

More than words: Children's ability to recognize a speaker's confidence from vocal cues

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RESEARCH QUESTIONS

Its unclear *when* in development children understand the meaning of paralinguistic cues to certainty, and *how* this develops.

When do paralinguistic cues to certainty influence children's selective social learning?

What role does theory of mind play in predicting children's understanding of paralinguistics cues to certainty?

BACKGROUND

By age 2, if not before, children prefer to learn from more confident people (e.g. 1-4)

Most research has combined confidence cues, including:

- nonverbal (e.g. facial expressions and body language),
- verbal (e.g. know vs maybe), and
- paralinguistics cues (e.g. intonation, rate of speech)

2 exceptions: Some sensitivity to prosody by Age 4, but not tested in a learning context (e.g. "Where is the candy?" [5] or Who was not sure?[6])

METHOD

Participants: N = 66 (50% male)

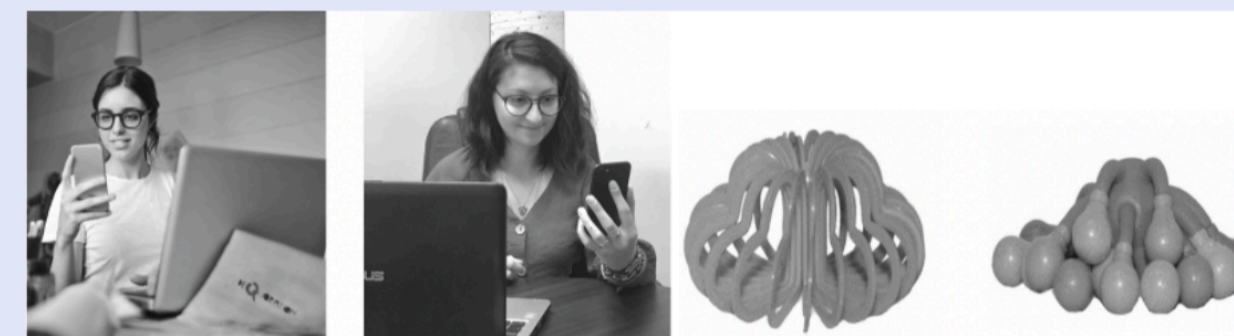
34 children ages 3-4 (M = 50 mths, SD = 6.7, 56% TOM)

32 children ages 5-6 (M = 73 mths, SD = 8.1, 66% TOM)

Procedure

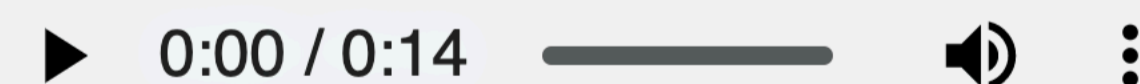
4 Endorse trials:

"I know one of these is called a [blicket] but I'm not sure which one so I asked my friends."



2 speakers (audio-only):

- 1 certain: Fast rate of speech, declining pitch:
 - e.g. "That's a rayble. Yeah, that's a rayble. "
- 1 uncertain: Slower and less fluent speech, rising pitch
 - e.g. "That's a...rayble? yeah...that's a raybe?"



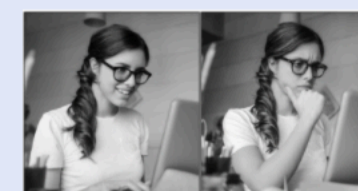
4 Ask trials:

"I also have this, but I'm not sure what it's called. Who do you think I should ask?"



6 Explicit Knowledge questions:

e.g. who was more confident? who was smarter? was she guessing? what did she look like?



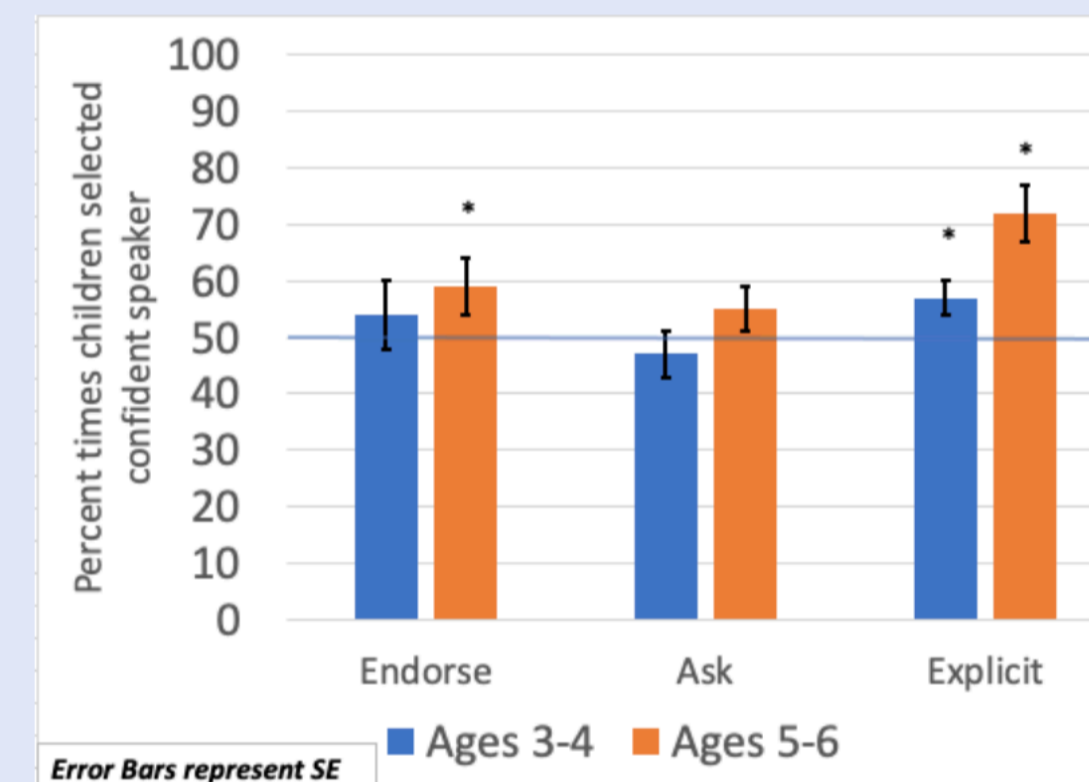
RESULTS

Directional One-sample t-tests:

Endorse: Only 5-6 year-olds preferred to endorse the certain speaker above chance, $t(31) = 1.833$, $p = .038$. Ages 3-4 showed a recency effect.

Ask: Neither age group reliably sought new info from the previously certain speaker.

Explicit Knowledge: Both groups correctly answered above chance [younger= $t(33) = 1.949$, $p = .03$ and older = $t(31) = 4.724$, $p = .000$].



Stepwise Regressions with Age (mths), TOM, order:

Endorse Trials: Neither age nor ToM accounted for significant variance. Order accounted for 14%.

Ask Trials: ToM accounted for 20% of the variation, $F(1,38) = 9.358$, $p = .004$. Age did not explain any additional variance.

Explicit: Age accounted for 12% contributed significantly, $F(1,39) = 4.981$, $p = .032$. ToM did not account for any additional variance.

CONCLUSIONS

Children's answers to the explicit questions suggest they are sensitive to paralinguistic cues of certainty.

However, selective learning based on paralinguistic cues alone was not very robust

Only by ages 5-6 did children prefer to endorse the labels of speakers who exhibit paralinguistic cues of certainty (over uncertainty)

- late compared to other cues to credibility

Understanding that a *previously* certain labeller is more likely to be a credible source for learning new words (than a previously uncertain labeller) is better explained by differences in ToM than age.

REFERENCES & NOTES

*Results in the current poster are more complete and up-to-date compared to the abstract submission

*Visit our lab for related publications and a video presentation of this poster: <https://kidlab.psych.ubc.ca>