

Truth Is at Hand: How Gesture Adds Information During Investigative Interviews

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Abstract

The accuracy of information obtained in forensic interviews is critically important to credibility in the legal system. Research has shown that the way interviewers frame questions influences the accuracy of witnesses' reports. A separate body of research has shown that speakers gesture spontaneously when they talk and that these gestures can convey information not found anywhere in the speakers' words. In our study, which joins these two literatures, we interviewed children about an event that they had witnessed. Our results demonstrate that (a) interviewers' gestures serve as a source of information (and, at times, misinformation) that can lead witnesses to report incorrect details, and (b) the gestures witnesses spontaneously produce during interviews convey substantive information that is often not conveyed anywhere in their speech, and thus would not appear in written transcripts of the proceedings. These findings underscore the need to attend to, and document, gestures produced in investigative interviews, particularly interviews conducted with children.

Keywords

eyewitness memory, gestures, false memory, legal processes

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Consider the following exchange between an interviewer and a child:

- (a) Interviewer: "What was he wearing?"
 Child: "A music hat."

An investigator examining a written transcript of this exchange would assume that the new information, the hat, was the child's idea. Now consider a second exchange:

- (b) Interviewer: "What was he wearing?"
 Child: [silence]
 Interviewer: "Was he wearing glasses?"

This time the investigator would assume that the new information, the glasses, was the interviewer's idea.

Written transcripts are essential tools in the legal system, but they may be misleading. The transcripts just quoted misrepresent what actually happened during these two interviews. In (a), the interviewer gestured "hat" (tipping fist to forehead as though donning a hat) while asking her question. In doing so, she silently encouraged the child to mention a hat when, in fact, no hat had been worn. In (b), the child gestured "glasses" (two O-shaped hands held to the eyes) during the silence. From the transcript, the glasses appear to be the interviewer's

idea, but they were actually the child's. As these examples demonstrate, considering only speech in an investigative interview may provide an incomplete picture of the exchange.

We explored two ways in which gesture can have an impact, negative and positive, on investigative interviews. First, an interviewer's gestures can convey information that the interviewer does not intend to express but that influences the witness nonetheless. Second, a witness's gestures can convey information that the witness knows but does not express in speech, thereby giving the interviewer a more complete picture of what actually happened.

Conducting forensic interviews with children is a sensitive process because children are prone to suggestive influences and are often not verbally fluent (Bruck & Ceci, 1999; Ceci & Bruck, 1993; Poole & Lindsay, 2002). Interviewers are cautioned against asking leading questions precisely because questions of this type encourage witnesses to report incorrect details (Poole & Lamb, 1998). However, even when told to avoid suggestive questions, interviewers often use them (Poole

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& Lamb, 1998) and have difficulty suppressing preconceived notions (Ceci & Bruck, 1993).

Interviewers are never told to monitor gesture. Gesture is ubiquitous in interpersonal communication, however (Kendon, 1980; McNeill, 1992), appearing along with speech even in congenitally blind individuals who have never seen anyone gesture (Iverson & Goldin-Meadow, 1998). And gesture is not just hand waving; it can convey substantive information not found in the speech it accompanies (Goldin-Meadow, 2003; Goldin-Meadow, Alibali, & Church, 1993). In some situations, as in example (b), gesture bears the entire communicative burden.

Moreover, even though gesture is pervasive in communication, speakers and listeners are typically not conscious of gesture. Nevertheless, listeners incorporate information conveyed in a speaker's gestures into their understanding of the speaker's message (Alibali, Flevaris, & Goldin-Meadow, 1997; Goldin-Meadow & Sandhofer, 1999; Goldin-Meadow, Wein, & Chang, 1992; Kelly & Church, 1998; McNeill, Cassell, & McCullough, 1994; Thompson & Massaro, 1994). In addition, when speech is accompanied by iconic gestures, memory for verbal content is facilitated (Church, Garber, & Rogalski, 2007; Feyereisen, 2006), so an interlocutor is more likely to remember parts of an exchange that are accompanied by gesture than those that are presented in speech alone.

The need to attain as complete and accurate an account of an event as possible in an investigative interview led us to ask whether gesture might play a role in the interview process. Can an interviewer's gesture influence what children report about a witnessed event? Can paying explicit attention to children's gesture provide an additional window into their memory for an event? To address these questions, we explored the role that gestures play in investigative interviews with children, examining gestures as both a source of suggestibility and a way for children to communicate ideas more completely.

Method

Participants

We conducted interviews with 39 children (17 male, 22 female), ages 5 years 0 months through 6 years 11 months ($M = 6$ years 1 month). Children were recruited from preschool or kindergarten classes and received stickers for their participation. Preschoolers and kindergartners were studied because prior research had shown that children ages 3 through 9 are particularly susceptible to suggestive questioning in investigative interviews (Poole & Lamb, 1998); 5- to 6-year-olds are in the middle of this range.

Procedure

Children watched a live demonstration by a professional musician in their classrooms. In all seven classrooms, the musician followed the same script, which involved playing several instruments, wearing particular items of clothing, and

performing actions not directly related to the demonstration (e.g., knocking over a water bottle with his foot). The demonstrations were videotaped so that we could verify later that the scripted events had occurred; the same musician performed for each classroom.

To simulate the repeated interviews that child witnesses typically experience, we had children participate in four scripted interviews and one open-ended interview over a 10- to 12-week period. One of these five interviews occurred every 2 weeks, with the first interview occurring approximately 2 weeks after the musician's classroom visit. Each child was asked the same 24 questions during each scripted interview. The questions were counterbalanced across three dimensions—occurring versus nonoccurring details, specific questions (designed to elicit a particular response) versus open-ended questions (designed to elicit a range of responses), and questions asked in speech alone versus speech plus gesture—for a total of eight question types (see Fig. 1). Children received 3 questions of each type (i.e., 24 questions). The gesture in a specific question reinforced or elaborated on the information conveyed in speech. The gesture in an open-ended question added new information to the information conveyed in speech; if processed by the child witness, the additional information conveyed in gesture effectively turned an open-ended question into a specific question. For the nonoccurring events, neither the specific event conveyed in speech nor the detail conveyed in gesture had actually taken place.

We used two scripts, which were counterbalanced so that a question asked in speech alone in one script was asked in speech-plus-gesture in the other. Children were randomly assigned to one of the two scripts, which they heard throughout the four interviews. A fifth, open-ended interview, in which only general questions were asked (e.g., "Tell me everything you remember about the musician's visit"), assessed ultimate memory of the visit. The same interviewer, who was not present at the demonstrations, conducted all interviews. The interviews were videotaped and transcribed for speech and gesture, using an established coding system (McNeill, 1992). Children's responses were coded as "affirming" when they included the specific target the question was designed to elicit. For example, a response to the speech-alone or speech-plus-gesture open-ended question about the musician wearing a hat, an event that did not happen, was counted as affirming only if it referenced a hat. Responses to the speech-alone question thus provided a baseline for how likely children were to mention a hat when nothing in the question hinted at this particular response. Statistical analyses were conducted with .05 as the level of significance.

Results

Figure 2 shows the mean number of details affirmed in response to all question types in the two kinds of interviews. No differences were found in the pattern of responses children gave to the eight question types across either the two script

Type of Event	Type of Question	Speech-Alone Questions	Speech-Plus-Gesture Questions	
Occurring Event (the musician played a whistle)	Open-Ended Question	(1) "What else did he do?"	(2) "What else did he do?" plus PLAY-WHISTLE gesture	
Occurring Event (the musician played a guitar)	Specific Question	(3) "Did he play an instrument like a guitar?"	(4) "Did he play an instrument like a guitar?" plus STRUM-GUITAR gesture	
Nonoccurring Event (the musician did <i>not</i> wear a hat)	Open-Ended Question	(5) "What else was he wearing?"	(6) "What else was he wearing?" plus PUT-ON-HAT gesture	
Nonoccurring Event (the musician did <i>not</i> hurt himself)	Specific Question	(7) "Where did he hurt himself?"	(8) "Where did he hurt himself?" plus PAT-HIP gesture	

Fig. 1. Examples of the types of questions used in the scripted interviews. Questions varied as to whether they asked about events that did or did not occur in the demonstration, whether they were specific or open-ended, and whether they were conveyed in speech alone or in speech plus gesture. Numbers refer to the eight types of questions asked.

versions or the four scripted interview sessions. Data were therefore collapsed across scripts and interview sessions. We found a main effect of event type (more affirming responses for questions about occurring than about nonoccurring events; $M = 1.50, SD = 0.36$, vs. $M = 0.77, SD = 0.41$), $F(1, 38) = 96.71, p < .001, \eta_p^2 = .72$; a main effect of question type (more affirming responses for specific than for open-ended questions; $M = 1.64, SD = 0.38$, vs. $M = 0.63, SD = 0.30$), $F(1, 38) = 438.36, p < .001, \eta_p^2 = .92$; and a main effect of gesture (more affirming responses for speech-plus-gesture than for

speech-alone questions; $M = 1.43, SD = 0.41$, vs. $M = 0.84, SD = 0.29$), $F(1, 38) = 111.74, p < .001, \eta_p^2 = .75$. In addition, the analysis revealed interactions between question type and gesture, $F(1, 38) = 18.83, p < .001, \eta_p^2 = .33$, and between question type and event type, $F(1, 38) = 61.65, p < .001, \eta_p^2 = .62$.

We focused our specific probes (using planned comparisons) on responses to nonoccurring events, precisely because affirming responses to these events represented reports of events that did not happen. Affirming responses to open-ended speech-alone questions provide a baseline for how often details

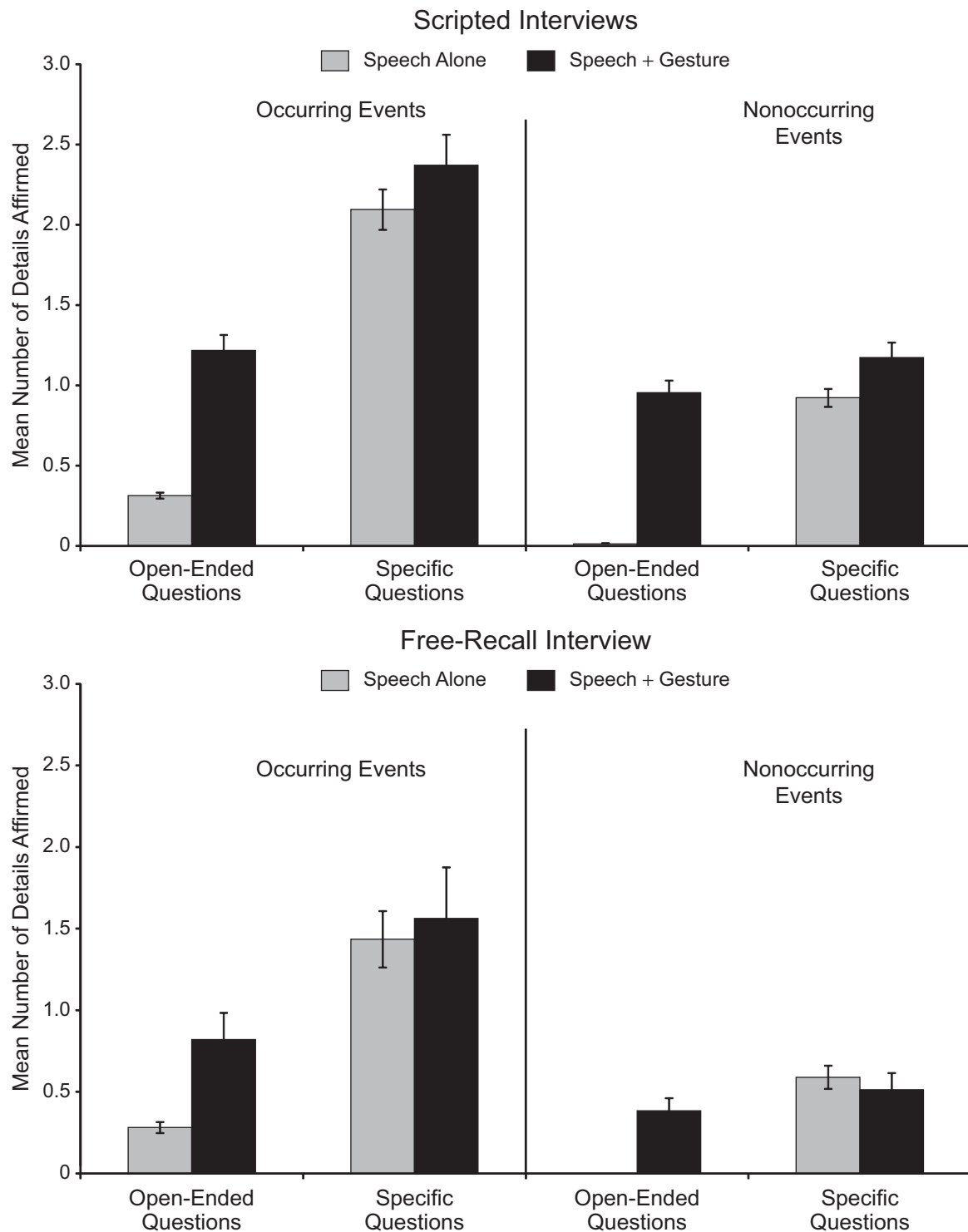


Fig. 2. Mean number of event details children affirmed during the four scripted interviews (top panel) and the final free-recall interview (bottom panel), categorized according to type of question asked in the scripted interview. Error bars represent ± 1 SEM.

are mentioned when they are not suggested in the interviewer's question. The fact that children produced more affirming responses about nonoccurring events when asked specific speech-alone questions in the scripted interviews ("Was he wearing a hat?") than when asked open-ended speech-alone questions ("What else was he wearing?"—see Fig. 2, top

panel), $p < .001$, supports the well-established finding that children are susceptible to interviewer suggestion in speech.

What happened when gesture was added? Children noticed gesture, as evidenced by their spontaneous reproductions of the experimenter's gestures (see examples in Fig. S1 in the Supplemental Material available online). They also altered their

responses to questions about nonoccurring events as a function of the experimenter's gestures (see Fig. 2). They gave more affirming responses about nonoccurring events when asked open-ended questions ("What else was he wearing?") with gesture than when asked open-ended questions without gesture (the baseline for how often these particular details are mentioned in the absence of suggestion), $p < .001$, and they gave as many affirming responses about nonoccurring events when asked open-ended question with gesture as when asked specific questions ("Was he wearing a hat?") without gesture (the traditional index of susceptibility), $p = .78$. Apparently an open-ended question produced with gesture is transformed into a specific question, complete with all of its potential to mislead. This effect was robust: Thirty of 39 children (77%) affirmed at least one untrue suggestion made in open-ended speech-plus-gesture questions.

Children's pattern of responses in free recall was identical to their pattern in scripted interviews. We found main effects of event type ($M_{\text{occurring}} = 1.03$, $SD = 0.44$, vs. $M_{\text{nonoccurring}} = 0.37$, $SD = 0.33$), $F(1, 38) = 79.68$, $p < .001$, $\eta_p^2 = .68$; question type ($M_{\text{specific}} = 1.03$, $SD = 0.46$, vs. $M_{\text{open-ended}} = 0.37$, $SD = 0.29$), $F(1, 38) = 91.14$, $p < .001$, $\eta_p^2 = .71$; and gesture ($M_{\text{speech-plus-gesture}} = 0.82$, $SD = 0.46$, vs. $M_{\text{speech-alone}} = 0.58$, $SD = 0.31$), $F(1, 38) = 11.63$, $p < .01$, $\eta_p^2 = .23$. In addition, the analysis revealed interactions between question type and gesture, $F(1, 38) = 8.03$, $p < .01$, $\eta_p^2 = .17$, and between question type and event type, $F(1, 38) = 18.45$, $p < .001$, $\eta_p^2 = .33$.

Most important, in the case of nonoccurring events, details that had been asked in open-ended speech-plus-gesture questions during the scripted interviews (Fig. 2, bottom panel) were more likely to be mentioned in unprompted free recall than were details that had been asked about in open-ended speech-alone questions (the baseline for how often these particular details are mentioned in the absence of suggestion), $p = .02$. In fact, these details were mentioned as often as details that had been asked about in specific speech-alone questions (the traditional measure of suggestibility), $p = .91$. Thus, misleading gesture influences interviews in the same way, and to the same extent, that misleading speech does.

Gesture can also influence interviews by revealing to interviewers information that witnesses know but do not report in speech. In response to the interviewer's questions during free recall, 28 of 39 children (72%) spontaneously produced iconic gestures, (average of 5.93 gestures per child). More important, 11 of the 28 children who gestured referred to at least one target item only in gesture, or in gesture prior to referring to that item in speech. In these instances, an interviewer who had access only to a written transcript would not be able to tell when the child first referred to the items. Moreover, 79% of the details children conveyed in their gestures were never found in their speech, so written transcripts would provide no access to this information at all.

Discussion

Children incorporated into their verbal reports information that was conveyed uniquely in an interviewer's gestures, even when that information was misleading. It is important to note

that gesture's misleading effects carried over to subsequent interviews, and thus had a long-lasting impact. Misleading verbal input has previously been shown to have continuing effects on children's testimony (Fivush, Hamond, Harsch, & Singer, 1991; Loftus, 2003). Ours is the first study to show that misleading gesture can have long-term effects on the veracity of children's reports. Our findings thus demonstrate that gesture is an aspect of forensically relevant conversations that deserves serious consideration.

The gestures we incorporated into the interviewer's questions are not experimental anomalies. The same gestures crop up when adults are asked to interview another adult who witnessed the musician's visit on videotape (for examples, see Fig. S1 in the Supplemental Material available online). But the frequency of gesture in our mock interviews is likely to be an underrepresentation of how often children are actually exposed to gesture during actual forensic interviews, because investigative interviews with children are typically challenging, frequently requiring repeated questioning and multiple interviews to obtain a complete picture of an event (Fivush et al., 1991). Interviewers are likely to increase their gesture rate when faced with an inarticulate child, particularly given that children glean more from adult speech when it is produced with gesture than without it (Goldin-Meadow & Singer, 2003).

In actual forensic interviews, interviewers often have preconceptions based on previous interview reports or background information available prior to the interview. Even if an interviewer is trying to avoid making suggestions, preconceptions often make their way into the interview (Ceci, Hembrooke, & Bruck, 1997). We suggest that gesture is one route through which these preconceptions can be (unintentionally) communicated and reinforced. In addition, children are often interviewed informally by parents, teachers, police, and other individuals before they engage in more structured interviews with professionals, and gesture is likely to be present in those early conversations. Our findings suggest that adults who conduct interviews with children—parents, teachers, physicians, researchers, therapists, social workers, police officers, and researchers—should be made aware of gesture's potential to mislead (as well as its potential to inform).

Our findings also have implications for the structure of formal investigative interviews. We make two suggestions. First, interviewers should monitor their gestures, as well as their speech. On the basis of the eyewitness-testimony literature, interviewers are currently advised to use open-ended questions to minimize suggestibility effects (Wardlow Lane, Groisman, & Ferreira, 2006). But our results indicate that when gesture is produced along with an open-ended question, children respond to that question as though it were specific, that is, as though the interviewer had made the misleading suggestion in speech. Gestures can thus convey an interviewer's preconceptions to a witness as effectively as words can. Moreover, an interviewer's preconceptions may be particularly likely to crop up in gesture because trying to suppress a fact often makes that fact more salient to the speaker (Wardlow Lane et al., 2006) and may lead to its appearance in gesture.

Second, whereas other researchers and forensic professionals have suggested that interviews should be videotaped, we suggest that the videotaping needs to be arranged so that both the interviewer and the witness are visible on camera. It is important to know if an adult interviewer has augmented an open-ended spoken question with misleading information in gesture, and if a child witness has conveyed information in gestures and not in speech. Children do use gestures when describing events they have personally witnessed (Miller, Cho, & Bracey, 2005), and those gestures often convey information not found in their speech (Goldin-Meadow, 2003; Goldin-Meadow et al., 1993). If an interviewer picks up on this silent information and incorporates it into later questioning, it is critical to know that it was the child, and not the interviewer, who first introduced the information into testimony. Although it is unrealistic to expect investigators to review videotapes of entire interviews, it should be possible to check videotapes for non-verbal cues whenever a key fact is first mentioned. Such procedures are needed to ascertain whether the interviewer or witness first introduced a fact into testimony.

The goal of investigative interviews is to obtain a complete and accurate account of events. If gesture is not recognized as having both a positive and a negative influence on the process, this goal may be compromised.

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Supplemental Material

Additional supporting information may be found at <http://pss.sagepub.com/content/by/supplemental-data>

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