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Children's Natural Conversations Following Exposure to a Rumor: Linkages to Later False Reports

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Abstract

Previous research has shown that children naturally propagate overheard false rumors and that the circulation of such information can induce children and their peers to wrongly recall actually experiencing rumored-but-nonexperienced events. The present study extends this work by recording 3- to 6-year-olds' naturally-occurring conversations following exposure to an erroneous rumor. Results indicate that compared to children who overhear rumors spread by adults, those who pick up rumors from peers during natural interactions engage in deeper and more inventive rumor mongering. Moreover, the degree and originality of rumor propagation was linked with various qualities of children's subsequent recollections at both a 1-week and 4-week delayed interview. Further, compared to 3- and 4-year-olds, 5- and 6-year-olds naturally transmitted more novel and coherent embellishments of the rumor to their peers, and more of their false narrative reports during the interviews overlapped with their own and their peers' utterances transmitted soon after the rumor was planted.

Keywords

Memory; Suggestibility; Rumor; Children; Source Monitoring; Eyewitness Testimony

Discussing shared experiences with others is a typical and frequent part of children's everyday social activity. Research focusing on children's autobiographical memory demonstrates that such exchanges can change the way that experienced events are represented and remembered, particularly when conversational partners differ in their renderings of the event. For instance, talking with co-witnesses who experienced a slightly different version of the same event (e.g., Candel, Memon, & Al-Harazi, 2007; Principe & Ceci, 2002), who overheard errant information about a shared event (e.g., Principe, Kanaya, Ceci, & Singh, 2006; Principe, Haines, Adkins, & Guiliano, 2010), or who generated erroneous inferences about the past (Principe, Guiliano, & Root, 2008) can distort children's recollections in ways consistent with their conversational partner's experiences. Despite the growing number of demonstrations of the mnemonic effects of memory exchanges on children's event recall, little is known about the content of such conversations and which specific qualities of these discussions are linked to later errors in remembering. In the

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present study, we make use of a paradigm known to promote high levels of false reports following discussion of a shared event (e.g., Principe et al., 2006) to examine in a fine-grained manner the sorts of co-witness conversational activities that are linked to later errors in children's remembering.

Studies of the mnemonic effects of co-witness talk have their theoretical roots in contemporary formulations of collective memory (see Harris, Paterson, & Kemp, 2008; Reese & Fivush, 2008) that characterize memories of shared experiences as dynamic and collaborative representations that are shaped during group conversational processes. In this framework, as memories of shared events are recollected within a group, its members negotiate a collective version of the experience. As a consequence of such conversational sharing, individuals' memories of the past are revised to become increasingly similar among group members.

Most of the experimental evidence in support of theories of collective memory comes from laboratory studies in which groups of adults collaboratively remember a shared event and then recall it individually. Generally, when conditions are free from suggestive influences, group remembering increases the amount of information individuals later recollect (e.g., Basden, Basden, & Henry, 2000). Nearly all of the new information reported can be traced back to details shared earlier by other group members (Rajaram & Pereira-Pasarin, 2007), supporting the notion that conversational exchanges about the past bring individuals' memories more in line with the group.

However, when misinformation is introduced into group remembering, either deliberately by a confederate (Meade & Roediger, 2002) or unknowingly by a group member who experienced a slightly different version of the to-be-remembered event (Gabbert, Memon, & Allan, 2003), individuals are prone to subsequently recall nonexperienced-but-suggested details. Several studies have demonstrated that such conversationally-conveyed misinformation is more detrimental to memory than misleading information encountered through other means, such as in accounts written by other witnesses (Gabbert, Memon, Allan, & Wright, 2004; Shaw, Garven, & Wood, 1997) or in leading questions or media reports (Paterson & Kemp, 2006). Further, co-witness discussions can boost confidence in errant recollections (Paterson & Kemp, 2006; Stephenson & Wagner, 1989).

The ease of contamination brought about by socially-conveyed misinformation to adults' recall has prompted developmental researchers to examine group processes in children's suggestibility. One line of work demonstrating the power of social exchanges to induce errors centers on rumor mongering. In their seminal study on rumor and memory, Principe and colleagues (e.g., Principe et al., 2006) exposed some children within preschool classrooms to an errant rumor about a shared experience and then had them interact naturally with their peers. When later asked for their memory, those children who heard the rumor directly or picked it up from their peers were as likely to report experiencing the rumored-but-nonexperienced event as other children who actually experienced the event suggested by the rumor. Moreover, the rumor was more mnemonically damaging than a suggestive interview. Compared to children for whom the false information was suggested in a highly coercive interview, those exposed to the rumor gave more errant reports, were more likely to wrongly recall actually seeing (as opposed to merely hearing about) the suggested event, and embellished their accounts with a generous degree of fictitious detail in line with the suggestions. Further, cross-study comparisons show that various forms of rumor (e.g., Principe, Tinguely, & Dobkowski, 2007; Principe, Haines, et al., 2010) can lead to error levels higher than those typically produced by misleading interviews (Bruck, Ceci, & Hembrooke, 2002; Roberts & Powell, 2006) or other commonly-examined sources of

suggestion, such as parental coaching (Poole & Lindsay, 2001), stereotype induction (Leichtman & Ceci, 1995), or visualization (Ceci, Huffman, Smith, & Loftus, 1994).

In line with findings in the adult literature of high levels of interference from socially-transmitted misinformation, Principe, Daley, and Kauth (2010) demonstrate that the conversational interactions that ensue following children's exposure to rumor, rather than the rumor itself, give rumor its mnemonic potency. In this study, Principe and colleagues replicated their original rumor paradigm (Principe et al., 2006) with one exception: after overhearing the rumor from an adult, only *some* of the children were permitted to interact with their peers. These children later 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 but were not given the opportunity to naturally converse with peers. Further, the interference brought about by peer discussion following rumor was amplified when children interacted with familiar as opposed to unfamiliar peers.

The Present Study

Considering these findings demonstrating the impact of natural peer exchanges on the effects of rumor on children's remembering, an important next step is to explore the transmission of overheard information within peer groups. The purpose of the present study, therefore, is to examine directly children's group discussions of a shared event following their exposure to an errant rumor. To do so, we replicated Principe and colleagues' (2006) rumor paradigm with 3- to 6-year-olds with one modification: we recorded children's naturally-occurring conversations immediately following their exposure to the rumor. Then, all children were interviewed in a neutral manner at delays of one and four weeks. Given our knowledge of children's interactions after the rumor, this approach enabled us to address questions about how rumors and natural conversations can affect memory more precisely than we (and others) have done before. We were particularly interested in revealing how children naturally spread overheard information, whether its propagation varies as a function of informant (i.e., adult versus peer), the extent to which children's participation in rumor mongering is associated with later false reports, and the degree to which narrative details invented during conversational interactions later become infused into children's individual reports.

A consistent pattern in studies of rumor and memory (Principe et al., 2006; Principe, Haines, et al., 2010) is that children who hear a false rumor from peers are more likely than those who hear it from an adult to report seeing rumored information and to generate more elaborate false narratives describing the rumor.¹ This heightened peer suggestibility is in contrast to the typical result in laboratory paradigms that children more often comply with postevent suggestions planted by adults than those made by peers (Ceci, Toglia, & Ross, 1990). There are, however, several differences in these two lines of work in the manner in which misinformation is spread that might contribute to the conflicting results. For instance, children in rumor research freely spread errant information, whereas those in laboratory studies transmit scripted suggestions. Examination of differences in rumor mongering as a function of reception source should provide some insight into what makes rumors picked up from peers more damaging to memory than rumors heard from an adult.

¹A re-analysis of data from Principe et al. (2006) shows that among those children who were interviewed in a neutral manner during the 1 week delay, at the 2 week delay, the Classmate children were more likely than the Overheard children to report actually seeing the loose rabbit $\chi^2(1, N = 43) = 3.78, p = .05$.

There also are consistent developmental trends in studies of rumor of memory. For instance, Principe and colleagues (Principe, Haines, et al., 2010; Principe et al., 2007) have found that 3- and 4-year-olds are more likely than the 5- and 6-year-olds to wrongly recall seeing rumored events. Common explanations of these sorts of more frequent source errors among younger children are their immaturities in theory-of-mind understanding, representational ability, and strategic use of memory characteristics to determine source (see e.g., Roberts, 2002; Sluzenski, Newcombe, & Ottinger, 2004). Our exploration of children's natural talk following rumor allows us to explore whether age differences in the propagation of rumored information might further complicate the task of distinguishing experienced from overheard events among younger children.

Another common developmental finding in the rumor literature is that among those children who make false reports, 5- and 6-year-olds provide more elaborately detailed narratives than the 3- and 4-year-olds (Principe et al., 2008; Principe, Haines, et al., 2010). This pattern might seem counterintuitive given younger children's increased vulnerability to suggestive influences (see Bruck & Ceci, 1999, for a review). Considering, however, that narratives of experience generally become increasingly voluminous with age (e.g., Fivush, Haden, & Adam, 1995), there is every reason to suspect that this same trend would hold for false narratives when children believe their false reports to be true. Further, given that participation in post-rumor dialogues boosts the inference brought about by rumor (Principe, Daley, et al., 2010), if older children more actively engage in rumor mongering, they might put themselves at increased risk of later reporting nonexperienced-but-rumored details.

We also examine changes in children's recollections over time; that is, at delays of one and four weeks. Prior work shows near ceiling error rates after one week (e.g., Principe, Daley, et al., 2010; Principe, Haines, et al., 2010), but it is critical to consider whether the effects of rumors on memory dissipate rapidly or reflect a more lasting change. Over time as details of rumor fade, children may be more likely to report what actually happened to the extent that this information is more strongly represented in memory than the details of an overheard rumor. Given, however, that rumor can induce an abundance of perceptual and contextual images in children's representations of experience that put them at risk for judging rumored events at actually witnessed (Principe, Haines, et al., 2010), rumor might result in enduring changes to memory for many children.

This study also is motivated by applied concerns regarding children's testimony in legal settings. The literature on rumors indicates that rumors tend to emerge about events that are unsettling and for which there is some uncertainty about the exact details (see Rosnow, 2001). These conditions sound a lot like those surrounding the events about which young witnesses often testify, such as sexual abuse and other forms of maltreatment, considering that these crimes are disconcerting and typically lack corroborating evidence. Further, co-witnesses commonly share their memories with one another during natural exchanges (Skagerberg & Wright, 2008) and group police questioning (Garven, Wood, Malpass, & Shaw, 1998). Thus, the current study should provide legally-relevant information about the sorts of natural interactions might hinder the accuracy of young co-witnesses and the conditions under which it might be dangerous to use collaborative statements from peers to elicit information from children who are not disclosing allegations already made by others.

Method

Participants

Participants were 123 children, divided into a younger group of 3- and 4-year-olds and an older group of 5- and 6-year-olds. There were 64 younger children (*Mean age* = 50 months, *Range* = 40–59 months), including 34 females and 30 males, and 59 older children (*Mean*

age = 74 months, *Range* = 62–82 months), including 31 females and 28 males. Children were recruited from one of six suburban preschools and summer day camps in southeastern Pennsylvania. Reflecting the population of these programs, 95% of children were European American. Written consent and verbal assent were obtained from participating parents and children, respectively.

Experimental Design

The 64 younger children and the 59 older children were assigned to one of three conditions denoted as Overheard, Classmate, and Control. The six conditions formed by the combination of age and rumor group ranged in size from 18 to 23, with the number of females in each condition varying from 11 to 13. The six participating schools were randomly assigned to be either an Overheard/Classmate school ($n = 4$) or a Control school ($n = 2$). Children in the Overheard/Classmate schools were randomly assigned to one of the two rumor conditions.

Procedure

The to-be-remembered event—Replicating Principe et al.'s (2006) procedure, children, in groups ranging in size from 10 to 12, watched a scripted magic show carried out by a confederate magician named Magic Mumfry. At the end of the show, Mumfry reached into his top hat and said that he was going to pull out a live rabbit. After several enthusiastic but unsuccessful efforts, Mumfry gave up, apologized for his failure, and left the school. Twelve shows were carried out, with eight made up of a mix of Overheard and Classmate children and four made up of Control children. All shows were performed in a large common area at the schools.

Immediately after the show, children in the Overheard condition overheard a scripted conversation between a teacher and an unfamiliar adult confederate in which the confederate alleged that Mumfry's trick failed because the rabbit was loose in the school rather than in his hat. Children's attention to the rumor was achieved by having them stand quietly in a line awaiting a sticker during the conversation. Children in the Classmate condition were the classmates of those in the Overheard condition, but did not themselves overhear the adult conversation about the escaped rabbit. Control children did not overhear the rumor, nor did they have any opportunities to interact with children in the other two groups.

To document the natural propagation of the rumor, before the start of the magic show, Overheard and Classmate children were asked to wear a small belt pack that contained a digital voice recorder, a microphone that attached to their shirt collars, and a numbered tee-shirt that corresponded to a number marked on their voice recorder. Four video recorders were placed in each classroom to record the children's interactions and the numbered tee-shirts were used to assist in the identification of individual children who participated in the post-rumor conversations. The children's interactions were recorded for 20 minutes after the show beginning once the Overheard children were reunited with the Classmate children. School staff was instructed to refrain from discussing the rumor or the magic show with the children.

Memory Interview—One week (*Mean* = 7 days, *Range* = 6–8 days) and then again at 4 weeks (*Mean* = 28 days, *Range* = 27–29 days) after the show, all children were questioned by a condition-unaware interviewer in a room at their school other than their usual classroom. The interviews were videotaped and were carried out by different examiners. Following Principe et al., (2006), children were asked to tell “only about things that you remembering happening to you—things that you really did or remember seeing with your own eyes.” The interview followed a hierarchically-ordered format beginning with a series

of open-ended prompts (i.e., “Tell me everything that happened the day that Magic Mumfry visited your school.” “What else happened?”), proceeding to a specific question only if children had not yet reported a loose rabbit (i.e., “Did anything happen to Mumfry’s rabbit?”). Those children who recalled a loose rabbit were asked for the source of their memory; that is, whether they merely had “heard” the rumor about the escaped rabbit from some else, or actually saw it with their own eyes (i.e., “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?” The order of the source options was counterbalanced. Throughout the interview, children were prompted to elaborate with general probes (i.e., “Tell me more about that.”)

Coding

Memory Interview—The interviews were transcribed verbatim and coded by condition-unaware raters. First, the interviews were scored to indicate whether the target activity was reported and the specificity of questioning that elicited the information (i.e., open-ended or specific). Then, when asked, children’s responses to the source question were coded. Next, the number of propositions reported in response to both open-ended and specific questions about the target activity was counted among those children who reported a loose rabbit. Following Principe and colleagues (2006), a proposition was defined as a statement containing a subject and a verb, either explicit or implied, that had not been mentioned previously by either the interviewer or the child. Examples of propositions describing the target activity included, “The bunny was sleeping in the nap room” and “I heard the rabbit munching his carrots in Mrs. M’s office.”

Next, to explore the content of children’s narratives, propositions about the target activity were parsed into one of three categories: Verbatim, Constructive, or Fantastic. Statements were coded as Verbatim if they literally repeated information in the adult-planted rumor, such as, “He was somewhere eating carrots” and “The bunny was running in the school.” Constructive propositions were statements that were consistent with the theme of the rumor but went beyond its literal content. For example, “I saw the bunny under the slide” and “He bit my finger” were coded as constructive. Fantastic statements were statements out the loose rabbit that could not have happened in reality. Statements such as “The bunny was screaming, ‘I want carrots, I want carrots’” and “He flew up to the moon” were coded as Fantastic.

To examine children’s consistency across the two interviews, each proposition reported at the 4-week interview was coded as New (i.e., information that had not been reported in the 1-week interview) or Old (i.e., information that had been reported in the 1-week interview). Then, for each child, the proportions of Old and New propositions was calculated. Minor differences in information at the 4-week interview (such as a child reporting that the rabbit “hurt my finger” in the 1-week interview and that the rabbit “bit my finger”) were scored as old.

Classroom Talk—The audiotaped naturally-occurring peer discussions in children’s classrooms following the magic show were transcribed verbatim and coded by condition-unaware raters. For each child, naturally occurring talk about the rumored loose rabbit was broken down into thought units. Following Gottman and Parkhurst (1980), a thought unit was defined as one expressed idea that contained one or several utterances. We coded classroom talk in terms of thought units rather than propositions because children’s natural rumor transmissions generally were choppy and more disjointed than their interview responses.

Thought units were pared in two manners. First, each thought unit was coded in the same fashion as interview propositions; that is, as either Verbatim, Constructive, or Fantastic. Second, though units were scored in terms of originality to index the extent to which children were improvising new details or merely repeating rumored information already spread. For each child, each thought unit was coded as either New (i.e., original information not yet uttered by any other child in the classroom), Old (i.e., information already stated by another child in the classroom), or Ambiguous (i.e., not clear if New or Old).

Linking Classroom Talk and the Interviews—Next we explored direct links between what went on in the classroom and children’s interview performance. One important question concerns the degree to which things said in the interviews originated in the classroom on the day that the rumor was spread. To explore this issue, for each child, each proposition reported about the loose rabbit during each the interview was coded into one of four categories in terms of extent to which it overlapped with the content of their own and their classmates post rumor conversations. Those interview propositions that overlapped with the gist of any dialogue uttered at least once by the child in the classroom on the day of the magic show were scored as Overlapping Self. Overlapping Other positions were those that overlapped only with the gist of an idea expressed by another child in the classroom (but never the child in question). Nonoverlapping propositions reflected information never transmitted (as far as we know) in the classrooms. Ambiguous propositions were those that were too vague to be classified into one of the other categories.

Twenty percent of the 246 interview transcripts ($n = 49$) and 20 percent of the 123 classroom transcripts ($n = 24$) were selected at random and independently coded by two raters. Inter-rater agreement was calculated as the ratio of the number of agreements over the total number of codes given. Reliability across all interview variables was 91% (range 88% - 98%) and reliability across all classroom variables was 90% (range 81% - 94%). Coding 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 confederate who played “Mumfry,” the interviewer, order of source options, classroom size, or child gender.

Memory Interviews

Reporting the Target Activity—The proportions and counts of children who reported the rumored target activity at both the 1- and 4-week interviews are shown in Table 1. At the 1-week interview, nearly all Overheard and Classmate children reported a loose rabbit in their schools. As expected, only one child in the Control condition reported a loose rabbit. To examine the effects of age and experimental condition statistically, a series of logistic regressions was conducted to predict children’s total recall (open-ended plus specific) of the target activity. With experimental condition and age group placed as predictor variables, and the Control group and the younger children coded as baselines, results indicated that, at the 1-week interview, children in the Overheard (.89) and Classmate (.93) conditions were more likely to report the target activity than Control (.03) children, $\chi^2(1, N = 123) = 25.88, p < .0001, \phi^2 = .56$. With the Overheard group coded as the baseline, the Overheard and Classmate groups did not differ. This pattern persisted out to the 4-week interview, with most Overheard (.98) and Classmate (.95) children, but only two Control children (.05),

reporting the target activity, $\chi^2(1, N = 123) = 28.78, p < .0001, \phi = .59$. There were no effects of age group at either interview.

As also shown on Table 1, the majority of Overheard and Classmate children's reports of the lost rabbit were at the open-ended level of questioning. Within these two conditions, there were no main effects of age or experimental group at either interview in the proportions of children who reported the target activity at the open-ended level. At the second interview, there was a marginal age group $\times$ experimental group interaction, $\chi^2(1, N = 84) = 3.34, p < .07, \phi = .20$. Separate analyses at each age revealed that among older children, but not younger children, those in the Overheard condition were less likely than those in the Classmate condition to report the target activity at the open-ended level of questioning, $\chi^2(1, N = 41) = 3.20, p < .07, \phi = .28$. Statistical comparisons could not be made with the Control group because none made an open-ended report of the target activity.

Seeing the Target Activity

The proportions and counts of children who reported actually seeing (as opposed to merely hearing about) the target activity when posed the source question (i.e., "Did you see [action vis-à-vis the rabbit, as noted by the child, inserted here] with your own eyes, or did you hear about it from someone?") are shown in the rightmost column on Table 2. As shown, a substantial number of Overheard and Classmate children reported actually witnessing a loose rabbit in their schools. At the 1-week interview, Classmate children (.55) were more likely than Overheard children (.30) to report actually seeing the target activity with their own eyes, $\chi^2(1, N = 84) = 4.18, p < .05, \phi = .22$. Further, younger children (.58) were more likely than older children (.24) to recall seeing the rumored loose rabbit, $\chi^2(1, N = 84) = 4.13, p < .05, \phi = .22$. A parallel pattern was observed at the 4-week assessment, with Classmate children (.55) more likely than Overheard children (.25) to claim to have seen the loose rabbit $\chi^2(1, N = 84) = 4.45, p < .05, \phi = .23$, and younger children (.56) more likely to make this error than older children (.22), $\chi^2(1, N = 84) = 5.28, p < .05, \phi = .25$. Control children were excluded from these analyses because none claimed to have seen the target activity.

Describing the Target Activity

The proposition coding scheme described above was used to characterize children's narrative accounts of the target activity. Narratives were coded only for those who reported the target activity in response to an open-ended or specific question. Table 3 shows the average number of Verbatim, Constructive, Fantastic and Total (Verbatim plus Constructive plus Fantastic) propositions broken down by age and experimental groups, accompanied by the *ns* on which each mean is based. Data from Control children were excluded because only a small number reported the target activity. As can be inferred, many Overheard and Classmate children produced quite elaborate fictitious narratives describing the rumored occurrence. To illustrate, consider the following excerpts: "He was white and furry and he had black eyes and teeth right here really big," "He bit my foot and I went, 'Ouch you stop that now, bunny,' and he bit my foot. He bit my finger too. I tried to feed him half way and he bit," "I heard the bunny eat his carrots and he was full and then he came back and got some water."

To examine children's narrative accounts, a series of ANOVAs were carried out with experimental group (Overheard vs. Classmate) and age group (3- and 4-year-olds vs. 5- and 6-year-olds) as between-subjects factors. An analysis of the total number of propositions at the 1-week interview yielded a main effect of experimental condition, $F(1, 75) = 11.34, p < .01, \phi = .12$, such that Classmate children ($M = 12.35$) uttered more propositions describing the events surrounding the rumored loose rabbit than Overheard children ($M = 7.51$). There

also was an age effect, $F(1, 75) = 11.89, p < .0001, \eta^2 = .12$, indicating that older children ($M = 12.41$) provided more voluminous narratives than younger children ($M = 7.46$). This pattern persisted out to the 4-week interview with parallel differences as a function of experimental group ($M_s = 10.55$ versus 5.21), $F(1, 80) = 20.89, p < .0001, \eta^2 = .20$, and age ($M_s = 9.15$ versus 6.32), $F(1, 80) = 5.05, p < .05, \eta^2 = .05$.

Consistent with past work, (Principe et al., 2007; 2008), the subset of Overheard and Classmate children who reported seeing the rumored target activity with their own eyes ($n = 35$) produced more voluminous narratives at the 1-week interview ($M = 13.46, SD = 7.10$) than did those who did not report seeing the target activity ($n = 41, M = 6.80, SD = 7.10$), $F(1, 75) = 23.61, p < .0001, \eta^2 = .24$. Likewise, at the 4-week interview, Overheard and Classmate children who recalled seeing a loose rabbit ($n = 33$) uttered more propositions ($M = 11.09, SD = 6.73$) than those who refrained from making a report of seeing ($n = 48, M = 5.39, SD = 3.64$), $F(1, 80) = 3.86, p < .05, \eta^2 = .05$.

To explore the content of children's narratives in more depth, separate analyses were conducted on the mean numbers of Verbatim, Constructive, and Fantastic statements at each interview. There were no age or group effects on the provision of Verbatim or Fantastic utterances at either interview. Analyses of Constructive propositions at the 1-week interview revealed a group effect, $F(1, 75) = 10.31, p < .01, \eta^2 = .11$, with Classmate children ($M = 9.73$) reporting more Constructive utterances than Overheard children ($M = 5.05$). There was also an effect of age at the first interview, $F(1, 75) = 9.56, p < .01, \eta^2 = .10$, such that older children ($M = 9.64$) provided more Constructive propositions than younger children ($M = 5.13$). This pattern persisted out to the 4-week interview with an effect of experimental group ($M_s = 8.05$ versus 1.91), $F(1, 80) = 39.29, p < .0001, \eta^2 = .32$, and age ($M_s = 6.00$ versus 3.61), $F(1, 80) = 4.82, p < .05, \eta^2 = .04$.

Another way of gauging the impact of the mode of transmission (Overheard versus Classmate) on children's narrative reports is to examine within-subject changes in the provision of propositions from the 1-week to the 4-week interview. For each child who reported the target activity during both interviews, four difference scores were calculated, one that reflected the change in the total number of propositions provided at the first and second interview, one that reflected the change in the number of propositions that were scored as Verbatim between the first and the second interview, and so on for Constructive and Fantastic propositions as well. Only those children who reported the target activity at both interviews were considered in this analysis. The resulting difference scores, which are presented by age and experimental group in Table 4, were then compared with the 0 that would be expected if there were no change in responding over time.

A series of *t*-tests revealed that within the Overheard group, older children, but not younger children, evidenced a significant decrease in the total number of propositions provided from the 1-week to the 4-week interview, $t(17) = -2.58, p < .05$. An examination of content among those in the Overheard group revealed that older Overheard children evidenced a significant decrease in Constructive propositions, $t(17) = -3.00, p < .01$, and a marginally significant increase in Fantastic propositions, $t(17) = 1.94, p = .07$ from the 1-week to 4-week interview. Younger Overheard children also evidenced a decrease in the numbers of Constructive propositions, $t(20) = -2.04, p = .05$. There were no significant changes from the 1- to the 4-week interview among either the younger or older Classmate children.

To examine the extent to which the specific content of individual children's reports changed from the first to the second memory assessment, we calculated the proportions of Old and New propositions reported at the 4-week interview as a function of experimental group. As shown in Table 5, a good deal of children's narrative accounts of the target activity at the 4-

week interview contained information that they did not report at the 1-week interview. A 2 (experimental group: Overheard vs. Classmate) $\times$ 2 (age group: 3- and 4-year-olds vs. 5- and 6-year-olds) ANOVA revealed a main effect of group, $F(1, 75) = 12.46, p < .001, \eta^2 = .01$, such that Overheard children provided a greater proportion of New propositions, and correspondingly a smaller proportion of Old propositions, in their reports of the loose rabbit at the 4-week interview compared to Classmate children.

Classroom Talk

Next we used the thought unit coding scheme described above to explore the naturally-occurring peer discussions that took place in the classrooms immediately following children's exposure to the rumor. As shown on Table 6, there was a remarkable amount of natural dialogue about the rumor going on in the classrooms among both Overheard and Classmate children. Although not indicated on Table 6, each child in both experimental groups uttered at least one thought unit, demonstrating that every child was in on the rumor mongering. The following excerpt is characteristic of the sorts of talk captured shortly after the rumor was planted: "The bunny is down in our classroom...He's probably playing with our sand outside...after we find him we have to give him to Mumfry...anybody caught him in the library...look the bunny (gasp), the bunny I hope he's not eating our snacks...shhh, just listen for hoppin' noises...move over Emily found him..." Importantly, there were no mentions of a loose rabbit among the Classmate children before the first Overheard child spread this misinformation.

A 2 (experimental group: Overheard vs. Classmate) $\times$ 2 (age group: 3- and 4-year-olds vs. 5- and 6-year-olds) ANOVA revealed a main effect of experimental condition on the provision of thought units, $F(1, 83) = 6.46, p < .07, \eta^2 = .09$, with Classmate children ($M = 17.60$) uttering more total thought units than Overheard children ($M = 11.29$). There also was an effect of age group, $F(1, 83) = 4.65, p < .05, \eta^2 = .05$, such that older children ($M = 17.02$) uttered more thought units than younger children ($M = 11.69$).

As also shown on Table 6, children did not stick to *only* repeating the rumor literally, nor did Fantastic utterances predominate their transmissions. Rather the majority of children's utterances were constructions consistent with the loose rabbit theme of the rumor. Analyses indicated no age or experimental group differences in the numbers of Verbatim and Fantastic thought units uttered in the classroom. There was, however, a significant group difference in the production of Constructive thought units, such that Classmate children ($M = 12.55$) transmitted more Constructive thought units than Overheard children ($M = 5.86$), $F(1, 83) = 16.14, p < .0001, \eta^2 = .15$. The effect of age also was significant, $F(1, 83) = 7.73, p < .01, \eta^2 = .17$, with older children ($M = 11.42$) uttering more Constructive statements than younger children ($M = 6.79$).

Next we explored age and group differences in children's tendencies to improvise new details. To do so, as described above, for each child, we noted the number of thought units uttered in the classroom that were New (i.e., not yet mentioned by any other child the classroom) and the number of Old (i.e., already stated by someone else in the classroom). As shown in Table 7, both groups improvised freely—overall 58 percent of children's utterances in the classroom were new. But originality varied by group such that Classmate children generated more novel thought units than Overhead children (no group difference in the numbers of old thought units). A 2 (experimental group: Overheard vs. Classmate) $\times$ 2 (age group: 3- and 4-year-olds vs. 5- and 6-year-olds) ANOVA revealed a main effect of experimental condition on the provision of New thought units, $F(1, 83) = 8.93, p < .01, \eta^2 = .09$, with Classmate children ($M = 11.03$) uttering a more New total thought units than Overheard children ($M = 6.16$). There also was an effect of age group, $F(1, 83) = 5.48, p < .05, \eta^2 = .06$, such that older children ($M = 10.42$) uttered more New thought units than

younger children ($M = 6.63$). There were no group or age differences in the provision of Old or Ambiguous thought units.

Linking Classroom Talk and Memory Interview Reports

Next we explored direct links between children's natural talk in the classroom following exposure to the rumor and their subsequent performance during the memory interviews. As illustrated on Table 8, a good deal of children's recollections during both interviews originated a week earlier in the natural dialogues in the classroom on the day the rumor was planted. At the 1-week interview, 20 percent of the children's narrative reports during the interview overlapped with what they themselves had uttered in the classroom. Thirty-two percent of their narrative reports during the interview originated in their classmates' transmissions. A 2 (experimental group: Overheard vs. Classmate) $\times$ 2 (age group: 3- and 4-year-olds vs. 5- and 6-year-olds) ANOVA carried out on the subset of children who reported the target activity at the 1-week interview revealed that those in Classmate condition ($M = .25$) reported a higher proportion of Overlapping-Self propositions than those in Overheard condition, ($M = .16$), $F(1, 75) = 4.80$, $p < .05$, $\eta^2 = .06$. There also was an age effect with older children ($M = .26$) providing a higher proportion of Overlapping-Self propositions than younger children, ($M = .15$), $F(1, 75) = 7.05$, $p < .01$, $\eta^2 = .08$. A parallel analysis on Overlapping-Other propositions revealed that Classmate ($M = .40$) children uttered proportionately more Overlapping-Other statements than Overheard children ($M = .23$), $F(1, 75) = 16.15$, $p < .0001$, $\eta^2 = .16$. Older children ($M = .39$) provided proportionately more Overlapping-Other propositions than younger children ($M = .25$), $F(1, 75) = 11.69$, $p < .001$, $\eta^2 = .12$. In contrast, Overheard children ($M = .55$) recollected proportionately more Nonoverlapping propositions than Classmate children, ($M = .32$), $F(1, 75) = 15.80$, $p < .001$, $\eta^2 = .16$. Further, younger children ($M = .54$) uttered a higher proportion of Nonoverlapping statements relative to older children ($M = .33$), $F(1, 75) = 12.79$, $p < .001$, $\eta^2 = .13$. There were no age or group differences in Ambiguous propositions.

As shown in the bottom panel on Table 8, at the 4-week interview, 13 percent of children's interview reports overlapped with their own transmission in the classroom, and 23 percent overlapped with their classmates' contributions. There was an effect of group on the provision of Overlapping-Self propositions, with Classmate children ($M = .17$) reporting proportionately more than Overheard children ($M = .08$), $F(1, 80) = 6.35$, $p < .05$, $\eta^2 = .07$. There was a group effect on Overlapping-Other such that Classmate children ($M = .31$) recollected proportionately more than Overheard children ($M = .16$), $F(1, 80) = 10.24$, $p < .01$, $\eta^2 = .11$. Also, older children ($M = .29$) reported a higher proportion of Overlapping-Other propositions than younger children ($M = .17$), $F(1, 80) = 5.75$, $p < .05$, $\eta^2 = .07$. Finally, Overheard children ($M = .71$) uttered proportionately more Nonoverlapping propositions than Classmate children ($M = .52$), $F(1, 80) = 8.53$, $p < .01$, $\eta^2 = .09$, and the younger children ($M = .70$) reported proportionately more Nonoverlapping statements than the older children ($M = .54$), $F(1, 80) = 6.49$, $p < .05$, $\eta^2 = .07$.

Predicting Children's Reports of Seeing the Rumor

Given that claims of seeing the loose rabbit—as opposed to merely hearing about it—suggest that the rumor biased not merely children's reports, but also their beliefs about what happened, of interest is whether the degree of participation in post rumor dialogues is associated with later false claims of seeing rumored information. It seems to be—the subset of children who reported actually seeing the loose rabbit during the 1-week interview ($n = 35$, $M = 19.66$, $SD = 12.29$) transmitted a higher number of thought units during the classroom conversations than those who declined seeing the rabbit with their own eyes ($n = 41$, $M = 11.85$, $SD = 10.28$), $F(1, 75) = 9.09$, $p < .01$, $\eta^2 = .11$. This pattern persisted out to the 4-week interview with those children who reported seeing the loose rabbit ($n = 33$)

transmitting a higher number of thought units ($M = 17.85$, $SD = 13.06$) than those who did not report seeing it ($n = 48$, $M = 12.37$, $SD = 10.59$), $F(1, 80) = 4.31$, $p < .05$, $\phi = .05$.

Further, the invention of *original* post rumor transmissions consistent with the theme of the rumor appeared to be a particularly strong influence on mistaken claims of seeing rumored events as those children who reported actually seeing a loose rabbit at the 1-week interview ($M = 11.63$, $SD = 8.36$) produced a higher number New thought units in the classroom than those who failed to report seeing it ($M = 6.90$, $SD = 7.32$), $F(1, 75) = 6.91$, $p < .01$, $\phi = .09$. Also at the 4-week interview, those children who reported seeing a loose rabbit uttered a higher number of New thought units ($M = 10.88$, $SD = 9.38$) compared to those who did not recall seeing a rabbit ($M = 7.23$, $SD = 6.62$), $F(1, 80) = 4.22$, $p < .04$, $\phi = .05$.

Discussion

Prior research shows that rumor can be a potent source of suggestibility in young children. Overheard false rumors can lead high levels of children to recall rumored-but-nonoccurring aspects of an earlier experience, and induce greater damage to memory when the rumored information is transmitted by peers than when planted by adults (e.g., Principe et al., 2006, Principe, Haines, et al., 2010). In the present investigation, we recorded 3- to 6-year-old children's conversational interactions after overhearing an errant rumor about a shared event to explore in a fine-grained manner the extent to which certain patterns of natural dialogue are linked to later errors in remembering. Children's interview responses at delays of both 1 and 4 weeks provided direct evidence that the content of children's post-rumor conversations can leak into later memory. Further, differences in rumor propagation as a function of chronological age and informant (i.e., adult versus peer) offered insight into why rumor has different mnemonic consequences for young versus older children and why it leads to greater damage when gleaned from peers than overheard from adults.

Remembering the Rumor

Replicating earlier studies on rumor (e.g., Principe et al., 2007; Principe, Haines, et al., 2010), at the 1-week interview, nearly all of the children who were exposed to the rumor, either from an adult or their peers, wrongly reported experiencing the rumored event. Further, most of the errant reports were in response to open-ended probes, demonstrating that the common assumption made by fact finders that spontaneous statements are generally accurate (see Ceci, Kulkofsky, Klemfuss, Sweeney, & Bruck, 2007) is unwarranted under conditions when false rumors have circulated among children. As expected, the mode of rumor transmission affected the influence of rumor, such that those children who learned about the rumor from peers were more likely than those who heard it from an adult to recall seeing events consistent with rumor and more liberally embellished their reports of the rumored-but-nonoccurring event with narrative detail. The current study extended extant demonstrations of rumor by providing evidence of these same mnemonic patterns out to a 4-week delay, indicating that the memory alterations engendered by false rumor do not dissipate rapidly but rather reflect more lasting changes in remembering.

Rumor Mongering

Despite abundant evidence that rumors circulated during natural peer conversations can engender high levels of memory error (e.g., Principe et al., 2007; Principe, Haines, et al., 2010), extant studies have not explored how children share rumored information during the normal course of discussing past experiences with peers. In the current investigation, examination of children's naturally-occurring conversational exchanges following their exposure to the rumor revealed a remarkable amount of dialogue going on among those who heard the rumor directly from an adult as well as those who had picked it secondhand up

from their peers. In fact, every child in both the Overheard and Classmate groups engaged in rumor mongering and uttered at least one statement about the alleged loose rabbit. Children's unanimous participation in the propagation of the false rumor provides some insight into the basis of the near ceiling levels of reports of the rumored event at both interviews. It reveals not only that the rumor reached all of the Classmate children immediately following its transmission to the Overheard children, but also that every Overheard and Classmate child encoded the rumor and was actively engaged, albeit in different degrees, in circulating the rumored information.

Given these high levels of natural rumor talk, how does the propagation of rumored information influence memory? One possibility is mere rehearsal. Given, however, that verbatim reproductions made up only a minority of children's classroom utterances, it seems likely that the mnemonic effects of opportunities for free conversation following rumor were driven by more than rehearsal alone. Further, there was not an overwhelming level of fantastic talk in the post-rumor dialogues, indicating that children did not interpret the rumor as an invitation to engage in only pretense. Most of the information transmitted was made up of constructive utterances in line with the theme of rumor. Thus, children were inventing and sharing new details that generally were believable. Considering a voluminous literature in social psychology demonstrating that believability is one of the necessary ingredients in rumors that are readily and widely spread (see Rosnow, 1991), the constructive nature of the information generated and circulated in the classrooms likely boosted the influence of the rumored information on children's subsequent remembering.

Linking Rumor Mongering and Remembering

Given this evidence that children readily embellish and share overheard event information with co-witnesses, to what extent do these conversations shape children's later recollections of experience? There was considerable overlap between the content of classroom exchanges and children's subsequent interview reports at both the 1- and 4-week delays, indicating that the very narrative details invented and circulated among children following their exposure to the rumor intruded into their own and their peers' subsequent individual accounts of the event. These data also suggest that children who made errant reports 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 had originated one or four weeks earlier in the natural dialogues on the day the rumor was planted. Further, these findings of the ready infusion of the content of peer dialogues into later memory provides some insight into why the effects of postevent misinformation are exacerbated when it is encountered in a group rather than individually without the opportunity for co-witness exchange (see Principe, Daley, et al., 2010).

Replicating prior work (Principe et al., 2006; 2007), those children who reported actually seeing as opposed to merely hearing about the rumored occurrence provided more elaborate narratives during the interviews, suggesting that a more detailed representation of rumor was associated with an increased likelihood of misattributing the source of this representation to a perceived experience. The current findings also reveal that a higher level of participation in post rumor dialogues was associated with later false claims of seeing rumored information. The subset of children who reported actually seeing the loose rabbit at both the 1- and 4-week interviews transmitted a higher number of utterances during the classroom conversations than those who declined seeing the rabbit with their own eyes. The invention of *original* transmissions consistent with the theme of the rumor appears to be a particularly strong influence on later mistaken claims of seeing rumored events as those children who reported actually seeing a loose rabbit produced a higher proportion new thought units in the classroom than those who failed to report seeing it. This pattern suggests that the invention

and perhaps rehearsal of rumored information leads to the generation of increasingly elaborate representations that puts children at heightened risk for later source confusions.

Mode of Rumor Transmission

In line with findings by Principe and colleagues' (2006, 2010)¹, the rumor was more damaging to memory when it was gleaned from agemates than when it was overheard from an adult. At both interviews, the Classmate children made more frequent reports of seeing the rumored occurrence and they offered more lengthy false narratives than the Overheard children. Further, among the children who erroneously reported the rumored event at both interviews, those in the Overhead group evidenced a decline in the volume of accompanying narrative detail from the 1-week to the 4-week interview. In contrast, the children in the Classmate group exhibited no decrease in narrative volume over the 4-week delay. This pattern suggests that the Classmate children generated and maintained more elaborate representations of the rumored occurrence across the 4-week interval than the Overheard children.

In line with the heightened levels of mnemonic influence of the rumor among the children who gleaned the false information from their peers relative to those picked it up from an adult, the Classmate children also talked differently than the Overheard children about the alleged occurrence on the day the rumor was planted. Compared to the Overheard children, the Classmate children improvised higher degrees of original transmissions, demonstrating that the Classmate children were generating more embellishments to the initial rumor than their peers. Importantly, most of these new details were consistent with theme of the rumor, indicating that the boost in information propagated by the Classmate children was not because they more frequently parroted the rumor or suggested fantastic possibilities, but because they uttered more constructions in line with rumor.

Not only did the Classmate children engage in deeper and more inventive rumor mongering than the Overhead children, the Classmate children also were more affected by what went on in the classrooms on the day the rumor was planted. At both the 1- and 4-week interviews, the Classmate children evidenced a greater overlap than the Overheard children between things they themselves and their classmates said on the day of the rumor and what they reported to the interviewers. Likewise, at both interviews, the Overhead children reported higher levels of nonoverlapping information, suggesting that the Overheard children may have more likely to fabricate portions of their interview reports on the fly. The persistence of these group patterns out to a substantial delay suggests that children's immediate classroom conversations about the rumored loose rabbit had a profound effect on memory, perhaps producing a period of "extending encoding" of the magic show that allowed at least some of the content of these natural exchanges to become incorporated into their representations of Mumfry's visit (see e.g., Ornstein, Haden, & Elishberger, 2006, for a discussion of extended encoding).

These findings of heightened peer suggestibility are at odds with extant work showing that children are more often misled by misinformation introduced by adults than by peers (e.g., Ceci, Toglia, & Ross, 1990). However, research in the adult literature on rumors and gossip shows that individuals more readily spread unfounded information when it is picked up from a peer than an authority figure (Jaeger, Anthony, & Rosnow, 1980), with higher degrees of propagation within an individual's own social group (Almirol, 1981). These trends suggest that peer-transmitted misinformation might be more damaging to memory under more natural social conditions such as in the current investigation where familiar peers are given the opportunity to freely vary the exact suggestions they transmit than in studies like Ceci and colleagues' study where unfamiliar peers make scripted suggestions in a formal interview environment.

Supporting the notion that the naturalness of the reception context boosts the influence of peer suggestions are the current findings that the Overheard children generally did not constrain themselves to stay true to the information transmitted by a presumed authority figure; rather their classroom propagations were highly constructive and highly inventive. In fact, over half of the Classmate children's utterances made following their exposure to the rumor were original. Thus, it may be the improvised nature of the Overheard children's original transmissions and the Classmate children's subsequent tendencies to do more immediate constructive spinning of the rumor that made peer suggestions particularly powerful.

Age Differences

Although both the younger and older children wrongly reported the rumored occurrence at near ceiling levels at both interviews, the 3- and 4-year-olds were more likely than the 5- and 6-year-olds to recall actually seeing rather than merely hearing about the alleged event. This age-related decline in suggestibility is consistent with prior work and often is explained on the basis of developmental improvements in source monitoring abilities (e.g., Leichtman & Ceci, 1995; Poole & Lindsay, 2001; Principe, Haines, et al., 2010). Interestingly, there was no evidence of qualities of children's rumor mongering that put younger children at a heightened risk for making more frequent source errors. The younger children were less engaged than the older children in talking with their peers about the alleged occurrence on the day the rumor was planted. In the classrooms, compared to the 5- and 6-year-olds, the 3- and 4-year-olds propagated less information about the rumor and improvised lower levels original transmissions. Further, the younger children were less affected than the older children by the content of the natural dialogues on the day the rumor was planted. Compared to the 5- and 6-year-olds, the 3- and 4-year-olds reported lower levels of propositions that originated in their own or their classmates' utterances following the rumor. Taken together, these findings suggest that the less sophisticated memory abilities of younger children, such as their weaker source monitoring skills, rather than aspects of their conversational exchanges following misinformation, put them at increased risk of making mistaken claims of seeing suggested-but-nonexperienced events.

Another developmental finding of interest is the higher levels of errant narrative detail in the older compared to the younger children's reports of the rumored occurrence at both interviews. This might be due to the fact that the 5- and 6-year-olds were the master propagators in the classroom; they generated more constructive utterances and improvised more original transmissions about the rumored occurrence than the 3- and 4-year-olds. The older-children's deeper and more inventive participation in rumor exchanges with their peers suggests that they simply had created for themselves more opportunities than the younger children to make later errors in remembering. Indeed, this rationale is consistent with findings in the source monitoring literature that internally generated events are more easily confused with one's own personal experiences than are externally suggested events (e.g., Lindsay, Johnson, & Kwon, 1991). Supporting the notion that the 5- and 6-year olds' more active engagement in the classroom rumor dialogues was the driving force behind their higher level of later false embellishments is the finding that, compared to the younger children, the older children provided more interview details that overlapped with their own utterances (1-week interview) and their classmates' utterances (1- and 4- week interviews) in the classroom following the rumor. Indeed, it is well known that the more an individual talks or thinks about an event, the more likely it is to be recalled later (Hedrick, San Souci, Haden, & Ornstein, 2001; Suengas & Johnson, 1988), even if it is false (Ceci, et al., 1994). Thus, these data suggest a factor that might contribute to developmental and also within-age variance in false reports, namely how children talk about overheard misinformation with their peers. Given, however, that finders-of-fact tend to judge detail as diagnostic of

accuracy (Leichtman & Ceci, 1995), these findings suggest that when conditions are ripe for rumor mongering, older children may be more prone to construct false narratives that are more compelling or believable than those produced by younger children.

Implications and Conclusions

This collection of findings provides unique insight into why rumor can be such a potent source of suggestibility and, at least at times, induce greater damage to memory when the rumored information is transmitted by peers than when it is planted by adults. Not only do children who hear rumors from other children remember differently from those who pick rumors up from adults, they also naturally talk differently with others about alleged happenings. Specifically, children who glean rumored information from their peers seem to engage in deeper and more inventive rumor mongering. They propagate more constructive and coherent embellishments and improvise more original transmissions than children who overhear rumors from adults. These differing patterns of rumor mongering and later memory as a function of informant demonstrate that it is not just misinformation *per se* that affects remembering, but also how misinformation is encountered and shared with others.

The current work also has implications for discussions of children's testimonial accuracy in legal settings. First, judges and juries are known to take agreement among witnesses as an index of accuracy (e.g., Duggan, Aubrey, Doherty, Isquith, Levine, Scheiner, 1989). The current work not only demonstrates that this assumption is unwarranted when false rumors have circulated among peers (see also Principe et al., 2007; Principe, Daley, et al., 2010) but also shows how natural conversations following exposure to rumor can lead to corroboration even when none of the witnesses are accurate. Second, based on findings that information repeated across interviews tends to be highly accurate (e.g., Peterson, Moores, & White, 2001), consistency across interviews is often considered diagnostic of truthfulness. The present study, however, shows that children's false reports also can be quite consistent over time, especially when the errant information originated in conversations with peers rather than when picked up from adults. Taken together, these findings demonstrate that the tendencies of finders-of-fact to use corroboration and consistency as markers of accuracy are unfounded when young witnesses have been exposed to false rumors about events in which they are called on to testify.

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- We link children's natural rumor mongering with later event memory.
- Rumor exposure can prompt children to engage in highly constructive rumor mongering with peers.
- The content of children's natural post-rumor conversations can leak into later memory.
- Children's rumor propagation differs as a function of age and informant (i.e., adult versus peer).
- Deeper and more inventive rumor mongering is associated with increases in later memory errors.

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Table 1

Proportions of Children Who Reported the Target Activity at Each Interview as a Function of Age, Experimental Group, and Level of Questioning

Group	ns	1 Week Interview			4 Week Interview		
		Open-Ended	Specific	Total	Open-Ended	Specific	Total
3-4 year olds							
Overheard	23	.70 (16)	.22 (5)	.91 (21)	.83 (19)	.17 (4)	1.00 (23)
Classmate	20	.80 (16)	.10 (2)	.90 (18)	.75 (15)	.15 (3)	.90 (18)
Control	21	0	0	0	0	0	0
5-6 year olds							
Overheard	21	.67 (14)	.19 (4)	.86 (18)	.71 (15)	.24 (5)	.95 (20)
Classmate	20	.85 (17)	.10(2)	.95 (19)	.95 (19)	.05 (1)	1.00 (20)
Control	18	0	.06 (1)	.06 (1)	0	.11 (2)	.11 (2)

Table 2

Proportions (and Counts) of Children Who Reported Seeing the Target Activity at Each Interview as a Function of Age and Experimental Group

Group	ns	Interview	
		1 Week	4 Week
3-4 year olds			
Overheard	23	.44 (10)	.39 (9)
Classmate	20	.75 (15)	.75 (15)
Control	21	0	0
5-6 year olds			
Overheard	21	.14 (3)	.10 (2)
Classmate	20	.35 (7)	.35 (7)
Control	18	0	0

Mean Numbers (and Standard Deviations) of Verbatim, Constructive, and Fantastic Propositions Reported about the Target Activity at Each Interview as a Function of Age and Experimental Group

Group	1-Week Interview					4-Week Interview				
	<i>ns</i>	Verbatim	Constructive	Fantastic	Total	<i>ns</i>	Verbatim	Constructive	Fantastic	Total
3-4 year olds										
Overheard	21	1.24 (0.44)	3.57 (4.69)	1.10 (1.45)	5.86 (4.98)	23	1.57 (2.24)	1.61 (2.55)	1.57 (2.23)	4.30 (4.19)
Classmate	18	1.39 (0.50)	6.69 (6.15)	1.00 (1.37)	9.33 (5.69)	18	1.28 (0.46)	6.17 (5.35)	1.44 (1.92)	8.89 (6.07)
5-6 year olds										
Overheard	18	1.39 (0.61)	6.78 (6.82)	1.28 (2.35)	9.44 (6.98)	20	1.30 (0.57)	2.25 (2.00)	2.70 (3.15)	6.25 (3.81)
Classmate	19	1.62 (0.83)	12.37 (6.58)	1.21 (1.75)	15.21 (6.20)	20	1.25 (0.44)	9.75 (6.19)	1.05 (1.23)	12.05 (1.23)

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Table 4

Differences in Numbers of Propositions Reported About the Target Activity from the 1-Week to the 4-Week Interview (and Standard Deviations) by Age and Experimental Group

Group	ns	Verbatim	Constructive	Fantastic	Total
3-4 year olds					
Overheard	21	0 (0.55)	-1.81 (4.07)	0.62 (2.89)	-1.24 (4.46)
Classmate	18	-0.06 (0.54)	-0.83 (3.71)	0.44 (2.43)	-0.44 (4.15)
5-6 year olds					
Overheard	18	-0.17 (0.62)	-4.56 (6.44)	1.72 (3.77)	-3.01 (4.93)
Classmate	19	-0.37 (0.83)	-2.47 (8.11)	-0.21 (2.20)	-2.82 (8.38)

Table 5

Proportions (and Standard Deviations) of Old and New Propositions at the 4-Week Interview

Group	<i>ns</i>	New	Old
3-4 year olds			
Overheard	21	.75 (.18)	.25 (.18)
Classmate	18	.46 (.30)	.54 (.30)
5-6 year olds			
Overheard	18	.63 (.27)	.37 (.27)
Classmate	19	.53 (.23)	.47 (.23)

Table 6

Mean Numbers (and Standard Deviations) of Verbatim, Constructive, and Fantastic Thought Units Uttered in the Classroom as a Function of Age and Experimental Group

Group	Verbatim	Constructive	Fantastic	Total
3-4 year olds				
Overheard	1.78 (2.09)	4.91 (3.86)	3.17 (3.70)	9.87 (8.10)
Classmate	1.95 (2.16)	8.95 (7.46)	2.90 (4.14)	13.80 (11.77)
5-6 year olds				
Overheard	2.52 (2.38)	6.90 (7.57)	3.43 (5.36)	12.86 (11.91)
Classmate	2.25 (2.27)	16.15 (10.37)	3.00 (4.44)	21.40 (12.91)

Table 7

Numbers (and Standard Deviations) of Old, New, and Ambiguous Thought Units Uttered in the Classroom as a Function of Age and Experimental Group

Group	New	Old	Ambiguous
3-4 year olds			
Overheard	5.43 (5.20)	4.26 (4.37)	0.17 (0.49)
Classmate	8.00 (8.78)	5.60 (4.21)	0.20 (0.52)
5-6 year olds			
Overheard	6.95 (6.85)	5.67 (5.84)	0.10 (0.30)
Classmate	14.05 (8.53)	7.25 (5.80)	0.10 (0.45)

Table 8

Proportions of Propositions Provided in the 1- and 4-Week Interviews that Overlap with Classroom Thought Units

Group	Overlapping Self	Overlapping Other	Nonoverlapping	Ambiguous
1-week interview				
3-4year olds				
Overheard	.12 (.17)	.17 (.16)	.63 (.29)	.08 (.20)
Classmate	.19 (.16)	.33 (.18)	.43 (.22)	.05 (.09)
5-6 year olds				
Overheard	.21 (.19)	.31 (.23)	.45 (.28)	.03 (.08)
Classmate	.30 (.13)	.47 (.13)	.22 (.10)	.01 (.02)
4-week interview				
3-4 year olds				
Overheard	.06 (.13)	.13 (.24)	.73 (.30)	.07 (.15)
Classmate	.14 (.18)	.22 (.25)	.65 (.28)	.07 (.16)
5-6 year olds				
Overheard	.11 (.16)	.18 (.17)	.67 (.27)	.03 (.08)
Classmate	.20 (.13)	.39 (.18)	.40 (.25)	.01 (.01)