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Background

Moments after learning a new fact, 4- and 5-year-olds often claim to have previously known it (e.g., Sutherland & Cimpian, 2015; Tang, Dickey, & Samuelsen, 2017; Taylor, Esbensen, & Bennett, 1994).

For example, after learning that cats use their whiskers to judge the size of apertures or learning the meaning of the word "chartreuse," children often claimed to have known these facts previously (Taylor et al., 1994).

Aims

We examined this "knew-it-all-along" error by comparing children's monitoring of their own knowledge with children's tracking of another individual's knowledge.

Our goal was to examine two alternative possibilities:

- If this error reflects difficulty monitoring metacognitive cues, children should make the error more often for judgments about their own knowledge (self) than for judgment about another person's knowledge (other).
- If children have a more general difficulty relating knowledge to learning episodes, they may be prone to making errors for self and other.

In addition, we compared children's judgments about the time of learning a new fact with their judgments about the source of knowledge about the new fact.

Experiment 1

Participants and Procedure

Four- to 5-year-old children (N = 32; 17 boys; M age 4 years, 8 months) participated.

Children learned facts about individuals or kinds in one of two conditions (self vs other).

Self Condition: Children learned 8 new facts about animals and judged whether they had known each fact prior previously. For each fact, the experimenter showed children a card with a picture of an animal and read a fact written on the back of the card.

Following Sutherland and Cimpian (2015), children were taught 4 facts about kinds (e.g., "Chimps crack open kernels;" "Tigers catch a lot of ruminants") and 4 facts about individuals (e.g. "This seal sleeps on her dorsal side;" "This dog gets sick after eating carbamates").





This dog gets sick after eating carbamates (Individual)

> Tigers catch a lot of ruminants (Kind)

Young Children's Monitoring of the Time and Source of Learning by Self or Other Bradford H. Pillow Martha E. Arterberry Stephanie Cleary

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After learning the fact, children were asked: "Did you know about this before we read it just now? Before we looked at this picture did you know that ?").

Other Condition: Children and a puppet were taught a fact, and then the child judged whether the puppet had known it previously. There were 8 new facts about animals, including 4 individual facts and 4 kind facts, and 4 familiar filler items.



Results

A 2 x 2 ANOVA (Person x Item Type) yielded no significant effects.

- Performance in the Self and Other condition did not differ significantly, F(1,33) = .58, p > .05.
- Performance on individual and kind items did not differ significantly, F (1,33) = .17, p > .05.

Also, performance did not differ from chance (2 out of 4 correct) in either condition.



Experiment 2

The results from Experiment 1 could have been due to children's confusion about who learned what fact. In Experiment 2, in the Other condition, the Experimenter whispered the fact to the puppet, so that the children never heard the information.

Participants and Procedure

Four- and 5-year-old children (N = 32; 17 boys; M age 4 years, 5 months) participated.

Children learned facts about individuals or kinds in one of two conditions (self vs other).

Self Condition: The procedure was the same as in Experiment 1.

Other Condition: Children watched while the experimenter showed pictures to the puppet and whispered facts to the puppet. Thus, whereas the child and puppet received the same knowledge in Experiment 1, in Experiment 2 the child and puppet had contrasting perspectives, with the puppet being knowledgeable and the child remaining uninformed about the facts.

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Results

We found the same pattern or results as in Experiment 1. No significant difference between self/other condition and no difference between individual and kind items (all ps > .05). Overall, performance was at chance.



Experiment 3

Experiment 3 compared time of learning judgments with source judgments.

- If children have general difficulty monitoring or remembering learning events, they might make errors for both time and source judgments.
- If children's difficulty is specific to temporal information, they might perform relatively well for source judgments but not time judgments.

Participants and Procedure

Four- and 5-year-old children participated (N = 32; 16 boys; M age 5 years).

Self Condition: Children learned a fact by either seeing a picture or being told something about an item in a picture (4 see trials and 4 tell trials). Children were asked both time and source (seeing vs. being told) questions.

Time questions: Same as in Experiments 1 & 2.

Source questions:

See: An addax is a kind of animal. Where does it live? (show picture of desert)

How do you know where the addax lives? Did you see or did I tell you?

Tell: A geode is a kind of rock. What color is it on the inside? The geode is purple inside.

How do you know what color the geode is on the inside? Did I tell you or did you see it?

Other condition: Children observed a puppet being shown or told a new fact. Children did not see or hear the facts themselves.









The geode is purple





Results

Performance again did not differ from chance for time questions in the Self or Other conditions, but children performed above chance on source questions in both conditions. Thus, children showed some ability to monitor how learning occurred, but had difficulty judging when learning occurred.



Conclusions

Across the three experiments, children's judgments about when novel facts had been learned did not differ in accuracy for the Self and Other conditions. Thus, difficulty with time of learning judgments appears to be general across both first- and third-person perspectives. Furthermore, when asked to judge how long they had known a particular fact, children appeared to guess, randomly choosing one of the two options. Children's chance level of performance indicates general uncertainty about when facts were learned rather than a bias to report that novel facts had been known all along.

However, in Experiment 3 when asked to identify the source of newly learned knowledge, children performed above chance. Thus, children appear to have some ability to remember and monitor learning episodes shortly after they occur. The contrast between performance on time and source questions suggests that children may not fully integrate temporal information with source cues and semantic knowledge in their memory for learning episodes.

Future Directions

A study currently in progress assesses children's performance for time judgments across two conditions: (a) Knowledge: children are asked to judge when new facts were learned, and (b) Event: children are asked to judge when they saw new information.

- If children have specific difficulty judging when knowledge was obtained, but have relatively strong event memory, then they may perform well when asked about the timing of events such as seeing or being told about something, but they make errors when asked to judge when information was learned.
- If temporal judgments present general difficulty, children may make errors for both knowledge and event judgments.

References

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