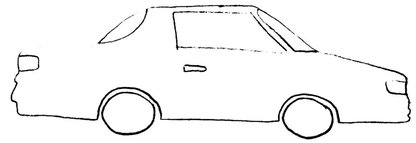
PRESCHOOL CHILDREN REASON ABOUT ARTISTS' MENTAL STATES WHEN NAMING DRAWINGS



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ABSTRACT

This research investigated how 3- to 5-year-old children understand drawings based on mental states, namely knowledge and belief. Results showed that most 3-year-olds understood an artist's knowledge state. Children aged between four and five years showed understanding of false belief. The drawing did not facilitate children's understanding of the artist's mental state, as children were equally successful when naming a drawing or answering a question about the artist's mental state. These results imply that children are able to understand different mental states simultaneously.

THEORETICAL BACKGROUND

Theory of mind encompasses many mental states – we focused on knowledge state and belief. While understanding **knowledge** means retaining specific information, **belief** represents having a subjective experience about that situation or a behaviour. Children develop knowledge state understanding between 3 and 5 years of age (e.g. Doherty, 2005) and false belief between 4 and 5 years of age (Deneault, 2015; Doherty, 2009; Wimmer & Perner, 1983) independent of the used task (location change task or unexpected contents task).

However, there are only few researchers (e.g. Zaitchik, 1990) that used a picture or a drawing to evaluate mental state understanding in children. Considering that a person's intent is leading the drawing making process, naming a drawing shows recognition of whether children understand what the artist intended to draw. That could reflect their understanding of the artist's mental state, which might be more easily expressed with an everyday drawing compared to answering a question.

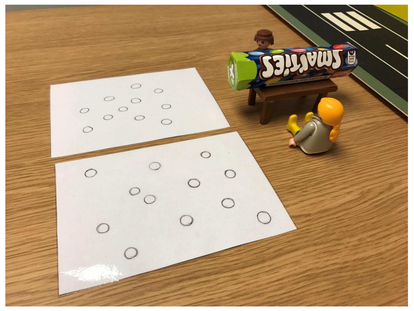
PARTICIPANTS

CHILDREN	44	**GIRLS**	47.70%
		BOYS	52.30%
Average age	4 years, 7 months		
Age range	**3;0 to 5;11**		
Testing location			
Kent Child Development unit		55.60%	
Blean Primary School		44.40%	

METHOD

Children followed three very short stories – figurines produced some drawings in two of them (see Cars task and Smarties task). We asked children what happened in the story and specifically what the figurines drew.

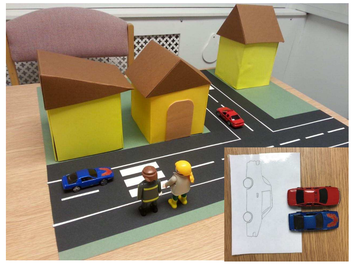
SMARTIES TASK



- One figurine saw that pennies were inside the Smarties box while the other did not.
- Both figurines drew circles, and children were asked what the drawings depicted.
- Children were asked about the beliefs of each figurine ("what does Ben think is inside the box?").
- This task measured children's **understanding of belief.**

CARS TASK

- There were two cars – one figurine saw one car (*ignorant*), and the other figurine saw both cars (*knowledgeable*).
- One figurine drew a car and children were asked, "which car did s/he draw".
- Answering the question about which car has the figurine seen showed **understanding of the knowledge state.**



CRAYONS BOX TASK

- Standard false belief task ("what will mum think is inside the box?").
- This task measured **reasoning about false belief.**

RESULTS AND DISCUSSION

KNOWLEDGE STATE UNDERSTANDING → 75% of 3-year-olds understood the figurine's knowledge state when being asked orally.

FALSE AND TRUE BELIEF UNDERSTANDING → There was a difference between children's performance on true and false belief questions. 81% of children answered true belief questions correctly, while only 50% of children answered false belief questions correctly. These were mostly (63%) 5-year-olds.

NAMING AMBIGUOUS DRAWING → The ambiguous drawing did not facilitate children's understanding of the artist's mental state, as children were equally successful when naming a drawing or answering a question about the artist's mental state. These results imply that children are able to understand different mental states simultaneously.

MENTAL STATES, MENTAL REPRESENTATIONS AND REPRESENTATIONS

Regarding the fact that some children had difficulties with naming the drawings (*bubbles, peas* …) and that false belief understanding showed to be understood later than other mental states, we account that to the ability to understand mental representations. As false belief understanding demands representation of something that is not a reflection of reality, it requires mental representation. Similarly, ambiguous drawings require the ability to metarepresent, which seems to be more difficult for children than to understand others mental states.

The children had greater difficulties with understanding mental representations than understanding mental states of others, which corresponds with theory of mind as a domain-general capacity (Leekam etc., 2008). Children develop the understanding of mental representations later, along with understanding of ambiguous drawings and false belief.

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