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Brief Report

Deficient cognitive control fuels children's exuberant false allegations



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ABSTRACT

In eyewitness studies as in actual investigations, a minority of children generate numerous false (and sometimes incredulous) allegations. To explore the characteristics of these children, we reinterviewed and administered a battery of tasks to 61 children (ages 4–9 years) who had previously participated in an eyewitness study where a man broke a “germ rule” twice when he tried to touch them. Performance on utilization, response conflict (Luria tapping), and theory of mind tasks predicted the number of false reports of touching (with age and time since the event controlled) and correctly classified 90.16% of the children as typical witnesses or exuberant (more than 3) false reporters. Results of a factor analysis pointed to a common process underlying performance on these tasks that accounted for 49% of the variability in false reports. Relations between task performance and testimony confirmed that the mechanisms underlying occasional intrusions are different from those that drive persistent confabulation and that deficient cognitive control fuels young children's exuberant false reports.

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Introduction

Since the widely publicized day-care abuse cases during the 1980s and early 1990s, psychologists have been working to identify the environmental and individual difference factors associated with testimonial accuracy and suggestibility. Although young children are not always prone to memory

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errors, the quality of their event reports typically declines more than that of older witnesses in the face of misinformation and challenging interviews (e.g., when questions probe for specific details or are misleading; [Principe, Greenhoot, & Ceci, in press](#)). In fact, despite a wealth of information on relations between various cognitive and social variables and performance on eyewitness tasks, age has long been the best child-level predictor of testimonial accuracy among children without major cognitive impairments (see [Bruck & Melnyk, 2004](#), for a review).

The current study explored predictors of false allegations of touching among children who returned for testing after participating in a new eyewitness paradigm. “Mr. Science—Germ Detective!” was inspired by evidence that children acquire the concept of contamination early in development along with a corresponding sense of disgust for contaminated objects and an understanding of contagion (the realization that germs can cause illness; e.g., [Stevenson, Oaten, Case, Repacholi, & Wagland, 2010](#)). Capitalizing on this knowledge, the new paradigm converts innocuous touches into inappropriate and memorable touches by leading children to perceive touching as potentially contaminating.

We became intrigued about the characteristics of children who make false reports after assistants commented on the frequency of errors in an initial wave of data collection (e.g., 48% of 4-year-olds made a false report) and the diverse maturity levels of same-aged children (as evidenced by waiting room behavior with toys and the assistants). Because frontal lobe immaturity likely explains why preschool children sometimes have high error rates in eyewitness tasks ([Schacter, Kagan, & Leichtman, 1995](#)), we invited some families to return so that their children could complete another interview about the Mr. Science experience and a battery of tasks that broadly reflect cognitive control/executive functioning.

From the developmental literature, we selected three executive function tasks (two versions of the Luria tapping task and the day–night Stroop task) and two theory of mind tasks. Sufficient executive skills are a prerequisite for mature performance on false belief theory of mind tasks ([Benson, Sabbagh, Carlson, & Zelazo, 2013](#)), and response conflict tasks such as Luria tapping and Stroop, along with theory of mind tasks, sometimes—but not always—predict eyewitness accuracy and suggestibility ([Bruck & Melnyk, 2004](#); [Schaaf, Alexander, & Goodman, 2008](#)).

We also were informed by evidence from the neuropsychological literature that frontal lobe compromise can produce a pattern of behavior in which individuals react to external stimuli in ways that are not appropriate for the situation. In adults, this environmental dependency behavior is captured by recording how often patients spontaneously imitate meaningless gestures (implicit imitation) and manipulate objects despite a rule dictating that target objects should not be touched (i.e., utilization behavior reflecting damage to the right orbitofrontal cortex; [Bresnard et al., 2011](#)). If mirrored in the immature brain, these tendencies could influence the accuracy of children’s responses to interview props. In addition, other behaviors associated with orbitofrontal damage have implications for eyewitness performance, including poor self-monitoring in social situations (e.g., inappropriate comments despite the ability to verbalize social norms; [Beer, John, Scabini, & Knight, 2006](#)) and spontaneous confabulations reflecting memory intrusions that do not pertain to current reality ([Schneider, 2003](#); [Wahlen, Nahum, Gabriel, & Schneider, 2011](#)).

We proposed that individual differences in environmental dependency behavior would predict eyewitness accuracy because false reports sometimes emerge when children respond thoughtlessly to immediate stimuli (e.g., by erroneously saying “yes” to yes/no questions, by pointing to or handling interview aids inappropriately) and then invent stories (confabulate) when asked to describe the events. To investigate relationships between environmental dependency behavior and eyewitness accuracy for children as a whole, as well as for those who are especially prone to errors, we added two tasks to our battery that elicit this behavior: aged-down versions of the implicit imitation and utilization tasks ([Bresnard et al., 2011](#)).

Method

Participants

Children completed the tasks at two U.S. research sites (a midwestern town and a New York City suburb). Invitations to participate were extended to a subset of the 252 families who had completed

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