Age-related differences in metacognitive control in toddlerhood: A pilot study

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INTRODUCTION

Over the past decade, evidence has been provided that metacognition – processes whereby people monitor and regulate their mental operations – emerges at an early stage of children's development (e.g., Balcomb & Gerken, 2008; Geurten & Bastin, 2019; Goupil & Kouider, 2016). But, to date, few studies have examined age-related differences in these early skills.

Previous studies relied on different paradigms depending on the children's age to capture metacognitive skills, making it difficult to compare studies to determine the developmental path of metacognition in young children.

AIM OF THE STUDY

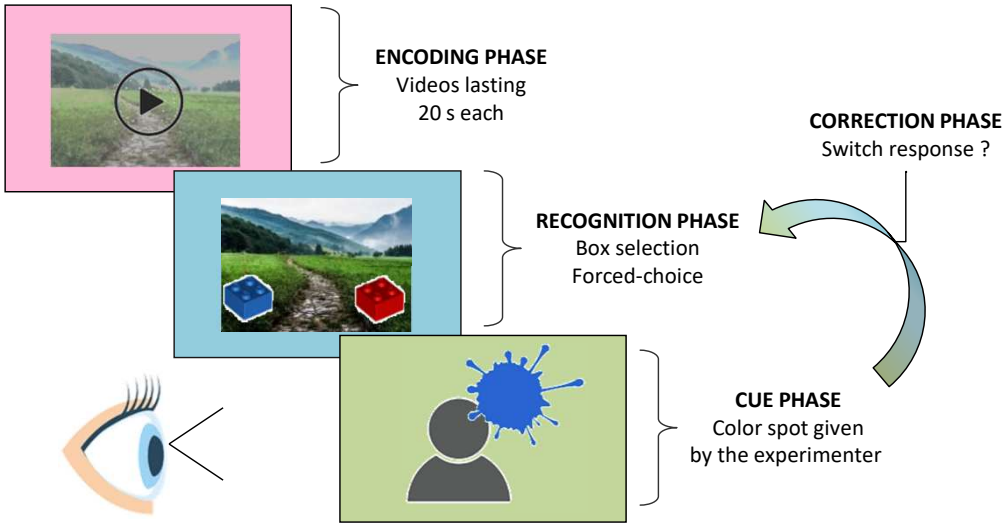
To document **changes** in **metacognitive** processes over the course of **toddlerhood** (24- to 36-months) using a paradigm adapted to both the youngest and the oldest children of our sample.

METHOD

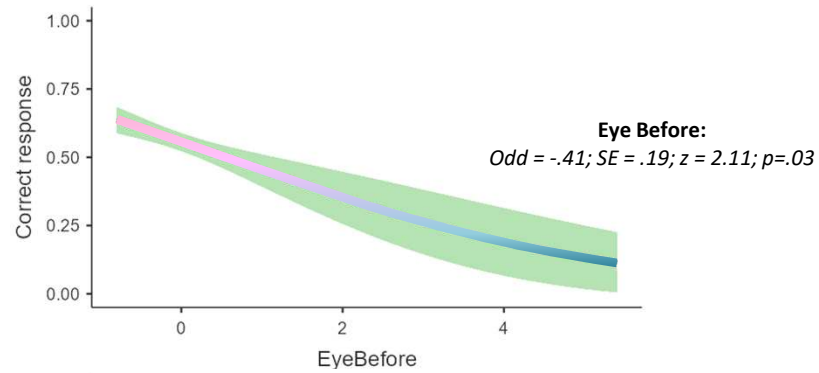
54 participants in 3 age groups:
24-month-old (n=16)
30-month-old (n=16)
36-month-old (n=16)

Number of stimuli presented:
24 months = 8 videos
30 months = 9 videos
36 months = 11 videos

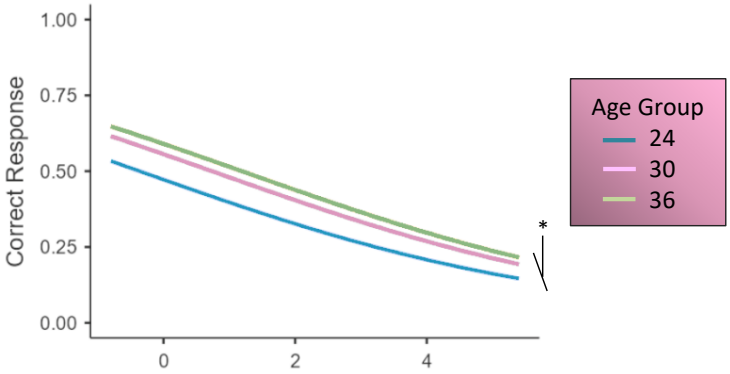
Number of correct decisions
Number of glances toward the experimenter:
BEFORE the cue presentation
AFTER the cue presentation



RESULTS



Eye Before:
Odd = -.41; SE = .19; z = 2.11; p=.03



DISCUSSION

- Children in all age groups were able to discriminate between a correct and an incorrect decision:
  - ➔ BEFORE the cue, even children as young as 24-months look at the experimenter more often after an incorrect decision than after a correct decision
    - → All children are metacognitive
- The ability to discriminate correct and incorrect decision increased with age:
  - ➔ 24-months < 30-months = 36-months
    - → Developmental changes
- Such findings confirm the early emergence of metacognitive skills in toddlerhood and contribute to our understanding of the nature of the metacognitive change occurring at such a young age.

References:

Balcomb, F. K., & Gerken, L. (2008). Three-year-old children can access their own memory to guide responses on a visual matching task. *Developmental Science*, *11*, 750–760.

Geurten, M., & Bastin, C. (2019). Behaviors speak louder than explicit reports: Implicit metacognition in 2.5-year-old children. *Developmental Science*, *22*(2), Article e12742.

Goupil, L., & Kouider, S. (2016). Behavioral and neural indices of metacognitive sensitivity in preverbal infants. *Current Biology*, *26*, 3038– 3045.

SCAN ME

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