



## The effects of verbal labels and vocabulary skill on memory and suggestibility

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### ABSTRACT

The current study investigated the effectiveness of the verbal labels procedure (D. A. Brown & M. E. Pipe, 2003) to improve preschool children's responses to direct open-ended and misleading questions. Additionally, children's vocabulary skill was considered. Eighty-seven preschool children from diverse backgrounds were interviewed about a unique event in either a standard interview or a verbal labels interview. Children receiving the verbal labels interview produced more free recall information. However, this also included more error statements. Children in the verbal labels interview also showed better performance in answering direct open-ended questions. Importantly, the verbal labels procedure improved the performance of children in the low language group on misleading questions, erasing language effects. The results suggest that the verbal labels procedure may be a useful tool to improve young children's performance in memory interview, although future research indentifying factors that may influence the production of error statements is warranted.

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### Introduction

When accusations of child maltreatment arise, it is paramount that forensic investigators obtain the most complete and accurate accounts from potential child victims. Over the past three decades a large body of literature has amassed outlining the effects of interviewing techniques on the accuracy of children's reports (see Ceci & Bruck, 1993, 1995, 2006; Lamb, Sternberg, Orbach, Hershkowitz, & Esplin, 1999 for reviews). Children appear to be less accurate when answering directed questions that ask for specific information than open-ended, free recall questions (e.g., Kulkofsky, Wang, & Ceci, 2008; Ornstein et al., 1998; Peterson, Dowden, & Tobin, 1999; Poole & Lindsay, 1995; Poole & White, 1991). Particularly problematic are leading questions, where the interviewer presupposes certain information happened (e.g., "He took your shirt off, didn't he?") because interviewers generally do not know what actually happened. Thus, leading questions may actually be misleading. Research indicates that young children have the lowest accuracy rates when asked misleading questions compared with other question types (e.g., Ceci, Ross, & Toglia, 1987; Poole & Lindsay, 1995; Poole & White, 1991; 1993; Waterman, Blades, & Spencer, 2004). Because of children's difficulty with direct questions, including misleading questions, guidelines for interviewing child witnesses suggest that interviewers rely on free recall prompts as much as possible (e.g., American Professional Society on the Abuse of Children, 1990; Memorandum of good practice, 1992). However, research on actual forensic interviews has shown that interviewers almost always follow-up children's free

recall narratives with more direct questions (Lamb et al., 1996; Orbach et al., 2000; Sternberg, Lamb, Esplin, & Baradaran, 1999; Sternberg et al., 1997), including leading questions (Ceci, Kulkofsky, Klemfuss, Sweeney, & Bruck, 2007). As such, identifying means to improve children's responses to these questions is of critical concern.

One technique that has been shown to improve children's free recall in memory interviews is the narrative elaboration technique (Brown & Pipe, 2003a; 2003b; Dorado & Saywitz, 2001; Saywitz & Snyder, 1996; Saywitz, Snyder, & Lamphear, 1996). The narrative elaboration technique is a training procedure that teaches children about the elements of complete accounts of past events, trains them on visual cue cards indicating story grammar categories (actions, people, settings, etc.), and gives them practice in producing high-quality narratives. The technique has been shown to increase the amount of information children provide, however, the extensive training program makes it less feasible for actual forensic interviews. Brown and Pipe (2003a) modified the narrative elaboration technique with a *verbal labels procedure*. In this interview, children are first asked to recall a previous event. After the child indicates that he or she can recall nothing further, he or she is asked in an open-ended, non-leading manner to provide information about each of the story grammar categories (e.g., "Can you tell me more about when this happened and where you were?"). Brown and Pipe (2003a) showed that the verbal labels procedure was just as effective as the narrative elaboration procedure in improving children's free recall. Importantly, the verbal labels procedure increased the amount of correct information reported, without a subsequent increase in the amount of incorrect information.

Increasing the amount of information children provide during free recall is important in that it may reduce the need for interviewers to follow-up with subsequent direct questions. Further, and perhaps

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more importantly, it is possible that the verbal labels procedure can improve children's ability to answer subsequent direct questions when they are asked. This is because by asking the additional open-ended follow-up questions, the interview forces the child to continue to rehearse the original event beyond what he or she may have done so originally, without providing any potentially misleading information that may impair the child's later recall. It is well known that verbal rehearsal is effective in improving retention and recall (Bebko, 1979; Daehler, Horowitz, Wynns, & Flavell, 1969; Flavell, Beach, & Chinsky, 1966; Klemfuss & Ceci, 2009; Ornstein, Haden, & Elischberger, 2006). More recent evidence suggests that elaborate verbal rehearsal may help to strengthen resistance to suggestive questions. Kulkofsky and Klemfuss (2008) found that children who naturally produced longer and more elaborate free recall narratives of an event in a repeated interview were more resistant to later suggestive questions. Interestingly, Kulkofsky and Klemfuss (2008) also found that producing an elaborate narrative reduced suggestibility even when the misleading questions immediately followed the free recall, suggesting that there may be an immediate mnemonic benefit for elaborate rehearsal.

Although Brown and Pipe (2003a) provided strong evidence that the verbal labels procedure is effective in increasing the amount of children's free recall, their research did not investigate whether the verbal labels procedure would improve children's ability to correctly answer subsequent direct questions. However, if improved verbal rehearsal does indeed improve the accuracy of responses to subsequent questions, then the verbal labels procedure should improve responses to direct questions in addition to improving free recall. Thus, the goal of the present research is to build upon Brown and Pipe's (2003a) work by examining the effectiveness of the verbal labels procedure in improving children's ability to respond to direct open-ended (i.e., questions that ask for specific information such as "What color shirt did he have on?") and misleading questions.

Further, the present study seeks to investigate whether the verbal labels procedure is particularly effective ameliorating the difficulty children with lower language skills have answering direct questions, including both open-ended questions and misleading questions. A number of studies has indicated that children with less developed language ability, measured in a variety of ways, are less accurate when answering such questions (Burgwyn-Bales, Baker-Ward, Gordon, & Ornstein, 2001; Chae & Ceci, 2005; Clarke-Stewart, Malloy, & Allhusen, 2004; Danielsdottir, Sigurdottir, Einarsdottir, & Haraldsson, 1993; Kulkofsky & Klemfuss, 2008; McFarlane, Powell, & Dudgeon, 2002; Newcombe & Dour, 2001; Roebers & Schneider, 2001; 2005; Young, Powell, & Dudgeon, 2003). There are multiple mechanisms that may explain this observed relation between language and performance on memory interviews. For one, it is often presumed that children with more advanced language skills are better able to understand the interview context and the interviewer's questions (Clarke-Stewart et al., 2004). Because these children comprehend the questions and what is being asked of them better, they are then able to more readily produce correct responses, particularly when the question includes some misinformation. As such, utilizing questioning that involves simple, child-friendly language can help to improve performance (Lamb & Brown, 2006; Shapiro & Purdy, 2005). Additionally, it is possible that children with more advanced language skills are better able to verbally rehearse the event, and this improved verbal rehearsal leads to better memory performance. If it is indeed the case that producing longer and more elaborate narratives in free recall can improve accuracy on direct questions, then any interview technique that helps to improve the verbal recall of children with lower language ability should result in an improvement in performance on memory tasks.

A secondary goal of the present study is to replicate Brown and Pipe's (2003a) findings that the verbal labels procedure is effective in increasing the amount of free recall information that children are able

to provide with a younger sample of children. Although the full narrative elaboration procedure has been shown to be effective for preschool-aged children (Dorado & Saywitz, 2001), Brown and Pipe's (2003a) investigation of the verbal labels technique only included 6- to 8-year-old children.

In the present study, preschool children witnessed a unique event in their classrooms, a visit from "Jenny Jungle." To ensure that children with a full range of language skills would be included, children were sampled from a variety of socio-economic backgrounds, as socio-economic status is associated with children linguistic and intellectual functioning (Patterson, Kupersmidt, & Vaden, 1990; Vernon-Feagans, Hammer, Miccia, & Manlove, 2002; Walker, Greenwood, Hart, & Carta, 1994). Approximately 1 week following Jenny Jungle's visit, children were interviewed. All children were given a free recall prompt where they were asked to report everything that they remembered about Jenny Jungle's visit. Children were also subsequently given a series of direct open-ended, leading, and misleading questions about Jenny Jungle's visit. However, children randomly assigned to the verbal labels condition received a series of additional seven prompts prior to the direct questions. Children's free recall responses (including responses to the follow-up prompts in the verbal labels condition) were coded for the amount of accurate and inaccurate information reported. In addition, given that a high-quality narrative of an event goes beyond simply stating the objective elements of the event (Bruner, 1991; Haden, Haine, & Fivush, 1997; Kulkofsky & Klemfuss, 2008; Nelson & Fivush, 2004), children's inclusion of inferences and subjective evaluations of the event were also coded. Children's language was assessed via the Peabody Picture Vocabulary Test 4th Edition (PPVT-4, Dunn & Dunn, 2007), a standardized and widely used measure of children's receptive vocabulary, and they were classified as low vocabulary, average vocabulary, or high vocabulary. It was predicted first, that children in the verbal labels condition would produce more unique information about the event, including more inferences and subjective evaluations. Second, it was predicted that children's language would be associated with memory performance, with children in the low-language group providing less information in free recall, and less accurate information in response to direct questions. Finally, it was predicted that the negative effects of less developed language skill on children's ability to answer direct open-ended and misleading questions would not be evident in the verbal labels condition.

## Method

### Participants

Participants were eighty-seven 3- to 5-year-old preschool children ( $M$  age = 4.44 years,  $SD$  = .60 years). Children were recruited from a private daycare center serving primarily middle income families ( $n$  = 35), as well as a Head Start program serving income eligible families ( $n$  = 38), and an affiliated child care center that served families who were just above income eligibility for the Head Start program or could not enroll in the Head Start program because it was at capacity ( $n$  = 14). The final sample was thus ethnically and economically diverse. Thirty-eight percent of children were Caucasian, 28% Hispanic, 23% African American, and 3% Asian (the parents of 7 children did not provide ethnicity information). Forty-nine percent of mothers had a high school education or less, 17% had a college degree, and 24% had a graduate degree (the parents of 8 children did not report maternal education). An additional seven children were dropped from the study because they did not cooperate during the memory interview or because of interviewer error, three children were dropped because they refused to go with the interviewer to be tested with the PPVT, and one child was dropped because he was inattentive during the staged event (he spent the entire event looking at the video camera and wandering around the room). Written consent was obtained from the children's parent or legal guardian and verbal assent was obtained from the child prior to beginning the study.

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