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The Culprit in Target-Absent Lineups: Understanding Young Children's False Positive Responding

Joanna D. Pozzulo · Julie Dempsey · Kaila Bruer · Chelsea Sheahan

Abstract Young children (4- to 7-years old; N=59) and adults (N=53) were shown a series of targets that were either familiar (i.e., popular cartoon characters) or unfamiliar (unknown human faces) to assess whether children's false positive responding with target-absent lineups is driven by social factors to a greater degree than cognitive factors. Although children were able to produce correct identification rates with virtually 100% accuracy for the cartoon characters, they produced a significantly lower correct rejection rate compared to adults. Children also produced a significantly lower correct rejection rate for the human faces compared to adults. These data are discussed for understanding children's identification evidence.

Keywords Child · Eyewitness · Lineup · Identification · Face · Recognition

Many crimes, such as thefts, vandalisms, abductions, and sexual assaults, can occur where the only eyewitness (or victim) is a child (Gross and Hayne 1996; Zajac and Karageorge 2009). While some of these cases involve a culprit that is familiar to the eyewitness, there also are cases where a child is asked to identify a person that is unfamiliar, perhaps only seen during the commission of the crime. Identification evidence can be extremely persuasive, however it may be inaccurate (Wells et al. 1998). Mistaken eyewitness identification has been found to be the leading cause of wrongful conviction (www.innocenceproject.org). Research has shown that under some conditions, child and adult eyewitnesses differ with their identification accuracy (Pozzulo and Warren 2003; Pozzulo and Lindsay 1998). Specifically, children and adults produce comparable correct identification rates when shown a target-present lineup (i.e., the culprit is in the photo array; Pozzulo and Lindsay 1998). The problem occurs when the culprit is absent from the lineup; children are more likely to pick out an innocent person than adults (Pozzulo and Lindsay 1998; Zajac and Karageorge 2009). The cause or explanation for this differential has yet to be fully delineated, however a combination of social and cognitive factors are likely at play. It is assumed that social factors (in addition to cognitive factors) drive false positive responding with target-absent lineups (e.g., Parker and Ryan 1993; Pozzulo and Lindsay 1998). The present study examined whether the pattern in correct identification and false positive responding would remain when manipulating the familiarity of the target; hence the cognitive and social demands of the lineup task.

Children's Versus Adults' Identification Abilities

In a meta-analysis examining children's and adult's identification abilities with lineups, Pozzulo and Lindsay (1998) found that children as young as 5-years produced comparable correct identification rates to adults, provided the target is among the photos presented. Although very few lineup studies examined the abilities of children under 5-years, this age group seemed to have greater difficulty than adults at correct identification (Pozzulo and Lindsay 1998). With target-absent lineups, younger and older children were more likely than adults to produce a higher

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false positive rate (i.e., lower correct rejection rate). All these data involve the identification of a "stranger" or someone unfamiliar to the participant/witness. It is likely that both social and cognitive factors are responsible for lineup identification accuracy. It has been suggested that cognitive factors are more likely to drive decision processes with a target-present lineups (i.e., the need to match a previously formed memory to a current image), whereas, social factors are more likely to drive decision processes with a target-absent lineup (i.e., rejecting the images when the task requires the witness to make a selection; Parker and Ryan 1993; Pozzulo and Lindsay 1998, 1999). It should be noted that both cognitive and social factors are at play with a lineup task, regardless of whether the target is present. However, as stated above, social or cognitive factors may exert a greater influence depending on the presence of the target.

Are Social Factors Likely Driving Children's Target-Absent Responding?

Beal et al. (1995) suggested that identification errors made by children may not be primarily a result of poor memory of the events but rather could reflect other factors such as social pressure. Raskin and Yuille (as cited in Ricci et al. 1996) suggested that the mere presentation of a lineup may suggest to the child that the presenter expects the child to make a choice (i.e., why else would a lineup be shown?). Further, Wells and Luus (1990) likened the lineup task to a social psychology experiment. Just as there are social demands that are experienced by the participant in an experimental task so too does the witness experience similar demands when examining a lineup. The mere presentation of a lineup suggests a "selection" is being requested. Making no selection (or rejecting the lineup) may be viewed as a "non response" and a participant not willing to complete the task. For example, both participant and witness may want to please the experimenter/police officer by choosing the "right person". The participant may guess at the experimenter's hypothesis. The witness may guess who the police suspect and who the officer wants the witness to choose. Moreover, the social demands associated with a lineup task may be more pronounced for the younger child. For example, the experimenter/police officer is an authority figure who is older than the child. There is an implicit demand to make a selection when shown a lineup; why else would you be shown a lineup if not to pick someone out. The child may worry about getting into trouble if no selection is made because this behaviour would suggest non-compliance. For example, Pozzulo and Lindsay (1997) found that children were less likely to use an "I don't know" response compared to adults even when this response option was made salient. Thus, children's higher false positive rates compared to adults may occur because of a greater sense to make a selection/identification when shown a lineup (e.g., Parker and Ryan 1993; Pozzulo and Lindsay 1998).

A feeling of pressure may make children less likely than adults to reject a lineup (Beal et al. 1995). Although adults, too, may perceive pressure to make an identification, children are likely to perceive greater pressure than adults, resulting in a lower rejection rate. For example, Pozzulo and Dempsey (2006) found that with biased lineup instructions, (i.e., instructions that do not explicitly state an option to reject the lineup) children had a higher rate of false positives compared to adults. In the same study, children also had a higher rate of false positive responding compared to adults when neutral/non-biased lineup instructions were presented. Thus, the researchers found that a manipulation known to increase false positives in adults (e.g., Malpass and Devine 1981; Steblay 1997), also increased false positives in children. Moreover, the proportion increase in false positive responding between children and adults remained constant across neutral and biased instructions. In contrast, correct identification rates seem unaffected by pressure (e.g., Malpass and Devine 1981). Correct identification rates (target-present lineups) are not influenced negatively by pressure because children feel the need to make a selection, see the target, and choose the target. Correct rejection rates (target-absent lineups) are influenced because the child feels pressure to make a selection but does not see the target so another individual is selected. If children's false-positive responding with a target-absent lineup is driven by the social demands of the task to a greater degree than cognitive demands, even with a "lower cognitive demand" lineup task (i.e., familiar target), children should produce a higher false positive rate compared to adults.

A caveat is necessary in that we are not suggesting that eyewitness identification can be neatly split into two crude categories, "social" and "cognitive". Certainly, identification involves both social and cognitive processes and this interplay will vary depending on the various factors present at the time of task, factors present at encoding, factors inherent in the individual eyewitness, etc. Rather, we have used the terms "social" and "cognitive" as labels for groups of factors and processes where one group of factors and processes may be more prevalent under certain conditions.

Current Study

We define a "lower cognitive demand lineup task" as one where the correct identification rate would be at approxi-

mately 100%. In such a case, false positives would have to be driven by "social factors" to a greater degree than "cognitive factors", i.e., accurate identification is at ceiling with the target-present lineup so an error in the target-absent lineup must be a result of social pressure more so than cognitive factors. Using a within-subjects design would be powerful to eliminate explaining away results as a function of individual differences.

It is predicted that young children and adults will produce comparable correct identification rates (with a lower cognitive demand lineup). Assuming that errors, i.e., false positive responding, are more so driven by social factors than cognitive factors in the target-absent condition, it is predicted that young children will produce a higher false positive rate than adults, regardless of the cognitive demands of the lineup task.

According to the Media Awareness Network (1999), in the United States, it was estimated that in 1998, pre-schoolers watched an average of 2.6 hours of television a day. In addition, children, ages 2- to 11-years, watch on average 17.7 hours of television per week. Similarly, in Canada, children watch, on average, 16.8 hours of television a week. A study of children's television habits revealed that the majority of children's programming airing were animated programs (Atwal et al. 2003). In addition, this study found that the number of hours devoted to animation and preschool programming has dramatically increased from 1996 to 2001 (Atwal et al. 2003).

Using cartoon characters that young children are familiar with and could correctly identify at approximately 100% would indicate a familiar target and a relatively "easy" (i.e., lower) cognitive task. If children produce near perfect correct identification rates but go on to produce significantly lower correct rejection rates (target-absent lineups) than adults, these data would provide strong evidence that social demands to make a selection drives children's higher false positive rate compared to adults. It is important to compare within the same study and across the same participants the identification patterns using human faces as well as cartoon faces. Using human face stimuli provides a "baseline" of sorts to better understand the influence of unfamiliar (i.e., human faces) versus familiar (i.e., cartoon faces) stimuli. Moreover, these data could be compared to other literature that uses human face stimuli.

In the current study, young children (4- to 7-years-old) and adults were shown a set of clips from two popular cartoon shows (Dora the Explorer and Go Diego Go) and two clips of human actors engaged in everyday tasks (a female combing her hair and a male putting on his coat). All participants viewed all targets, however, presence/absence of the target in the lineup task was randomized across participants. Correct identification and correct rejection was measured for each target.

Predictions

Children and adults were predicted to have a similar rate of correct identification for cartoon faces at approximately 100% accuracy. Given the age of our participants and the limited research available with this population, we predicted that children would produce a lower correct identification rate for human faces compared to adults (see Pozzulo and Lindsay 1998). Children were predicted to have a lower correct rejection rate for both the cartoon faces and the human faces compared to adults.

Method

Participants

Young children (N=59; age range 4- to 7-years, M=4.98 years, SD=0.82; 21 females and 38 males) were recruited from pre-kindergarten/kindergarten classes from three private schools in Eastern Ontario, Canada.

Adult participants (N=53; age range, 17- to 30-years, M=20.54 years, SD=3.34; 36 females and 17 males) were recruited from the Introductory Psychology Participant Pool from an Eastern Ontario university.

Design

A 2 (age; young children vs. adult) × 2 (target; cartoon vs. human) × 2 (lineup type; target-present vs. target-absent) mixed factorial design was used.

Materials

Demographic and Cartoon Watching Form Each participant (for child participants this form was provided to the parent/guardian) was provided with a response form for demographics and to assess level of familiarity with the target cartoons used in this study. Eight questions were asked requesting the participant's age, gender, primary language, ethnicity, number of children in the household and their ages, amount of time spent watching cartoons per week, and how much time spent watching the two target cartoons used in this study (i.e., Dora the Explorer and Go Diego Go). Adult participants completed the form themselves. For child participants, the form was completed by their parent/guardian.

Human Face Targets One female and one male Caucasian university student (each 22-years-old) were used as targets. Each human target was filmed completing an everyday task for a six-second video clip; a female brushing her hair in

the bathroom and a male putting on his coat and exiting his home. Each video provided a 2- to 3-second close-up of the individual's face. The target videos were filmed in colour.

Human Face Foils Each human target was photographed in a different outfit than what was worn during the video clip. The foils were selected from a pool of 90 female faces and 90 male faces. The foil photographs were selected based on similar appearance to the intended target. Similarity was measured in terms of general facial structure, hair length, and colour. Three raters selected the 4 foils for each target. Targets and foils were closely cropped such that their face, neck and the tops of their shoulders were photographed (similar to the cartoon foils). Target-present lineups contained the target and three foils. Target-absent lineups contained four foils. All photos were in black and white.

Cartoon Targets One female and one male cartoon character were used as the targets. Six-second clips of each of the following were used; Dora the Explorer talking to the audience and Go Diego Go putting on a pair of gloves for safety. Each video provided a 2- to 3-second close-up of the target character's face and involved no other characters. The video clips were in colour. The sound on the videos was muted as there was no sound with the human face videos.

Cartoon Foils The foils were selected from a vast number of readily available cartoon images on the internet. The foil photographs were selected based on similar appearance to the intended target. Similarity was measured in terms of general facial structure, hair length, and colour. Three raters judged approximately 10 photographs for each target. The four cartoons receiving the highest similarity ratings (most similar to least similar) were selected. Most cartoon characters were displayed in similar clothes across different videos. For this reason, cartoons depicted in the photoarrays were displayed closely cropped to the target's face (from the top of the shoulders) to reduce the appearance of any clothing worn. In order to compensate for the strong and often vibrant colours unique to the cartoon images, all the photographs were displayed in black and white. Also, black and white images reduced the possibility that the bright and vibrant colours would be the focus of recognition rather than the identity of the target. Target-present lineups contained the target and three foils. Target-absent lineups contained four foils.

Lineup Presentation For each target, a lineup was presented. A simultaneous procedure was used to present the lineup. That is, for each lineup, all pictures were shown at once. For the target-present conditions, a photograph of the target along with three other foils were presented. In the target-absent condition, the target was replaced with a similar foil. The target and target replacement was placed in the same position. Each target's lineup position however was randomized. Each lineup also included a silhouette to represent the possibility of an absent target.

Each participant saw four videos in a random order. Participants were shown one photoarray, following each video, where the position of the target/replacement was counterbalanced across photoarrays. Videos and photoarrays were displayed on 13-inch laptop screens using the Microsoft PowerPoint program.

Instructions for Lineup Identification The following instructions were provided prior to the display of each lineup:

"Please look at the photos. The person/cartoon from the video may or may not be here. If you see the person/cartoon please point to the photo. If you do not see the person/cartoon, please point to this box (indicating)".

Lineup Administrators Three female experimenters showed children the video clips and photoarrays. As "dress" has been found to influence children's choosing behaviour in lineup tasks (see Lowenstein et al. 2010) possibly through social pressure, the experimenters wore professional-casual clothing (e.g., sweater/blouse and dress-pants) that would reduce external visual cues of authority. More specifically, experimenters were "neat" in appearance but not overly formal (e.g., no uniforms or lab coats).

Free Recall Descriptions All participants were asked an open-ended question to describe everything they could remember about each video clip. The researchers recorded each child participant's responses, while the adult participants recorded their own responses. This task was used as a brief filler between exposure of the video and presentation of the lineup. Approximately 2 minutes lapsed between each video exposure and lineup presentation.

Procedure

Young Children Parents/guardians of the children attending private schools in the community were supplied with a written consent form, as well as a demographics sheet. The demographic sheet was to be completed by the parent/guardian in order to ensure children were familiar with the target cartoons. Upon receiving written consent forms and completed demographic forms, three female experimenters and one female facilitator arrived at each private school. Only children with consent were invited to participate. The researchers were introduced to the students as a group from the university doing a project on TV shows and computer

games. During the introduction and invitation to participate, the researchers made it clear to the children that they could change their minds at any time and not get into trouble. In order to create a level of comfort with the children, the researchers worked with the children to make some crafts prior to engaging the children in the experimental task. Experimenters tested children individually. Children were monitored for fatigue, anxiety, and stress. Each child was told that he/she would be watching some videos of people doing different things. The child was told to pay attention because, following the video, they would be asked some questions and shown some pictures.

Once the child was comfortable, the experimenter played the first video (human or cartoon). Following the video clip, the experimenter asked the child one free recall question about what they remembered about the video, i.e., "What did the cartoon character/person look like?". Following the child's response, the experimenter asked, a non-specific, probing question twice, i.e., "Do you remember anything else?". If the child offered no response to the initial question, the experimenter, again, asked, "Do you remember anything from the video?". After recording the information provided by the child, the experimenter displayed the corresponding lineup (in PowerPoint) on a laptop to the child. The experimenter asked the child to identify the cartoon/person they saw in the video by pointing. The experimenter instructed the child that the person they saw may or may not be there and demonstrated that, if the correct person was not there, they should point to the silhouetted box. The experimenter recorded the child's response. Following the identification, the procedure was repeated for the additional three videos, each time reminding the children that the cartoon/person they are looking for may not be in the lineup. Following the end of the study, the children were thanked and given a small token (i.e., crayons and colouring book). The facilitator was responsible for entertaining the children while they waited to complete the experimental task.

Adults Upon entering the laboratory, each participant was given a short introduction to the study and provided with a consent form that explained they would be participating in a study about memory. Following the signing of the consent, the participants were told they would be watching some short video clips. The participants also were asked to pay attention because following the video they would be asked some questions and shown some pictures.

After the first video, the participants were provided with a sheet asking a free recall question, "What did the cartoon character/person look like?". This question was followed up with, "Do you remember anything else about the cartoon character/person." The participant then wrote down all they could remember about what they saw on the video. Once completed, the experimenter displayed the corresponding lineup (via PowerPoint) on a laptop to the participant. The experimenter asked the participant to identify the cartoon/person they saw in the video if he/she was present by indicating their selection on a matching sheet. The experimenter informed the participant that the person they saw may not be there and demonstrated that, in this case, the participants should select the option that corresponds to the silhouetted photograph in each lineup. Following the identification, the procedure was repeated for the additional three videos, each time reminding the participants that the person they are looking for may not be in the lineup. Following completion of the videos and lineups, the participants were given a demographic questionnaire assessing their familiarity with the cartoons shown. Finally, the participants were debriefed and thanked for their participation.

Results

Data were divided into target-present versus target-absent lineups given the identification decision differs for each. Specifically, correct identifications (i.e., selecting a face) versus correct rejections (i.e., not selecting a face) may be driven by different processes. In order to test the study's hypotheses it was necessary to separate the data. Pozzulo and Lindsay (1998) have suggested that target-present lineup decisions are driven by cognitive processes more so whereas target-absent decisions are driven by cognitive as well as social processes.

Target-Present Lineups

Young Children

Human Faces Versus Cartoon Faces Our goal was to average the correct identification rate for the human faces per child in order to produce a stabilized correct identification rate per child. We wanted to eliminate target specific peculiarities. We calculated a mean correct identification rate for human faces per child. Following this same logic, we calculated a mean correct identification rate for cartoon faces per child. See Table 1 for individual targets' correct identification rates (target-present lineups) as a function of age and stimuli.

Human faces. Correct identification rates were averaged to produce an overall correct identification rate for human faces of .23.

Cartoon faces. Correct identification rates were averaged to produce an overall correct identification rate for cartoon faces of .99.

Table 1 Identification rates for target-present lineups (n) as a function of age and stimuli

Target-present lineups	Correct identification rate (n)
Age	
Children	
Cartoons	
Dora-Target	1 (29)
Foil	0 (0)
False rejection	0 (0)
Diego-Target	.97 (28)
Foil	0 (0)
False rejection	.03(1)
Human Faces	
Female-Target	.24 (7)
Foil	.38 (11)
False rejection	.38 (11)
Male-Target	.21 (6)
Foil	.45 (13)
False rejection	.34 (10)
Adults	
Cartoons	
Dora-Target	1 (25)
Foil	0 (0)
False rejection	0 (0)
Diego-Target	.89 (24)
Foil	0 (0)
False rejection	.11 (3)
Human Faces	
Female-Target	.46 (13)
Foil	0 (0)
False rejection	.54 (15)
Male-Target	.85 (22)
Foil	.15 (4)
False rejection	0 (0)

Human versus cartoon faces. Young children were significantly more accurate with a higher correct identification rate for cartoon faces (.99) versus human faces (.23), X^2 (1, N=116)=66.10, p=.001.

Adults

The same logic and analyses used with child participants was used for adult participants.

Human faces. Correct identification rates were averaged to produce an overall correct identification rate for human faces of .66.

Cartoon faces. Correct identification rates were averaged to produce an overall correct identification rate for cartoon faces of .95.

Human versus cartoon faces. Adults were significantly more accurate with cartoon faces (.95) versus human faces (.66), X^2 (1, N=103)=11.25, p=.001.

Young Children Versus Adults As predicted, young children and adults produced a comparable correct identification rate for cartoon characters (.99 vs. 95), X^2 (1, N=110)=.39, p=.53.

As predicted, young children compared to adults produced a significantly lower rate of correct identification for human faces (.23 vs. .66). X^2 (1, N=168)=18.83, p=.001.

Target-Abesent Lineups

Young Children

Human Faces Versus Cartoon Faces The same logic and analyses were followed for target-absent data as was followed for target-present data. See Table 2 for individual targets' correct rejection rates (target-absent lineups) as a function of age and stimuli.

Human faces. Correct rejection rates were averaged to produce an overall correct rejection rate for human faces of .45.

Cartoon faces. Correct rejection rates were averaged to produce an overall correct rejection rate for cartoon faces of .74.

Human versus cartoon faces. Young children were significantly more accurate with a higher correct rejection rate with cartoon faces (.74) versus human faces (.45), X^2 (1, N=114)=7.66, p=.01.

Adults

Human faces. Correct rejection rates were averaged to produce an overall correct rejection rate for human faces of .70.

Cartoon faces. Correct rejection rates were averaged to produce an overall correct rejection rate for cartoon faces of .94.

Human versus cartoon faces. Adults were significantly more accurate with a higher correct rejection rate for cartoon faces (.94) versus human faces (.70), X^2 (1, N=106)=9.80, p=.01.

Young Children Versus Adults As predicted, young children produced a significantly lower correct rejection rate than adults for cartoon faces (.74 vs. .94), X^2 (1, N=114)=7.66, p=.01. Also as predicted, young children produced a significantly lower correct rejection rate than adults for human faces (.45 vs. .70). X^2 (1, N=112)=5.70, p=.02.

Table 2 Correct rejection rates for target-absent lineups (n) as a function of age and stimuli

Target-absent lineups	Correct rejection rate (n)
Age	
Children	
Cartoons	
Dora (correct rejection)	.80 (24)
Incorrect identification	.20 (6)
Diego (correct rejection)	.67 (20)
Incorrect identification	.33 (10)
Human Faces	
Female-Target (correct rejection)	.47 (14)
Incorrect identification	.53 (16)
Male-Target (correct rejection)	.43 (13)
Incorrect identification	.57 (17)
Adults	
Cartoons	
Dora (correct rejection)	.96 (27)
Incorrect identification	.04 (1)
Diego (correct rejection)	.92 (24)
Incorrect rejection	.08 (2)
Human Faces	
Female-Target (correct rejection)	.72 (18)
Incorrect rejection	.28 (7)
Male-Target (correct rejection)	.67 (18)
Incorrect rejection	.33 (9)

Discussion

The present study examined whether young children's false positive responding in target-absent lineups was driven more so by the social versus cognitive demands of the task. Correct identifications with target-present lineups also were considered between young children and adults. Young children were given a set of familiar targets (i.e. cartoon characters) where identity (i.e., cognitive factors) was not at issue. If the correct identification rate (target-present lineups) for these characters was at approximately 100%, a lower correct rejection rate (target-absent lineups) would suggest a greater reliance on social factors driving false responding than cognitive factors. These "familiar" targets were contrasted to "unfamiliar" targets, that is, human faces who were unknown to all the participants. Adults were shown the same targets as the children to compare correct identification and rejection rates. It is important to include both types of targets in the same study and to use a within-subjects design so that a "baseline" could be established to interpret differences in identification patterns and across other literature.

When examining children's performance with the human targets, the predicted pattern was observed. Young children (M=4.98 years) produced a lower correct identification rate as well as a lower correct rejection rate compared to adults. This pattern is consistent with previous work comparing children's and adults' correct identification and correct rejection rates (Pozzulo and Lindsay 1998). Pozzulo and Lindsay (1998) found that children under 5 years of age produced a lower correct identification rate than adults. As well, Pozzulo and Lindsay (1998) found that children under 5 years of age produced a lower correct rejection rate than adults. In the current study, the correct identification and rejection rate between children and adults was predicted and found (for unfamiliar human faces).

The main objective of the study was to better understand children's false positive responding. By providing a target(s) that children would be familiar with and could identify at approximately 100%, errors (i.e., a lower correct rejection rate) in the target-absent condition would more likely be a result of social factors (e.g., an expectation to make a selection) than cognitive factors, of course cognitive factors also are necessary for correct rejection. Indeed, children and adults were able to correctly identify the familiar targets (i.e., cartoon characters) at approximately 100%. In the target-absent conditions however, children produced a significantly lower correct rejection rate for the familiar cartoon targets compared to adults. Children were more likely to choose an incorrect cartoon character than to reject the lineup compared to adults. This same pattern was observed for the human faces as well. These data are suggestive that children are likely to make an error in the target-absent condition due to an expectation to the "social demands" to make a selection rather than due to faulty memory (e.g., memory was approximately 100%).

Limitation

It is important to recognize that the two levels of the experiment, that is cartoon faces versus human faces, present, in an absolute sense a confound. We must acknowledge the possible influence of unknown factors inherent in the processing of the cartoon faces versus human faces. Several studies demonstrate that the processing of drawings from that of photographs differ in numerous ways (Davies et al. 1978; Stevenage 1995; Tversky and Baratz 1985). For the current study, it was important to use a set of stimuli that were known to be easily recognized by children (drawings) and then to contrast these stimuli with photographs. The results presented in this paper are likely not influenced by any putative factors delineated in the literature demonstrating processing differences for drawings versus photographs.

Implications

The knowledge that children's false positive responding has a strong "social" component representing a critical finding for understanding children's identification evidence. As has been echoed in much of the recall literature for children's memory for events, that with non-leading and appropriate interview techniques *children can recall much that is forensically relevant* (Ceci and Bruck 1993), so too can children identify accurately when the social demands of the lineup task are reduced. A substantial literature is now mounting that social factors, such as lineup instructions (Pozzulo and Lindsay 1999), clothing worn by the experimenter (Lowenstein et al. 2010), and type of lineup administration (Pozzulo and Lindsay 1999) can influence children's false positive responding. To obtain the most accurate identification evidence from child witnesses, understanding the social factors at play and then addressing them effectively is necessary. Lineup administrators must take care to use procedures that reduce the social pressure associated with the lineup task.

One such lineup procedure that was created with the goal of reducing social demands with lineup presentation is the elimination lineup by Pozzulo and Lindsay (1999). With the elimination lineup procedure, children are asked to make two judgments; first, to select the person most similar to the target and second, to determine whether this most similar person is in fact the target. The empirical data for this procedure with different aged children (preschoolers, older children, adults) under varying conditions (multiple perpetrators, change of appearance) is very positive and robust (Dempsey and Pozzulo 2008; Pozzulo et al. 2008, 2009, 2010; Pozzulo and Balfour 2006). Reliable identification evidence is possible from child eyewitnesses (as reliable as adult identification evidence) when appropriate procedures are used.

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