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Coaching, Truth Induction, and Young Maltreated Children's False Allegations and False Denials

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Abstract

This study examined the effects of coaching (encouragement and rehearsal of false reports) and truth induction (a child-friendly version of the oath or general reassurance about the consequences of disclosure) on 4- to 7-year-old maltreated children's reports (N = 198). Children were questioned using free recall, repeated yes – no questions, and highly suggestive suppositional questions. Coaching impaired children's accuracy. For free-recall and repeated yes – no questions, the oath exhibited some positive effects, but this effect diminished in the face of highly suggestive questions. Reassurance had few positive effects and no ill effects. Neither age nor understanding of the meaning and negative consequences of lying consistently predicted accuracy. The results support the utility of truth induction in enhancing the accuracy of child witnesses' reports.

The extent to which children's dishonesty may be affected by adult influences is of considerable theoretical and practical interest. Theoretically, knowledge concerning how adults influence children of various ages provides insight into cognitive and social development. Practically, children are routinely questioned about alleged experiences, both in day-to-day situations in which parents, teachers, and others inquire into mostly mundane events, and in more serious settings, such as legal contexts, where children's statements can have far-reaching implications.

The purpose of the present study was to examine factors influencing dishonesty in a large sample of maltreated children, with a specific focus on how adult influences affect dishonesty. Maltreated children are particularly likely to be subjected to pressures to disclose or conceal information (Malloy, Lyon, & Quas, 2007; Sas & Cunningham, 1995), and their honesty and dishonesty are often at issue in legal contexts (Brennan, 1994), thus highlighting the need to understand dishonesty in this population. Moreover, two forms of

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dishonest behavior should be considered: false denials of true events and false allegations of untrue events.

Several factors are potentially important in influencing children's dishonesty. First, many of children's lies concern actions involving others(Wilson, Smith,& Ross, 2003), and others often seek to influence children's honesty. The latter person may be called an " instigator," to reflect his or her potential influence on children's statements. Efforts by instigators to encourage and rehearse dishonesty in children will be referred to here as "coaching." Second, the person to whom children lie, referred to as the "recipient," may also exert some influence. In an applied context, the recipient is often an interviewer, although a recipient could be any person with whom children interact. Third, several characteristics in children likely affect their dishonesty, including their age and attitudes about the morality and utility of dishonesty. Research relevant to each of these factors will be considered in turn.

Instigator Behavior

Research on the influence of third persons on children's dishonesty has usually examined situations in which the instigator asks the child to conceal the instigator's wrongdoing, often resulting in high rates of false denial (Bottoms, Goodman, Schwartz-Kenney, & Thomas, 2002; Bussey & Grimbeek, 1995; Ceci & Leichtman, 1992; Pipe &Wilson, 1994; Talwar, Lee, Bala, & Lindsay, 2004; Wilson & Pipe, 1989). Some research has also demonstrated that instigators can successfully encourage children to make false allegations, both in situations in which children's motivation was to sustain a game (Quas, Davis, Goodman, & Myers, 2007; Tate, Warren, & Hess, 1992) and in situations in which children's motivation was to conceal a parent's wrongdoing (Tye, Amato, Honts, Devitt, & Peters, 1999).

An open question, and one we sought to explore, is whether instigator influence may be overcome, particularly in situations where children have been extensively coached to make false reports. This is a typical concern in maltreatment cases; the defense often argues that abuse allegations are the product of coaching (Brennan, 1994), whereas the prosecution argues that inconsistencies and retractions are themselves the product of instigator influence (Summit, 1983).

Recipient Behavior

Two lines of research are relevant to how the behavior of a recipient affects children's dishonesty. One concerns the types of questions asked by the recipient, and the other concerns the statements made by the recipient to promote honesty. With regard to question type, research investigating children's concealment of transgressions finds that yes – no and other direct questions are more effective in reducing false denials than open-ended questions (Bottoms et al., 2002; Pipe & Wilson, 1994). However, the former types of questions can also increase the likelihood of false allegations (Thompson, Clarke-Stewart, & Lepore, 1997). Moreover, children coached to make false allegations are more likely to do so in response to yes – no or forced-choice questions than in free recall (Quas et al., 2007). Hence, more direct questions may exert their influence not by eliciting greater honesty but by increasing acquiescence.

The recipient may also make explicit requests for honesty, an approach we refer to as truth induction. Truth induction is premised on the notion that children's dishonest behavior is in part determined by their perceptions of the consequences of honesty and dishonesty (Bandura, 1991; Bussey, 1992). For example, in the context of abuse disclosure, abuse victims often report that their decision regarding whether and when to disclose was affected by their expectations about how others would react to their disclosure and the effects of disclosure on themselves and others close to them (Anderson, Martin, Mullen, Romans, &

Herbison, 1993). Furthermore, a primary motive for young children's lies is to avoid punishment for misdeeds (Bussey, 1992; DePaulo, Jordan, Irvine, & Laser, 1982; Ekman, 1989; Stouthamer-Loeber & Loeber, 1986). At the same time, at least by 5 years of age, most children exhibit good understanding that lying is itself punished (Bussey, 1992; Lyon & Saywitz, 1999; Peterson, Peterson, & Seeto, 1983). Hence, even at a young age, children appear to evaluate the consequences of their disclosures, and their evaluations in turn affect their behavior.

Two approaches to truth induction have been researched. The first involves the recipient highlighting the consequences of honesty and dishonesty. Some research has found that discussion of the morality of lying increases children's accuracy (Huffman, Warren, & Larson, 1999; London & Nunez, 2002; but see Talwar, Lee, Bala,&Lindsay, 2002). Other research has made children's obligations to be honest more explicit by eliciting a promise to tell the truth, analogous to the administration of the oath in court. Talwar et al. (2002, 2004) found that eliciting a promise from 3- to 11-year-olds to tell the truth decreased their tendency to deny falsely that they had peeked at a toy or that their parent had broken a toy. In a procedure similar to that employed here, Lyon and Dorado (in press) found that eliciting a promise decreased 5- to 7-year-old maltreated children's tendency to conceal their own and an adult instigator's transgression (play that the instigator had warned "might get [them] in trouble"). Moreover, the positive effects of the promise could not be attributed to acquiescence, because promising did not increase children's tendency to claim falsely that they had played, even when asked leading tag questions (e.g., "You opened some of the doors, didn't you?").

A second approach to truth induction involves reassurance, in which the recipient reassures the child that the recipient will not punish or otherwise react negatively to the child's disclosure of wrongdoing. Reassurance addresses the fact that, in some contexts, children may anticipate that honesty (rather than dishonesty) will be punished. To date, only one study has examined the potential for reassurance to decrease dishonesty. Lyon and Dorado (in press) provided maltreated children reassurance about disclosing forbidden play. The reassurance was specific in that the recipient explicitly mentioned the target play (i.e., "It's okay if you played with the toy house"). Specific reassurance decreased children's tendency to make false denials but increased false alarms among those children who exhibited some difficulty in understanding the meaning and negative consequences of lying. Hence, although some benefits of specific reassurance may exist, such reassurances also risk increasing acquiescence and false alarms (cf. Goodman, Batterman-Faunce, Schaaf, & Kenney, 2002).

No research has assessed whether reassurance decreases dishonesty without increasing false alarms if it is less specific, that is, if the recipient reassures the child without naming the wrongdoing in question.

In this study, we sought to examine the effects of eliciting a promise to tell the truth or general reassurance on children (referred to jointly as truth induction) while varying the question type from less to more leading (free recall, yes – no, and suppositional). In doing so, we sought to identify the optimal means to reduce dishonesty. In order to distinguish between honesty and acquiescence, we examined situations in which children were motivated to either falsely claim or falsely deny behavior.

Child Characteristics

Children's age and beliefs about the meaning and morality of dishonesty are potentially important in predicting dishonesty. First, the tendency to make false denials regarding transgressions emerges early in the preschool years and develops rapidly during this period,

with substantial percentages of children as young as 3 years of age denying their own transgressions (Bussey, Lee, & Grimbeek, 1993; Lewis, Stanger, & Sullivan, 1989; Polak & Harris, 1999; Talwar, Gordon, & Lee, 2007; Talwar & Lee, 2002; Talwar et al., 2002). Similar age effects have been found regarding children's denial of transgressions of instigators who discouraged disclosure (Bottoms et al., 2002; Bussey&Grimbeek, 1995; Ceci&Leichtman, 1992). Relative to older children, 3-year-olds have a limited understanding of the effects of their statements on others' beliefs and are less aware of the negative consequences of revealing transgressions (Bottoms et al., 2002; Bussey & Grimbeek, 1995; Polak & Harris, 1999; Talwar & Lee, 2002; Tate et al., 1992). Moreover, younger children may find it more difficult to maintain a false story in light of the cognitive demands of monitoring one's responses for consistency and plausibility (Polak & Harris, 1999; Talwar & Lee, 2002; Talwar et al., 2007; Tate et al., 1992). Maltreated children, who tend to suffer from delays in development (Lyon & Saywitz, 1999; Shonk & Cicchetti, 2001), would likely exhibit similar patterns, albeit at somewhat later ages.

Second, children's understanding of the meaning and consequences of lying also develops during the preschool years (Bussey, 1992; Lyon & Saywitz, 1999; Peterson et al., 1983) and may have implications for their dishonesty. Although most research to date has not found an association between understanding and dishonesty (Feben, 1985; Goodman, Aman, & Hirschman, 1987; London & Nunez, 2002; Pipe & Wilson, 1994; Talwar et al., 2002), there are several reasons why a relation may have been missed. First, some research focused on memory errors rather than deliberately false statements (Feben, 1985; Goodman et al., 1987). Memory errors are not lies and therefore would be minimally influenced by a child's attitudes regarding honesty. Second, several studies examining the relation between children's understanding of lying and their tendency to deny a transgression had limited power to detect significant relations, either because of minimal variability in understanding (London & Nunez, 2002) or because understanding was measured with only a few questions (Pipe & Wilson, 1994; Talwar et al., 2002). Third, from a legal perspective, understanding of the meaning and morality of lying does not itself predict honesty but establishes an understanding of the oath. The supposition is that those who understand the oath are more likely to be influenced by the oath. Indeed, Talwar et al. (2004) found a positive relation between understanding of lying and honesty among children who had promised to tell the truth. Fourth, virtually all the research has examined possible relations between understanding and false denial of transgressions, without considering deliberately false allegations. Lyon and Dorado (in press) found that maltreated children who exhibited good understanding of the meaning and morality of the oath were less susceptible to making false allegations in response to leading tag questions than children who failed to exhibit good understanding.

Because of the potential effects of age on children's responsiveness to coaching and truth induction, we evaluated children across an age range during which one would expect developmental change in their abilities and proclivities to behave dishonestly. We also assessed children's attitudes about honesty and dishonesty in relation to coaching and truth induction to determine whether children's understanding predicted their behavior.

Present Study

In the present study, we examined the effects of instigator and recipient behavior on 4- to 7-year-old maltreated children's false allegations and false denials. During an initial phase, an instigator and a child either played or did not play with a toy house. Afterward, for half of the children, the instigator claimed that their behavior violated the recipient's expectations and provided extensive coaching so that the child would make a false report. That is, children who played were coached to deny that they had played, and children who did not

play were coached to claim that they did. A recipient then interviewed the child about what happened and made increasingly strong suggestions that play with the house had occurred. The interview included free-recall, yes – no, and suppositional questions, which presupposed that play had occurred. During each phase of questioning, the recipient either gave no instructions (the control condition) or used one of the two types of truth induction. In the oath condition, children were asked to promise to tell the truth about what had occurred, and in the reassurance condition, children were reassured that disclosure of wrongdoing would not lead to punishment. The recipient also administered a task to assess children's understanding of the meaning of truth and lie and the negative consequences of lying. All procedures were approved by the researchers' institutional review boards as well as the presiding judge of the juvenile court and the agencies who work with maltreated children.

Based on prior research, three sets of hypotheses were tested. First, with respect to coaching, we predicted that dishonesty would be higher among coached children than among noncoached children, with respect to both children coached to make false denials and children coached to make false allegations. Second, with respect to truth induction, we predicted that the oath and reassurance would decrease dishonesty. We expected that reassurance would be particularly effective with respect to children who had played because of the likelihood that children would perceive such play as a transgression. However, reassurance should not increase false allegations among children who had not played because the form of reassurance used in this study did not explicitly mention play (in contrast to findings that specific reassurance increased false allegations among some children; Lyon & Dorado, in press). We further hypothesized that the efficacy of truth induction would depend upon the types of questions asked by the recipient, with induction least effective when coupled with the highly leading suppositional questions that presuppose play had occurred. Third, with respect to individual differences, we predicted that older children would be both more likely to lie and more likely influenced by truth induction than younger children and that greater understanding of the meaning and consequences of lying would be associated with more honest responding, at least in the truth induction conditions.

Method

Participants

Participants included one hundred and ninety-eight 4- to 7-year-old children (99 boys and 99 girls) who were awaiting a court appearance in the Los Angeles County Dependency Court. All children had been removed from the custody of their parent or guardian due to substantiated maltreatment. Children were ineligible to participate if they were Spanish speaking (either officially recognized as Spanish speaking by the court or clearly incapable of communicating with the researcher in English) or if they were awaiting an adjudication hearing on the day of their appearance in court (at which they might have to testify). The final sample included ninety-eight 4- to 5-year-olds (M = 63 months, range = 48 – 71 months) and one hundred 6- to 7-year-olds (M = 83 months, range = 72 – 95 months). Their ethnicity was diverse: Forty-four percent were Latino, 40% were African American, 10% were non-Hispanic Caucasian, and 6% were other or unknown.

Materials

Oath-taking competency task (Lyon & Saywitz, 1999)—This task consists of questions about eight pictures, four regarding children's understanding of the meaning of "truth" and "lie" and four regarding children's understanding of the negative consequences of lying. For the meaning questions, pictures of two child characters looking at a single object are presented. One character labels the object correctly, and the other character labels

the object incorrectly, with the labels depicted as pictures within talk bubbles. Children are asked which character "told the truth" (two trials) or "told a lie" (two trials), thereby assessing their understanding that truth refers to accurate statements and lie refers to inaccurate statements. For the consequence questions, pictures of two child characters talking to an adult (judge, doctor, social worker, or grandmother) are presented. One character is described as telling "the truth," and the other is described as telling "a lie." Children point to the character who "will get in trouble," with correct responses demonstrating children's understanding that lying has negative consequences. Correct responding to the meaning and consequence questions would qualify a child witness as competent to take the oath (and thus to testify; Lyon, 2000).

Toy house—A toy house was constructed out of Lego™ building blocks. The house had several small doors on each side, with small toys hidden behind each door. The house was placed on a revolving platform so that each side could be easily accessed.

Procedure

For ease of exposition, the recipient will be referred to as "she" and the instigator as "he." All recipients were female, and two of the four instigators were male; instigator – recipient pairs were equally distributed across the conditions. The recipient invited eligible children to participate in the study and obtained their assent. She then administered the oath-taking competency task and afterward told the child that she had to retrieve a forgotten form in her office. She asked the child to wait for her, and to help the child wait, she set a timer to 5 min and told the child that she would be back before the timer went off. Upon leaving, she gestured to the toy house on the floor and said that they would play with it when she returned.

Instigator – child interaction—Shortly after the recipient left, the instigator entered the room and introduced himself. He engaged the child in a guessing game with a coin, in which one person guessed in which fist the other person held a coin. During some of the trials, the instigator would hide the coin so that neither fist held the coin and remark, "It's fun to trick people." Next, the instigator engaged the child in one of the four conditions: play, play coach, no-play, or no-play coach. The instigator spent approximately 5 min with each child, leaving shortly before the timer rang.

In the *play* ($n = 52$) and *play coach* conditions ($n = 49$), after playing the guessing game, the instigator noticed the toy house, lifted it onto the table, and engaged the child in play with the toy. He ensured that both he and the child opened doors, looked at the toys inside, and took the toys out. He labeled his actions, explicitly encouraged the child to engage in each action, and labeled the child's actions, thereby making the interaction with the house and toys quite salient to the child.

In the play condition, the instigator continued to play with the child and the toy until it was time to return the toy to the floor. He then said good-bye and left. In the play coach condition, the instigator interrupted the play to coach the child to deny play. He said, "We might get in trouble if anyone finds out that we played with the toy. I need you to do something for me. When that lady comes back, she is going to ask you what we did. Don't tell her we played with the toy. She is going to ask you a bunch of questions about what we did in here. Tell her we played with the coin, but don't tell her about the house. I'll come back in a little while and tell her what happened. Can you help me, and trick her so she doesn't know we played with the toy?" Children who expressed reluctance were given additional encouragement to help. The instigator then practiced asking the child a few questions (both free recall and yes – no) to ensure that the child understood the instructions

(e.g., “What did you do while I was gone?”). If the child disclosed that he or she played the guessing game in response to a practice question, the instigator responded with positive feedback. If the child reported playing with the house, the instigator instructed, “Try saying we played with the coin. Don’t tell her we played with the house yet.” Practice questions were delivered twice if the child gave the coached responses and thrice if the child did not follow the lead. As the instigator prepared to leave, he told the child, “Remember—tell her that we played with the coin, but please don’t tell her about the toy. I’ll tell her what happened later.”

Children in the two no-play conditions did not engage in play with the toy house. In the *no-play* condition ($n = 49$), the instigator played the guessing game with the child the entire time he was in the room and never mentioned the toy house. In the *no-play coach* condition ($n = 48$), after playing the guessing game the instigator said, “Oh no! You know what, we were supposed to play with that toy on the floor! I need you to do something for me. When that lady comes back, she is going to ask you what we did. Let’s tell her that we played with the toy.” The instigator then followed a script that paralleled the play coach condition, except that he coached the child to claim that they had played with the toy house. The instigator explained that the toy house had doors with toys inside and practiced questions in which the child would falsely claim that they had touched the toy house, opened the doors, and taken toys out.

Recipient – child interview—When the recipient returned, she immediately asked a preinduction free-recall question, “What happened in here while I was gone?” followed by two “tell-me-more” prompts (“You said x. Tell me more about x.”) Pilot testing revealed that children often blurted out their coached stories upon the recipient’s arrival, making it impossible to deliver truth induction instructions. Therefore, we included this free-recall question, which enabled us to examine the influence of instigator coaching on children’s reports prior to any truth induction.

Next, the recipient delivered one of the three truth induction instructions. In the *oath* condition ($n = 67$), the recipient said, “It’s very important that you tell me the truth. Can you promise that you will tell me the truth? Will you tell me any lies?” (The latter question, which always elicited a “no” response, was asked to ensure that children were not simply acquiescing when answering “yes” to the first question.) In the *reassurance* condition ($n = 66$), the recipient said, “I talk to kids all the time about things that make them feel bad. If something happened that you feel bad or sad about, it’s totally o.k. You won’t get in any trouble with me at all. We can try to fix it and make it better.” In the *control* condition ($n = 65$), the recipient gave no instructions. The recipient then asked the postinduction free-recall question (“Now, what happened in here while I was gone?”) followed by two tell-me-more prompts.

The recipient then told the child, “I’m going to ask some more questions to make sure I have this right.” Children in the oath condition were reminded, “Remember, you promised you would tell me the truth and that you won’t tell me any lies.” Children in the reassurance condition were reminded, “Remember you won’t get in trouble with me for telling what happened.”

The recipient then asked the repeated yes – no questions. The first two oriented the child to the instigator’s activities: “While I was gone, did anyone come in the room?” and, if the child answered “yes,” “Was it a man or a lady?” (the interviewer then used the appropriate pronoun for the remaining questions). If the child denied that anyone had come in the room, the interviewer omitted all subsequent yes – no questions about the instigator (and the child was scored as answering “no” to these questions). There were six yes – no questions about

the child's and instigator's interaction with the toy house, with the order of asking about the instigator's and child's interaction counterbalanced. The questions were "While I was gone, did you [he] touch any of the doors?" "Did you [he] open any of the doors?" and "Did you [he] take any of the toys out?" Each question was immediately repeated in a skeptical tone.

The recipient then insisted that the child and instigator had played with the toy house, saying that he "comes in all the time and plays with my toys. I *know* that he came in and that *both* of you played with my toy house." The recipient repeated the truth induction instructions for children in the oath and reassurance conditions and then asked the six suppositional questions. These questions presupposed that the child and instigator had played with the house, and the order of the questions about the child and instigator was counterbalanced. The questions were "When you [the man] touched the doors, how many did you [he] touch?" "When you [the man] opened the doors, were you [was he] happy or mad? " and "When you [the man] took out the toys, did you [the man] play with them or look at them?"

To recap, there were four instigator conditions, two in which the child played with the toy house (play and play coach) and two in which the child did not (no-play and no-play coach). For each play or no-play condition, there was a corresponding condition in which the instigator coached the child to provide a false report. There were three truth induction conditions: control (no instructions), oath, and reassurance. The instigator and recipient conditions were fully crossed so that there were 12 groups and at least 16 children in each combination of instigator and recipient condition. All children were asked three types of questions: free recall, repeated yes – no, and suppositional.

Debriefing—The instigator then entered the room and fully disclosed what had happened while the recipient was away. The child was fully debriefed. Specifically, the recipient told the child that the instigator was her friend, that the 2 worked together at school, and that she knew the instigator would play with the child. She explained that the purpose of the study was to find the ways of helping children to tell the truth. She acknowledged that it is sometimes difficult to tell what happened but emphasized that it is important to tell the truth and thanked the child for helping.

Results

Children's interview responses were scored for three types of information: house and nonhouse free-recall details, accuracy to yes – no questions, and acquiescence to suppositional questions. For all scores, responses from 15% of the children (randomly selected across study conditions) were coded by two independent raters. Proportion agreement for free recall was 90%, and kappas for the other variables were ≥.92. Discrepancies were resolved through discussion. Preliminary analyses revealed no gender differences in performance or order (oath-taking competency task meaning stories first or consequence stories first, questions about instigator behavior first or child behavior first) effects. These factors are not considered further.

Free Recall

Children were asked recall questions twice, once before any truth induction and once after. Free-recall scores included the number of house and nonhouse details. House details were coded liberally and included any reference to the house that might be interpreted as play with the house (e.g., "I was playing with that [points to house on floor] "; "There are toys inside those [referring to windows on house]"). Nonhouse details referred to any other factual information provided by the child about their behavior while the recipient was absent (e.g., "We was playing the coin game"; "There was a lady"; "She had a penny"). Children's

mean house and nonhouse details provided preinduction and postinduction are presented in Table 1 and Table 2, respectively.

House details were correct for children who actually played with the house (i.e., children in the play and play coach conditions) but incorrect for children who did not play with the house (i.e., children in the no-play and no-play coach conditions). Depending on whether children had in fact played, both coaching and truth induction were expected to have opposite effects: Children who played would say less about play when coached to deny such play and more under truth induction, whereas children who did not play would say more about play when coached to do so and less under truth induction. Therefore, we assessed children's free recall separately for children who played and who did not play.

Children's first recall (preinduction) performance reflected the influences of coaching and age before any truth induction. We conducted analyses of variance (ANOVAs) on the number of house and nonhouse details with age and instigator condition as between-subjects factors and type of detail (house vs. nonhouse) as a within-subjects factor. For children who played, significant main effects of instigator (play vs. play coach), $F(1, 97) = 9.93$, $p < .01$, partial $\eta^2 = .093$, and type of detail, $F(1, 97) = 9.74$, $p < .01$, partial $\eta^2 = .091$, emerged, as did a significant interaction between instigator and age, $F(1, 97) = 5.96$, $p = .01$, partial $\eta^2 = .058$. Children provided more nonhouse details ($M = 1.88$), than house details ($M = 1.21$). Also, although children provided fewer details in the play coach condition than in the play condition, this was qualified by the interaction with age. Older but not younger children produced fewer details when they were coached to deny play than when not coached, $t(97) = 2.85$, $p < .01$, $d = .98$, and among the children who played, older children provided more details than younger children, $t(97) = 1.85$, $p < .05$, $d = .67$. Summed house and nonhouse details are as follows: older play $M = 4.39$, play coach $M = 2.21$, younger play $M = 2.92$, and play coach $M = 2.64$.

The effects of coaching can also be examined by considering the number of children in each group who mentioned any play with the house. Because of the age differences for children in the play conditions, we analyzed the age groups separately. Although the younger children were only marginally less likely to disclose play when coached not to do so, 32% (8 of 25) in the play coach condition versus 58% (14 of 24) in the play condition, $\chi^2(3) = 3.43$, $p = .06$, $\varphi = .26$, the older children were clearly influenced by coaching: 27% (4 of 24) disclosed play in the play coach condition compared to 75% (21 of 28) in the play condition, $\chi^2(3) = 17.62$, $p < .001$, $\varphi = .58$.

Next, we examined preinduction performance among children who had not played with the house and hence for whom house details were false. If children in the no-play coach condition revealed the fact that the instigator had coached them to claim that they had played with the house ($n = 2$), they were coded as having provided zero house details because they were not reporting that they had actually played with the house. An ANOVA on the number of house and nonhouse details with age and instigator as between-subjects factors and type of detail as a within-subjects factor revealed significant main effects of age, $F(1, 93) = 5.98$, $p < .05$, partial $\eta^2 = .06$, and instigator, $F(1, 93) = 21.03$, $p < .001$, partial $\eta^2 = .19$, as well as a significant interaction between instigator and type of detail, $F(1, 93) = 92.75$, $p < .001$, partial $\eta^2 = .50$, and a three-way interaction among age, instigator, and type of detail, $F(1, 93) = 5.23$, $p < .05$, partial $\eta^2 = .05$. Older children ($M = 4.10$) provided more details overall than younger children ($M = 3.17$), and children coached to falsely claim play ($M = 4.54$) provided more details overall than children not coached ($M = 2.74$). The interaction between instigator and type of detail was attributable to the fact that coaching children to claim house play led to an increase in the number of house details (no-play coach $M = 3.31$ and no-play $M = 0.12$) and a decrease in the number of nonhouse details (no-play coach $M = 1.23$ and

no-play $M = 2.63$), $ts(93) > 4.18$, $p < .001$, $ds > .90$. The three-way interaction was attributable to the fact that the increase in the number of house details relative to the number of nonhouse details in the no-play coach condition was larger among the older children.

Whereas both age groups in the no-play coach condition provided a comparable number of nonhouse details, older children provided a substantially larger amount of house details than younger children, $t(46) = 2.61$, $p < .05$, $d = .73$ (Table 1).

We were able to assess the effects of coaching among children who did not play by counting the number of children who mentioned play in their preinduction free recall. Coaching clearly increased their tendency to claim play with the house; 6% (3 of 49) did so in the no-play condition compared to 82% (39 of 48) in the no-play coach condition, $\chi^2(3) = 55.74$, $p < .001$, $\varphi = .75$.

Children's second recall reflected possible influences of truth induction in addition to coaching and age (Table 2). First, children who played with the house were considered. We conducted an ANOVA on the number of house and nonhouse details with age, instigator, and induction as between-subjects factors and type of detail as a within-subjects factor. A significant main effect of instigator, $F(1, 89) = 8.41$, $p < .001$, partial $\eta^2 = .09$, revealed that children in the play condition provided more details than children in the play coach condition ($Ms = 3.14$ and 1.82). A significant main effect of induction, $F(2, 89) = 4.03$, $p < .05$, partial $\eta^2 = .08$, showed that children provided more information when administered the oath ($M = 3.36$) than when provided no instructions ($M = 1.84$), $t(89) = 1.93$, $p < .05$, $d = .49$, and, to some extent, than when provided reassurances ($M = 2.24$), $t(89) = 1.46$, $p < .10$, $d = .44$. However, this main effect was qualified by a significant interaction between age and induction, $F(2, 89) = 3.09$, $p = .05$, partial $\eta^2 = .07$. The induction effects were only evident among the 4- and 5-year-olds (oath $M = 3.22$, control $M = 0.94$, reassurance $M = 2.75$), $F(2, 46) = 4.59$, $p < .05$, partial $\eta^2 = .17$: Younger children who received the oath provided more information than children who received control instructions, $t(46) = 2.03$, $p < .05$, $d = .81$, as did younger children who received reassurance, $t(46) = 1.63$, $p = .05$, $d = .71$. The 6- and 7-year-olds did not differ in the amount of information provided based on induction (oath $M = 3.54$, control$M = 2.75$, reassurance$M = 1.74$).With respect to children who did not play with the toy but were coached to say that they had (the no-play coach condition), children were excluded if they explicitly disclosed the trick preinduction ($n = 2$) and children who disclosed the trick postinduction had house detail scores set to zero ($n = 5$; 4 in the oath condition and 1 in the reassurance condition). An ANOVA on the number of house and nonhouse details with age, instigator, and induction as between-subjects factors and type of detail as a within-subjects factor yielded a significant effect due to type of detail, $F(1, 83) = 7.49$, $p < .01$, partial $\eta^2 = .083$, and an interaction between instigator and detail, $F(1, 83) = 25.63$, $p < .001$, partial $\eta^2 = .236$, such that coaching led children to provide an equal number of house and nonhouse details, whereas children who were not coached to make false claims provided more nonhouse details, $t(83) = 5.59$, $p < .001$, $d = 1.73$—no-play coach: house $M = 1.35$, nonhouse $M = 0.85$; no-play: house $M = 0.08$, nonhouse $M = 1.76$.

The effects of induction can also be assessed by calculating the proportion of children who were initially dishonest but behaved honestly postinduction. With respect to children who played with the toy, examination of the counts suggested that the oath had an effect on children coached to conceal house play, whereas reassurance had an effect on children who failed to disclose play without any coaching. That is, for children in the play coach group, 5 of 12 children (42%) in the oath group who initially said nothing about play revealed play postinduction, compared to 3 of 25 children (12%) in the control and reassurance groups, $\chi^2(3) = 6.93$, $p < .01$, $\varphi = .43$. For children in the play group, 7 of 8 children (88%) in the

reassurance group who had not initially mentioned play did so postinduction, compared to 4 of 9 children (44%) in the control and oath groups, $\chi^2(3) = 3.44$, $p = .06$, $\varphi = .44$.

Summary—As expected, coaching reliably affected children's tendency to disclose play with the toy house, both when they were coached to deny play that actually occurred and when coached to allege play that had not occurred. Older children were more affected by coaching than younger children. The oath and reassurance increased younger children's willingness to acknowledge truthfully that they had played with the toy house. For children who had not played but had been coached to make false allegations, truth induction had no reliable effects on disclosure. Thus, truth induction had some positive effects on increasing true disclosures among the younger children and no negative effects on false allegations.

Repeated Yes – No Questions

Following the free-recall prompts, the interviewer reminded children of the appropriate truth induction instructions and asked a series of repeated yes – no questions asking about play with the toy house. Accuracy proportion scores were created separately for questions about the child's and the instigator's behavior. For children who played with the house, accuracy reflected true disclosures, and for children who had not played with the house, accuracy reflected true denials. Less than 1% of children's responses were "do not know" or unscorable (e.g., unintelligible), and these responses were not considered further. Analyses comparing children's response accuracy between each initial question and when it was repeated revealed no significant differences (both directly or in conjunction with children's age, instigator, or induction condition), all *F*s(1 or 2, 174) < 1.65, *ns*. In fact, very few children changed any of their responses across the repeated questions ($M = 0.04$). Hence, children's responses to the initial and repeated questions were combined to create overall accuracy scores. Means are presented in Table 3.

We conducted an ANOVA on the children's accuracy scores with age, instigator (play, play coach, no-play, and no-play coach), and induction as between-subjects factors and actor (child vs. instigator) as a within-subjects factor. A significant main effect of instigator, $F(3, 174) = 36.84$, $p < .001$, partial $\eta^2 = .39$, reflected the fact that children in the no-play condition ($M = 0.93$) were considerably more accurate in denying house play than all other children, including children who were coached to claim falsely that they had played ($M = 0.50$). Children in the play condition ($M = 0.60$) were more accurate in acknowledging play than children coached to deny play falsely ($M = 0.28$), *t*s > 4.80, *p*s < .01, *d*s > .98.

A significant main effect of induction, $F(2, 174) = 11.85$, $p < .001$, partial $\eta^2 = .12$, showed that children who were administered the oath answered a significantly greater proportion of questions correctly ($M = 0.72$), than did children administered no induction instructions ($M = 0.50$), or children provided reassurance ($M = 0.51$), *t*s > 3.20, *p*s < .001, *d*s > .56.

There was also a significant three-way interaction among actor, age, and instigator, $F(3, 174) = 3.28$, $p < .05$, partial $\eta^2 = .05$, which revealed that in the play condition (but in none of the other instigator conditions), age interacted with instigator, $F(1, 46) = 5.37$, $p < .05$, partial $\eta^2 = .10$. Examination of the means (Table 3) reveals that whereas younger children were less accurate with respect to their own actions (hence less willing to acknowledge that they had played with the house), older children were less accurate with respect to the instigator's actions.

Summary—Coaching reliably affected children's tendency to disclose both true and false play when asked repeated yes – no questions. The oath consistently showed positive effects in terms of reducing false denials and false alarms. Reassurance had no effect. Of interest,

question repetition did not affect children's accuracy and led very few children to change their responses. Age had virtually no effect on children's performance.

Suppositional Questions

The suppositional questions presupposed that the child and instigator had engaged in play and merely asked the child to clarify details of that interaction. The questions were highly leading and followed the recipient's insistence that the child and the instigator had played with the toy house. This component of the procedure was analogous to suggestibility studies that have elicited high rates of false allegations among young children (e.g., Thompson et al., 1997). We coded children's answers for whether they acquiesced to the presupposition that they had played with the house; acquiescence was scored as correct for children who had played with the house and incorrect for children who had not played with the house. Three percent of children's responses across the questions were either "do not know" or unscorable and were not considered further. Children's accuracy in response to the suppositional questions is presented in Table 4.

An ANOVA on children's accuracy scores with age, instigator, and induction as between-subjects factors and actor (child vs. instigator) as a within-subjects factor yielded significant effects due to age, $F(1, 174) = 7.86$, $p < .01$, partial $\eta^2 = .04$, and instigator, $F(1, 174) = 104.43$, $p < .001$, partial $\eta^2 = .64$. Younger children ($M = 0.53$)were less accurate than older children ($M = 0.64$); children who did not play with the toy house (and for whom the suppositional questions were misleading) were less accurate than children who did, and children who were coached were less accurate than children who were not coached: play $M = 0.92$, warn $M = 0.83$, no-play$M = 0.43$, no-play coach$M = 0.11$; all ts > 4.21, ps < .001, ds > .56.

However, a significant interaction between age and instigator, $F(3, 174) = 6.39$, partial $\eta^2 = .10$, showed that the age effect was limited to the no-play condition, $F(1, 47) = 13.27$, $p < .01$, partial $\eta^2 = .22$. When children neither played with the house nor were coached to claim they had, younger children were significantly less able to resist the questions presupposing house play ($M = 0.24$) than were the older children ($M = 0.62$). Age differences were nonsignificant for children in the other three instigator conditions.

An interaction between actor and instigator, $F(3, 174) = 9.10$, partial $\eta^2 = .14$, ps < .01, showed that in the absence of coaching, children were more willing to acquiesce to suggestions about the confederate's play than about their own play. Differences were significant in the play and no-play conditions, Fs(1, 51 and 1, 48) > 7.22, ps ≤ .01, partial $\eta^2 = .12$ and .23, respectively, but not in the two coaching conditions. In the play condition, this meant that their accuracy was higher for the instigator's actions ($M = 0.99$) than for their own ($M = 0.91$) because acquiescence reflected accurate responding. Conversely, in the no-play condition, children's greater willingness to acquiesce to questions about the instigator meant that their accuracy was lower for the instigator's actions ($M = 0.35$) than for their own ($M = 0.51$) because acquiescence reduced accuracy.

Summary—The recipient's insistence that the child and confederate had played with the toy, coupled with highly leading questions presupposing that play had occurred, effectively led to very high rates of acquiescence. And, as expected, in the face of such strong suggestion, truth induction had no effects on children's accuracy. Children exhibited greater acquiescence to questions about the confederate's actions than about their own but only in the absence of coaching. We also observed age differences in accuracy but only in the absence of either coaching or play with the toy.

Relations Between Oath-Taking Competency and Performance

The final set of analyses examined whether children's accuracy was related to their performance on the oath-taking competency task, which included questions about children's understanding of both the meaning and the consequences of lying. The task was designed to assess children's basic understanding of the fact that truth and lie refer to factual and counterfactual statements, respectively, and that telling lies has negative consequences, which constitutes the minimum legal standard for qualification to take the oath (Lyon, 2000). Children passing such tasks might not fully appreciate distinctions among jokes, lies, and pretense, and might not have internalized standards against lying but would nevertheless believe that the oath required their best efforts to avoid falsehoods and that falsehoods would be subject to punishment. Children's performance on the two subtasks was significantly related, $r(198) = .42$, and because children would be expected to do well on both tasks in order to qualify to take the oath, we combined children's scores.

Correlations were computed between children's oath-taking competency scores and their free-recall, repeated yes – no question, and suppositional question performance. Because we predicted that the scores would predict performance specifically when children were given the oath (cf. Talwar et al., 2004), we analyzed the truth induction conditions separately. None of the correlations between children's competency scores and interview performance were significant among children in the reassurance and control conditions, rs = −.05 to .11, and dfs = 59 to 63. Among children in the oath condition, however, higher scores on the competency measure were associated with greater accuracy when answering the suppositional questions, $r(67) = .27$, $p < .05$ (both with respect to actions of the child, $r = .26$, and instigator, $r = .27$, ps < .05). Because children's competency performance was correlated with age, $r(198) = .40$, we recomputed the significant relations controlling for age; the correlation between children's competency scores and both their overall performance on the suppositional questions and suppositional questions regarding their own behavior remained significant, rs(64) = .25 and .26, ps < .05, respectively.

A legal perspective suggests an additional approach to analyzing the significance of children's competency scores. In court, competency is a dichotomous judgment such that children who fail to perform well on questions about the meaning and consequences of lying are found incompetent to take the oath and are not allowed to testify. Hence, it is worthwhile to consider if children who failed to perform at ceiling on the competency questions (N = 61) were less likely to be influenced by the oath than children who performed at ceiling (N = 71; examining children in the control and oath conditions). Hence, we entered children's performance on the oath-taking competency questions (at ceiling vs. not at ceiling) as a between-subjects variable in a series of ANOVAs examining postinduction recall scores, repeated yes – no question accuracy, and suppositional question accuracy. Competency did not emerge as a significant predictor of performance in any of the analyses, nor did competency interact with induction to affect children's performance. Instead, the same truth induction effects already reported reemerged, both among children who had and had not performed at ceiling on the competency measure. In other words, children who failed to pass the competency task were no less likely to be influenced by the oath.

Discussion

The purpose of this study was to examine several potentially critical factors that may influence dishonesty in maltreated children. Our particular focus concerned the role of two types of adult influence: an instigator who extensively coaches a false report and a recipient who asks increasingly suggestive questions with the aid of truth induction. We created a strong coaching manipulation in order to provide a rigorous test of the potential for truth induction to undo coached false reports. We assessed an age range that has been found to

undergo substantial development in the proclivity to behave dishonestly and susceptibility to adult influence and tested children's attitudes about the meaning and consequences of lying as a possible correlate of dishonesty.

Instigator Behavior

The coaching was extensive. The instigator provided a rationale for the false story, practiced answering questions with the child, and for the children coached to deny play with the house, practiced a cover story. The recipient questioned the child immediately postcoaching, maximizing the likelihood that the child would remember the coaching and maintain the motivation to respond dishonestly. As predicted, coaching had consistent and robust effects on children's honesty, both when coached to claim that play had occurred and when coached to deny that play had occurred. That is, across analyses, the effect sizes routinely fell in the moderate to large range (Cohen, 1988).

Recipient Behavior

Despite the extensiveness and effectiveness of the coaching, the oath frequently led to improvements in children's performance. Whereas prior research has found that the oath increases children's honesty when they have been warned not to disclose transgressions (Lyon & Dorado, in press; Talwar et al., 2002, 2004), ours is the first to find that the oath increases accuracy among children extensively coached to either conceal or falsely reveal information. For children coached to deny play, the oath exhibited the most consistent positive effects, most of which were moderate in size, increasing disclosure among younger children in their free recall, and among both age groups in response to the repeated yes – no questions. For children coached to claim play falsely, the oath did not affect children's free-recall performance but led to greater accuracy in response to the repeated yes – no questions. Moreover, whereas prior research has found that specific reassurance in which the recipient explicitly mentions the target behavior can impair performance (Lyon & Dorado, in press), this study demonstrates that general reassurance exhibited no reliable tendency to increase false reports. At the same time, however there was only very limited evidence that reassurance improved the accuracy of children's reports.

Repeated yes – no questioning, often characterized as highly suggestive (Ceci & Friedman, 2000; Endres, Poggenpohl, & Erben, 1999), did not undermine truth induction's efficacy. Indeed, we were surprised to find that repeated questioning had no effect on children's accuracy, and very few children changed their responses. This was so despite the fact that the questions were repeated immediately and with a skeptical tone, thus maximizing their suggestiveness (Endres et al., 1999). It may be that children's certainty about what actually occurred undermined repetition's effect (Lyon, 2002).

Truth induction's benefits did diminish, however, in response to the highly leading suppositional questions. When the recipient insisted that play with the house had occurred and asked a series of questions that presupposed play, false reports were high, a common finding in the suggestibility literature (e.g., Bruck, Ceci, & Principe, 2006). Under these circumstances, neither the oath nor reassurance had any effect. The results thus suggest that administering the oath in conjunction with free-recall and yes – no questions improves young children's performance but that any benefits of truth induction may be over-ridden if highly leading questions are asked. Moreover, although the differences were not statistically significant, reassured children occasionally looked worse than children in the control group. This pattern is consistent with other research finding that normally benign interviewing techniques may be contraindicated if coupled with highly suggestive questioning (e.g., Bruck, Melnyk, & Ceci, 2000).

Child Characteristics

We found some support for our prediction that older children would be more affected by coaching, with respect to both concealing true play and claiming false play. However, these age differences did not appear in response to yes – no and suppositional questions. With respect to truth induction, on the other hand, there was virtually no evidence that age mattered; indeed, the one age difference was contrary to our prediction, in that younger children were more influenced than older children by truth induction in free recall. We had anticipated that younger children's limited appreciation of the consequences of disclosure and the morality of lying would lead them to be less responsive to truth induction, but there was little evidence that this was the case. Rather, the most consistent finding was that children in this age range were quite uniform in their susceptibility to recipient influence.

Finally, there were few significant (and no large) age differences in overall accuracy, even when one would expect age differences due to suggestibility among younger children. Younger children showed some tendency to initially provide less information overall, which is consistent with the difficulty they have in spontaneously producing information when asked for free recall. However, there were no age differences in accuracy in response to the repeated yes – no questions. Younger children showed a greater tendency to acquiesce to the highly suggestive suppositional questions than older children, a common finding in suggestibility research (Bruck et al., 2006), but this was true in only one of the four instigator conditions. The lack of age effects in accuracy might be attributable at least in part to the fact that because we were interested in honesty and dishonesty, we deliberately minimized memory errors by questioning children immediately after their interaction with the instigator. Had a longer delay taken place between the instigator's instructions and the recipient's questioning, age differences may have emerged.

We also predicted that children's understanding of the meaning and consequences of lying would be positively related to their honesty in the oath condition. There were indeed some significant correlations, although they were infrequent. Moreover, the additional analyses suggested by legal approaches to competency suggest that although the competency scores have some predictive value in assessing the accuracy of children sworn to tell the truth, a dichotomous yes – no judgment about competency based on children's performance is likely to exclude children from testifying who would nevertheless be influenced by the oath (cf. Talwar et al., 2002, who found evidence that a promise to tell the truth decreased dishonesty among children who would probably fail an oath-taking competency assessment).

Age differences might nevertheless emerge if the age range is increased. Of course, still younger children will at some point simply lack the necessary comprehension to be influenced by coaching or a promise to tell the truth. Older children might be less influenced by either coaching or truth induction, because their moral behavior is increasingly influenced by self-evaluation as opposed to external influences (Bandura, 1991). Moral self-evaluations undergo substantial development during the early grade school years. Bussey (1992, 1999) found that it was not until second grade that children anticipated more pride for telling the truth than for lying, and some of the research has found that older grade schoolchildren are less inclined than younger children to lie for a transgressing instigator (Bussey & Grimbeek, 1995; Pipe & Wilson, 1994; but see Talwar et al., 2004).

It will be necessary, in subsequent research, to better identify individual differences in children's response to truth induction. Those individual differences, in turn, will give us insight into the mechanism by which truth induction exerts its effect. For example, if older children are less influenced by truth induction and more influenced by internal moral standards, this suggests that truth induction affects children's perceptions of the costs and

benefits of honesty. Future research should directly assess children's expectations about the consequences of nondisclosure and disclosure, dishonesty and honesty.

Limitations

Although the present study's results are provocative and highlight the potential value of truth induction in decreasing dishonesty among maltreated children, several limitations should be acknowledged. First, the experimental context necessarily limited the external validity of the study. On the one hand, child witnesses obviously face much more serious pressures about more serious transgressions. Maltreated children often fear quite severe consequences for disclosure (Anderson et al., 1993), which may be little affected by reassurances regarding the recipient's reactions. A promise to tell the truth might be taken more seriously in the real world, but it is still likely insufficient to overcome many pressures. On the other hand, it may be easier to motivate honesty in children questioned about more serious events, given children's desire to avoid harm to themselves or others. Both false allegations and false denials carry more serious consequences in the real world than in our research.

Second, a similar and equally serious problem with external validity is that both the instigator and the recipient in this study were virtual strangers to the participants. Of course, because our participants were maltreated children who had been removed from their parents' custody, we could not examine the power of parents as instigators or recipients in influencing children's dishonesty. Recent research on children's disclosure of sexual abuse, however, demonstrates quite clearly the potential influence of adults who are emotionally close to the child (Hershkowitz, Lanes,&Lamb, 2007;Malloy et al., 2007).

Third, children in the coaching conditions were not truly "lying" but "tricking" the recipient, a necessary modification given the ethical problems inherent in teaching children to lie. A trick is intended to deceive but is only a temporary lie, as manifested by the instigator's reassurance to the child that they would ultimately disclose what they had done. At the same time, the high rates of nondisclosure and denial of play among the children who received no coaching suggested that they intuited that play with the toy house constituted a transgression (however minor), and these children had no expectation that the truth would be revealed.

Future Directions

It may be possible to increase the efficacy of truth induction in reducing dishonesty. Reassurance might be made effective if the recipient reassures the child about the reactions of parties other than the recipient, although in the real world, such reassurances might be difficult to make with confidence. A combination of reassurance with a promise to tell the truth might also have benefits. The combination could be particularly effective if children who have been coached to lie might otherwise interpret reassurance as guaranteeing that a false story will not be punished. When coached false reports are a concern, truth induction might be coupled with inquiries about coaching itself. Those questions might be quite pointed ("Did the man tell you what to say?") or more general ("What did the man say to you?"). The recipient in this study only pursued the hypothesis that the child had engaged in play with the toy house, making it incumbent on the child to disclose coaching.

Further work can also elucidate the conditions under which instigators exert stronger or weaker effects. In this study, the instigator was himself a transgressor who engaged the child in the transgression (recall that the coached children were either told that they were supposed to play, in the no-play coach condition, or that they were not supposed to play, in the play coach condition). We deliberately chose this design to mimic situations in which children themselves feel implicated in adults' wrongdoing (a common dilemma for many

sexually abused children; Anderson et al., 1993). However, whether the instigator is the same person as the potential wrongdoer and whether the child is herself implicated in the target behavior are important factors to manipulate in subsequent research.

It will also be important in future to directly compare maltreated and nonmaltreated children. Instigator and recipient influences may have differential effects depending on a child's maltreatment history. Maltreatment is likely to have negative effects on children's trust that adults will not cause them harm (Shields, Ryan, & Cicchetti, 2001), which could make them particularly susceptible to secrecy. At the same time, developmental delays might make them less proficient at lying. Direct comparisons will enable us to better understand the effects of maltreatment on children's attitudes and behavior, the mechanisms affecting children's dishonesty, and the implications of child witness research for actual practice.

Finally, truth induction should be attempted in the field. Our focus on maltreated children who both had and had not transgressed highlights the study's implications for forensic interviewers assessing the costs and benefits of various interviewing approaches. Children who testify are disproportionately those who have been substantiated as maltreated and whose honesty is subject to challenge. Before truth induction can safely be attempted in the field, where its ultimate utility will be determined, it was necessary to establish its effects on both true and false reports in a laboratory context, where the truth is known. It was also imperative to examine truth induction in precisely the population that will be the subject of its use in the field. This study lays important groundwork for continued research concerning truth induction in actual forensic interviews.

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References

Anderson J, Martin J, Mullen P, Romans S, Herbison P. Prevalence of childhood sexual abuse experiences in a community sample of women. Journal of the American Academy of Child and Adolescent Psychiatry 1993;32:911–919. [PubMed: 8407763]

Bandura, A. Social cognitive theory of moral thought and action. In: Kurtines, WM.; Gewirtz, JL., editors. Handbook of moral behavior and development. Hillsdale, NJ: Erlbaum; 1991. p. 45-103.

Bottoms BL, Goodman GS, Schwartz-Kenney BM, Thomas SN. Understanding children's use of secrecy in the context of eyewitness reports. Law & Human Behavior 2002;26:285–313. [PubMed: 12061620]

Brennan M. The battle for credibility: Themes in the cross-examination of child victim witnesses. International Journal for the Semiotics of Law 1994;26:51–73.

Bruck, M.; Ceci, SJ.; Principe, GF. The child and the law. In: Renninger, KA.; Sigel, IE.; Damon, W.; Lerner, RM., editors. Handbook of child psychology. 6th ed.. Hoboken, NJ: John Wiley & Sons; 2006. p. 776-816.

Bruck M, Melnyk L, Ceci SJ. Draw it again Sam: The effect of drawing on children's suggestibility and source monitoring ability. Journal of Experimental Child Psychology 2000;77:169–196. [PubMed: 11023656]

Bussey K. Lying and truthfulness: Children's definitions, standards, and evaluative reactions. Child Development 1992;63:129–137.

Bussey K. Children's categorization and evaluation of different types of lies and truths. Child Development 1999;70:1338–1347.

Bussey, K.; Grimbeek, EJ. Disclosure processes: Issues for child sexual abuse victims. In: Rotenberg, KJ., editor. Disclosure processes in children and adolescents. Cambridge, England: Cambridge University Press; 1995. p. 166-203.

Bussey, K.; Lee, K.; Grimbeek, EJ. Lies and secrets: Implications for children's reporting of sexual abuse. In: Goodman, GS.; Bottoms, BL., editors. Child victims, child witnesses: Understanding and improving testimony. New York: Guilford; 1993. p. 147-168.

Ceci SJ, Friedman RD. The suggestibility of children: Scientific research and legal implications. Cornell Law Review 2000;86:34–108.

Ceci, SJ.; Leichtman, M. "I know that you know that I know that you broke the toy" A brief report of recursive awareness among 3-year-olds. In: Ceci, SJ.; Leichtman, M.; Putnick, M., editors. Cognitive and social factors in early deception. Hillsdale, NJ: Lawrence Erlbaum; 1992. p. 1-9.

Cohen, J. Statistical power analyses for the social sciences. 2nd ed.. Hillsdale, NJ: Erlbaum; 1988.

DePaulo BM, Jordan A, Irvine A, Laser PS. Age changes in the detection of deception. Child Development 1982;53:701–709.

Ekman, P. Why kids lie: How parents can encourage truthfulness. New York: Scribner; 1989.

Endres J, Poggenpohl C, Erben C. Repetitions, warnings and video: Cognitive and motivational components in preschool children's suggestibility. Legal and Criminological Psychology 1999;4:129–146.

Feben, DJ. Unpublished honours thesis. Clayton, Australia: Monash University; 1985. Age of witness competency: Cognitive correlates.

Goodman, GS.; Aman, CJ.; Hirschman, J. Child sexual and physical abuse: Children's testimony. In: Ceci, SJ.; Toglia, MP.; Ross, DF., editors. Children's eyewitness memory. New York: Springer-Verlag; 1987. p. 1-23.

Goodman GS, Batterman-Faunce JM, Schaaf JM, Kenney R. Nearly 4 years after an event: 'Children's eyewitness memory and adults' perceptions of children's accuracy. Child Abuse & Neglect 2002;26:849–884. [PubMed: 12363335]

Hershkowitz I, Lanes O, Lamb ME. Exploring the disclosure of child sexual abuse with alleged victims and their parents. Child Abuse & Neglect 2007;31:111–123. [PubMed: 17316793]

Huffman ML, Warren AR, Larson SM. Discussing truth and lies in interviews with children: Whether, why, and how? Applied Developmental Science 1999;1:6–15.

Lewis M, Stanger C, Sullivan MW. Deception in 3-year-olds. Developmental Psychology 1989;25:439–443.

London K, Nunez N. Examining the efficacy of truth/lie discussions in predicting and increasing the veracity of children's reports. Journal of Experimental Child Psychology 2002;83:131–147. [PubMed: 12408959]

Lyon TD. Child witnesses and the oath: Empirical evidence. Southern California Law Review 2000;73:1017–1074.

Lyon TD. Applying suggestibility research to the real world: The case of repeated questions. Law and Contemporary Problems 2002;65:97–126.

Lyon TD, Dorado JS. Truth induction in young maltreated children: The effects of oath-taking and reassurance on true and false disclosures. Child Abuse & Neglect. (in press).

Lyon TD, Saywitz KJ. Young maltreated children's competence to take the oath. Applied Developmental Science 1999;3:16–27.

Malloy LC, Lyon TD, Quas JA. Filial dependency and recantation of child sexual abuse allegations. Journal of the American Academy of Child & Adolescent Psychiatry 2007;46:162–170. [PubMed: 17242619]

Peterson CC, Peterson JL, Seeto D. Developmental changes in ideas about lying. Child Development 1983;54:1529–1535. [PubMed: 6661946]

Pipe M, Wilson JC. Cues and secrets: Influences on children's event reports. Developmental Psychology 1994;30:515–525.

Polak A, Harris PL. Deception by young children following noncompliance. Developmental Psychology 1999;35:561–568. [PubMed: 10082026]

Quas JA, Davis E, Goodman GS, Myers JEB. Repeated questions, deception, and children's true and false reports of body touch. Child Maltreatment 2007;12:60–67. [PubMed: 17218648]

Sas, LD.; Cunningham, AH. Tipping the balance to tell the secret: The public discovery of child sexual abuse. London, Ontario: London Family Court Clinic; 1995.

Shields A, Ryan RM, Cicchetti D. Narrative representations of caregivers and emotional dysregulation as predictors of maltreated children's rejection by peers. Developmental Psychology 2001;37:321–337. [PubMed: 11370909]

Shonk SM, Cicchetti D. Maltreatment, competency deficits, and risk for academic and behavioral maladjustment. Developmental Psychology 2001;37:3–17. [PubMed: 11206431]

Stouthamer-Loeber M, Loeber R. Boys who lie. Journal of Abnormal Child Psychology 1986;14:551–564. [PubMed: 3782626]

Summit RC. The child sexual abuse accommodation syndrome. Child Abuse & Neglect 1983;7:177–193. [PubMed: 6605796]

Talwar V, Gordon H, Lee K. Lying in the elementary school years: Verbal deception and its relation to second-order belief understanding. Developmental Psychology 2007;43:804–810. [PubMed: 17484589]

Talwar V, Lee K. Development of lying to conceal a transgression: Children's control of expressive behaviour during verbal deception. International Journal of Behavioral Development 2002;26:436–444.

Talwar V, Lee K, Bala N, Lindsay RCL. Children's conceptual knowledge of lying and its relation to their actual behaviors: Implications for court competence examinations. Law & Human Behavior 2002;26:395–415. [PubMed: 12182530]

Talwar V, Lee K, Bala N, Lindsay RCL. Children's lie-telling to conceal a parent's transgression: Legal implications. Law & Human Behavior 2004;28:411–435. [PubMed: 15499823]

Tate, CS.; Warren, AR.; Hess, TM. Adults' liability for children's "lie-ability": Can adults coach children to lie successfully?. In: Ceci, SJ.; Leichtman, MD.; Putnick, M., editors. Cognitive and social factors in early deception. Hillsdale, NJ: Erlbaum; 1992. p. 69-87.

Thompson WC, Clarke-Stewart A, Lepore SJ. What did the janitor do? Suggestive interviewing and the accuracy of children's accounts. Law & Human Behavior 1997;21:405–426.

Tye MC, Amato SL, Honts CR, Devitt MK, Peters D. The willingness of children to lie and the assessment of credibility in an ecologically relevant laboratory setting. Applied Developmental Science 1999;3:92–109.

Wilson JC, Pipe M. The effects of cues on young children's recall of real events. New Zealand Journal of Psychology 1989;18:65–70.

Wilson AE, Smith MD, Ross HS. The nature and effects of young children's lies. Social Development 2003;12:21–45.

Table 1

Means (Standard Deviations) for Preinduction Free-Recall House and Nonhouse Details

	House	Nonhouse
Play (*n* = 52)		
4- to 5-year-olds	1.33 (1.55)	1.58 (1.28)
6- to 7-year-olds	1.93 (1.65)	2.46 (1.29)
M	1.65 (1.62)	2.06 (1.35)
Play coach (*n* = 49)		
4- to 5-year-olds	0.92 (1.82)	1.72 (1.31)
6- to 7-year-olds	0.54 (1.47)	1.67 (1.20)
M	0.74 (1.66)	1.69 (1.25)
No-play (*n* = 49)		
4- to 5-year-olds	0.04 (0.20)	2.38 (1.88)
6- to 7-year-olds	0.20 (0.71)	2.88 (1.09)
M	0.12 (0.53)	2.63 (1.54)
No-play coach (*n* = 46)		
4- to 5-year-olds	2.65 (2.35)	1.39 (1.31)
6- to 7-year-olds	4.26 (2.05)	1.04 (1.15)
M	3.46 (2.33)	1.22 (1.23)

Table 2

Means (Standard Deviations) for Postinduction Free-Recall House and Nonhouse Details

	Control (*n* = 64)		Oath (*n* = 66)		Reassurance (*n* = 66)	
	House	**Nonhouse**	**House**	**Nonhouse**	**House**	**Nonhouse**
Play (*n* = 52)						
4- to 5-year-olds	0.50 (1.07)	0.63 (0.92)	2.00 (2.39)	1.88 (1.96)	1.38 (1.19)	2.00 (2.00)
6- to 7-year-olds	2.00 (2.56)	1.75 (1.04)	1.60 (1.65)	2.60 (1.84)	1.70 (2.41)	0.90 (1.29)
M	1.25 (2.05)	1.19 (1.11)	1.78 (1.96)	2.28 (1.87)	1.56 (1.92)	1.39 (1.69)
Play coach (*n* = 49)						
4- to 5-year-olds	0.38 (1.06)	0.38 (0.52)	1.67 (2.06)	0.89 (1.05)	1.25 (2.38)	0.88 (0.64)
6- to 7-year-olds	0.63 (1.19)	1.13 (1.36)	0.88 (1.46)	2.00 (1.51)	0.00 (0.00)	0.88 (0.64)
M	0.50 (1.10)	0.75 (1.06)	1.29 (1.79)	1.41 (1.37)	0.63 (1.75)	0.88 (0.62)
No-play (*n* = 49)						
4- to 5-year-olds	0.00 (0.00)	2.13 (1.81)	0.13 (0.35)	1.50 (1.20)	0.25 (0.71)	1.13 (1.25)
6- to 7-year-olds	0.11 (0.33)	1.67 (1.80)	0.00 (0.00)	1.63 (1.69)	0.00 (0.00)	2.50 (1.77)
M	0.06 (0.24)	1.88 (1.76)	0.06 (0.25)	1.56 (1.41)	0.13 (0.50)	1.81 (1.64)
No-play coach (*n* = 46)						
4- to 5-year-olds	2.25 (2.92)	0.13 (0.35)	0.43 (0.79)	1.29 (1.11)	1.25 (2.38)	1.13 (1.36)
6- to 7-year-olds	1.29 (1.38)	0.43 (0.79)	1.13 (2.23)	1.13 (0.99)	1.75 (2.38)	1.00 (1.07)
M	1.80 (2.31)	0.27 (0.59)	0.80 (1.70)	1.20 (1.01)	1.50 (2.31)	1.06 (1.18)

Table 3

Means (Standard Deviations) for Proportion Accuracy Scores to Repeated Yes – No Questions

	Control (*n* = 65)			Oath (*n* = 67)			Reassurance (*n* = 66)		
	Child	**Instigator**	***M (SD)***	**Child**	**Instigator**	***M (SD)***	**Child**	**Instigator**	***M (SD)***
Play (*n* = 52)									
4- to 5-year-olds	0.54 (0.48)	0.56 (0.44)	0.55 (0.30)	0.58 (0.50)	0.67 (0.44)	0.63 (0.42)	0.27 (0.40)	0.79 (0.36)	0.53 (0.24)
6- to 7-year-olds	0.35 (0.38)	0.29 (0.39)	0.32 (0.34)	0.88 (0.25)	0.68 (0.39)	0.78 (0.23)	0.78 (0.42)	0.67 (0.40)	0.73 (0.32)
M	0.45 (0.43)	0.43 (0.43)	0.44 (0.33)	0.75 (0.40)	0.68 (0.40)	0.71 (0.33)	0.56 (0.47)	0.72 (0.38)	0.64 (0.29)
Play coach (*n* = 49)									
4- to 5-year-olds	0.33 (0.47)	0.23 (0.43)	0.28 (0.41)	0.38 (0.48)	0.26 (0.43)	0.32 (0.27)	0.29 (0.45)	0.29 (0.42)	0.29 (0.33)
6- to 7-year-olds	0.25 (0.38)	0.06 (0.18)	0.16 (0.33)	0.48 (0.43)	0.63 (0.45)	0.55 (0.37)	0.04 (0.12)	0.13 (0.35)	0.08 (0.24)
M	0.29 (0.42)	0.15 (0.33)	0.22 (0.32)	0.43 (0.45)	0.43 (0.47)	0.43 (0.33)	0.17 (0.34)	0.21 (0.39)	0.19 (0.30)
No-play (*n* = 49)									
4- to 5-year-olds	0.98 (0.06)	0.92 (0.24)	0.95 (0.12)	0.98 (0.06)	1.00 (0.00)	0.99 (0.03)	1.00 (0.00)	0.64 (0.44)	0.84 (0.22)
6- to 7-year-olds	0.89 (0.33)	0.86 (0.29)	0.87 (0.29)	0.98 (0.06)	1.00 (0.00)	0.99 (0.03)	0.88 (0.35)	1.00 (0.00)	0.94 (0.18)
M	0.93 (0.24)	0.88 (0.26)	0.91 (0.22)	0.98 (0.06)	1.00 (0.00)	0.99 (0.03)	0.94 (0.25)	0.84 (0.34)	0.89 (0.20)
No-play coach (*n* = 48)									
4- to 5-year-olds	0.38 (0.52)	0.50 (0.53)	0.44 (0.50)	0.90 (0.23)	0.75 (0.46)	0.82 (0.32)	0.33 (0.47)	0.25 (0.39)	0.29 (0.26)
6- to 7-year-olds	0.42 (0.47)	0.38 (0.52)	0.40 (0.49)	0.67 (0.41)	0.81 (0.39)	0.73 (0.36)	0.29 (0.45)	0.33 (0.47)	0.31 (0.44)
M	0.40 (0.48)	0.44 (0.51)	0.42 (0.47)	0.78 (0.36)	0.78 (0.41)	0.78 (0.33)	0.31 (0.45)	0.29 (0.42)	0.30 (0.35)

Table 4

Means (Standard Deviations) for Proportion Accuracy Scores to Suppositional Questions

	Control (*n* = 65)			Oath (*n* = 67)			Reassurance (*n* = 66)		
	Child	**Instigator**	***M (SD)***	**Child**	**Instigator**	***M (SD)***	**Child**	**Instigator**	***M (SD)***
Play (*n* = 52)									
4- to 5-year-olds	0.96 (0.12)	1.00 (0.00)	0.98 (0.06)	0.96 (0.12)	1.00 (0.00)	0.98 (0.06)	0.90 (0.20)	1.00 (0.00)	0.95 (0.10)
6- to 7-year-olds	0.90 (0.20)	1.00 (0.00)	0.95 (0.10)	0.93 (0.14)	0.97 (0.11)	0.95 (0.08)	0.93 (0.21)	1.00 (0.00)	0.97 (0.11)
M	0.93 (0.16)	1.00 (0.00)	0.96 (0.08)	0.94 (0.13)	0.98 (0.08)	0.96 (0.07)	0.92 (0.20)	1.00 (0.00)	0.96 (0.10)
Play coach (*n* = 49)									
4- to 5-year-olds	0.75 (0.46)	0.75 (0.39)	0.75 (0.42)	0.89 (0.33)	0.78 (0.37)	0.83 (0.33)	0.96 (0.12)	0.96 (0.12)	0.96 (0.12)
6- to 7-year-olds	0.81 (0.27)	0.79 (0.40)	0.80 (0.32)	0.79 (0.29)	0.92 (0.24)	0.85 (0.16)	0.71 (0.33)	0.83 (0.25)	0.77 (0.22)
M	0.78 (0.37)	0.77 (0.38)	0.96 (0.08)	0.84 (0.31)	0.84 (0.31)	0.96 (0.07)	0.83 (0.27)	0.90 (0.20)	0.96 (0.10)
No-play (*n* = 49)									
4- to 5-year-olds	0.29 (0.38)	0.19 (0.37)	0.24 (0.37)	0.50 (0.36)	0.19 (0.37)	0.34 (0.35)	0.25 (0.15)	0.00 (0.00)	0.13 (0.08)
6- to 7-year-olds	0.59 (0.43)	0.33 (0.50)	0.46 (0.43)	0.79 (0.35)	0.69 (0.46)	0.74 (0.39)	0.60 (0.45)	0.69 (0.46)	0.65 (0.41)
M	0.45 (0.42)	0.26 (0.44)	0.36 (0.41)	0.65 (0.37)	0.44 (0.48)	0.54 (0.41)	0.43 (0.38)	0.34 (0.47)	0.39 (0.39)
No-play coach (*n* = 48)									
4- to 5-year-olds	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.17 (0.36)	0.17 (0.36)	0.17 (0.36)	0.04 (0.12)	0.00 (0.00)	0.02 (0.06)
6- to 7-year-olds	0.29 (0.45)	0.21 (0.35)	0.25 (0.39)	0.25 (0.39)	0.21 (0.40)	0.23 (0.39)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
M	0.15 (0.34)	0.10 (0.26)	0.13 (0.30)	0.21 (0.36)	0.19 (0.36)	0.20 (0.36)	0.02 (0.08)	0.00 (0.00)	0.01 (0.04)