Children re-evaluate word meanings generated by unreliable speakers

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Introduction

- Preschoolers track informants’ accuracy, preferring to learn new information from previously accurate sources (Scofield & Behrend, 2008).
- In most studies, accuracy demonstrations precede the presentation of novel information. However, children do not always know informants’ reliability status beforehand.
- Some research indicates that preschoolers can re-evaluate beliefs retrospectively (e.g., Scofield & Behrend, 2008; Schick, Tremblay & Gopnik, 2010).
- Can children re-evaluate word meanings after discovering that the informant was unreliable? Do children re-evaluate novel information provided by an inaccurate source even if no alternative is available?

Method

Participants:
Forty-eight 4-6-year-olds (19 girls; M_age= 60 m., range: 42-81 m.)

Procedure:
I. Novel Label Training: children watched a video in which an actor introduced and labeled two novel objects.
II. Familiarization: children watched a video in which the same actor presented three familiar objects one by one and labeled them. Half of the participants were assigned to the accurate speaker condition, and the other half to the inaccurate speaker condition. The accurate speaker always labeled the objects correctly, and the inaccurate labeler always mislabeled the objects.
III. Test: Children were seated across the table from the experimenter and presented with three objects – two objects from the training and one unfamiliar novel object.

- On retention trials (2), children were asked to select an object corresponding to one of the labels from the training.
- On disambiguation trials (2), they were asked to select an object corresponding to an unfamiliar label. Retention and disambiguation trials were run in alternation.

Materials:
- Familiar objects included a stuffed dog, a blue sneaker, and a gold cardboard star
- Novel objects included a green drain cover, a yellow tarpaulin clip, a metal plug wrench, and an wooden coarse hair pick

Results

- Repeated measures logistic regression analysis revealed a significant effect of condition, Wald χ²(1, N=48) = 7.45, p = .006, with children in the accurate speaker condition responding correctly on 78% of the trials, more often than children in the inaccurate speaker condition (55% of the trials).
- There was also a significant effect of trial type, Wald χ²(1, N=48) = 4.58, p = .032, with children performing better on disambiguation trials (74% correct) than on retention trials (60%).
- On retention trials, children in the accurate speaker condition chose the distractor 54% of the times they made an error (14% of all responses) and 72% of the times they made an error (39% of all responses) in the inaccurate speaker condition, suggesting that children could have inferred that the novel labels provided by the inaccurate speaker were more likely to describe unfamiliar items.

Conclusions & Future Directions

- Four-year-olds are not only capable of using accuracy information to make inferences about future information provided by a speaker but also to re-evaluate earlier information from the same speaker retrospectively.
- Children re-evaluate word meanings even when no alternative mapping is provided.
- Two questions remain open:
  1) Is the difference in performance across the trial types linked to the retrospective nature of reliability judgments?
  2) What is the mechanism underlying the effect of condition; can the difference in performance be linked to the increased cognitive demands of processing incorrect information after learning new labels?
- Two follow-up experiments investigating the open questions are currently underway.

References


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