

Perceived Comfortableness of Anthropomorphized Robots in U.S and Japan

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- ▶ **Anthropomorphize = add human like qualities**
- ▶ **Various factors influence this process in non-human agents**
 - 1) **Human Nature (NH)**
 - 2) **Uniquely Human (UH)**



UH Traits vs HN Traits

- ▶ **High cognition**
- ▶ **Civility**
- ▶ **Refinement**
- ▶ **Emotionality**
- ▶ **Warmth**
- ▶ **Desire**
- ▶ **openness**

Gray, Knobe, Sheskin, & Bloom (2011)

1. Agency
2. Experience

Kamide, Eyssele, & Arai (2013)

- ▶ 1,200 participants
- ▶ Valance important for humanity and attribution for humans and robots
- ▶ Further validated scales for anthropomorphism

Cross Cultural Evidence

- ▶ Europeans prefer animal qualities, Japanese visual and tactile properties
- ▶ Japanese more concerned with negative social aspects and negative features
- ▶ Anthromorphized features linked to culture

Methods

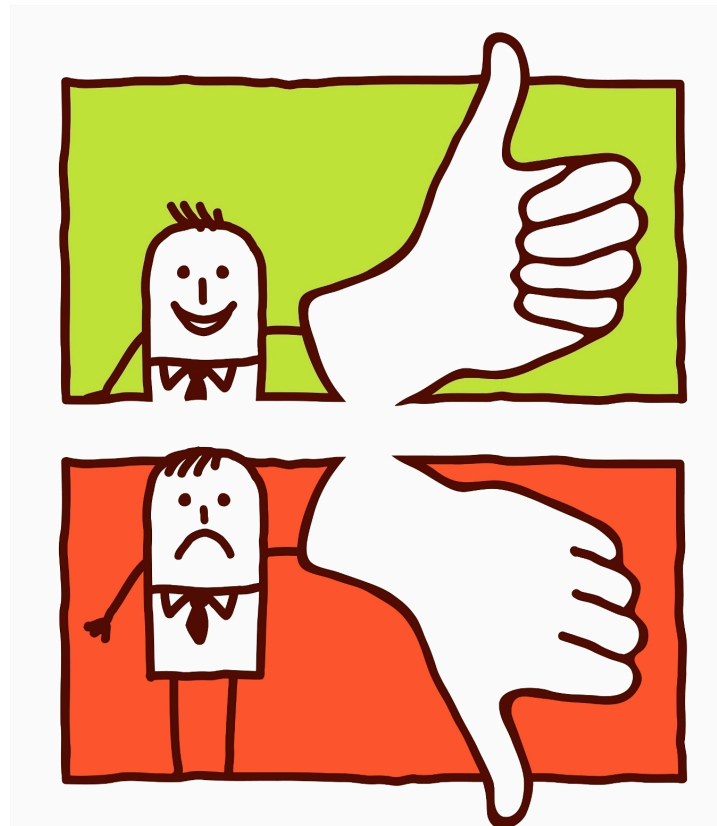
- ▶ Between subjects design

Advantage:

- ▶ Group differences

Disadvantages:

- ▶ Group differences



Participants

- ▶ 60 participants in each condition
- ▶ 180 Americans (mean age = 29.78, SD = 5.27)
- ▶ 180 Japanese (mean age = 31.46, SD = 5.89)
- ▶ 360 participants overall

Procedure and Conditions

- ▶ Six conditions based on two variables (positive/negative) X no. of anthropomorphic features (two/four/six)
- ▶ Same initial statement, differed in terms of valance and no. of features

Measurements

- ▶ Scale measuring psychological safety of humanoids.

Results

- 3 way ancova (Nationality, Pos v.s Neg, no. of features affecting comfortableness)
- Americans: more comfortable, controllable and higher performance
- Both Americans and Japanese felt more comfortable and peace of mind to robots with positive anthropomorphic features compared to negative ones
- A significant three interaction effect was found (Country-Comfort-No. Of features/positive-negative valence)

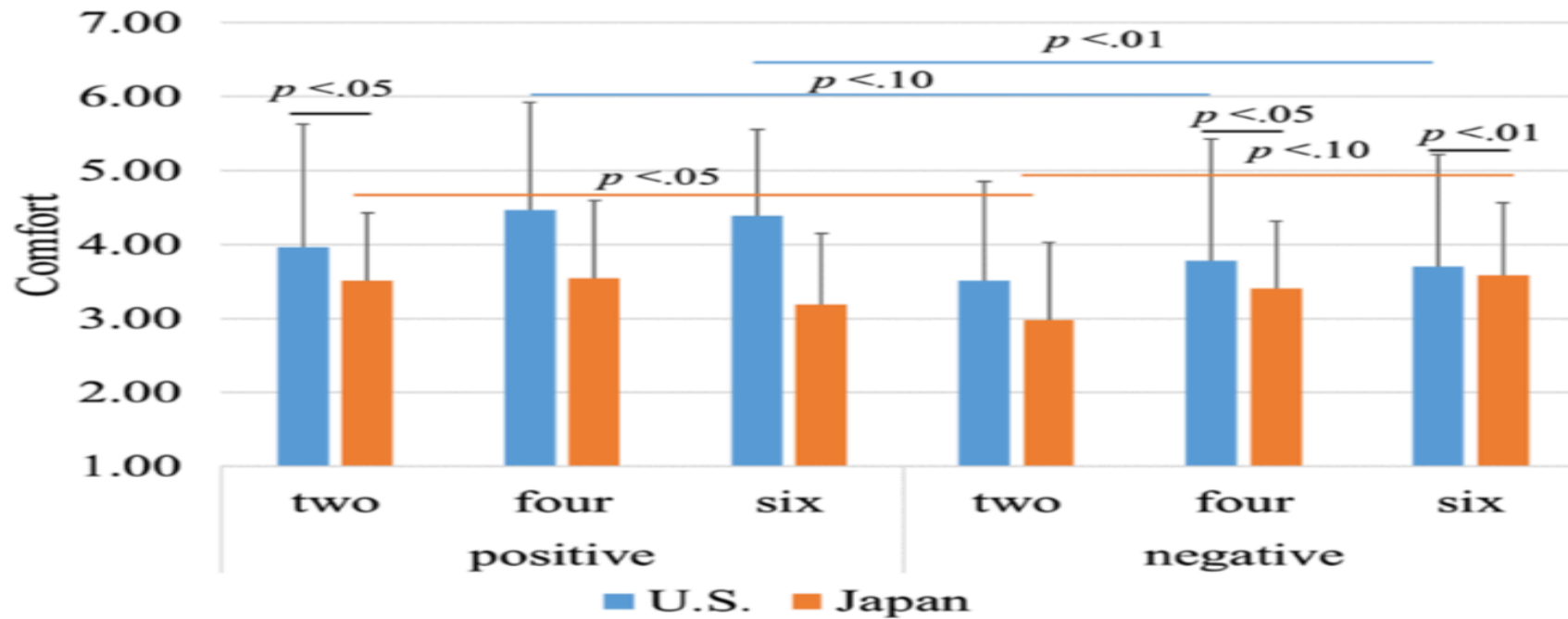


Fig. 2 The results of Bonferroni post hoc test

- Americans emphasize on the different level of comfortableness between positive and negative when the no. of features is 6. While with Japanese people, there is a high difference in comfortableness when the no. of features is 2.
- Americans also show more comfort in all stages. And not only that. But americans also show more comfort in negative features compared to positive features in Japan. Showing that americans are all-round open to robots more than Japanese people

Discussion

- ▶ The results showed that Americans associate more comfortableness (Comfort, Performance, and Controllability) to a robot with anthropomorphic features than do the Japanese.
- ▶ Bartneck (2003) Conventional robot vs. Anthropomorphic robot views
- ▶ Less features easier judgement (Japan)
- ▶ Americans only go with UH and HN while the Japanese understand negative and positive valences.
- ▶ Mori (1970) claimed that human likeness drops after a certain threshold (Uncanny Valley) because high human likeness makes people imagine dead humans
- ▶ The Uncanny Valley is a Japanese phenomenon is it makes sense that it affects them more.