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## Social Processes Affecting the Mnemonic Consequences of Rumors on Children's Memory

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### Abstract

This research examined whether the impact of overheard rumors on children's memory for their experiences varies as a function of social processes. The results of two experiments revealed that the very same errant rumor had different consequences for children's recollections depending on the degree and type of social interactions they had with peers after exposure to the rumor. In both experiments, 3- to 5-year-olds overheard a false rumor about a recently-experienced event and then were interviewed one week later about the event. In Experiment 1, children were more likely to report experiencing rumored-but-nonoccurring information if they were allowed to interact naturally with peers following exposure to the rumor than if they were prevented from peer exchange. In Experiment 2, exposure to the rumor induced greater memory contamination if it was planted among familiar peers than if it was encountered among strangers.

### Keywords

Memory; Suggestibility; Rumor; Social Cognition; Children; Eyewitness Testimony

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Studies of memory and suggestibility have provided ample evidence that children's reports of their experiences often contain material that was encountered after the event, rather than only information that was experienced originally. Within this literature, the primary focus has been on the mnemonic consequences of postevent misinformation delivered in private contexts, such as during interviews (see Bruck & Ceci, 1999; Holliday, Reyna, & Hayes, 2002, for reviews) or by parents (Poole & Lindsay, 1995, 2001). The practical importance of this work stems from concerns about the effects of certain sources of misleading information, such as suggestive interviewing or parental coaching, that are experienced commonly by young witnesses caught up in the legal system. In everyday life, however, misinformation about the past often is encountered in public contexts, such as when among friends, family members, or other caregivers. Nonetheless, little is known about how misleading suggestions encountered in such social contexts can affect the impact of postevent misinformation on children's recollections of their experiences.

Emphasizing the social nature of remembering are contemporary theories of collective memory (e.g., Hirst & Manier, 2008; Reese & Fivush, 2008) that center on how recollections of experience are shaped during conversational sharing. This framework conceptualizes

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memories not solely as individually fabricated but also as collaboratively shaped during social interactions with others. In this view, as events are remembered with family and friends, a shared version of experience is negotiated. As the result of such conversational processes, individual memories are changed to become more in line with the group, consequently becoming increasingly similar across members (see Harris, Paterson, & Kemp, 2008). Given this characterization of memory as socially molded, an important issue for studies of suggestibility concerns the role of social interactions on the mnemonic effects of postevent misinformation. To the extent that collective remembering transforms memories of shared experiences to better fit with the group, the infusion of misinformation into a group might have more powerful effects on memory than if the very same information were encountered individually without the opportunity for collaborative reflection.

Demonstrating the potency of socially-encountered misinformation is work on rumor as a source of suggestibility in children. In a series of studies, Principe and colleagues (e.g., Principe, Kanaya, Ceci, & Singh, 2006; Principe, Tinguely, & Dobkowski, 2007) had an adult confederate plant an errant rumor about a shared experience among some preschool classmates and then allowed them to interact naturally. When later asked to recall the event, children who heard the rumor from an adult or through natural interactions with their classmates who heard the adult were much more likely to report experiencing rumored-but-nonoccurring events than were children for whom the very same false information was suggested during an individual interview. Further, exposure to misinformation via the rumor but not the interview elevated claims of actually seeing (as opposed to merely hearing about) nonoccurring events and the provision of false narrative embellishment. Moreover, levels of errant reports following the rumor were higher (near ceiling) and the accompanying narratives more voluminous than are typical of children in the usual suggestibility study who are provided misinformation during individual interviews (e.g., Bruck, Ceci, & Hembrooke, 2002; Roberts & Powell, 2006) or other private contexts (e.g., Leichtman & Ceci, 1995; Poole & Lindsay, 1995, 2001). Given that children in Principe and colleagues' studies interacted freely with their peers immediately after exposure to the rumor, it is possible that this social experience, rather than the rumor itself, drove the exceptionally high levels of false reports and fictitious elaboration. However, this possibility was not tested experimentally. The first purpose of the current work, therefore, was to examine whether the influence of an overheard false rumor on children's reports of a personal experience is exacerbated as a function of opportunities to naturally interact with others following the encounter with errant information.

Why might social interaction boost the effects of postevent misinformation? One clue comes from the classic literature on social influence that shows that the pressure to conform to group standards can induce wrong responses on tasks in which performance otherwise would have been nearly perfect. In his seminal work, Binet (1900, as cited in Fancher, 1996) found, for instance, that the majority of children who could make correct line length judgments when tested individually would give obviously incorrect answers to conform to peer confederates who first responded with errant responses. Contemporary investigators have expanded Binet's conformity paradigm to investigate how similar social pressure might influence memory. This line of research has demonstrated that both adults' (e.g., Schneider and Watkins, 1996; Roediger, Meade, & Bergman, 2001; Wright, Self, & Justice, 2000) and children's (Schwarz & Roebbers, 2006) reports of witnessed events can be altered by hearing errant confederate responses before being tested for memory. Follow-up work has revealed greater memory conformity as a function of the number of confederates responding (Vrij, Pannell, & Ost, 2005) and the number of times a confederate reports misinformation (Meade & Roediger, 2002). Further documenting the power of social influence are findings in both the child and adult literatures that the very same misinformation induces greater damage to memory if it is encountered in a social context via a confederate than if it is received in a nonsocial manner, such as being embedded in textual responses given by other participants (Akehurst, Burden,

& Buckle, 2009; Gabbert, Memon, Allan, & Wright, 2004; Shaw, Garven, & Wood, 1997) or implied in questions written by the experimenters (Paterson & Kemp, 2006). Thus, memory conformity research not only documents the potency of socially-encountered misinformation, but also indicates that the magnitude of conformity builds as exposure to others' erroneous responses increases. Importantly, this latter point supports the idea of a social mechanism driving the near ceiling levels of false reports in Principe and colleagues' investigation (2006) given that half of the children in each classroom were exposed to the errant information.

The ease of contamination brought about by socially-provided misinformation notwithstanding, a second social factor that might impact the mnemonic effects of false suggestions within a group is the group's prior history. Theories of collective remembering (see e.g., Reese & Fivush, 2008; Wertsch & Roediger, 2008) emphasize that reconstructing the past with members of one's social group or community, such as family and friends, plays an important role in shaping memories of experience. This focus, surely, is motivated by the fact that individuals most often remember the past with familiar others with whom they have a social history. The significance of prior relationships on the processes and products of group remembering also is emphasized in Wegner's (1987) model of transactive memory. According to Wegner, when individuals repeatedly experience and remember events together, they develop a collaborative system for encoding, storing, and retrieving shared events that results in memories that contain more and different information than if each individual were remembering alone. Supporting Wegner's framework are studies demonstrating that groups with a social history, but not those made up of strangers, recall more material when remembering together than individually (e.g., Hollingshead, 1998; Wegner, Erber, & Raymond, 1991).

Despite the substantial literature on transactive systems, the influence of familiarity on the processing of misleading postevent information within groups remains largely unexplored. Nonetheless, supporting the notion that postevent misinformation might be more powerful in established than unfamiliar groups are findings in the classical social influence literature demonstrating that the magnitude of conformity escalates with group cohesiveness (see McIlveen & Gross, 1999; Wren, 1999, for reviews). Further, even though most memory conformity investigations have used stranger participant groups or unfamiliar confederates (e.g., Gabbert, Memon, & Allan, 2003; Gabbert et al., 2004; Meade & Roediger, 2002), the few studies that have examined social history have found greater memory conformity for familiar adult dyads, such as romantic couples and friends, than unacquainted strangers (French, Garry, & Mori, 2008; Hope, Ost, Gabbert, Healey, & Lenton, 2008; Peker & Tekcan, 2009).

Studies in the rumor and gossip literatures further support the specific prediction that rumor might be more powerful in established groups than among strangers. For instance, experimental work shows that the transmission of unfounded information within a group increases with the level of amiable familiarity between participants, or a desire to establish such a level (Rosnow, 2001). Likewise, ethnographic studies have shown that conversational gossip rarely occurs among strangers (Almirol, 1981), and that the more exclusive the group, the greater the amount of gossip in it (Gluckman, 1963). Thus, these findings of heightened rumor and gossip propagation as a function of group familiarity, along with findings of greater conformity in cohesive groups, suggest that being in a group with established relationships might exacerbate the interfering effects of errant rumor on memory. A second goal of the present work, therefore, was to investigate whether the effects of an overheard false rumor on children's memory vary depending on the social history of the group.

In addition to its basic applications, an investigation of social influences on the effects of misinformation also is relevant to discussions of the accuracy of children's testimony.

Considering, for instance, Patterson and Kemp's (2006) findings that over eighty percent of witnesses to a legally-relevant event (e.g., a crime or serious accident) reported discussing the event with another witness, an examination of the effects of such natural discussions on memory seems critical. Moreover, the issue of co-witness talk is particularly relevant to legal situations involving multiple abuse victims as children caught up in these sorts of cases often attend community meetings or group therapy sessions where allegations are shared (Eberle & Eberle, 1993; Nathan & Snedeker, 1995; Rabinowitz, 2003). Further, other work shows that it is not uncommon to have multiple witnesses to a crime questioned at the same time (Bidrose & Goodman, 2000; Garven, Wood, Malpass, & Shaw, 1998).

## Experiment 1

This study explored the extent to which opportunities for natural discussions with others following exposure to a false rumor might augment its effects on later recall. To so do, we manipulated children's opportunities to engage in naturally-occurring conversations with peers immediately after overhearing an errant rumor about a shared personal experience. Replicating Principe and colleagues' (2006) procedure, after exposure to the rumor, some of the children immediately engaged in free play, which allowed for the opportunity for natural dialogue about the rumor and the shared event. Other children, in contrast, engaged in a structured activity that inhibited all conversation about the rumor and the shared experience. To the degree that conversational interactions are one of the key factors that induce high levels of memory error following rumor (Principe et al., 2006; 2007), we expected to find higher degrees of false reports and more elaborate accounts of the rumored-but-nonoccurring events among those who interacted naturally following transmission of the rumor than those who were prevented from such interaction. However, no group differences in levels of recall and elaboration would indicate that the rumors themselves, without the ensuing conversational interactions, are sufficient to induce a high degree of errors in children's reports of their experiences.

## Method

**Participants**—Participants were 83 3- to 5-year-old children (mean = 55 months, range = 45–64 months) recruited from three morning preschool programs in suburban areas of the Northeast United States. In this and the subsequent experiment, approximately 90% of the children were European American. Written consent and verbal assent were obtained from participating parents and children, respectively.

**Experimental Design**—The children were assigned to one of three experimental conditions that varied in terms of exposure to the rumor and opportunities for immediate conversational interaction: Conversational Interaction versus No Conversational Interaction versus Control. The groups ranged in size from 27 to 29, and the number of females in each group ranged from 14 to 17. One of the three participating schools was assigned randomly to the Control condition. The two experimental schools each had two different classrooms from which participants were recruited, with one of the classrooms in each school assigned to the Conversational Interaction group and the other to the No Conversational Interaction group.

## Procedure

**The to-be-remembered event:** Following Principe et al.'s (2006) procedure, each classroom was visited by a magician named Magic Mumfry who carried out a set of scripted magic tricks. At the end of the show, Mumfry announced his plans to pull a live rabbit out of his top hat. After several failed tries, Mumfry gave up and apologized for failing to do the trick.

**Rumor transmission:** Immediately after the show, children in the Conversational Interaction and No Conversational Interaction conditions overheard a scripted conversation between a

teacher and an unfamiliar adult confederate in which the confederate alleged that Mumfry's hat trick failed because the rabbit had gotten loose in the children's school rather than appearing in the hat. At the end of the exchange, the confederate left the room. Attention to the rumor was maximized by having children stand quietly in a line awaiting a sticker during the conversation. The school staff was instructed to refrain from discussing the rumor or the magic show with the children. The Control children had no exposure to the rumor.

**Post-rumor experiences:** Once the rumor was planted and replicating Principe et al.'s (2006) procedure, the Conversational Interaction children returned to their classrooms and were given 30 minutes of free play time to interact naturally with one another. In contrast, immediately after exposure to the rumor, the No Conversational Interaction children were engaged in a structured—circle time activity for 30 minutes that prohibited them from talking about the rumor or the show. Following these 30 minutes of either free play or circle time, children in both experimental groups were picked up by their parents and left the school, thereby inhibiting any further peer-to-peer discussion about Mumfry's visit. The Control children merely engaged in free play following the show. There were no siblings or carpooling children in the study, and parents were asked not to schedule a play date with any of their children's schoolmates on the day of the magic show. Parents also were asked to refrain from engaging in any discussion about the magic show but nonetheless were given a standardized form to note any discussions about Mumfry's visit and the extent to which they followed our requests regarding playdates.

**Memory interview:** One week after the show (mean = 7 days, range 6–8), children were interviewed by a condition-unaware examiner about Mumfry's visit. The interviews were videotaped and performed in a quiet space other than children's regular classrooms at their schools. After establishing rapport and orienting children to the show, the interviewer instructed them to report—only about things that you remembering happening to you—things that you really did or remember seeing with your own eyes and not to—guess or make anything up. The interview was structured hierarchically and involved four levels of questions: open-ended, specific, leading, and source questions. First, children were given an open-ended prompt:—Tell me everything that you remember about the day that Magic Mumfry visited your school. After additional open-ended probing (e.g.,—What else happened), interviewers asked a specific question if the loose rabbit (heretofore referred to as the target activity) had not yet been reported:—Did anything happen to Mumfry's rabbit? Children who still had not yet mentioned the loose rabbit then were posed a leading question:—Did Mumfry's rabbit get loose in the school? General prompts (e.g.,—Tell me more.) were used to encourage children to elaborate until their recall was exhausted. Finally, children who reported the target activity were asked a question to determine the source of their memory for the loose rabbit:—Did you see (action vis-à-vis the loose rabbit, as noted by the child; e.g., the rabbit in your classroom) with your own eyes, or did you hear about it from someone? Half of the children first were asked whether they saw the rabbit and the other half first were asked whether they heard about it.

**Coding of the Interviews—**The videotaped interviews were transcribed verbatim and coded by condition-unaware raters. The transcriptions first were scored for the type of probe needed to elicit children's reports of the target activity (i.e., open-ended, specific, or leading) and their responses to the source question. Next, children's narrative responses regarding Mumfry's rumored loose rabbit were broken down into of propositions. Following Principe et al. (2007), a proposition was defined as a clause containing a subject and a verb, either explicit or implied, that had not been mentioned previously by either the interviewer or the child.

To examine the extent to which children's false narratives consisted of constructions in line with the rumor, each proposition was coded into one of three categories: Verbatim,



Constructive, or Fantastic. Statements were coded as Verbatim if they literally described the rumor (e.g., —The bunny was running in the school ). Constructive propositions were statements that were consistent with the theme of the loose-rabbit-in-the-school rumor but went beyond its literal content (e.g., —I saw the bunny looking in our lunch kettles ). Fantastic propositions were descriptions of events that were inconsistent with the notion of a loose rabbit in the school or that could not have happened in reality (e.g., —The bunny whispered to me that he wanted to run away ).

Finally, to explore the degree to which children’s narrative responses describing the rumored loose rabbit overlapped with the content of their classmates’ reports, for each child, each Constructive and Fantastic proposition reported about the loose rabbit was re-coded into one of three categories in terms of extent to which it overlapped with the content of their classmates’ reports: New, Old, or Ambiguous. Verbatim propositions were not included in this set of codes because they necessarily overlapped with the content of the overheard rumor. Those propositions that overlapped with the gist of any statements uttered by another child in the classroom during the interview were scored as Old. New propositions were those that had not been mentioned by any other child in the classroom. Ambiguous propositions were those that were too vague to be classified as Old or New.

To check for reliability, 15% of the interviews were coded by two independent raters. For all variables, kappas were  $\geq .95$ . Discrepancies were resolved through discussion.

## Results

**Preliminary Analyses**—Preliminary analyses indicated no main effects in the dependent variables examined below as a function of the interviewer, order of the source options, the delay interval between the magic show and the interview, or child gender.

**Parental Questionnaire**—The parental questionnaire indicated that nearly one-half of the Conversational Interaction children (48%) told a parent about the rumor, but less than one-fifth (19%) of the No Conversational Interaction children told. Even though significantly more Conversational Interaction than No Conversational Interaction children told a parent about the rumored occurrence  $\chi^2(1, N = 83) = 4.22, p < .05, \phi = .27$ , telling was not associated with any of the dependent variables discussed below. Further, all of the parents whose children told them about the rumor responded that they did not engage their children in any additional discussion of the rumored loose rabbit, thus there should be no effects of any discussions with parents on children’s memory. Moreover, none of the parents reported that their child had any interaction with a classmate after school on the day of the show.

### Reporting the Target Activity

**Total recall:** The proportions and counts of children who reported the target activity (i.e., that Mumfry’s rabbit was loose in the school on the day of the magic show) during the interview are shown in Table 1 by experimental group and the level of questioning needed to elicit the report: open-ended, specific, leading, and total (open-ended + specific + leading). In line with Principe and colleagues (2006), nearly all of the children in the Conversational Interaction condition reported the target activity. As expected, reports of the target activity were depressed among those in the No Conversational Interaction condition relative to those in the Conversational Interaction condition. To examine these differences statistically, a series of logistic regressions analyses were conducted with experimental group was placed as a predictor. These analyses confirmed that the Conversational Interaction children were more likely to report the target activity than the No Conversational Interaction children,  $\chi^2(1, N = 83) = 6.57, p < .05, \phi = .34$ , who, in turn, were more likely to report the target activity than the Control children,  $\chi^2(1, N = 83) = 10.02, p < .01, \phi = .43$ .

**Open-ended recall:** Considering that free recall often is assumed to be accurate if it has been elicited under nonsuggestive conditions (see Ceci, Kulkofsky, Klemfuss, Sweeney, & Bruck, 2007), it was of interest to examine children's open-ended reports of the target activity. As expected, a substantial number of Conversational Interaction children reported a loose rabbit at the open-ended level of questioning. As can be seen on Table 1, these children were more likely than those in the No Conversational Interaction group to report the target activity during free recall,  $\chi^2(1, N = 83) = 16.93, p < .0001, \phi = .55$ . The Control group was excluded from this analysis because none of these children reported the target activity in response to open-ended probes.

**Seeing the Target Activity**—Explored next were children's claims of actually seeing the target activity, as opposed to merely hearing about, when posed the source question. These data are displayed in the rightmost column on Table 1. As expected, a fair number of Conversational Interaction children wrongly recalled actually seeing the rumored loose rabbit. Further, these children were more likely than those in the No Conversational Interaction group to report seeing the target activity,  $\chi^2(1, N = 83) = 4.83, p < .05, \phi = .29$ .

**Describing the Target Activity**—The next set of analyses examined children's narrative accounts of the rumored-but-nonoccurring target activity. Narratives were coded only for the subset of children who reported the target activity. Displayed on Table 2 are the average numbers of Verbatim, Constructive, and Fantastic propositions uttered by the children, accompanied by the *ns* on which each mean is based. Data from the Control children are excluded from Table 2 because only five of these children reported the target activity, and none of them provided much narrative elaboration. Consistent with past work (e.g., Principe et al., 2006), many of the Conversational Interaction children produced quite elaborate fictitious narratives consistent with occurrence suggested by the rumor. There also was a good deal of elaboration among the No Conversational Interaction, but as can be inferred from the data presented in the rightmost column on Table 2, the children in the Conversational Interaction condition provided more voluminous narratives about the target activity than did those in the No Conversational Interaction condition  $F(1, 43) = 10.65, p < .01, \phi = .20$ . Analyses of the content of children's narratives revealed group differences in the provision of both Verbatim and Constructive propositions, such that those in the Conversational Interaction condition uttered more Verbatim,  $F(1, 43) = 6.66, p < .05, \phi = .13$ , and Constructive statements,  $F(1, 43) = 9.98, p < .01, \phi = .19$ , than those in the No Conversation condition.

Explored next was the degree to which the content of the children's narratives about the rumored target activity overlapped with those of other children in their classrooms. As displayed in Table 3, there was a fair degree of within-classroom overlap among Conversational Interaction children. Although the Conversational Interaction children provided more New,  $F(1, 43) = 6.52, p < .05, \phi = .13$ , and more Old,  $F(1, 43) = 21.98, p < .0001, \phi = .34$ , propositions than those in the No Conversational Interaction group, an analysis of the proportions of New and Old propositions revealed that the Conversational Interaction children provided proportionately more Old,  $F(1, 43) = 8.01, p < .01, \phi = .16$ , and proportionately less New propositions,  $F(1, 43) = 9.25, p < .01, \phi = .18$ , than the No Conversational Interaction children.

To explore further the extent to which the opportunity for natural talk following the rumor increased similarity among children's errant reports, within each classroom, we broke down the children's narrative accounts of the target activity into thought units. Thought units were defined as one expressed idea or fragment that contained one proposition or several propositions. For instance, —The bunny bit my finger and I went, Ouch you stop that now, bunny,' and he bit my finger. was considering one thought unit alleging that the rumored loose rabbit had bit the child's finger. Then for each thought unit expressed during the interview, we

noted the number of other children within the same classroom who had uttered a thought unit that conveyed the same general content. For example, —He [the rabbit] bit Megan’s finger with he, um, buck teeth was scored as a thought unit that conveyed the same meaning as the prior example (because Megan was the child who alleged being bitten). The assumption here is that such overlapping ideas initially were generated in the classroom following the provision of the loose rabbit rumor and therefore can serve as an index of the extent to which certain constructive extensions of the rumor were transmitted among the children and later served to contaminate recall. This coding scheme revealed that a good deal of child initiated constructions passed along in the classroom were salient and memorable enough to show up in the reports of multiple children during the subsequent interview. As an index of such conformity, for each classroom, we counted the number of same-content thought units reported by at least one-quarter of the children. Of the two Conversational Interaction classrooms, one classroom had 4 same-content thought units expressed by at least 25% of the children, and the second classroom had 2 same-content thought units uttered by at least 25% of the children. The two No Conversational Interaction classrooms had no same-content thought units shared by at least 25% of the children.

## Discussion

The results of Experiment 1 indicated that overheard false rumors have different consequences for children’s memory of a past experience if encountered during the course of an everyday social interaction than if picked up without the opportunity for natural exchange. Evidencing the potency of natural conversations on memory, those children who heard a fictitious rumor and then interacted freely with peers made more false reports of the rumored occurrence, were more likely to admit to seeing this nonevent, described this nonoccurrence in more detail, and evidenced more overlap in the content of their errant accounts than those who merely heard the rumor and were not given the opportunity to naturally converse with peers.

Analysis of the content of children’s errant reports revealed that peer interaction following the rumor served not merely to increase verbatim repetitions of the rumor but also to boost the production of constructive detail that went above and beyond the literal rumor. Peer interaction also did not lead to escalation of fantastic or idiosyncratic productions, indicating that children generally did not view the rumor as a springboard for pretense but rather limited their transmissions to conventional constructions in line with the theme of the rumor. Further supporting the notion that peer dialogue shaped children’s later reports is the finding that greater than one-third (Table 3) of the narrative detail reported by children who interacted with peers overlapped with something that someone else in their classroom had uttered. In contrast, those who were prevented from interacting evidenced only a 9 percent overlap in their reports. Moreover, the findings of a few original but nonoccurring allegations, such as the rabbit biting one child’s finger, shared by at least a quarter of the children in each classroom who interacted following the rumor provide compelling evidence that corroboration among peers should not be interpreted as evidence of accuracy. Instead, these data show that collaboration following exposure to a misinformation source such as rumor can lead to elaborate errant reports that can be quite similar across peers.

Why did natural interactions boost the damaging effects of the rumor? One possibility is mere rehearsal. Studies showing that the likelihood of false reporting increases when children are exposed to misleading questioning on multiple occasions (Memon & Vartoukian 1996; Poole & White, 1993) are consistent with this explanation. However, the increases in constructive detail and overlap in errant allegations following natural interaction suggest that the effects of opportunities for free conversation following rumor are driven by more than rehearsal alone. Considering, however, findings in the adult literature that groups with a social history often show greater conformity than groups of strangers (French et al., 2008; Hope et al., 2008; Peker



& Tekan, 2009), it is possible that the mnemonic consequences of children's natural conversations following exposure to misinformation is dependent on the history of the group. Thus, in making conclusions about how social interactions following rumor affect later memory, it would be useful to know whether the interference brought about by rumor is escalated in groups of familiar agemates. Experiment 2 was designed to address this possibility by examining whether the interfering effects of a false rumor on children's memory for an experience would be greater if the rumor is planted among a group of familiar peers than if planted among unfamiliar children.

## Experiment 2

### Method

**Participants**—Fifty-seven children aged 3 to 5 years (mean = 55 months, range = 45–64 months) participated in this study.

**Experimental Design**—Children were assigned to one of two conditions that differed in terms of their social history: Familiar versus Unfamiliar. Children in the Familiar condition ( $n = 27$ ) were classmates recruited from two preschool programs and all had been enrolled at their school for a minimum of six months. The 30 children in the Unfamiliar condition were recruited via phone or email from parents who had expressed interest in having their children participate in research. There were approximately equal numbers of males and females in the two conditions and the majority of children (97%) were European American. There was no group difference in mean age in months.

**Procedures**—The procedures were identical to that of Experiment 1, except for the following modifications. First, the rumor conversation was between two unfamiliar adults because the Unfamiliar group by definition did not have a shared teacher. Second, to ensure that the group's social history rather than the familiarity of the setting was responsible for any group differences in memory, the magic shows were carried out in an unfamiliar room in a college building designed to look like a preschool classroom and the interviews were performed in an adjacent room.

Once the rumor was planted, all of the children engaged in free play for 30 minutes. Two separate magic shows were carried out for the Familiar children—one for each of the preschools used. Two additional shows were preformed for the children in the Unfamiliar condition, with half of the children experiencing one show and the remaining half seeing the other show. All of the parents of children in the Unfamiliar condition agreed that their children were not acquainted with any other children in their group. One week after the show, all children were interviewed in the same manner as in Experiment 1.

### Results

**Preliminary Analyses**—Preliminary analyses indicated no main effects in the dependent variables as a function of the interviewer, the order of the source questions, the delay interval between the magic show and the interview, or child gender. Within each experimental group, there also were no differences in these variables as a function of magic show.

**Parental Questionnaire**—Data from the parental questionnaire indicated that equal proportions of children in the Familiar and Unfamiliar groups told a parent about the rumored loose rabbit (41% versus 43%). Parents reported no playdates among children on the day of the magic show.

**Reporting the Target Activity**—Table 4 summarizes the children's reports of the target activity. As illustrated in the fourth column, the Familiar children were more likely to report the target activity than the Unfamiliar children,  $\chi^2(1, N = 57) = 7.54, p < .01, \phi = .34$ . This same trend was evidenced in open-ended recall,  $\chi^2(1, N = 57) = 16.07, p < .0001, \phi = .53$ .

**Seeing the Target Activity**—As shown in the rightmost column on Table 4, reports of seeing the target activity were depressed among the Unfamiliar children relative to the Familiar children,  $\chi^2(1, N = 57) = 7.44, p < .05, \phi = .36$ .

**Describing the Target Activity**—Explored next was children's narrative accounts of target activity. Narratives were coded only for those children who reported the target activity. As displayed on Table 5, the Familiar children provided more voluminous narratives describing the rumored target activity than the Unfamiliar children,  $F(1, 40) = 8.13, p < .01, \phi = .17$ . The children's narratives also differed in content, with the Familiar children uttering more Verbatim propositions,  $F(1, 40) = 5.00, p < .05, \phi = .11$ , and more Constructive propositions,  $F(1, 40) = 6.91, p < .05, \phi = .15$ , than those in the Unfamiliar condition.

Examination of the degree of overlap in narrative content across each group of children who were exposed to the rumor revealed differences as a function of the groups social history. As illustrated in Table 6, the children in the Familiar condition uttered more New,  $F(1, 40) = 6.22, p < .05, \phi = .14$ , and more Old,  $F(1, 40) = 7.58, p < .01, \phi = .16$ , propositions relative to those in the Unfamiliar condition. Further, the analysis of the proportions of New and Old propositions showed that the Familiar children provided proportionately more Old propositions than the Unfamiliar children,  $F(1, 40) = 4.72, p < .05, \phi = .11$ . The group difference in New propositions was only marginally significant,  $F(1, 40) = 3.52, p = .068, \phi = .08$ , with the Unfamiliar children reporting a higher proportion of New utterances compared to the Familiar children. A qualitative analysis on thought units parallel to that carried out in Experiment 1 revealed that the two Familiar groups each had two same-content thought units each uttered by at least 25% of the children, whereas the Unfamiliar group had no same-content thought units shared by at least 25% of the children.

## Discussion

The results of Experiment 2 revealed that the social history of a group can affect the level of contamination induced by a planted false rumor on children's memory for a personal experience. Children who heard an errant rumor and then interacted freely with their preschool classmates made more false reports of the rumored occurrence, were more likely to claim to have seen this nonevent, provided more elaborate narratives describing this nonoccurrence, and displayed greater overlap in the content of their errant accounts compared to those children who interacted with unfamiliar peers following exposure to the rumor. These findings are the first to demonstrate that the tendency of greater conformity with greater cohesion seen in the social influence literature (McIlveen & Gross, 1999; Wren, 1999) also exists in the domain of memory in children.

## General Discussion

This research demonstrates the impact of social processes on the effects of postevent misinformation on young children's memory for their experiences. The results of two experiments revealed that the very same errant rumor had different consequences for 3- to 5-year-olds' recollections of a past event depending on the sorts of social interactions they had with peers after exposure to the rumor. In both experiments, children overheard a false rumor about a recently-experienced event and then were interviewed one week later about the event. In Experiment 1, children were more likely to report experiencing rumored-but-nonoccurring

information if they interacted naturally with peers after overhearing the rumor than if they were prevented from such peer exchange. In Experiment 2, exposure to the rumor induced greater memory contamination if it was planted among familiar peers than if it was encountered among strangers. These results replicate Principe and colleagues' (2006, 2007) findings that rumor can induce reports of rumored-but-nonoccurring aspects of an earlier experience, but also qualify this work by demonstrating that the impact of the rumor on memory is sensitive to certain social conditions.

Multiple aspects of children's event reports during the interview were affected by the social manipulations following exposure to the rumor. In Experiment 1, those children who interacted naturally with their peers after hearing the rumor made more false reports consistent with the theme of the rumor than those who were prohibited from such natural dialogue with peers. This group difference was especially pronounced in children's open-ended accounts, indicating that the effects of peer exchange following rumor are not limited to probed recall but also can boost spontaneous claims in line with overheard-but-nonexperienced information. Further, those children who engaged in peer conversation were more likely than those who were denied such interaction to claim they had seen rather than merely heard about the rumored occurrence. This finding suggests that natural peer dialogue following rumor can lead to increased levels of errors not just in children's reports of an event, but perhaps also in their beliefs about what happened. These same trends were found in Experiment 2, with greater interference from the rumor when it was planted among familiar classmates than when it was transmitted among strangers, demonstrating that the mnemonic damage of engaging in post-rumor dialogue with peers is augmented in groups with a social history relative to those made up of unfamiliar children.

The children's social interactions after overhearing the rumor also affected their provision of errant narrative information describing the rumored-but-nonoccurring event. In Experiment 1, those children who interacted with their peers provided much more elaborative detail consistent with the theme of the rumor than those who were prevented from such peer engagement, showing that natural conversations following misinformation can boost the extent to which children embellish their false reports with narrative content. Experiment 2 qualified these findings by revealing a greater increase in errant elaboration after natural interactions with familiar than unfamiliar peers. A breakdown of the content of children's narratives indicated that the group differences in elaboration in both experiments largely were driven by increases in original, constructive utterances in line with the theme of the rumor rather than solely more frequent parroting of the rumor or rises in fantastic embellishments. The considerable increases in constructions consistent with the rumor in both experiments following interaction with familiar peers suggest that the mnemonic consequences of opportunities to talk about overheard information with known others are more than mere rehearsal—otherwise the children's interview reports would have tended more towards the reproduction of verbatim utterances.

Examination of the degree of overlap in the content of children's narratives provides insight into the origins of their constructive formulations. The higher levels of overlap in Experiment 1 among classmates who interacted after the rumor relative to those who were prevented from interaction suggests that the children were not merely fabricating constructions about the rumored occurrence on the fly during the interview but also were remembering a good deal of the transmissions that originated a week earlier in the natural dialogues on the day the rumor was planted. Likewise, the greater overlap in narrative detail in Experiment 2 among those who interacted with familiar as opposed to unfamiliar peers suggests that a group's social history can augment the degree to which narrative details invented during natural interactions later become infused into children's individual reports. Further, the substantial overlap in both experiments indicates that high levels of corroboration among co-witnesses should not be

interpreted as definite evidence of accuracy, but also can occur as the result of opportunities to interact with peers after hearing errant information about a shared event.

The findings from the present work also highlights the potential benefits of melding variables from separate research traditions; in this case, the literatures on group influence and memory and suggestibility. Social psychologists examining group influence long have explored the powerful effects of conformity on a range of behaviors such as perceptions, attitudes, and judgments (for a review, see, Cialdini & Goldstein, 2004). The current results are consistent with demonstrations in the group literature that conformity increases with cohesion (McIlveen & Gross, 1999; Wren, 1999), but rarely has memory been a dependent variable in this line of work. There is some evidence in the adult literature of greater memory conformity with familiarity (French et al., 2008; Hope et al., 2008), but these demonstrations have been limited to mere false recognition of details reported by a co-witness about a videotaped event. The current data, therefore, extend this literature by revealing that social influence is not restricted to laboratory materials and recognition procedures but also can lead to original narrative constructions about an actually-experienced event, with this possibility higher among established social groups than those made up of unfamiliar individuals.

Similarly, suggestibility researchers generally have not been concerned with classic group factors because applied concerns regarding children's testimony have prompted explorations of misinformation presented in private contexts, such as during interviews or by parents. The current data, however, demonstrate the ease with which group processes can shape individual memories and have important implications for several lines of research within the memory literature. First, the literature on memory conformity generally is based on co-witnesses who are complete strangers (e.g., Gabbert et al., 2004; Paterson & Kemp, 2006; Shaw et al. 1997). The current findings of elevated errors with familiar peers as opposed to strangers show that familiarity is an important variable in examinations of memory conformity and suggest that conclusions drawn from co-witnesses studies may not generalize to everyday situations involving familiar individuals. Second, the present data highlight the importance for studies of suggestibility of considering the mnemonic consequences of natural social interactions that go on during and after exposure to misinformation. Suggestibility investigations have explored a wide range of individual difference variables that might increase proneness to suggestive influences (for a review, see Bruck & Melnyk, 2004), but generally have overlooked group processes as a factor that might augment the effects of misinformation. Thus, the present findings suggest that a fruitful area for future research is exploring whether suggestibility in other settings is heightened when co-witnesses interact naturally following misinformation and whether any effects are further augmented when children share a social history (as is usually the case in mass allegation settings).

Admittedly, an exploration of social factors has not been completely off of the radar screen for investigators interested in children's memory. There is a growing interest among developmental researchers in issues of collective memory; however the focus has been almost exclusively on the facilitative effects mother-child conversations on children's representations of experience (e.g., Fivush, Haden, & Reese, 2006; Hedrick, San Souci, Haden, & Ornstein, 2009; Ornstein, Haden, & Hedrick, 2004).

The current work, therefore, expands the scope of research on collective memory to peers—a social group that likely plays a unique role in collective remembering and its development. The current research also extends the transactive memory literature in two manners. First, the findings of heightened original constructions as a function of familiarity are consistent with the predictions made by transactive memory theory (Wegner, 1987) that groups with a prior remembering history often generate a group memory product that has emergent properties. These data, however, are the first to demonstrate that when established groups are exposed to

postevent misinformation, the new, emergent memory material generated by its members can include a good deal of inaccurate information. Second, the present study provides original evidence that a transactive memory system is present among preschool aged children. A question of interest for future work, therefore, is how fast and over what course such transactive systems develop. It may be that some minimal level of transactive memory is achieved rather rapidly among children, but given that the current sample was very well acquainted with one another (spending three or four hours together on a daily basis) it was not possible to test whether a limited range of closeness would evidence such effects. Thus, the examination of a wider range of close and distant relationships is an agenda for further research.

### Implications and Conclusions

Taken together, the current findings demonstrate that when children talk naturally with peers after hearing a false rumor about a shared event, they are at increased risk for reporting rumored-but-nonoccurring information that is embellished with constructive detail and that overlaps in content substantially with peers. Further, the data indicate that the damaging effects of such natural conversations are exacerbated when rumor is encountered among familiar as opposed to unfamiliar peers. Thus, this work provides compelling evidence that how and with whom a past event is talked about following exposure to an errant rumor clearly can influence later memory accuracy.

In everyday life, higher levels of memory error following rumor mongering with peers likely would be without serious consequence and even may serve some sort of social function to the extent that conforming to a collective version of the past boosts group social bonds. But in a legal context, such conformity to errant rumor could have baleful consequences. Cases like the infamous McMartin Preschool case (*State of Calif. v. Buckley* 1990) illustrate the real life use of social influence techniques to pressure children to conform, such as investigative interviewers telling children what their peers had said (Garven et al., 1988). The current work not only reveals the negative effects of social influence on memory in the absence of any adult pressures to conform to peers but also demonstrates that what might look like corroboration between young witnesses might actually be contamination of one witnesses' evidence by that of the other. Such conversational contamination may be a particularly serious problem in mass allegation cases, given that children in such settings typically share a social history. Further, the widespread use of group counseling sessions and community meetings may be worrisome in such cases since such gatherings would provide children numerous additional opportunities to hear and be influenced by the perspectives of others (Ceci & Bruck, 1995; Nathan & Snedeker, 1995). Given that work by Rosnow (1991) shows that refuting rumors with facts does not help to quell false beliefs in their veracity, the data from the current study suggest that police investigators would be wise to record independent statements from each witness as early as possible rather than later trying to disentangle rumor from memory.

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### References

- Akehurst L, Burden N, Buckle J. Effects of socially encountered misinformation and delay on children's eyewitness testimony. *Psychiatry, Psychology, and Law* 2009;16:S125–S136.
- Almirol EB. Chasing the elusive butterfly: Gossip and the pursuit of reputation. *Ethnicity* 1981;8:293–304.



- Bidrose S, Goodman GS. Testimony and evidence: A scientific case study of memory for child sexual abuse. *Applied Cognitive Psychology* 2000;14:197–213.
- Bruck M, Ceci SJ. The suggestibility of children's memory. *Annual Review of Psychology* 1999;50:419–439.
- Bruck M, Ceci SJ, Hembrooke H. The nature of children's true and false narratives. *Developmental Review* 2002;22:520–554.
- Bruck M, Melnyk L. Individual differences in children's suggestibility. A review and synthesis. *Applied Cognitive Psychology* 2004;18:947–996.
- Cialdini RB, Goldstein NJ. Social influence: Compliance and conformity. *Annual Review of Psychology* 2004;55:591–621.
- Ceci, SJ.; Bruck, M. *Jeopardy in the courtroom: A scientific analysis of children's testimony*. Washington, DC: American Psychological Association; 1995.
- Ceci SJ, Kulkofsky S, Kleffuss JZ, Sweeney CD, Bruck M. Unwarranted assumptions about children's testimonial accuracy. *Annual Review of Clinical Psychology* 2007;3:311–328.
- Eberle, R.; Eberle, S. *The abuse of innocence: The McMartin Preschool trial*. Buffalo, NY: Prometheus; 1993.
- Fancher, RE. *Pioneers of psychology*. New York: Norton; 1996.
- Fivush R, Haden CA, Reese E. Elaborating on elaborations: The role of maternal reminiscing style in cognitive and socioemotional development. *Child Development* 2006;77:1568–1588. [PubMed: 17107447]
- French L, Garry M, Mori K. You say tomato? Collaborative remembering leads to more false memories for intimate couples than strangers. *Memory* 2008;16:262–273. [PubMed: 18324551]
- Gabbert F, Memon A, Allan K. Memory conformity: Can eyewitnesses influence each other's memory for an event? *Applied Cognitive Psychology* 2003;17:533–543.
- Gabbert F, Memon A, Allan K, Wright DB. Say it to my face: Examining the effects of socially encountered misinformation. *Legal and Criminological Psychology* 2004;9:215–227.
- Garven S, Wood JM, Malpass R, Shaw JS. More than suggestion: consequences of the interviewing techniques from the McMartin preschool case. *Journal of Applied Psychology* 1998;83:347–359. [PubMed: 9648524]
- Gluckman M. Gossip and scandal. *Current Anthropology* 1963;4:307–316.
- Harris CB, Paterson HM, Kemp RI. Collaborative recall and collective memory: What happens when we remember together? *Memory* 2008;16:213–230. [PubMed: 18324548]
- Hedrick AM, San Souci P, Haden CA, Ornstein PA. Mother-child joint conversational exchanges during events: Linkages to children's event memory over time. *Journal of Cognition and Development* 2009;10:143–161.
- Hirst W, Manier D. Towards a psychology of collective memory. *Memory* 2008;16:183–200. [PubMed: 18324546]
- Holliday RE, Reyna VF, Hayes BK. Memory processes underlying misinformation effects in child witnesses. *Developmental Review* 2002;22:27–77.
- Hollingshead AB. Retrieval processes in transactive memory systems. *Journal of Personality and Social Psychology* 1998;74:659–671.
- Hope L, Ost J, Gabbert F, Healey S, Lenton E. With a little help from my friends. . . : The role of co-witness relationship in susceptibility to misinformation. *Acta Psychologica* 2008;127:476–484. [PubMed: 17937922]
- Leichtman MD, Ceci SJ. The effects of stereotypes and suggestions on preschoolers' reports. *Developmental Psychology* 1995;31:568–578.
- McIlveen, R.; Gross, R. *Social influence*. London: Hodder & Stoughton; 1999.
- Meade ML, Roediger HL III. Explorations in the social contagion of memory. *Memory & Cognition* 2002;30:995–1009.
- Memon A, Vartoukian R. The effects of repeated questioning on young children's eyewitness testimony. *British Journal of Psychology* 1996;87:403–415.
- Nathan, D.; Snedeker, M. *Satan's silence: Ritual abuse and the making of a modern American witch hunt*. New York: Harper-Collins; 1995.

- Ornstein PA, Haden CA, Hedrick AM. Learning to remember: Social-communicative exchanges and the development of children's memory skills. *Developmental Review* 2004;24:374–395.
- Paterson HM, Kemp RI. Comparing methods of encountering post-event information: The power of co-witness suggestion. *Applied Cognitive Psychology* 2006;20:1083–1099.
- Peker M, Tekcan AI. The role of familiarity among group members in collaborative inhibition and social contagion. *Social Psychology* 2009;40:111–118.
- Poole D, Lindsay DS. Interviewing preschoolers: Effects of nonsuggestive techniques, parental coaching, and leading questions on reports of nonexperienced events. *Journal of Experimental Child Psychology* 1995;60:129–154.
- Poole DA, Lindsay DS. Children's eyewitness reports after exposure to misinformation from parents. *Journal of Experimental Psychology: Applied* 2001;7:27–50. [PubMed: 11577617]
- Poole DA, White LT. Two years later: Effects of question repetition and retention interval on the eyewitness testimony of children and adults. *Developmental Psychology* 1993;29:844–853.
- Principe GF, Kanaya T, Ceci SJ, Singh M. Believing is seeing: How rumors can engender false memories in preschoolers. *Psychological Science* 2006;17:243–248. [PubMed: 16507065]
- Principe GF, Tinguely A, Dobkowski N. Mixing memories: The effects of rumors that conflict with children's experiences. *Journal of Experimental Child Psychology* 2007;98:1–19. [PubMed: 17559870]
- Rabinowitz, D. *No crueler tyrannies: Accusation, false witness, and other terrors of our times*. New York: Free Press; 2003.
- Reese E, Fivush R. The development of collective remembering. *Memory* 2008;16:201–212. [PubMed: 18324547]
- Roediger HL III, Meade ML, Bergman ET. The social contagion of memory. *Psychonomic Bulletin & Review* 2001;8:365–371. [PubMed: 11495127]
- Roberts KP, Powell MB. The consistency of false suggestions moderates children's reports of a single instance of a repeated event: Predicting increases and decreases in suggestibility. *Journal of Experimental Child Psychology* 2006;94:68–89. [PubMed: 16513130]
- Rosnow RL. Inside rumor: A personal journey. *American Psychologist* 1991;46:484–496.
- Rosnow, RL. Rumor and gossip in interpersonal interaction: A social exchange perspective. In: Kowalski, RM., editor. *Behaving badly: Aversive behaviors in interpersonal relations*. Washington DC: American Psychological Association; 2001. p. 203-232.
- Schneider DM, Watkins MJ. Response conformity in recognition testing. *Psychonomic Bulletin & Review* 1996;3:481–485.
- Schwarz S, Roebers CM. Age differences in the effects of social influence on children's eyewitness performance and their metacognitive monitoring. *Journal of Experimental Child Psychology* 2006;94:229–248. [PubMed: 16540115]
- Shaw JS, Garven S, Wood JM. Co-witness information can have immediate effects on eyewitness memory reports. *Law and Human Behavior* 1997;5:503–521. [PubMed: 9374604]
- State of Calif. v. Buckley*. 1990. Sup. Ct., Los Angeles County, #A750900.
- Virj A, Pannell H, Ost J. The influence of social pressure and black clothing on crime judgments. *Psychology, Crime, & Law* 2005;11:265–274.
- Wegner, DM. Transactive memory: A contemporary analysis of the group mind. In: Mullen, B.; Goethals, GR., editors. *Theories of group behavior*. New York: Springer-Verlag; 1987. p. 185-208.
- Wegner DM, Erber R, Raymond P. Transactive memory in close relationships. *Journal of Personality and Social Psychology* 1991;61:923–929. [PubMed: 1774630]
- Wertsch JV, Roediger HL III. Collective memory: Conceptual foundations and theoretical approaches. *Memory* 2008;16:318–326. [PubMed: 18324555]
- Wren, K. *Social influences*. New York: Routledge; 1999.
- Wright DB, Self G, Justice C. Memory conformity: Exploring misinformation effects when presented by another person. *British Journal of Psychology* 2000;91:189–202. [PubMed: 10832514]

**Table 1**

Proportions (and Counts) of Children Who Reported the Target Activity as Actually Occurring and Who Reported Seeing the Target Activity

	<i>n</i>	Reported the target activity			Reported seeing the target activity
		Open-ended	Specific	Leading	Total
Conversational interaction	29	.72 (21)	.21 (6)	.04 (1)	.97 (28)
No conversational interaction	27	.11 (3)	.19 (5)	.33 (9)	.63 (17)
Control	27	0	.04 (1)	.15 (4)	.19 (5)
					.38 (11)
					.11 (3)
					0

**Table 2**

Mean Numbers (and Standard Deviations) of Verbatim, Constructive, and Fantastic Propositions Describing the Target Activity as a Function of Experimental Group

	<i>n</i>	Verbatim	Constructive	Fantastic	Total
Conversational interaction	28	1.32 (0.61)	6.18 (6.83)	1.07 (2.28)	8.57 (7.63)
No conversational interaction	17	0.77 (0.83)	0.88 (1.05)	0.77 (0.83)	2.41 (2.50)
Control	5	0.20 (0.45)	1.00 (0.71)	.080 (1.30)	2.00 (1.73)

**Table 3**

Mean Numbers and Proportions (and Standard Deviations) of Old, New, and Ambiguous Propositions

	<b>New</b>	<b>Old</b>	<b>Ambiguous</b>
Conversational Interaction			
Mean number	6.32 (6.62)	2.11 (1.66)	0.14 (0.36)
Mean proportion	.60 (.33)	.38 (.34)	.03 (.08)
No Conversational Interaction			
Mean number	2.12 (1.76)	0.17 (0.39)	0.12 (0.33)
Mean proportion	.87 (.28)	.09 (.28)	.04 (.13)



**Table 4**

Proportions (and Counts) of Children Who Reported the Target Activity as Actually Occurring and Who Reported Seeing the Target Activity

Social history	<i>n</i>	Reported the target activity			Reported seeing the target activity	
		Open-ended	Specific	Leading	Total	Total
Familiar	27	.70 (19)	.19 (5)	.04 (1)	.93 (25)	.41 (11)
Unfamiliar	30	.13 (4)	.17 (5)	.27 (8)	.57 (17)	.07 (2)

**Table 5**

Mean Numbers (and Standard Deviations) of Verbatim, Constructive, and Fantastic Propositions Describing the Target Activity as a Function of Experimental Group

	<i>n</i>	Verbatim	Constructive	Fantastic	Total
Familiar	25	1.12 (0.33)	6.08 (5.81)	0.88 (1.76)	8.08 (5.70)
Unfamiliar	17	0.82 (0.53)	2.17 (2.42)	0.88 (1.27)	3.88 (2.47)

**Table 6**

Mean Numbers and Proportions (and Standard Deviations) of Old, New, and Ambiguous Propositions

	<b>New</b>	<b>Old</b>	<b>Ambiguous</b>
Familiar			
Mean number	5.76 (4.55)	2.08 (1.78)	0.24 (0.52)
Mean proportion	.61 (.26)	.35 (.28)	.04 (.11)
Unfamiliar			
Mean number	2.82 (2.01)	0.84 (0.39)	0.23 (0.44)
Mean proportion	.76 (.24)	.19 (.19)	.06 (.12)