

RESEARCH ARTICLE

The effects of narrative practice on children's testimony and disclosure of secrets

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Summary

The present study explored the effects of different types of narrative practices on the accuracy and abundance of information elicited from children and the disclosure of secrets. Seventy-one children ages 3–6 years experienced a scripted encounter with a photographer; then they were interviewed about the event after participating in one of four different narrative practices. The narrative practices comprised either a discussion of topics drawing from episodic memory or topics drawing from semantic memory. Further, either open-ended prompts were used during the practice narratives or directive questions were used. The episodic topics were related to past experienced events, whereas the semantic topics consisted of general knowledge about what they liked to do. The results showed that children who were trained to respond to open-ended prompts early in the interview responded more informatively later, but the specificity of the topics had no effect on their accuracy and informativeness. Neither the topics nor types of questions had effects on the results of disclosure.

KEYWORDS

child sexual abuse, disclosure of secrets, narrative practices, rapport building

1 | INTRODUCTION

The accuracy and completeness of witnesses' reports are crucial, especially when those witnesses are alleged victims of child sexual abuse. However, obtaining informative and accurate accounts from children remains challenging. Clearly, it is not easy for children to discuss embarrassing and traumatic experiences with strangers (Hershkowitz, 2009; Lamb, Hershkowitz, Orbach, & Esplin, 2008). It could be important to establish rapport with allegedly abused child victims during investigative interviews, thereby prompting them to disclose their abusive experiences (Hershkowitz, 2011). Rapport building, designed to create a relaxed and supportive environment for children (Lamb et al., 2008), could allow for more complete reports by lessening anxiety or discomfort (Roberts, Lamb, & Sternberg, 2004; Siegman & Reynolds, 1983) and improve their accuracy because children better resist suggestions by interviewers who are warm and more approachable (Davis & Bottoms, 2002; Roberts et al., 2004). In addition, researchers have found that practice narratives elicited using open-ended questions during the rapport-building interview phase increase the informativeness and accuracy of information provided later in the interview (Hershkowitz, 2009; Price, Roberts, & Collins, 2013; Roberts et al., 2004; Sternberg et al., 1997).

1.1 | Narrative practices

Narrative practices are designed to familiarize children with investigative interviewing strategies before target events are discussed (Lamb, Orbach, Hershkowitz, Esplin, & Horowitz, 2007; Roberts, Brubacher, Powell, & Price, 2011, for reviews). By practicing the process of describing episodic events in response to open-ended prompts, children not only become aware of how much detail is expected of them by answering questions similar to those that will be used later when substantive issues are discussed (Brubacher, Roberts, & Powell, 2011; Lamb et al., 2008; Sternberg et al., 1997), but they are also encouraged to elaborate on the event-specific information they provide (Lamb et al., 2008).

Questioning type is one of the strongest predictors of the accuracy and informativeness of the accounts provided by child informants, including victims/witnesses. Open-ended prompts, defined as input-free utterances requesting free-recall responses (e.g., "Tell me everything about ...") yield responses that are longer and more detailed than responses to directive, option-posing, or suggestive questions (Davies, Westcott, & Horan, 2000; Dent & Stephenson, 1979; Hershkowitz, 2001; Lamb, Orbach, Sternberg, Esplin, & Hershkowitz, 2002; Orbach et al., 2000; Sternberg et al., 1997). Directive questions refocus the child's attention on details or aspects of the alleged incident that he

or she has already mentioned, thus using the recall memory process (e.g., "What color was his shirt?"). In contrast, option-posing prompts, which only require yes or no answers or the selection among options provided by the interviewer, could impair the accuracy of children's accounts because they may guess or thoughtlessly choose one of the options provided even when they do not understand the question (Lamb & Fauchier, 2001; Milne & Bull, 2002). Suggestive questions are stated in such a way that the interviewer strongly suggests what response is expected (e.g., "He forced you to do that, didn't he?") or assume information that has not been provided by the child (Lamb, Orbach, Sternberg, Hershkowitz, & Horowitz, 2000). Because suggestive questions can decrease the accuracy of children's accounts, or even create false memories when investigators use many suggestive questions during their interviews (Cassel, Roebbers, & Bjorklund, 1996; Lamb & Fauchier, 2001), the reliability of the children's statements is likely to diminish (Milne & Bull, 2002).

Previous studies clearly showed that narrative practice with open-ended prompts during the presubstantive phase of the interview increased the number of details provided by children about the targeted incidents. For example, Sternberg et al. (1997) confirmed that allegedly abused child victims who were asked open-ended questions during the presubstantive portions of the interviews continued to respond more informatively to open-ended utterances later in the interview than do those who were first questioned using directive questions. To examine accuracy, Roberts et al. (2004) replicated the previous finding in a controlled laboratory setting. As in the previous study, children with whom rapport was built using open-ended questions provided more accurate information than those with whom rapport was built using directive questions.

In 2011, Brubacher et al. conducted an experiment to assess the effects of episodic memory practice on children's narrative descriptions of repeated events. The results showed that children who had experienced the target events repeatedly and had narrative practice with incident-specific memory reported more information later. In another study, conducted in the field, researchers confirmed that interviewers posed proportionally more open-ended prompts and that children provided more details in response to open-ended prompts in the substantive phase when narrative practice had occurred (Price et al., 2013).

Although there is increasing evidence that children who are trained to respond to open-ended prompts early in interviews respond more informatively later (Price et al., 2013; Roberts et al., 2004; Sternberg et al., 1997), little is known about the topics addressed during the narrative practices session. Given the theoretical underpinning of narrative practices (Lamb et al., 2008; Roberts et al., 2011; Sternberg et al., 1997), interviews should yield more relevant and accurate information about target events when child witnesses practice responding to open-ended questions about specific episodic memories instead of being questioned about general knowledge during the presubstantive phase of the interview. Episodic memory is the major neurocognitive system related to remembering past experience (Tulving, 2002). Unlike semantic memory, which is related to general knowledge, episodic memory concerns events that happened in particular places at particular times or conceptual knowledge about what, where, and when events occurred (Tulving, 2002). Although both

forms of memory enable individuals to acquire factual information through experience (Wheeler, Stuss, & Tulving, 1997), episodic memory allows for more refinement and elaboration of to-be-remembered information through auto-noetic consciousness (Tulving, 2002). Thus, in this study, it was hypothesized that children who discussed specific episodic topics during their narrative practice phase would give more abundant and accurate details during the substantive part of the interview than do those who described general knowledge during their practice session (Hypothesis 1). Further, it was also hypothesized that those children who practice responding to open-ended prompts rather than directive prompts during their narrative practices phase would give more abundant and accurate details during the substantive part of the interview (Hypothesis 2).

1.2 | Disclosure of secrets

Numerous studies have been conducted to identify the factors related to children's disclosures of their abusive experiences. For example, the closer the child-perpetrator relationship, the more reluctant children are to disclose abuse (Hershkowitz, 2009; Hershkowitz, Horowitz, & Lamb, 2005; London, Bruck, Wright, & Ceci, 2008; Malloy, Lyon, & Quas, 2007), although this association has not been found in every relevant study (Arata, 1998; Kellogg & Hoffman, 1995; Kellogg & Huston, 1995; Lamb & Edgar-Smith, 1994; Roesler & Wind, 1994). Feelings of embarrassment and shame sometimes make children reluctant to disclose (Anderson, Martin, Mullen, Romans, & Herbison, 1993; Flam & Haugstvedt, 2013). Moreover, fears of family rejection and disbelief (Somer & Szwarcberg, 2001) or fears of getting in trouble (Flam & Haugstvedt, 2013) also discourage some children. Although some studies showed that older children are more likely than younger children to disclose (London, Bruck, Ceci, & Shuman, 2005; Smith et al., 2000), others have suggested the older children are more reluctant to disclose (Hershkowitz, Lanes, & Lamb, 2007), and still other researchers have failed to find any relationship between age and delay of disclosure (Arata, 1998; Kellogg & Hoffman, 1995).

However, there is little evidence regarding the ways in which children's willingness to disclose abusive experiences are affected by the ways in which they are interviewed. Whereas Hershkowitz, Lamb, Katz, and Malloy (2013) showed that children interviewed using enhanced rapport-building procedures showed less reluctance, a laboratory analogue study conducted by Lyon et al. (2014) found that narrative practice did not affect the children's disclosure of their transgressions or the amount of information elicited from them. Despite a relative lack of research, we also predicted that the presubstantive part of the interview may play an important role in the disclosure process. Because children who are reluctant to disclose appear uncooperative from the beginning of the interview and remain relatively uninformative throughout, Hershkowitz, Orbach, Lamb, Sternberg, and Horowitz (2006) suggested that it is important to identify and address reluctance at the beginning of the interview, before negative dynamics have emerged (see Hershkowitz, 2011, for a review). Moreover, previous results have indicated that a friendly investigative environment encourages detailed responses to open-ended questions (Lamb et al., 2002; Sternberg et al., 1997; Sternberg, Lamb, Orbach, Esplin, & Mitchell, 2001) and increases children's

accuracy and resistance to suggestion (Almerigogna, Ost, Bull, & Akehurst, 2007; Davis & Bottoms, 2002; Quas & Lench, 2007).

Therefore, discussing children's past experience, which is more related to self-exposure, may help to create a better relationship with an investigative interviewer and thus encourage children to provide more information about the incidents. On the basis of these findings, Hypothesis 3 of the study is that children who responded, during practice narratives, to open-ended questions about episodic memories would disclose secrets more than would those who responded to directive questions about semantic memories.

1.3 | Verbal intelligence and social desirability

There is substantial evidence that the accuracy of older children's testimonial abilities is associated with intelligence, although it is negatively associated with suggestibility in younger children (Chae & Ceci, 2005; McFarlane, Powell, & Dudgeon, 2002). However, only a few studies have explored the association between children's verbal intelligence and disclosure patterns, as in the present study.

In addition, there is still little known about the effects of personality on children's account and disclosure patterns. For example, whereas shy children are less accurate than those who are not shy (Pozzulo, Coplan, & Wilson, 2005; Roebers & Schneider, 2001), follow-up studies could not replicate the findings that shy witnesses were more stressed and that both shy and nonshy witnesses recalled the target events accurately (Pozzulo, Crescini, Lemieux, & Tawfik, 2007). Social desirability, defined as the tendency to behave in socially desirable ways (Ford & Rubin, 1970), may undermine children's accuracy by leading them to accept interviewers' suggestive questions or to keep the secrets made with adults, but there is scant research focused on the relationship between social desirability and children's accuracy or disclosure tendencies. Therefore, we predicted that children with high social desirability scores and those with poorer verbal intelligence might more easily acquiesce to misleading questions and be less likely to disclose secrets (Hypothesis 4).

1.4 | The present study

In all, the aims of the present study were as follows:

1. to examine whether the topics explored (episodic or semantic) asked during the narrative practices phase affect the quantity and accuracy of details provided by children later in the interview;
2. to examine whether the types of questions (open-ended prompts vs. directive prompts) asked during the narrative practices phase affect the quantity and accuracy of details provided by children later in the interview;
3. to examine whether the topics explored (episodic or semantic) and the types of questions (open-ended prompts vs. directive prompts) asked during the narrative practices phase affect the disclosure of secrets; and
4. to explore whether individual differences in social desirability and verbal intelligence are related to the quality and amount of information elicited from children and their disclosure of secrets.

2 | METHOD

2.1 | Participants

Participants were recruited from two nursery schools in the same region of South Korea. All parents provided signed informed consent on behalf of their children. Eighty-five parents provided consent, but nine children refused to participate or were absent on the appointed day; thus, 76 children actually participated in the experiment. Five children were again excluded from the analyses because they spoke very little throughout the experiment and interview or spoke only about topics unrelated to the questions asked. Thus, data from 71 children (37 boys and 34 girls) was collected. Fourteen (19.7%) were 3 years old, 27 (38.0%) were 4 years old, 15 (21.1%) were 5 years old, and 15 (21.1%) were 6 years old.

2.2 | Materials

2.2.1 | The photography event

In the experiment, a female confederate entered the room, introduced herself as a photographer, and dressed the child in a costume, comprising a hat, a scarf, and glasses. Photographs were then taken of the child. Only the child and the photographer were present during the event. The event included actions such as dressing, undressing, and taking photos, which might occur in sexually abusive situations (Roberts et al., 2004; Roberts, Lamb, & Sternberg, 1999) and which could be a strength for a study having high ecological validity. Instead of cowboy costumes (cf. Roberts et al., 1999, 2004), the children in the present study dressed up as a cartoon character named "Pororo" who is equally admired by both boys and girls.

After the photographer removed parts of the costume in a predetermined sequence, the child was allowed to touch the camera and to take a photo of the photographer. The photographer asked the child to keep this secret, and the child was promised some stickers in exchange for keeping the secret. The photographer then thanked the child and left the room with the camera and costumes.

The whole procedure lasted approximately 5 min. The complete script for the photography event is presented in Appendix A.

2.2.2 | Interview script

There were six parts to the interviews: (a) introduction, (b) rapport building, (c) narrative practices, (d) investigating the event with open-ended prompts, (e) follow-up questioning, and (f) closing. In the introductory phase, the interviewer introduced herself and explained the purpose of the interview. Next, participants were given the ground rules of the interview: that they were only allowed to tell what really happened to them and were not to tell any lies. They were also told to admit any lack of knowledge and understanding by saying "I don't know," "I don't understand," or "I don't remember" when they really did not know, did not understand, or did not remember. Afterwards, the interviewer established rapport with the child for approximately 3 min by talking about the food she or he liked.

Thereafter, children were asked to participate in narrative practice in accordance with one of four conditions: (a) episodic topic with open-ended prompts, (b) episodic topic with directive questions, (c) semantic

topic with open-ended prompts, or (d) semantic topic with directive questions. Children in the episodic memory conditions were asked six questions exploring the children's episodic memory about what had happened the previous day using open-ended prompts (*Condition 1*) or directive questions (*Condition 2*). Children in the semantic memory training conditions were asked six equivalent questions about things they like to do (e.g., riding a bicycle, building with blocks, or folding paper) using either open-ended prompts (*Condition 3*) or directive questions (*Condition 4*; see Table 1).

After the narrative practice phase, all children were asked the same seven open-ended prompts exploring the photography event (e.g., "I understand that a few minutes ago you met a photographer and did lots of things with the photographer. I wasn't there, but I'd like to know what happened," "Tell me what happened from when you entered the room until you got dressed up," "Tell me more about when you had photos taken," and "You mentioned the photographer, tell me everything about the photographer."). After that, five directive questions and five misleading questions were asked alternately to all the participants. The five directive questions included "Who took your costumes off?" and "What did the photographer have in her hand when she came in?" The five misleading questions assumed something that actually had not happened or was incorrect, such as "What color dress did the photographer have on?" (the photographer wore jeans, not a dress). Last, the interviewer thanked the child, and the interview was completed (see Appendix B).

2.2.3 | Verbal intelligence

The children's verbal intelligence was assessed using the Korean version of the Wechsler Preschool and Primary Scale of Intelligence

(K-WPPSI; Park, Kwak, & Park, 1998). Of the 14 subtests of the K-WPPSI, only the three subtests related to verbal intelligence—information, vocabulary, and comprehension—were used. The information and vocabulary subtests involved children choosing one of four pictures in response to questions (information) or naming pictures (vocabulary), whereas the comprehension tests required answers that drew on their understanding of general principles and social situations.

2.2.4 | Social desirability

The Young Children's Social Desirability Scale (Ford & Rubin, 1970) was used to measure the children's tendencies to describe themselves in socially desirable ways. The scale involves 26 forced-choice questions and two warm-up items, all of which refer to behaviors that either are culturally acceptable but occur infrequently or are culturally frowned upon but occur frequently (e.g., "Do you sometimes argue with your mother?" or "Do you never argue with your mother?"; "Are you always polite to older people?" or "Are you sometimes not polite to older people?"). It was translated into Korean for the purpose of this study. The scale was orally presented by one of the researchers to each child individually.

2.3 | Procedures

Participating children individually attended three sessions. During the photography event, the children dressed up as cartoon characters and had their photographs taken; then they were interviewed about what occurred during the photography event. A week later, the children's verbal intelligence and social desirability tendencies were assessed.

TABLE 1 Examples of questions used during the narrative practices phase

Examples of questions used during the memory training phase	
Condition 1: Episodic topic with open-ended prompts	<ol style="list-style-type: none"> 1. I really want to know about things that happened to you. Tell me everything that happened yesterday from the time you woke up until you went to bed. 2. I don't want you to leave anything out. Tell me everything that happened from the time you woke up until [some activity or portion of the event mentioned by the child in response to the previous questions]. 3. Tell me everything that happened after [some activity or portion of the event mentioned by the subject] until you went to bed. 4. Tell me more about [activity mentioned by the subject]. 5. Earlier you mentioned [person mentioned by the subject]. Tell me everything that s/he did with you. 6. Tell me everything about things that you heard from [the person].
Condition 2: Episodic topics with directive questions	<ol style="list-style-type: none"> 1. I really want to know about things that happened to you. What did you do yesterday? 2. I want to know you better. What did you do before [some activity or portion of the event mentioned by the subject in response to the previous questions]? 3. What did you do after [some activity or portion of the event mentioned by the subject in response to the previous questions]? 4. You said you did [the activity mentioned by the subject]. When did you do that? 5. Who was with you yesterday? 6. What did [the person] say to you?
Condition 3: Semantic topic with open-ended prompts	<ol style="list-style-type: none"> 1. I really want to know about something you like to do. Tell me everything about it. 2. I need you to tell me everything about how to (e.g., play) from start to finish. 3. Tell me more about [the activity mentioned by subject]. 4. Earlier you mentioned [something mentioned by the subject]. Tell me more about it. 5. Tell me everyone you know who likes [the activity]. 6. Tell me more about [one person mentioned].
Condition 4: Semantic topic with directive questions	<ol style="list-style-type: none"> 1. I really want to know about one activity you like to do. What is it? 2. Why do you like to do it? 3. How does it work? (Or "How is it played?") 4. When do you usually do it? 5. With which family member do you like to do [the activity mentioned]? 6. Why do you like to do it with [the person]?

2.3.1 | Photography event

A classroom in each nursery school was set up for the experiment. There was a table with two chairs in the middle of the room. For the photography event, an assistant teacher asked each child if she or he would like to have some photographs taken during the class. If the child agreed, the teacher escorted him or her to the “photo studio.” As soon as the teacher left, a female confederate entered the room and acted as a photographer. The entire event was tightly scripted and lasted about 5 min. The teacher then returned to the room and did some coloring with the child for 5 min until the interview session began. While coloring, the child and teacher did not talk about the photography event.

2.3.2 | Interviewing session

The interviews took place in the room where the photography event was held. After 5 min of filler time, another female researcher entered the room to interview the child. The children were randomly assigned to one of four narrative practices conditions characterized by differences in the types of memory (episodic memory vs. semantic memory) and types of questions (open-ended prompts vs. directive questions) emphasized. Each child was then interviewed with predetermined interview scripts for the assigned condition. The interview session lasted approximately 20 min. The children's interviews were video recorded.

2.3.3 | Psychological testing and debriefing

The researchers visited all the children again approximately a week after the photography and interview sessions. The children's verbal intelligence and social desirability tendencies were assessed individually at their respective nurseries. A graduate student and a college student, both majoring in psychology and working under the supervision of a licensed clinical psychologist, administered the K-WPPSI test. Each score was determined by the standard norm including the age and factor index, ranging from 1 to 18 points (see Park et al., 1998, for more details) for each of the three subtests (information, vocabulary, and comprehension).

The social desirability test items were scored as either 0 (*socially undesirable answer*) or 1 (*socially desirable answer*), resulting in a range of possible scores from 0 to 26. The assessment took about 30 min. After completing the tests, all children were debriefed and then given lollipops and stickers regardless of whether they kept the secret.

2.4 | Analysis

2.4.1 | Children's interview responses

The video-recorded interviews were transcribed verbatim for purposes of coding. To evaluate the informativeness of the children's responses, the number of details reported was counted using the coding system introduced by Lamb et al. (2007). A detail was defined as any information pertaining to the event that was reported during the interview session; details included the naming, identification, or descriptions of individuals, objects, events, places, actions, emotions, thoughts, and sensations that were part of the photography event. Details were only counted once, meaning, the first time they were mentioned. Details

that elaborated or expanded on earlier details were counted as well. Negative responses to substantive questions were counted as details, but false starts (e.g., “I ... he was ...”) and “um” were not. References to the child's present mental or emotional state (e.g., “I know ...,” “I think,” “I am surprised ...,” and “Maybe ...”) were not coded as details. When the children corrected themselves immediately, only the corrected details were counted.

Each reported detail was then coded as accurate or inaccurate. Accurate details included correct information as well as elaborations of correct details. For example, if the color was blue, responses of “blue,” “blue-ish,” “sky blue,” and “cold color” were considered to be accurate. Moreover, children's accounts of thoughts and emotions during the photography event were considered accurate because they were subjective. Incorrect information, errors of source monitoring, and errors of commission were classified as inaccurate details. For example, if a child said that the photographer gave him or her a hug—which never happened during the event—this would be coded as three incorrect details (“The photographer,” “gave,” “a hug”). If the child said, “the color of glasses was blue”—when in fact the color was orange—it was counted as one incorrect detail. Errors of source monitoring happened when a child confused the source of information, such as when a child said, “I asked the photographer whether I could touch the camera,” but, in fact, the photographer asked the child to touch the camera.

Last, if the children mentioned anything related to the facts that they touched the camera or took a photo of the photographer, or that the photographer asked them to keep a secret or anything about stickers, these were considered disclosures of the secret.

2.4.2 | Interrater reliability

Two Korean native coders, who had undergone over 30 hr of training, conducted ratings of the details elicited from the children. The coders reviewed coding manuals prepared by Lamb et al. (2007), and they practiced coding transcripts that were not involved in this study until they agreed with each other more than 80% of the time. Then, they independently coded 20% of the transcripts to assess interrater reliability. The intraclass correlation coefficient for the accurate number of details and the inaccurate number of details was .981, $p < .000$, and .979, $p < .000$, respectively. No discrepancies were found between the ratings of the two coders for whether or not a secret was disclosed, and so it was not necessary to run interrater reliability analyses.

3 | RESULTS

3.1 | Preliminary analyses

Because sex and age may affect accuracy and informativeness, we investigated whether there were any differences in demographics across the conditions. The results confirmed there were no significant differences for neither sex (Condition 1, *boys* = 47.4%, *girls* = 52.6%; Condition 2, *boys* = 42.1%, *girls* = 57.9%; Condition 3, *boys* = 64.7%, *girls* = 35.3%; Condition 4, *boys* = 56.2%, *girls* = 43.8%; $\chi^2(1) = .515$, $p = .916$) nor age (Condition 1, $M = 60.37$, $SD = 12.04$; Condition 2, $M = 63.42$, $SD = 12.02$; Condition 3, $M = 61.00$, $SD = 11.16$; Condition

4, $M = 59.19$, $SD = 9.13$; $F(3, 67) = .452$, $p = .717$) in relation to the memory training conditions.

The 71 children were recruited from two different nursery schools, with 42 (59.2%) children from Nursery A and 29 (40.85%) from Nursery B. A chi-square analysis confirmed that children from the different nurseries were evenly distributed across the conditions, $\chi^2(3) = .195$, $p = .978$, with no significant effects of nurseries on the total number of details reported (Nursery A, $M = 54.40$, $SD = 33.73$; Nursery B, $M = 54.41$, $SD = 43.42$; $t(50.23) = -.001$, $p = .999$) or on secret disclosure rates (Nursery A = 57.1%; Nursery B = 61.1%, $\chi^2(1) = .116$, $p = .811$).

The mean scores for social desirability and verbal intelligence were 20.85 ($SD = 1.41$) and 29.69 ($SD = 6.68$), respectively. Again, there were no significant differences associated with the memory training conditions (social desirability, $F(3, 63) = .683$, $p = .594$; verbal intelligence, $F(3, 66) = .460$, $p = .711$).

3.2 | Quality and quantity of details reported by condition

The mean numbers of details disclosed by children during the recall-prompted part of the interview were entered into a multivariate test. Children in the episodic topic with open-ended prompts and directive questions provided 73.29 details ($SD = 39.76$) and 41.44 details ($SD = 16.37$), respectively. Children in the semantic memory group with recall prompt and directive questions provided 62.35 details ($SD = 44.43$) and 43.08 details ($SD = 37.45$) on average, respectively. There was a significant main effect of question type, $F(1, 67) = 9.084$, $p = .004$, $\eta_p^2 = .11$, with children who practiced responding to open-ended prompts during the memory training sessions providing more information than did those who practiced responding to directive questions. However, the main effect of topic, $F(1, 67) = .322$, $p = .572$, $\eta_p^2 = .005$, and the interaction, $F(1, 67) = .508$, $p = .479$, $\eta_p^2 = .119$, between type of question and topic were not statistically significant (see Figure 1).

The mean numbers of accurate and inaccurate details provided per question were examined in relation to the type of questions asked in the presubstantive portions of the interviews (see Table 2). Because the topics during the narrative practices session had no effects on the details during the interview session, four conditions were combined into two composite scores: trained with open-ended prompts (Conditions 1 and 3) and trained with directive questions (Conditions

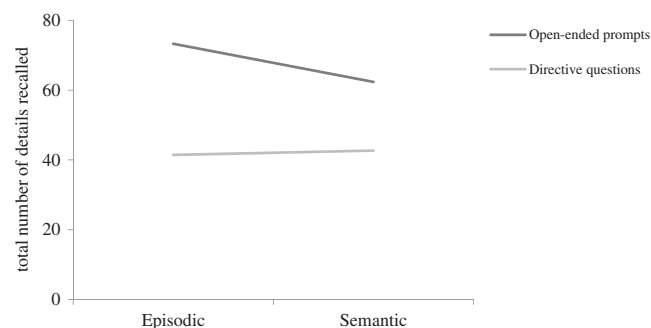


FIGURE 1 Children's responses in relation to the topics and question types

TABLE 2 The mean numbers of accurate and inaccurate details provided in response to different types of questions by condition

	N	Accurate		Inaccurate	
		M	SD	M	SD
Free narrative					
Trained with open-ended prompts	36	6.95	5.33	0.29	0.72
Trained with directive questions	35	4.16	4.45	0.08	0.28
Specific questions					
Trained with open-ended prompts	36	2.00	1.67	0.36	0.44
Trained with directive questions	35	1.31	0.51	0.25	0.20
Leading questions					
Trained with recall prompts	36	1.71	0.94	0.45	0.54
Trained with directive questions	35	1.29	0.83	0.55	0.70

Note. Trained with recall prompts combined with Conditions 1 and 3. Trained with directive questions combined with Conditions 2 and 4.

2 and 4). Children who trained with open-ended prompts provided significantly more details in response to free narrative questions, $t(69) = 2.395$, $p = .019$, $d = .571$, specific questions, $t(69) = 2.350$, $p = .022$, $d = .559$, and misleading questions, $t(69) = 1.959$, $p = .054$, $d = .474$, than did those who trained with directive questions. With regard to the inaccurate details, in contrast, there were no statistically significant differences by question type (free narrative questions, $t(69) = 1.614$, $p = .111$, $d = .384$, specific questions, $t(69) = 1.273$, $p = .207$, $d = .322$, and misleading questions, $t(64.015) = -.698$, $p = .488$, $d = -.159$).

These results suggested that the topic explored during the narrative practices phase did not affect the quantity and accuracy of details; therefore, Hypothesis 1 was rejected. However, open-ended prompts asked during the narrative practice significantly improved the amounts and accuracy of details provided by children later in the interview; therefore, Hypothesis 2 was supported.

3.3 | Disclosure of secrets

Half ($n = 35$, 49.3%) of the children disclosed that they touched the camera or took a photo of the photographer, whereas the other half ($n = 36$, 50.7%) concealed the secret. More specifically, 63.2% and 47.4% of children in the episodic topic with open-ended prompts and directive questions disclosed the secret, respectively, whereas 52.9% and 31.2% in the semantic topic with open-ended prompts and with directive questions also disclosed the secret, respectively. There was no significant difference in disclosure as a consequence of memory training condition, $\chi^2(3) = 3.664$, $p = .300$ (Hypothesis 3 rejected).

3.4 | Verbal intelligence and social desirability

To determine whether verbal intelligence related to the quality and quantity of information elicited from the children, verbal intelligence scores were converted into three categories—high, middle, and low—on the basis of upper, middle, and lower thirds of the cumulative frequency. One-way analyses of variance showed that verbal intelligence scores had no significant effects on total number of details (low, $M = 44.28$, $SD = 35.86$; middle, $M = 55.46$, $SD = 35.86$; high,

$M = 61.82$, $SD = 38.31$; $F(2, 68) = 1.311$, $p = .276$, $\eta_p^2 = .038$), accurate details (low, $M = 39.17$, $SD = 35.88$; middle, $M = 52.63$, $SD = 38.42$; high, $M = 55.18$, $SD = 34.75$; $F(2, 68) = 1.309$, $p = .277$, $\eta_p^2 = .038$), inaccurate details (low, $M = 5.21$, $SD = 5.53$; middle, $M = 3.83$, $SD = 3.17$; high, $M = 6.64$, $SD = 6.77$; $F(2, 68) = 1.592$, $p = .211$, $\eta_p^2 = .045$), or the disclosure of the secret (low, 54.2%; middle, 50.0%; high, 45.5%; $\chi^2(3) = .348$, $p = .840$).

Social desirability scores were also converted into the three categories in the same way as the verbal intelligence scores. There were no significant effects on total details (low social desirability score group, $M = 56.50$, $SD = 40.72$; middle low social desirability score group, $M = 59.53$, $SD = 41.45$; high social desirability score group, $M = 43.89$, $SD = 25.61$, $F(2, 68) = 1.05$, $p = .355$, $\eta_p^2 = .030$); accurate details, $F(2, 68) = .946$, $p = .393$, $\eta_p^2 = .027$; or inaccurate details, $F(2, 68) = 1.366$, $p = .262$, $\eta_p^2 = .039$. Yet the relationship between disclosure and social desirability showed that children who had low social desirability tendencies disclosed the secret significantly more often than did those who had high social desirability scores (disclosure of the secret: low, 63.6%; middle, 53.3%; high, 26.3%; $\chi^2(3) = 6.02$, $p = .049$; Hypothesis 4 partially supported).

4 | DISCUSSION

The present study was conducted to determine whether the type of topic (episodic or semantic) and the type of questions (open-ended prompts vs. directive questions) employed during narrative practices session affects (a) the accuracy and informativeness of children later interviewed about an experienced event and (b) their willingness to disclose a secret. In addition, the effects of individual differences in social disability and verbal intelligence on the accuracy and informativeness of children's accounts and their willingness to disclose a secret were also examined. As expected, children who were trained to respond with open-ended prompts early in the interviews responded more informatively without increasing inaccurate information later in the interview. As in previous studies (Price et al., 2013; Sternberg et al., 1997), narrative practice with open-ended questions during the presubstantive part of the interview increased the amount of information children provided about the target incident in response to open-ended questions. In addition, the results showed that children asked open-ended prompts during the presubstantive training provided more accurate information, in response not only to open-ended questions but also to directive and even misleading questions asked later without increasing inaccurate details. These findings again confirm the effectiveness and usefulness of practicing with open-ended questions during the presubstantive part of the interview (Price et al., 2013; Sternberg et al., 1997).

The narrative practices did not affect the likelihood that the children would disclose. Along with rapport building, narrative practices are believed to help create a friendly investigative environment and thus encourage children to provide detailed responses to open-ended questions (Lamb et al., 2002; Sternberg et al., 1997; Sternberg, Lamb, Orbach, et al., 2001) and improve children's accuracy and resistance to suggestibility (Almerigogna, et al., 2007; Davis & Bottoms, 2002; Quas & Lench, 2007). However, as in the study by Lyon et al. (2014),

the manipulation used in this study may not have been sufficient. Although this study was designed to assess the effects of different types of memory training on disclosure, the conditions were not compared with a control group in which there was no narrative practices phase.

With regard to social desirability, there was a clear relationship between social desirability and disclosure of the secret. Children who tend to behave in socially desirable ways tended not to disclose the secret. It is suggested that children with a high social desirability tendency are more sensitive to other people's evaluations; they may feel more embarrassed about their misbehavior (touching a camera when they had been told this was forbidden) or care more about the consequences of disclosure for themselves or for the photographer because they had been told that the photographer might get into trouble if the secret became known.

Verbal intelligence did not affect the amount and accuracy of children's accounts nor the disclosure of the secret. Previous studies have shown that intelligence was related to the accuracy of older, but not younger, children's utterances (Chae & Ceci, 2005; McFarlane et al., 2002). Younger children's performance was more directly associated with chronological age rather than intelligence itself, because their verbal intelligence is still developing rapidly (Roebbers & Schneider, 2001). All the children participating in the present study were still quite young (ages 3–6 years), so age differences might have obscured the effects of intelligence. Further study is needed to draw clear conclusions about this matter.

Although the present study obtained several significant findings regarding the effects of narrative practices on children's accounts and disclosure patterns, there are obviously several limitations. First, although we predicted that practice discussing episodic topics during the memory training session would have an impact, no association was found between the "topic" addressed in narrative practice phase and the accuracy of children's accounts (Brubacher et al., 2011) or between episodic memory training and the disclosure of secrets (Lyon et al., 2014). It is possible that the conditions were not manipulated sufficiently. Although episodic memory and semantic memory have distinct theoretical definitions, the two memory procedures are quite similar in practice. These trends were evident in the experiment. For example, during the narrative practices session, some children were asked how to ride a bicycle in the semantic topic conditions and sometimes provided information on the basis of episodic memories ("the last time I rode"). In future research, a more systematic and precise manipulation of conditions is necessary when assessing the effects of the topics addressed during the narrative practice phase. For example, some topics that children have learned, but never experienced (e.g., fire emergency procedures), would be good for the semantic group.

Another possible problem may relate to the age of the children studied. Participants in the current study were very young and so might have had difficulty understanding subtle differences among the types of questions asked and topics probed. Furthermore, a small sample with only 71 children participating might reduce the power of extrapolating a study. Therefore, further research with a larger sample size is needed to determine whether the topic explored during memory training sessions can affect the accuracy and quantity of information elicited from children.

Moreover, it should be clearly acknowledged that the design of this study could not sufficiently recreate a real-life setting. For example, children were interviewed only a short time (about 5 min) after they experienced the photography event. They were interviewed at the same place where the to-be-remembered incident took place, which rarely happens in real life. In spite of awareness of these issues, the study was constrained, as only one room was available in the nurseries. This might weaken the ecological validity of the result and should be considered when the results are applied in actual settings.

In spite of the serious limitations described above, this study provides promising evidence that narrative practices with open-ended prompts increased the amount of accurate information provided in response to all types of questions. In actual forensic interviews, although investigative interviewers are universally encouraged to use open-ended prompts as much as possible, a considerable number of improper questions (including option-posing and suggestive questions) are still employed (Cederborg, Orbach, Sternberg, & Lamb, 2000; Hershkowitz, Lamb, Sternberg, & Esplin, 1997; Lamb, Sternberg, Hershkowitz, Boat, & Everson, 1996; Sternberg, Lamb, Davies, & Westcott, 2001; Thoresen, Lonnum, Melinder, & Magnussen, 2009). Because practice responding to open-ended prompts leads to increases in the accuracy of information elicited in response to all types of questions, including suggestive questions, it clearly increases the quality and quantity of the information obtained from children. In addition, this study provides significant insight into the personality factor associated with the disclosure of information that children have been asked to keep secret.

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APPENDIX A

PHOTOGRAPHY EVENT SCRIPT

[A female confederate enters the room with a digital camera and a box.]

"Hi, my name is Jenny, I'm a photographer. What is your name? [Wait]. Nice to meet you, (the name of the child). Today, I would like to take photos of you. Do you like the Pororo? (Wait but doesn't care the answer) Here are the costumes for you. Let's try to put them on you."

[Put (1) a penguin costume, (2) a hat and (3) a scarf on the child]

*"Look at you! You look like the Pororo."
"Let's take photos. Go and stand in front of that wall"*

[The confederate takes a photo of the child.]

*"Now you can put the hat off and wear these glasses instead."
"Come here I will do for you."*

[The confederate takes a second photo of the child.]

*"Great! Now give me your big smile. I will have one more shot.
(Taking a third photo) Good job! Come here I will take your costumes off."*

[Removes (1) glasses, (2) the scarf, (3) and the costume from the child]

"Thank you for helping me a lot. Do you like take a photo? (Wait the response but doesn't care the answer) Here is a bottom and you can take a photo if you press this. I will stay there and you can take a photo of me."

[Stands in front of the wall and waits until the child take photo of her]

*"Let's see together. Good job! I want to tell you one thing."
"You should be kept this as a secret because kids aren't allowed to touch the camera." "If anyone knows you touch this camera I would be in trouble." "Can you do not tell this anyone?" (Wait). "If you wouldn't tell anyone, I will give you stickers later." "Ok. Everything is done." "Thank you for helping me a lot." "I will leave now and your teacher will be here soon." "See you again!"*

[leaves the room]

APPENDIX B

INTERVIEW SCRIPT

Phase 1. Introduction

*"Hello? My name is X"
"What is your name? [Wait], Nice to meet you,(name of the child)."
"I understand that few minutes ago, you met a photographer and did lots of things with her and I would like to ask you something about it."*

"Before we begin, I want to tell you something. It is very important that you only tell me the truth today, ok?"

"If I ask you a question that you don't understand just say, 'I don't understand' and if you don't remember, just say 'I don't remember'."

"If I ask a question, and you don't know the answer, just tell me, 'I don't know, and if I say thing that are wrong, you should tell me, do you understand? [Wait for an answer]"

"Ok"

Phase 2. Rapport-building

"Now, I would like to get to know you better so I will ask some questions about you."

1. "Tell me about food you like most"

[If the child says nothing, trying again that: "I really want to know you better. Could you tell me your favourite food? You can say anything."]

[If the child still refuse to say anything, the interview will be closed]

2. "Tell me more about it"

[Casually talk about food and other things that the child mentioned for 3 minutes]

Phase 3. Episodic memory training

Condition 1. Episodic topic with recall prompts

1. I really want to know about things that happened to you. Tell me everything what happened yesterday from the time you wore up until went to bed.
2. I don't want you to leave anything out. Tell me everything that happened from the time you worked up until [some activity or portion of the event mentioned by the subject in response to the previous questions].
3. Tell me everything that happened after [some activity or portion of the event mentioned by the subject] until you went to bed.
4. Tell me more about [activity mentioned by the subject].
5. Earlier you mentioned [person mentioned by the subject], tell me everything that the person had with you.
6. Tell me everything about things to that you heard from [the person]

"It is very important that you tell me everything about things that have really happened to you."

Condition 2. Episodic topic with directive questions

1. I really want to know about things that happened to you. What did you do yesterday?
2. I want to know you better. What did you do before [some activity or portion of the event mentioned by the subject in response to the previous questions]

3. What did you do after [some activity or portion of the event mentioned by the subject in response to the previous questions]?
4. You said you did [the activity mentioned by the subject]. When did you do that?
5. Who was with you yesterday?
6. What did [the person] say to you?

"It is very important that you tell me everything about things that have really happened to you."

Condition 3. Declarative memory with recall prompt

[It should be very careful to **NOT** ask memory related to past experiences]

1. I really want to know one activity you like to do. Tell me about it
2. I need you to tell me everything how to do (e.g., play) it from start to the end.
3. Tell me more about [the thing mentioned by subject]
4. Earlier you mentioned [something mentioned by the subject]. Tell me more about it.
5. Tell me everyone you know who like to [the thing].
6. Tell me more about [one person mentioned by subject]

"It is very important that you tell me everything about the thing you like to do."

Condition 4. Declarative topic with direct questions

[It should be very careful to **NOT** ask memory related to past experiences]

1. I really want to know about one thing you like to do. What is it?
2. Why do you like to do?
3. How does it work? (Or it can be "How is it played?")
4. When do you usually do it?
5. With whom do you like to do [the thing mentioned by subject] in your family?
6. Why do you like to do with [the person]?

"It is very important that you tell me everything about the thing you like to do."

Phase 4. Investigating photography event

Now I feel I know you better. Now I would like to talk about what happened in the room

1. I understand that few minutes ago you met a photographer and you did lots of things with the photographer. I wasn't there that time but I'd like to know what happened. Try not to miss anything out. I want to you tell me as much as you can.
2. Tell me more about what happened that time, so I will know everything.
3. Tell me what happened from when you enter the room until you got dressed up.
4. Tell me more about from when you got dressed up and until the photographer went out
5. Tell me more about when you had the photos taken.
6. You mentioned the photographer.
7. Tell me everything about the photographer.
8. Think about what you have told me. Is there anything that you have missed out about what happened when the photographer was here?

Phase 5. Subsequent questioning phase

1. Who took your costumes off? (direct)
2. What colour dress did the photographer have on? (misleading)
3. What did the photographer have in her hand when she came in? (direct)
4. When did the photographer give you that big hug? (misleading)
5. What colour was the glasses you wore? (direct)
6. What was the sticker like that the photographer gave you? (misleading)
7. What colour was the photographer's upper clothes? (direct)
8. Who took your shocks off? (misleading)
9. How many pictures does the photographer take? (direct)
10. When does the photographer yell at you? (misleading)

Phase 6. Closing

"You have told me lots of things today and I want to thank you for helping me. I will give your photos to your teacher later and you'll be able to take them home. Now your teacher will come back and you will come back to your classroom with her."