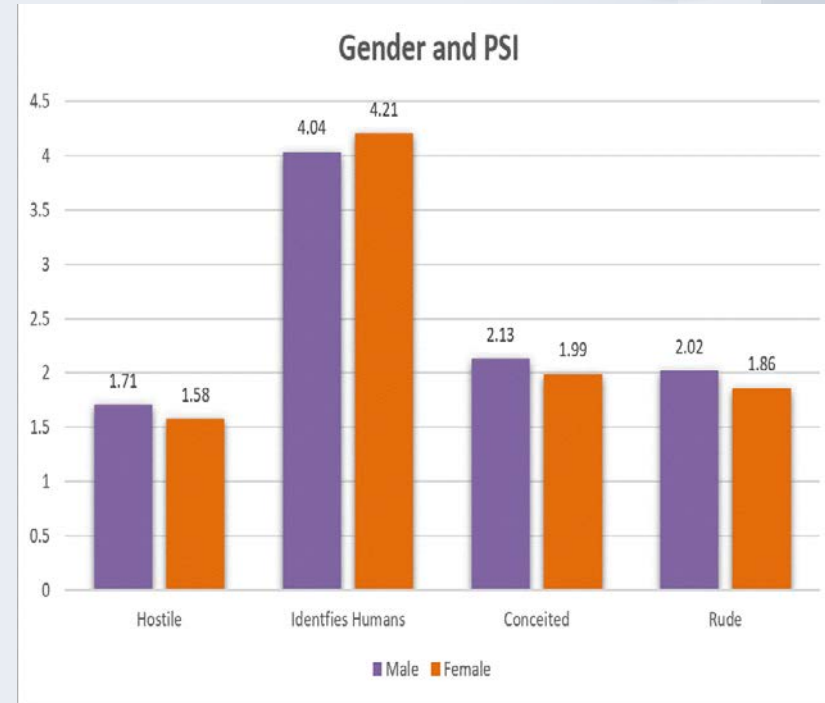
*Perceived Social Intelligence Scales, Definitions, and Best Items*

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

# Results

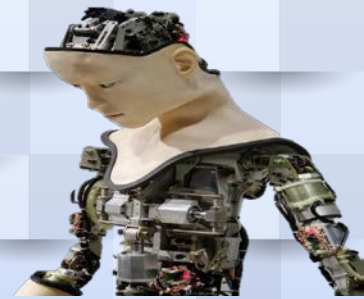
- We found a significant interaction between how males and females perceived the social intelligence of robots along the PSI scales.
- 20 one-way ANOVAs revealed a small difference on four of the PSI Scales ( See Figure ):
  - Hostile
  - Identifies Humans
  - Conceited
  - Rude
- Sex-differences in robot ratings:
  - Males rated the robots as slightly more Hostile, Conceited, and Rude.
  - Females rated the robots as slightly better at Identifying Humans.



# Discussion

- Possible reasons for these results:
  - Behavior and/or appearance are off -putting.
  - Female personality tends to be more endearing than males.
- Developing an understanding of the differences between males and females may facilitate creation of better robots.
  - May improve robot behaviors
  - This will lead to more positive human -robot interactions

# Future Research



- Roboticists should look further into :
  - Which robot social behaviors have the greatest impact on the perceived social intelligence of robots between the sexes?
    - Smiling, thumbs up, etc.
    - Do these social cues alter this difference?
  - If males and females are using robots for different tasks, different robot behaviors may be necessary for males and females to perceive them as socially intelligent.



# Questions?

