Children's Selective Information Sharing

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Background

By age 3, children engage in selective learning (e.g., Sabbagh & Baldwin, 2001; Koenig, Clement, & Harris, 2004) – that is, they prefer some information sources over others. However, much less is known about what children do with the information once they have learned it. There is some recent evidence that young children can teach others what they have learned (e.g., Ronfard, Was, & Harris, 2016) and that they can be selective about what they teach (Baer & Friedman, 2018). Here, we examine whether children consider an informant's prior accuracy when deciding what information to share with a naive listener. Building on prior studies on selective learning, we expected children to preference information from an accurate informant when sharing words. Additionally, we extend prior work by exploring children's information sharing in STEM domains, which are more complex but for which children may have greater tolerance for variability in the accuracy of information they receive.

Method

Four- and 5-year-olds (*N*=41) were introduced to Zorg, an alien puppet who didn't "know anything about our world" (Gelman, Ware, Manczak, & Graham, 2013), and were told that they would be teaching Zorg some new things. Next, children watched 3 pairs of videos featuring an accurate informant and an inaccurate informant making contradictory statements about familiar objects or entities in one of four domains (i.e., physical science, life science, math, and words; see Table 1) and indicated which statement was correct. Children then judged the accuracy of the informants.

Figure 1: **Child Listening to Speakers in the History Phase**

Next, children watched 3 pairs of test videos where the same informants made contradictory statements about unfamiliar objects or entities (see Table 1). After each pair of videos, children were asked to share the information with Zorg (see Figure 2). This process of 3 history trials, followed by an explicit judgment, and 3 test trials was then repeated for each of the other 3 domains. Domain and informant order were counter-balanced across subjects.

Table 1: Sample List of Statements, and Images Used in the History and Test Phases

Domain	*Accurate Statement*	*Inaccurate Statement*
Physical Science		
History	Ice melts when it's hot.	Ice melts when it's cold.
Test	This floats in water.	This sinks in water.
Life Science		
History	Birds fly in the air.	Birds fly in the water.
Test	This lives in trees.	This lives in the ground.
Words		
History	This is called a ball.	This is called a book.
Test	This is called a toma.	This is called a mido.
Math		
History	Circles are round.	Triangles are round.
Test	This is smaller than a shoe.	This is bigger than a shoe.

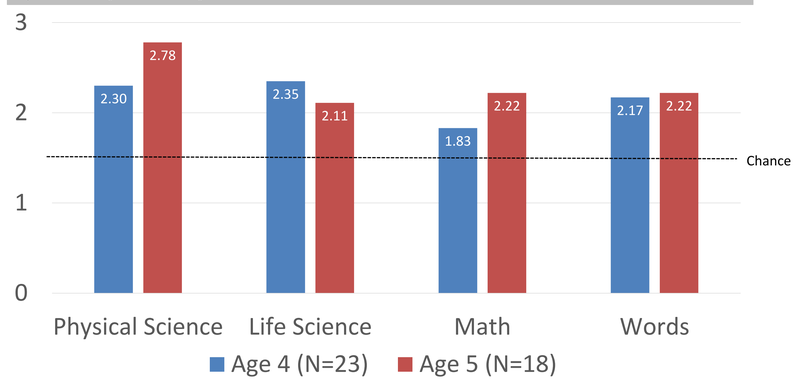
Figure 2: **Child Sharing information with Zorg**

"Zorg wants to know about this.
Tell Zorg whether this [sinks or floats]."

Results

Children correctly identified the accurate statements in 96% of the history trials (*M*=2.88/3, *SD*=.3), with no significant differences across domain or age. Similarly, children correctly identified the accurate or inaccurate informant 94% of the time, again with no significant differences across domain or age. Overall, children were more likely to share information that had been provided by the previously accurate informant (M = 2.24/3, SD = .55), $t(40)=8.63$, $p<.001$. Further analysis did reveal a main effect for domain, $F(3, 37)=3.66$, $p=.021$, but no effect for age and no interaction. The domain effect indicated that performance in the physical science domain (*M*=2.54/3) was better than performance in every other domain (see Figure 2), all *ps*<.05. Children also shared the accurate informant's response at rates significantly above chance for each domain (all *ps* < .01).

Figure 3: **Mean Trials Sharing Information from the Accurate Speaker (out of 3)**



Conclusions

When asked to share new information with a naive listener, children showed a strong preference to share information that came from an accurate informant. This was true for novel words, as expected, but impressively this was also true for novel math and science information, especially information about physical science. These findings extend prior work by showing that children remain sensitive to the accuracy of a source's information even in more complex STEM domains. Further, this sensitivity can lead children to be selective about what they share when they become the information source for others.

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