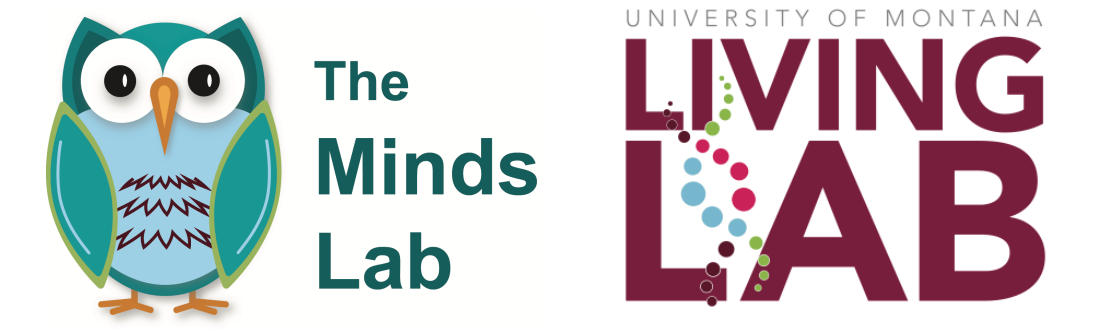# Do children trust a smart speaker when learning factual information and making moral decisions?

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Introduction

This study investigated **whether children will trust a smart speaker** when learning **factual information** and when making **moral decisions**.

Smart speakers are designed as **trustworthy sources of information**.
- **41% of families** with children 8 years and younger have at least one smart speaker (e.g., Alexa, Google Home) in their homes [1].
- Children (4-8 years) prefer learning facts from smart speakers over humans [2].
- Children may also ask smart speakers questions that have moral implications [3].

We examined children's **learning preferences** and **ratings** of **smart speaker** and **human models** who varied in their **level of confidence** (confident or hesitant) when responding to questions about factual information or moral decisions.

Method

Participants

Children **5-8 years** (*N* = 91; *N* = 128 planned)**;** *M* = 7.10 years, *SD* = 1.17; 52.7% female; 76% white

Moral: "An elephant and a giraffe at the zoo are both very sick, but there is only enough medicine for one of them. Which of these should get to take the medicine?"

Factual: "Here is a cow and a horse. Which of these does not have a toma?"

Figure 1. Human and smart speaker informants (Confident and Hesitant) with sample animal pairs in Moral and Factual conditions.
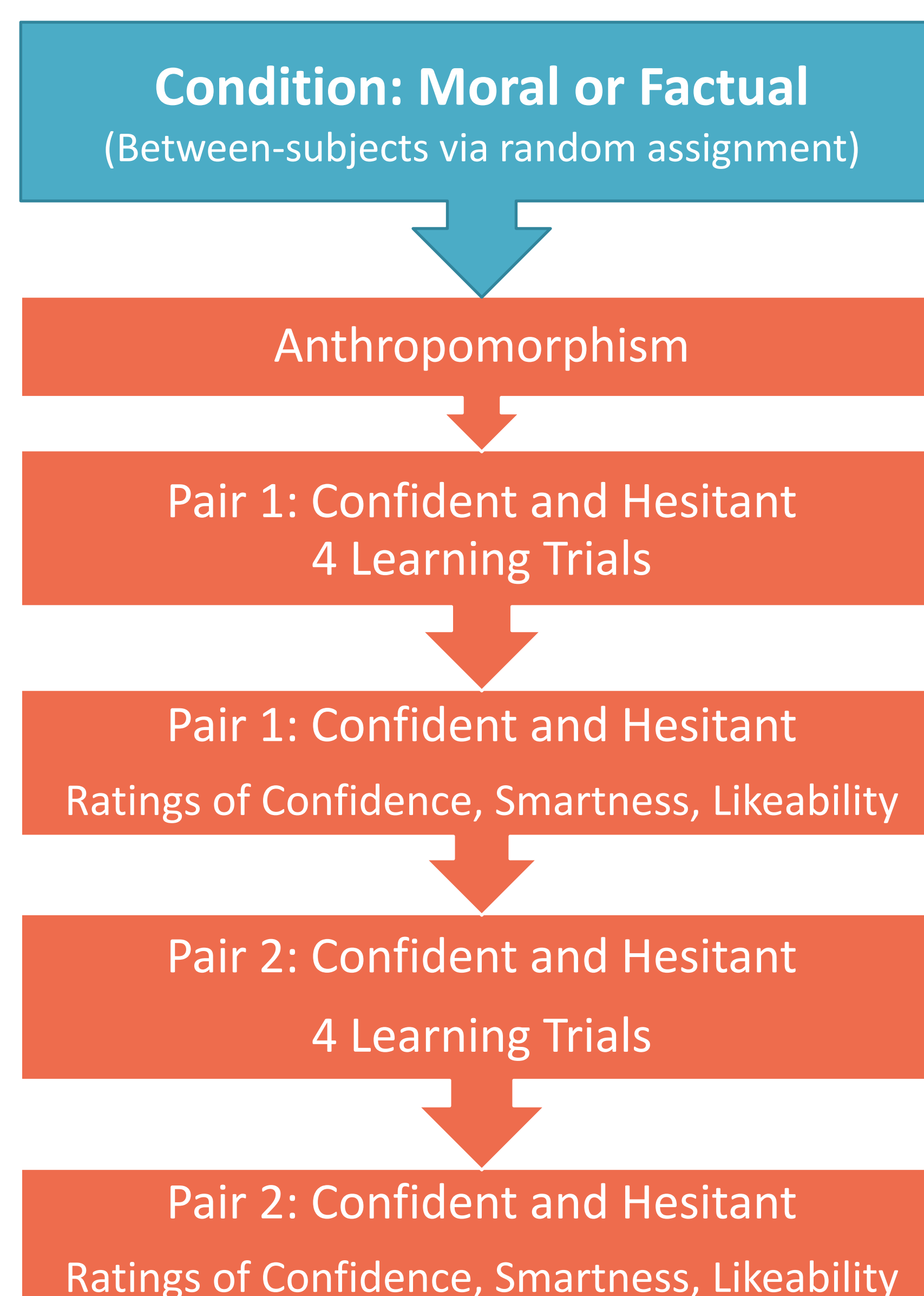
Measures & Procedure

Individual Differences in Anthropomorphism Questionnaire – Child Form (IDAQ-CF). A 12-item measure of individuals' tendency to attribute intentions, thoughts, and emotions to animals, technology, and inanimate nature [4].

Selective social learning paradigm. A pair of **human or smart speaker** informants (1 confident, 1 hesitant) answered **moral or factual questions** about animals (Figure 1). Counterbalanced order of informant pair, model role, answers, speaking order.

- *Learning preferences.* Forced-choice question for each trial (e.g., "What do you think – the cow or the horse?").

- *Informant Ratings.* Participants rated each informant in the pair on a 4-point scale (0=not at all to 3=a lot) in terms of the informant's **level of confidence**, **likeability**, and **smartness**.

The procedure was then repeated with the other informant pair (humans or smart speakers).

[1] Novel "facts" controlled for children's actual knowledge about animals.

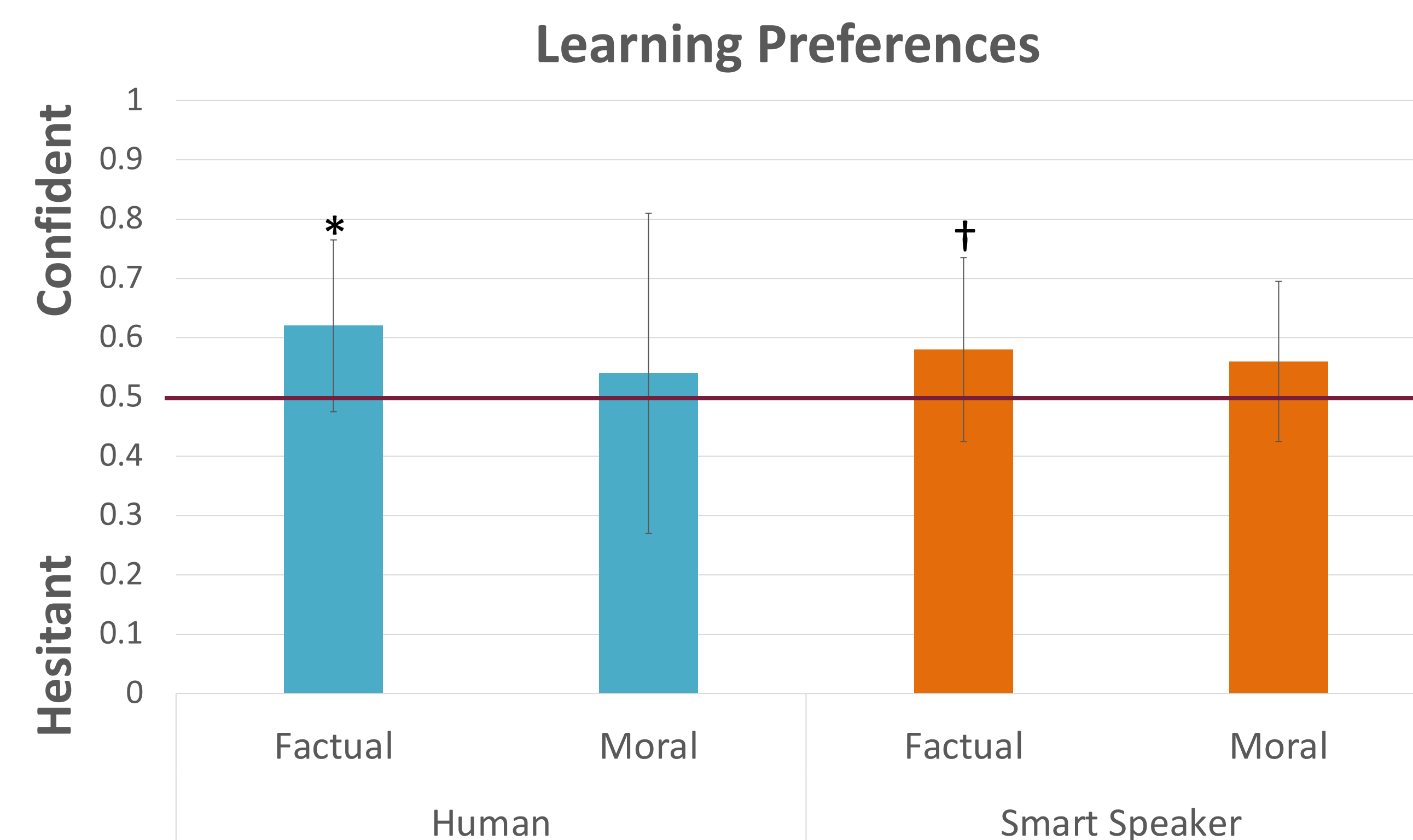**Condition: Moral or Factual**
(Between-subjects via random assignment)

↓

Anthropomorphism

↓

Pair 1: Confident and Hesitant
4 Learning Trials

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Pair 1: Confident and Hesitant
Ratings of Confidence, Smartness, Likeability

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Pair 2: Confident and Hesitant
4 Learning Trials

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Pair 2: Confident and Hesitant
Ratings of Confidence, Smartness, Likeability

Results

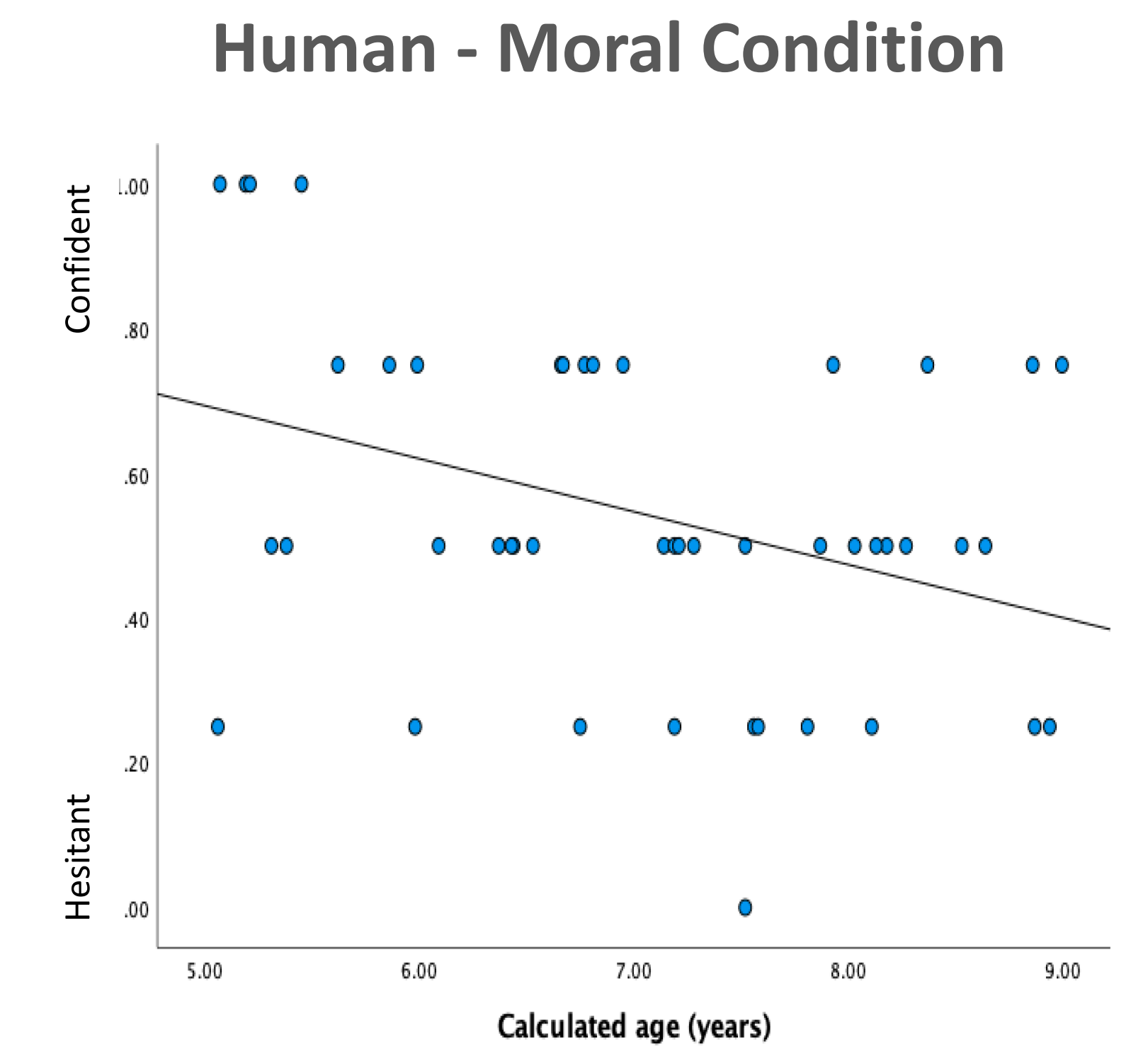**Figure 2.** Mean learning preference. * *p*=.009 (two-tailed); † *p*=.09 (two-tailed).

Figure 3. Learning preference by age, B=-.07, *p*=.016. No other age differences were found (*p*s>.42).
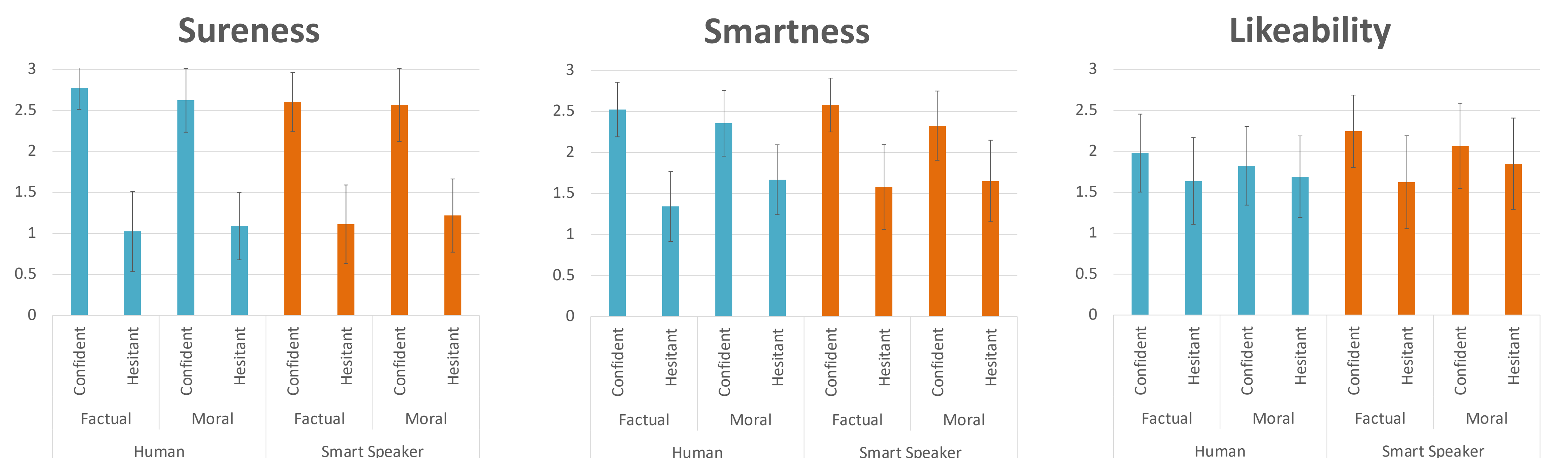

Figure 4. Mean ratings of confident and hesitant informants' sureness, smartness, and likeability.

Level of confidence main effect across ratings, *p*s<.002; condition x level of confidence interaction on smartness, **p*=.02.

Age main effect on likeability, *p*=.005; age x level of confidence interaction on sureness, *p*<.001; and age x condition interaction on smartness, *p*=.04.

Conclusions

Children preferred to learn factual information from the confident human [5,6] and trended towards the confident smart speaker.
- With age, children increasingly preferred the hesitant human when making **moral decisions**.

Children rated confident informants as more sure, smart, and likeable.
- Smartness ratings were lower for confident informant and higher for the hesitant informant in the moral condition.

Age effects were evident across informant ratings
- **Likeability** ratings were higher among younger children (5-6 years) compared to older children (7-8 years).
- **Sureness** ratings were more extreme with age (e.g., confident → more sure; hesitant → less sure).
- **Smartness** ratings were higher in moral vs. factual in 5-6 years; and lower in moral vs. factual in 7 years.

References

1. Common Sense Media, 2020, *The Common Sense Census*
2. Girouard-Hallam & Danovitch, 2022, *Developmental Psychology*
3. BBC, 2021
4. Severson & Lemm, 2016, *Journal of Cognition & Development*
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6. Birch, Severson, & Baimal, 2020, *PLOS ONE*