

# When children stop trusting what they have perceived

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## INTRODUCTION

It is commonly hypothesized that the knowledge underlying metamemory heuristics develops on the basis of day-to-day experience (Olds & Westerman, 2012). However, to our knowledge, no previous study has examined the processes that explain the development of these metacognitive rules. This study is an attempt to fill this gap.

Recently, several studies have demonstrated that metacognitive heuristics are more malleable and sensitive to empirical training than was previously thought (Unkelbach, 2006). Using the easily learned, easily remembered (ELER) heuristic, children's ability to learn a new metacognitive rule through an implicit process involving the detection of environmental regularities is investigated.

## AIM OF THE STUDY

1. to determine whether young children are able to employ the ELER heuristic
2. to examine the impact of implicit training on the application of the ELER heuristic
3. to explore the influence of higher cognitive functions on their use of the ELER heuristic

## METHOD

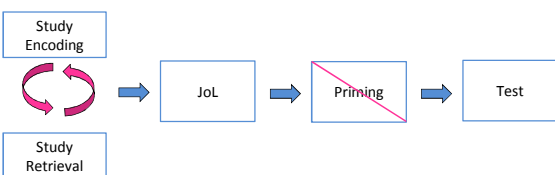
### PARTICIPANTS

60 Belgian French-speaking children (30 female) from 3 age-groups (4-5, 6-7, and 8-9) equal in terms of :

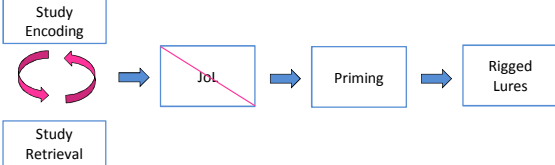
- Intelligence (Matrix Task)
- Parental education level

### PROCEDURE

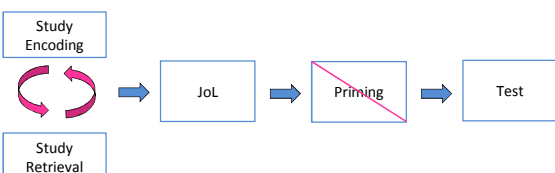
#### • Pretest



#### • Trainings



#### • Posttest



## RESULTS

### PRETEST

Predicted recall of the easy pairs was higher than predicted recall of the hard pairs for the whole sample ( $p < .01$ ,  $\eta_p^2 = .36$ ) and for 4-year-olds ( $p < .01$ ,  $\eta_p^2 = .41$ ), 6-year-olds ( $p < .01$ ,  $\eta_p^2 = .36$ ), and for 8-year-olds ( $p < .01$ ,  $\eta_p^2 = .33$ )

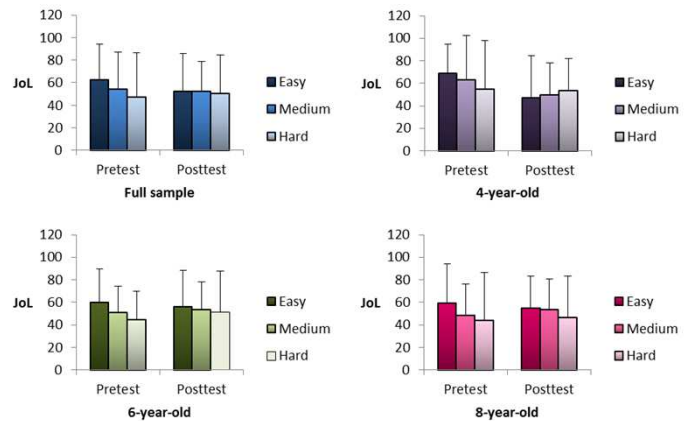


Fig. 1. Mean of JOLs for the whole sample and for each age group in the pretest and posttest phases as a function of pairs' ease of learning. Error bars show 95% confidence intervals.

### POSTEST

The comparison of the difference between mean JOLs for easy and hard pairs revealed a decrease in the use of the ELER heuristic in 4-year-olds ( $p < .01$ ,  $\eta_p^2 = .40$ ) and 6-year-olds ( $p < .05$ ,  $\eta_p^2 = .20$ ), but not in 8-year-olds ( $p = .16$ ,  $\eta_p^2 = .10$ ).

### EXECUTIVE FUNCTIONS

In the 8-year-old group, the children with the best monitoring abilities were also the ones who most resisted the experimental manipulation ( $\beta = -.55$ ,  $p < .05$ ,  $R^2 = .23$ ).

None of the executive variables contributed to explaining the JOLs of 4-year-olds and 6-year-olds at posttest.

## DISCUSSION

- This study has highlighted that the ELER heuristic is learned very early in childhood
- Some evidences are provided that the development of the ELER metacognitive rule occurs through an implicit process involving the detection of environmental regularities
- Results also support Miller and Lloyd's hypothesis that, once children have reached adequate maturity, high level cognitive functions may regulate the use of the ELER heuristics
- Altogether, these findings seem to shed a consistent light on the experiential explanation of the development of metacognitive heuristics

### References:

- Miller, J. K., & Lloyd, M. E. (2011). The Development of the Fluency Heuristic in Childhood: More Questions than Answers. In P. A. Higham & J. P. Leboe (Eds.), *Constructions of Remembering and Metacognition* (pp. 28-39). Basingstoke: Palgrave Macmillan.
- Unkelbach, C. (2006). The Learned Interpretation of Cognitive Fluency. *Psychological Science*, 17, 339-345.
- Olds, J. M., & Westerman, D. L. (2012). Can fluency be interpreted as novelty? Retraining the interpretation of fluency in recognition memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 38, 653-664.