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ORIGINAL ARTICLE

Children's Susceptibility to Misidentifying a Familiar Bystander From a Lineup: When Younger is Better

David F. Ross · Dorothy F. Marsil · Tanja Rapus Benton · Rebecca Hoffman · Amye R. Warren · R. C. L. Lindsay · Richard Metzger

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Abstract Children from 5 to 12 years of age ($N = 779$) were shown a videotape where a preschool teacher has money stolen from her wallet. Children were shown a lineup, and for children in the bystander condition, the lineup contained a familiar bystander without the thief. Children in the control condition viewed the same lineup but they had not seen the bystander in the videotape. Among the 11–12-year olds, participants in the bystander condition were significantly more likely than control participants to misidentify the familiar bystander. This effect was not found in children from 5 to 10 years of age. When children in the control condition were shown a lineup that contained the thief without the bystander, the 11–12-year olds were significantly more likely than the younger children to correctly identify the thief. These findings demonstrate that age can both increase and decrease the accuracy of children's lineup identification accuracy depending on the task at hand and the content of a lineup.

Keywords Unconscious transference · Children identification accuracy · Lineup identification · Child witnesses

We examine children's susceptibility to misidentifying a familiar but innocent person from a lineup. Historically, this memory error has been labeled "Unconscious Transference" (Houts, 1956), and has been defined as the "transfer of one person's identity to that of another person from a different setting, time, or context" (Read, Tollestrup, Hammersley,

D. F. Ross (✉) · T. R. Benton · R. Hoffman · A. R. Warren · R. Metzger
Department of Psychology, University of Tennessee at Chattanooga,
615 McCallie Avenue, Chattanooga, Tennessee 37403, USA
e-mail: David-Ross@utc.edu

D. F. Marsil
Kennesaw State University,
Kennesaw, Georgia, USA

R. C. L. Lindsay
Queen's University,
Kingston, Ontario, Canada

McFadzen, 1990, p. 3). Adult studies on this topic are few in number, and their results report every possible pattern of effect. Some studies find support for the phenomenon ((Brown, Deffenbacher, & Sturgill, 1977; Buckhout, 1974; Loftus, 1976; Perfect, & Harris, 2003; Phillips 1997; Read et al., 1990), Experiment 5; (Ross, 1994)), while others find little or no evidence for it ((Dysart, 2001; Geiselman, Haghighi, & Stown, 1996; Geiselman, MacArthur, & Meerovitch, 1993; Gorenstein & Ellsworth, 1980; Read et al., 1990), Experiments 3 and 4). A reverse unconscious transference effect has also been reported, whereby a familiar bystander was found to be less likely to be misidentified than other foils in a lineup ((Read et al., 1990), Experiments 1 and 2). In studies showing a reverse effect, participants remember that the bystander is familiar but innocent, and quickly dismiss that person as a potential lineup choice.

Attempts to resolve the conflicting findings have identified a number of moderating variables. Unconscious transference is most likely to occur when the familiar bystander and the perpetrator are moderately similar in appearance and seen in the same context, and when the witness infers that the perpetrator and the familiar bystander are the same person, a process referred to as conscious inference (Read et al., 1990; Ross et al., 1994). Conscious inference appears to be a prerequisite for this memory error to occur because it allows a witness to remember having encountered the familiar bystander but not dismiss him or her as familiar but innocent because the witness thinks he or she was the same person seen in two places. Thus (Ross et al., 1994) suggest that the term unconscious transference be changed to "conscious transference." Here we adopt an even less misleading and more appropriate label—the "misidentification of a familiar bystander effect."

The misidentification of a familiar bystander effect in children: theoretical issues

Research indicates that preschool-aged children exhibit significantly lower rates of correct lineup identification than adults, whereas adolescents tend to perform at a level similar to that of adults (Pozzulo & Lindsay, 1998). While younger children are generally more inaccurate than adults, they can reach adult levels of accuracy under certain conditions, such as with practice at the task and when shown target-present lineups (Dekle, Beal, Elliott, & Huneycutt, 1996; Goodman & Reed, 1986; Gross & Hayne, 1996; Parker, 1995; Parker & Myers, 2001; Parker & Ryan, 1993). When presented with target-absent lineups, young children and even adolescents are prone to make more false positive errors than adults (Beal, Schmitt, & Dekle, 1995; Parker & Carranza, 1989; Parker & Myers, 2001), but the use of elimination lineup procedures helps reduce these types of errors in children (Pozzulo & Lindsay, 1999). Thus, younger children tend to make fewer correct rejections than adults (Lindsay, 1997; Pozzulo & Lindsay, 1997; Pozzulo & Lindsay, Pozzulo, & Craig, Lee, & Corber, 1998). While lineup performance in general may increase with age, we expect to observe a different pattern in the relation between age and susceptibility to misidentifying a familiar bystander. Specifically, we predict that older children (11–12-year olds) will be more susceptible than younger children (5–10) to misidentifying a familiar bystander from a lineup.

Research and theory on verbatim and gist memory traces can be used to support this hypothesis. Brainerd and colleagues, using *Fuzzy Trace Theory*, argue that younger children are more reliant on verbatim memory traces that contain specific episodic information, which preserve presented information exactly but are highly susceptible to interference and decay. In contrast, older children and adults are better at encoding and more reliant upon gist traces. Compared with verbatim traces, gist traces are vaguer but preserve the general meaning of information, and are better integrated and more resistant to interference and decay. Brainerd, Reyna, & Forrest (2002) report that false memory errors based on gist memories increase between childhood and

young adulthood. They found that older children and adults are more likely than younger children to recall never-presented words (e.g., sleep) that are semantically associated with actually presented words (e.g., nap, bed). In Experiment 3, children aged 5 and 7 years of age did not differ, and had a low level of susceptibility to the DRM False Memory Illusion. However, both the 5- and 7-year olds were less susceptible to this error than the 11-year olds, who in turn, were less susceptible than the adult participants who were the most likely to make this error.

Another basis for our hypothesis is that as children develop, so too, does their cognitive ability to infer that two similar looking individuals are the same person, a process that requires considerable skill in drawing inferences about a person and his/her actions using information obtained at different times and places. Age-related increases in inferential processing ability have been observed across a variety of different content areas, including, television programs (Collins, Wellman, Keniston, & Westhy, 1978), stories (Goldman and Varnhagen, 1986) written text (Ackerman, 1984; Ackerman, 1992; Johnson & Smith, 1981; Paris & Lindauer, 1976), pictures (Pezdek, 1980), and verbal information (Pezdek, 1980). Age-related improvements in semantic inferences made during recall have also been observed. Specifically, 11–12-year-olds perform much better and more like adults than 6–7-year-olds in making inferences to fill gaps in information that is to be remembered (Paris, Lindauer, & Cox, 1977). Taken together, older children may be more likely than younger children to misidentify a familiar bystander because they form an integrated gist-like memory trace, and have greater inferential ability required to make the conscious inference error, thus increasing their susceptibility to misidentifying a familiar bystander from a lineup.

In the present study, participants ranging from 5 to 12 years of age watched a videotape in which a teacher has money stolen from her wallet. In the bystander condition participants see a male bystander in the videotape who is similar in appearance to the thief. Participants in the control condition see the same videotape except the bystander is absent. We predict that the 11–12-year olds in the bystander condition will be significantly more likely to misidentify the bystander as compared to 11–12-year olds in the control condition, and that the 11–12-year olds in the bystander condition will infer the thief and the familiar bystander is the same person. We also predict that children from 5 to 10 years of age will not show the misidentification of a familiar bystander effect. When control participants are shown a lineup that contains the thief without the bystander, we predict the 11–12-year-old children will have a higher rate of correct identification than the younger children.

Method

Participants

Four hundred thirty-five children participated and the sample was divided into four age groups. In the bystander condition there were fifty-five 5–6-year-olds ($M = 5.6$, $SD = .50$), fifty-five 7–8-year-olds ($M = 7.6$, $SD = .49$), fifty-five 9–10-year-olds ($M = 9.5$, $SD = .50$), and fifty-two 11–12-year-olds ($M = 11.3$, $SD = .44$). In the control condition there were fifty-seven 5–6-year-olds ($M = 5.5$, $SD = .50$), fifty 7–8-year-olds ($M = 7.5$, $SD = .50$), fifty-nine 9–10-year-olds ($M = 9.5$, $SD = .50$), and fifty-two 11–12-year-olds ($M = 11.3$, $SD = .45$). A total of 187 children participated in another control condition but were shown a lineup containing the thief but not the bystander. In this condition there were forty-two 5–6-year-olds ($M = 5.7$, $SD = .46$), fifty-five 7–8-year-olds ($M = 7.5$, $SD = .50$), forty-four 9–10-year-olds ($M = 9.7$, $SD = .47$), and forty-six 11–12-year-olds ($M = 11.4$, $SD = .50$). The sample was drawn from local day care centers, summer camps, and schools and was predominately White.

Materials and procedure

Participants were shown a videotape that was approximately 3 min in length showing interactions between preschool teachers and children. The video shown to all participants was identical, except for one scene. In the control condition, a female teacher was shown reading a story to the children, and in the bystander condition a male bystander was shown reading. At the end of the video, a female teacher (the victim) is shown entering a cafeteria and sitting down next to the thief, who is male. The teacher places her wallet on the table, walks to a vending machine turning her back to the man at the table. The thief then removes money from the teacher's wallet and leaves the cafeteria. Bystander participants were exposed to the thief and the bystander for the same period of time (34 s). Children were tested in pairs (separated by a divider) and sat 5 ft from the television and 8 in. from the divider. Participants were instructed that they were going to watch a video about children playing at a preschool, and thereafter they would be asked some questions about what they saw. After presentation of the video, the lineup task and context question interview were conducted individually.

Lineup construction and fairness

Participants were presented a five-person photo-lineup that contained the innocent bystander and four foils. Each photograph in the lineup was a color, head-and-shoulder shot and was 5 in $\times$ 7 in. in size. The lineup photographs were taken by a professional photographer and were identical in terms of lighting, background, dress, and distance from the camera. The lineup used was the same as that used in our prior research with adults, and the position of the bystander in the lineup was not found to impact the distribution of identification choices (see Ross et al., 1994) for a detailed description of the procedures used to generate the lineup). The lineup was constructed to be moderately fair (the innocent bystander was rated by independent judges as more similar in appearance to the thief than the other foils used in the lineup). Past research by Read et al. (1990) shows that the misidentification of a familiar bystander is unlikely to occur if this condition is not met. In the "thief present/bystander-absent" condition the familiar bystander was replaced with the photograph of the thief in the lineup.

Lineup identification task

After watching the video, participants were shown a five-person simultaneous lineup and asked to identify the person who stole the money from the teacher's wallet. Participants were told they could pick one of the five photos in the lineup, or indicate that the person who took the money was not in the lineup, or say that (s)he does not know if that person was in the lineup. Participants were informed that the person who took the money may or may not be in the lineup. If an identification was made participants were then asked to provide a confidence rating on a 3-point scale consisting of *very sure*, *sure*, or *just guessing*.

Context knowledge and reasoning questions

If the participant made an identification, (s)he was asked whether there were any other people in the lineup seen in the video besides the person identified as the thief. If the participant said

"the person who took the money was not in the lineup," (s)he was asked if any of the people in the lineup were in the video. If the child said "yes" to either question, (s)he was asked to point to that man and state what he had been doing in the video. Next, the child was asked if (s)he remembered the man who took the money. If the child said "yes," (s)he was asked whether the man who took the money was seen anywhere else in the video besides where he was seen taking the money, and if the response was "yes," (s)he was asked what he was doing. The last question asked whether or not a teacher read a story to the children. If the child said "yes," (s)he was asked if the teacher was a male or female.

Results

Bystander-present lineup

These data were analyzed using a 2-Condition (Control vs. Bystander) × 4 Age Group (5–6, 7–8, 9–10, 11–12) logistic regression analysis performed on the frequency of participants identifying the bystander. There was no main effect for condition or age group, however, as predicted, there was a significant interaction between condition and age group (Wald = 3.34, $df = 1$, $p < .05$, one-tailed). Bystander participants were significantly more likely to misidentify the bystander than control participants, but only for the 11–12-year-old age group. As seen in Table 1, the 11–12-year olds in the bystander condition were significantly more likely to misidentify the familiar bystander as compared to the control participants (64% vs. 40%, $z = 2.36$, $p < .05$). Further, in the 11–12-year-old age group bystander participants were significantly less likely than control participants to identify other foils from the lineup (10% vs. 29%, $z = 2.49$, $p < .05$). Also within the 11–12-age group correct lineup identifications (i.e., not in lineup) did not vary significantly by experimental condition (bystander = 25% vs. control = 31%, $z = .66$, $p = ns$). There was, however, an effect of age, where the 11–12-year olds made significantly more correct rejections than the younger age groups, which did not significantly differ from each other (28.0% vs. 18.3%, respectively, $z = 2.06$, $p < .05$).

Table 1 Rate of bystander misidentification by condition and age: bystander present in lineup

Condition	Bystander	Foil	Not in Lineup	Don't Know
5–6-Year olds				
Bystander	18	31*	16	35*
Control	16	49	16	19
7–8-Year olds				
Bystander	40	36	15	9
Control	34	24	28	14
9–10-Year olds				
Bystander	47	31	16	6
Control	49	24	19	9
11–12-Year olds				
Bystander	64*	10*	25	2
Control	40	29	31	0

Note. The values represent mean percentages. For 5–6-year olds, bystander $n = 55$, control $n = 57$; 7–8-year olds, bystander $n = 55$, control $n = 50$; 9–10-year olds, bystander $n = 55$, control $n = 59$; 11–12-year olds, bystander $n = 52$, control $n = 52$.

*z-test on proportion, significant at $p < .05$.

By what cognitive process did the misidentification of the familiar bystander occur for the 11–12-year-old participants? On the basis of responses to the context questions that asked, "who did what and where" in the film, the answer suggests conscious inference. The analyses of the context questions below refer only to the 11–12-year-old group, as only this age group demonstrated the misidentification of a familiar bystander effect. One context question asked whether the man who took the money was seen in the film in any place other than in the cafeteria where the crime took place. The correct response to this question is "no" for both conditions, because he was seen only in the cafeteria. Yet bystander and control participants differed in their response to this question. Approximately 58% of the bystander participants reported that the thief was seen outside the cafeteria, and among these participants, 58% reported that he was seen reading a story to the children in the preschool, the role played by the innocent bystander. The other 42% of the bystander participants who indicated that the thief was seen outside the cafeteria indicated that he was seen pushing a swing or interacting with other teachers in the preschool, but not reading a story to the children. In contrast, 96% of the control participants did not make this error, and were accurate in responding that the thief was seen only in the cafeteria ($z = 3.92$, $p < .05$). Participants were also asked whether a teacher was shown reading a story to children in the preschool. If the child answered "yes," (s)he was asked if the teacher was male or female. Approximately 96% of the bystander participants indicated that a story was read, and among these participants 84% indicated that the preschool teacher was male, demonstrating their memory for the familiar bystander.

Participants in both conditions were asked if there was anyone in the lineup who was in the videotape but was not the man who took the money. For bystander participants, the answer to this question was "yes" because the familiar bystander was in the lineup. For control participants, the answer was "no" because none of the individuals in the lineup were in the film they saw. Although the correct response to this question did not differ by condition, the findings indicate that a majority of the participants in the bystander and control condition answered "no" to this question (78% vs. 82%, $z = .01$, $p = ns$). This finding is consistent with a conscious inference approach. A majority of the bystander participants responded "no" because they thought that the familiar bystander was the thief, failing to recognize the bystander as familiar but innocent, while control participants answered "no" because they did not see any of the lineup members in the video.

Elimination conditions

Additional support for conscious inference as the mechanism underlying the misidentification of a familiar bystander effect derives from the fact that we were able to eliminate the effect in two specific ways. First, when another sample of 11–12-year olds in the bystander condition ($n = 57$) were informed that the bystander and the thief are different people just prior to being shown a lineup containing the bystander without the thief, the rate of misidentification of the bystander did not differ from the control group described above (42% vs. 40%, $z = .18$, $p = ns$). Second, when a sample of one hundred 11–12-year old bystander and control participants were presented a lineup that contained the thief and the bystander in the same lineup, the rate of bystander misidentification did not differ between the groups (16% vs. 14%, $z = .28$, $p = ns$). Thus, in breaking the contextual tag linking the bystander and the thief by either informing participants that the bystander and thief are different people or presenting them together in the same lineup, we were able to eliminate the misidentification of a familiar bystander effect. This replicates our previous findings with adult participants (Ross et al., 1994).

Table 2 Rate of identification by age: thief present/bystander absent lineup

Condition	Thief	Foil	Not in Lineup	Don't Know
5–6-Year olds				
Control	45	33	10	12
7–8-Year olds				
Control	60	24	11	6
9–10-Year olds				
Control	64	14	16	7
11–12-Year olds				
Control	89	7	4	0

Note. The values represent mean percentages. For 5–6-year olds $n = 42$; 7–8-year olds $n = 55$; 9–10-year olds $n = 44$; 11–12-year olds, $n = 46$.

*z-test on proportion, significant at $p < .05$.

Thief present/bystander absent lineup

Given that the 11–12-year olds were most likely to misidentify the familiar bystander compared to the younger children, what happens when the thief is in the lineup without the bystander? The answer is that the 11–12-year children were the most accurate in their identification. As seen in Table 2, 11–12-year olds were significantly more likely to correctly identify the thief (89%), as compared with 64% of the 9–10-year olds ($z = 2.9$, $p < .05$), 60% of the 7–8-year olds ($z = 3.3$, $p < .05$), and 45% of the 5–6-year olds ($z = 4.4$, $p < .05$). Therefore, the 11–12-year olds were the most likely to misidentify the familiar bystander but they were also the most accurate in identifying the thief when present in the lineup without the bystander.

Given that the younger children did not make the bystander misidentification error, what did children in the bystander condition do? As seen in Table 1, 5–6-year-old children in the bystander condition were significantly *less* likely to choose the bystander (18% vs. 50%, $z = 4.13$, $p < .05$), and significantly more likely to respond "don't know" if the thief was in the lineup or not (35% vs. 6%, $z = 5.54$, $p < .05$) than the older children. This suggests that the youngest children did not make a connection between the bystander reading the story and the similar-looking thief in the cafeteria. Additionally, the 11–12-year-olds engaged in a significantly higher level (57.7%) of conscious inferencing than each of the other age groups; (18.2%) of the 5–6-year olds ($z = 4.22$, $p < .01$), (38.2%) of the 7–8-year-olds ($z = 2.02$, $p < .05$), and (34.5%) of the 9–10-year olds ($z = 2.4$, $p < .05$). Across conditions, the youngest children's accuracy rates (i.e., their frequency of responding "not in the lineup") were not significantly different from those of the 7- through 10-year olds, $(^2(3, n = 435) = 5.46$, $p = ns$. However, the 11–12-year olds were significantly more accurate than the 5–6-year olds by indicating the thief was not in the lineup (28% vs. 16%, $z = 2.10$, $p < .05$).

Discussion

To our knowledge, the study reported here is the first to examine the misidentification of a familiar bystander effect in children. Compared with children ranging in age from 5 to 10, the 11–12-year-old children were the only age group to make the misidentification of a familiar bystander error. This finding is not trivial because while memory accuracy is thought to increase with age, the findings here demonstrate that under certain conditions the opposite is true. Moreover,

the underlying reasoning for why this error occurred was due, in part, to a process whereby the 11–12- year-old bystander participants inferred incorrectly that the thief and the familiar bystander were the same person seen in two different places, a finding both (Read et al., 1990) and (Ross et al., 1994) refer to as conscious inference.

The results of the present study indicate that the relationship between a child's age and witness accuracy is context dependent. As seen here the 11–12-year olds were the most susceptible to making the misidentification of a familiar bystander error, but at the same time, they were the most accurate in identifying the thief when he was present in the lineup without the familiar bystander. Our findings suggest that the legal system may want to estimate the capabilities of child witnesses based not only on their age but several other factors as well. We suggest that consideration must also be given to the content of the lineup with regard to the presence or absence of the target (Pozzulo & Lindsay, 1998), and the presence of a familiar but innocent person in the lineup.

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