

Understanding Children's Identification Decisions as a Function of Outcome:
How does a Negative Outcome Influence Children's Identification Rates?

by

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Abstract

The purpose of this study was to examine how outcome information may influence children's identification accuracy. This study presented young children (i.e., ages 4- to 6-years-old; $N = 149$) with either negative (e.g., a consequence) or neutral (e.g., no consequence) outcome information, as research suggests children use outcome information to make evaluations of others' behaviour and judgments of punishment (e.g., Piaget, 1948; Zelazo, Helwig & Lau, 1996). The type of lineup instructions was also manipulated (e.g., standard and extended instructions). Despite some research suggesting children use outcome information when making identifications (Spring, Saltzstein, & Peach, 2012), the present study found no differences in identification accuracy based on outcome condition. In addition, no differences in accuracy were found across the use of standard and extended lineup instructions. Implications of these findings and suggestions for future research are discussed.

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Understanding Children's Identification Decisions as a Function of Outcome: How does a Negative Outcome Influence Children's Identification Rates?

Eyewitness testimony plays a critical role within the criminal justice system

(Malpass & Devine, 1981; Wells, 1993). In fact, the identification of a perpetrator is highly influential in the conviction process; it is often used as a critical piece of evidence and is relied upon heavily by jurors and other personnel within the justice system (Devenport, Penrod, & Cutler, 1997; Malpass & Devine, 1981). Furthermore, eyewitness misidentifications are the leading cause of wrongful convictions (Devenport et al., 1997; Innocence Project, 2012). Eyewitness research has extensively examined the ability of adults to correctly identify a perpetrator; however research examining the abilities of children to act as eyewitnesses is not as voluminous (Pozzulo & Lindsay, 1998; Cain, Baker-Ward, & Eaton, 2005). Crimes against children (e.g., sexual abuse) expose children to police investigations, and more specifically, require children to perform eyewitness tasks (Gross & Hayne, 1996; Lindsay, Pozzulo, Craig, Lee, & Corber, 1997; Pozzulo & Lindsay, 1997). Young children do not always perform at comparable levels of accuracy as older eyewitnesses (i.e., adults) when asked to identify a perpetrator (e.g., Pozzulo & Lindsay, 1998). Specifically, children (ages 5- to 6-year-olds, 8- to 10-year-olds; Gross & Hayne, 1996; Lindsay et al., 1997) tend to perform much worse than adults when presented with a lineup in which the perpetrator is not present (i.e., suspect is innocent; a target-absent lineup). Research has tried to explain children's poor performance in target-absent lineups. The current study considers children's identification abilities when witnessing different types of outcomes (i.e., neutral or negative events). In the following sections, an overview of relevant literature concerning

eyewitness identification abilities of children is discussed. This section is followed by review of Jean Piaget's *Theory of Moral Judgment* (Piaget, 1948). Next, an overview of relevant research in the area of children's understanding of outcome information, punishment, and the use of outcome in an eyewitness context are discussed. Following this, an overview of the present study and hypotheses are presented, followed by the method and procedure. Next, there is an overview of the results of the study. Last, the discussion, along with the limitations of the present study and goals of future research are discussed.

Eyewitness Identification

Identification of a perpetrator is primarily determined through a lineup task (i.e., photo-array decision), where a witness is shown a number of photographs (Zajac & Karageorge, 2009). These photographs may or may not contain the guilty suspect and a number of foils (fillers), who are individuals known to the police (or researcher) to be innocent for the crime in question (Lindsay & Wells, 1985; Zajac & Karageorge, 2009). Eyewitnesses are then required to examine the set of photographs, and make a decision about whether the perpetrator is present in the photos, and if so, to make an identification. An eyewitness can be presented with one of two types of lineups: a target-present or a target-absent lineup. A target-present lineup occurs when the guilty suspect is present within the lineup. In contrast, a target-absent lineup occurs when the guilty suspect is absent from the lineup, and instead it contains an innocent suspect.

When presented with a lineup, there are a number of correct and incorrect decisions that eyewitness can make. When presented with a target-present lineup, eyewitnesses can make one of three types of identification decisions: (a) a correct

identification; (b) a foil identification; or (c) a false rejection (Wells, 1993). With a correct identification, the eyewitness correctly identifies the guilty suspect as the perpetrator. With foil identification, the eyewitness identifies a known-innocent (e.g., the police are aware the lineup member is innocent). In the real world, a foil identification is the only incorrect identification that police are aware of, and this is true in both the target-present and target-absent conditions (Lindsay & Wells, 1980). Lastly, a false rejection occurs when an eyewitness mistakenly overlooks the guilty suspect, stating that the perpetrator is not present (when in fact he/she is). The only correct decision is a correct identification with a target-present lineup. The error with the most serious consequence is an incorrect rejection that may allow the guilty perpetrator to walk free.

On the other hand, when presented with a target-absent lineup, eyewitnesses can also make one of three identification decisions: (a) a correct rejection; (b) a foil identification; or (c) a false identification. A correct rejection refers to a situation in which the eyewitness examines the lineup and correctly determines that none of the individuals in the lineup are the perpetrator (Beal et al., 1995). A false identification is when the witness mistakenly identifies the innocent suspect as the perpetrator. In a target-absent lineup, the correct choice is a rejection of the lineup, because the guilty suspect is not present (Lindsay & Pozzulo, 1997). False identifications in a target-absent lineup has serious consequences, because it may lead to false accusations and conviction of an innocent person (Beal et al., 1995) and the guilty party may never be caught (Malpass & Devine, 1981). On the other hand, foil identifications, although incorrect, are less serious because the individual identified is known to be innocent (Zajac & Karageorge, 2009).

Target-Present versus Target-Absent Lineups

Past research has indicated that children perform differently when presented with a target-present compared to a target-absent lineup (Beal et al., 1995; Dekle et al., 1996; Lindsay et al., 1997). Most research examining identification accuracy of children have found that children, as young as 5-years-old, are able to make accurate identifications when presented with a target-present lineup (Beal et al., 1995; Lindsay et al., 1997; Pozzulo & Lindsay, 1997; Pozzulo & Lindsay, 1998). However, research has found that children perform with lower accuracy when presented with a target-absent lineup (Dekle, Beal, Elliot, & Honeycutt, 1996 Parker & Ryan, 1993).

Children's performance in target-present versus target-absent lineups. Beal and colleagues (1995; Experiment 1) found that 53% of young children (5-year-olds) correctly identified a perpetrator from a target-present lineup. However, children were less accurate when presented with a target-absent lineup. Lindsay and colleagues (1997; Experiment 1) also found that children perform better when presented with a target-present versus target-absent lineup. They found that both younger (8- to 10-year-olds) and older (11- to 15-year-olds) children were more likely to be accurate in a target-present condition. Specifically, young children were more accurate in target-present conditions (74%) than target-absent conditions (36%), and older children also were more accurate when the target was present (74%) versus absent (38%).

Gross and Hayne (1996) also examined the influence of target-present versus target-absent lineups, in combination with the length of exposure (i.e., long versus brief) to a perpetrator on children's (aged 5- to 6-years-old) identification accuracy. Gross and Hayne (1996) exposed children to four different actors, two of which the children

interacted with for a long period of time (i.e., an hour) and two whom they were only exposed to briefly (i.e., a matter of minutes). They found that young children were very accurate at correctly identifying the two long-exposure actors, and one of the brief-exposure actors, when a target-present lineup was used. However, when presented with a target-absent lineup, children's performance decreased substantially, regardless of whether they were identifying the prolonged or brief exposure actor. In the target-absent condition, children may make substantially more false positives (i.e., making an incorrect identification, false identification, or foil identification; Gross & Hayne, 1996). Overall, these results suggest that children do not have difficulty identifying a perpetrator when he/she is present in a lineup, however, children perform much worse when the perpetrator is absent from the lineup, suggesting that there is some factor influencing children's identification accuracy in this condition more so than in the target-present condition.

Children's performance in target-absent lineups. In a meta-analysis, Pozzulo and Lindsay (1998) found that children five years and older (i.e., to 14-years) produced rates of correct identification comparable to adults. However, even the oldest children produced significantly lower rates of correct rejections compared to adults. Similarly, Dekle and colleagues (1996) found that children (age 5- to 6-year-olds) were more likely than adults to identify an innocent person from a target-absent lineup, with over half of children making an incorrect identification. Beal and colleagues (1995) suggest that decreased accuracy in target-absent lineups may be due to children's propensity to guess. The mere presence of a lineup, may suggest to the child that they must choose an individual, whether or not they see the perpetrator (Beal et al., 1995; Dekle et al., 1996).

Other research has suggested that differences in children's accuracy between target-present and target-absent lineups are a result of the lineup decisions in each condition being driven by different processes. Specifically, research has found that eyewitnesses rely on cognitive processes (i.e., memory) when making decisions in a target-present lineup, and rely on a combination of cognitive and social processes, with a greater focus on social factors, when making decisions in a target-absent lineup (Pozzulo & Lindsay, 1998, 1999). It is possible that outcome may be a social factor that drives children's decisions in a target-absent lineup. To be specific, children's choices during the lineup task may be driven by a desire to 'punish' when they witness a transgression.

Lineup Presentation and Accuracy

Lineups are used in order to determine the identity of a perpetrator, or to determine that the perpetrator and the suspect are not the same person (Wells, 1993). However, in addition to the presence (or absence) of a perpetrator, the lineup method that is presented (i.e., method of photo array presentation) has a significant impact on witness's identification accuracy (Pozzulo & Lindsay, 1998) and many researchers have found that different lineup procedures can improve or hinder identification accuracy (Gross & Hayne, 1996; Wells, 1993). There are two main procedures used to present witnesses with a perpetrator: a simultaneous lineup and a sequential lineup (Pozzulo & Lindsay, 1998). The simultaneous lineup is perhaps the most well-known lineup type and involves presenting all lineup members (or photos) to the witness at the same time (Pozzulo & Lindsay, 1998), and the eyewitness is asked to identify the perpetrator. The sequential lineup, on the other hand, presents the lineup members (or photos) one at a time (Lindsay & Wells, 1985). The witness must make a decision as to whether the

individual presented to them is, or is not, the perpetrator for each photo in the sequence. Once the witness makes a decision, he/she is not allowed to go back and re-examine the photos in the sequence, and the witness is blind to the number of photos that will be present in the lineup sequence.

Children and Lineup Method. Past research has shown that controlling the type of lineup presented to a witness can reduce the number of false positive identifications, while having no effect on the rate of correct identifications made by an eyewitness (Lindsay & Wells, 1985; Lindsay et al., 1997; Pozzulo & Lindsay, 1998). Beal and colleagues (1995) suggest that children's accuracy in target-absent lineups may be reliant upon the type of procedure used to present a suspect. For example, Pozzulo and Lindsay (1998) found that children performed worse (i.e., were less likely to correctly reject the lineup) in a target-absent sequential lineup versus a target-absent simultaneous lineup (21% versus 46%, respectively). Children also were less likely than adults to correctly reject a target-absent sequential lineup (21% versus 81%). This difference between child and adult witnesses was not as great when a simultaneous lineup was administered (46% versus 62%, respectively).

Lindsay and colleagues (1997; Experiment 1) found similar results. When presented with a sequential lineup, adults (68%) had higher rates of correct identifications than younger (43%) or older (46%) children. Research has also suggested that the sequential lineup increases the rate of choosing in young children. For example, Lindsay and colleagues (1997; Experiment 2) found that children were more likely to choose a target from a sequential lineup than adults (90% versus 50%, respectively). In fact, children (74%) were more likely to make multiple choices from a sequential lineup than

adults (5%), or when presented with a simultaneous lineup (16%). Further, they found that when presented with only innocent individuals, children were more likely to choose the first picture they were shown in a sequential lineup (44%), with an identification generally being made within the first 5 photos presented (78%). Adults, however, did not choose the first picture, and only one adult chose within the first five photos (i.e., chose on the last photo). Although some research has suggested that sequential lineups are useful in decreasing false-positive identifications in adults (Lindsay, Mansor, Beaudry, Leach & Bertrand, 2009; Lindsay et al., 1997; Pozzulo & Lindsay, 1998), it does not appear to increase the accuracy of child eyewitnesses. In fact, sequential lineups may increase children's propensity to guess. The reduced accuracy in sequential lineups may be explained by an inability for children to make an absolute, as opposed to a relative, judgment (Pozzulo & Lindsay, 1998). A relative judgment is when an eyewitness compares across lineup members, whereas an absolute judgment is when an eyewitness compares their memory with each lineup member. Differences in relative and absolute judgments when making an identification is discussed in the following section.

Relative versus Absolute Judgment

Differences in accuracy with children across different lineup procedures may be due to the type of judgment that each procedure encourages. Simultaneous lineup procedures are thought to elicit a relative judgment strategy. When the perpetrator is present in the lineup, this strategy will most likely lead to a correct identification, because the perpetrator is most likely to look like himself/ herself compared to the other lineup members (Lindsay et al., 1997). The relative judgment strategy leads to problems when the perpetrator is absent from the lineup because the eyewitness may choose the

individual who looks most like the perpetrator, resulting in an innocent person being identified (Lindsay et al., 1997). Whereas simultaneous lineups elicit the use of relative judgment, sequential lineups may employ the use of an absolute judgment strategy. Absolute judgments occur because eyewitnesses are asked to look at each lineup member separately, and judge whether that individual matches his/her memory of the perpetrator. According to Lindsay and Wells (1985), sequential lineups may enhance accuracy (i.e., in adults) because sequential lineups inhibit the use of relative judgments and promote absolute judgments. Absolute judgments result in fewer instances of false-identification, and promote correct rejections of target-absent lineups. However, as mentioned previously, sequential lineups appear to be detrimental to child witnesses. Because this study is focusing on children's abilities to act as eyewitnesses, the present study employed the simultaneous lineup to aid accuracy in children.

Instruction Bias

Within the eyewitness literature, research has shown that the type of lineup instructions provided to eyewitnesses can have a significant impact on their ability to make an accurate identification (or rejection) from a lineup. This finding is true in both research examining adult and child eyewitnesses (Malpass & Devine, 1981; Pozzulo & Dempsey, 2006; Steblay, 1997). Specifically, research in this area has shown that both adult and child eyewitnesses perform with increased accuracy when presented with standard (also termed 'neutral') instructions, when compared to biased lineup instructions. Standard lineup instructions inform the eyewitness that the guilty perpetrator *may or may not* be present in the lineup, and informs the eyewitness that they

may reject the lineup if the guilty perpetrator is absent (Pozzulo & Dempsey, 2006). Biased lineup instructions differ in that they do not inform the eyewitness that the perpetrator may not be present (Pozzulo & Dempsey, 2006). The addition of this information from biased to standard instructions is important, as it allows the eyewitness an opportunity to consider that the police may have apprehended an innocent suspect and suggests that a positive identification is not *required*. This situation is reflected in the target-absent lineup conditions. Another type of lineup instructions that may be provided to an eyewitness is extended lineup instructions. Extended lineup instructions provide all of the same information to the eyewitness as the standard instruction, but include additional information emphasizing the importance of a correct choice (i.e., making the correct choice is important to ensure that someone is not wrongfully punished; Pozzulo & Lindsay, 1997).

Children and instruction bias. Some research has examined how identification accuracy in children is affected by type of lineup instruction. Pozzulo and Dempsey (2006; Experiment 1) found that adults and children (age 8- to 14- year-olds) were significantly less likely to correctly reject a target-absent lineup when presented with biased (versus neutral) lineup instructions ($M = 0.44$ vs. 0.87 and $M = 0.11$ vs. 0.54 , respectively). Both adults' and children's false positive responding increased by 43% when given the biased lineup instructions. In a second experiment, these results were replicated. Specifically, Pozzulo and Dempsey (2006) found that children (aged 9- to 12- years) made a false identification (i.e., failed to reject the lineup) significantly more often when the lineup was presented with biased, versus neutral, instructions ($M = 0.00$ versus $M = 0.24$, respectively). This finding was also true for adults ($M = 0.26$ in the biased

condition versus $M = 0.50$ in the neutral condition). Pozzulo and Dempsey (2006) suggest that the increase in false positive responding may be due to an increase in social pressure to choose a target; the biased instructions illicit an assumption that the target must be in the lineup. Overall, children's accuracy appears to decrease drastically when presented with biased instructions when compared to standard instructions.

Although research examining the impact of standard versus biased lineup instructions are plentiful (e.g., Dekle et al., 2005; Malpass & Devine, 1981; Pozzulo & Dempsey, 2006), there is minimal research examining how extended lineup instructions may impact eyewitness identification accuracy. In one study that examines the use of extended instructions in a child sample, Pozzulo and Lindsay (1997) examined children's accuracy when children (aged 10- to 11-years-old and 12- to 14-years-old) were given extended lineup instructions. Specifically, children were told that choosing the *right person* was very important, because if they choose the wrong person, that person may get into trouble for something that they did not do. In this condition, children were made aware of the fact that there may be consequences (e.g., punishment) to the innocent person, if they choose the wrong person. Pozzulo and Lindsay (1997) found that, when compared to the control condition (i.e., standard instructions), children had higher rates of correct identifications in target-present lineups when they were presented with extended lineup instructions (24% versus 57%, respectively). Children's accuracy also increased in the target-absent conditions; however the findings were not significant (i.e., the authors suggested this may have been due to limited power). These results suggest that children's accuracy can be increased when children are made aware of the possible consequences of

making incorrect decisions. Therefore, the present study included both standard (i.e., neutral) and extended lineup instructions.

The use of extended lineup instructions in the present study is important for two reasons. First, although the use of extended instructions appear promising (i.e., Lindsay and Pozzulo, 1997) there is a lack of research examining how these instructions may influence accuracy during the lineup task for child and adult witnesses. Second, the use of extended lineup instructions allow for a consideration, or warning, of the implications of making an incorrect identification (i.e., “someone may get into trouble for something they did not do”). As a main goal of the present study is to examine if outcome information influences children’s identification decisions, it is essential to determine whether children’s decisions were influenced by the ‘warning’ of false identifications in the extended instructions. Based on findings by Pozzulo and Lindsay (1997) it is hypothesized that children will have increased accuracy in target-present and target-absent lineups when provided with extended compared to standard instructions (Pozzulo & Lindsay, 1997).

Piaget’s Theory of Moral Judgment

One framework that may give insight into understanding children’s use of outcome information when making decisions is Piaget’s theory of moral judgment (Piaget, 1948). This theory proposes that the development of judgment is closely intertwined with the development of cognitive ability. Piaget suggested that the most appropriate way to understand how children make moral judgments, or decisions, is by first examining children’s understanding of, and adherence to rules. According this his theory, Piaget suggests that children (e.g., children under 4-years-old) start to understand

rules as simply examples of behaviour. From this understanding, children then begin to develop a belief that rules are unchanging, and that rules must not be broken. According to Piaget, this belief begins to develop at approximately 4-years-old. Finally, children move to a more flexible understanding of rules at approximately 10-years-old, where they believe that rules can be broken in some instances, and can be modified based on mutual agreement. As children's understanding of rules develop with age, it is logical that children's responses to 'rule breakers' (or someone who commits a transgression) will also develop with age. Related to children's developmental understanding of rules, this theory suggests that children's use of outcome information when making decisions (i.e., regarding others), as well as children's decisions to punish (i.e., responses to rule-breakers), also develops with age.

Piaget's theory of moral judgment provides a framework in which to understand how children use outcome information to make decisions of culpability and the appropriateness of punishment in an eyewitness setting. This is important in the area of eyewitness research, as children are required to make judgments of culpability and guilt when making identifications in a lineup task. The present study postulates that children may be using outcome information during a lineup task when making judgments of, or evaluating the behaviour of others and when making punishment decisions (e.g., choosing someone from a lineup). In other words, it is possible that children use outcome information to evaluate others' (i.e., "he did something bad"), and when making subsequent punishment decisions (i.e., "he should be punished"). The present study suggests that the punishment decisions made based on outcome information are reflected in the lineup task (i.e., an identification is made). Therefore, if outcome information

influences children's decisions during the lineup task, children should have an increased rate of identification when they are exposed to negative versus neutral outcomes (i.e., "he did something bad/he should be punished" versus "he did something good/ he should not be punished").

Using relevant research in the developmental literature, the following sections will discuss children's use of outcome information when making evaluations of others. Following this, the next sections will discuss how children make judgments of culpability and, subsequently punishment decisions through research on tattling behaviour. Finally, research examining outcome information plays a role in children's decisions to punish transgressors will be discussed.

Understanding Outcome and Intention Information

To assist in the understanding of children's decision making when evaluating others, it is important to first examine the influence of outcome (i.e., the outcome of an event, such as a consequences) and intent (intentionality and motives). This is an extension of the theory-of-mind literature, where research in this area examines if children have the ability to consider the mental state of others (e.g., motive/intent of others) while making evaluations of others' behavior (Baird & Astington, 2004), or if children rely solely on outcome information when making evaluations (i.e., they fail to consider the mental states of others).

Outcome versus intention. Piaget (1948) proposed that young children (i.e., age 4-year-olds up to 10-year-olds) are more likely to judge behaviour in terms of outcome, as opposed to intent information. When examining the influence of intent and outcome on children's decision making, Piaget (1948) presented children with two stories that

varied intention and outcome information, and subsequently asked the children to determine the guilt (i.e., “who was naughtier”) of the actor in the story. For example, in the first story Piaget introduced a boy named John, who accidentally broke 15 cups. The cups were broken because he walked into his dining room, and the cups were sitting on a tray, on a chair behind the door. John had no way of knowing that the cups were behind the door, and the cups broke. In the parallel story, a boy named Henry broke one cup. Henry broke this cup when he was climbing to reach some jam in the cupboard when his mother was away, and he was not allowed to. Piaget determined that children would focus either on: (a) the intention/motive of the actor; (b) the material consequence of the action (i.e., the outcome; how many cups were broken); or (c) a combination of the two. Piaget found that children around the age of 7-years-old were more likely to focus on the material (i.e., physical) outcome of an action than the motive or intention (i.e., social consequence) behind the action. For example, in the stories regarding the cups, children aged 6- and 7- years-old judged that John, who broke 15 cups, was “naughtier” than Henry, and, as a result, should be punished more harshly (i.e., the outcome of his action was more severe). Piaget (1948) notes that children do not rely on outcome information in all instances however up to the age of 10 years-old most children rely *primarily* on outcome information. Piaget further clarifies that children in this age group understand the intention /motive of the actors; however they still remain fixated on outcome when making decisions regarding others. As the child ages, the consideration of motives becomes primary, with almost no children over the age of ten focusing purely on outcome information to judge “naughtiness” and make punishment decisions (Piaget, 1948).

Similar to Piaget's theory, Grueneich (1982) proposes that there is a developmental trend in children's ability to differentiate between intention information and outcome information. That is, as children age, they may be more able to understand and consider information regarding intention and outcome and use a combination of this information to make moral evaluations of others, however this may be more difficult for young children than older children. Specifically, research has found that young children (e.g., 4-, 5-, 6-year-olds) have the ability to understand and use intention (i.e., both intentionality and motive) information; however, children in this age group appear to be unable to separate intention information from outcome information when making decisions (i.e., outcome information outweighs intention information; (Piaget, 1948; Surber, 1982; Yuill, 1984). Research by Yuill (1984) suggests that, although children can understand intention information, outcome information can outweigh intentions when children are making evaluations of others' behaviour. In her study, young children ages 3-, 5-, and 7-years-old were presented with differing motive and outcome information and asked to rate an actor. She found that children ages 3- and 5-years-old were able to understand motive information, that is, they were able to rate actors (performing the same action with) good motives more favourably than actors with bad motives, although this was only true when the outcome information was held constant. When the outcome information was not held constant across motive information, children in this age group relied primarily on the outcome when making moral evaluations of the actors. Children ages 7-years-old, however, appeared to be able to consider motive information independent of outcome information. This research suggests that children in this age group may be able to evaluate actors differently depending on motive information;

however the inclusion of outcome information makes using intent/ motive information more difficult.

Surber (1982) had similar findings, where young children were more likely to use outcome information (M age = 5) than older children (M age = 11); and older children were more likely to use motive information when making judgments of others (Surber, 1982). Berndt and Berndt (1975) conducted a study in which they examined children's (ages 4-, 8-, and 11-year-olds) ability to make distinctions between motive and intention information. They found that older children were better at understanding motives than younger children, and older children were also more accurate when judging whether an act was committed intentionally (i.e., "on purpose"). However, intentionality judgments varied slightly by age depending on presentation method (i.e., through a story or video), with younger children performing substantially better in the story conditions versus the video conditions. Young children, therefore, are capable of understanding motive information, as well as making intentionality distinctions (Berndt & Berndt, 1975). When mistakes are made, Berndt and Berndt (1975) suggest that children may not yet understand that not all acts are intentional. Children were also asked to make evaluations regarding the actor (i.e., is the person good, bad, or a little good and a little bad). In this instance, young children made good/bad judgments using motive information, however they neglected to use intentionality in their evaluations (Berndt & Berndt, 1975).

Outcome and severity. Other researchers have acknowledged that outcome information plays a *primary role* when children are making evaluations or judgments of others. For example, research has found that when the consequences are severe, young children (e.g., ages 6- to 8-years-old) will make judgments based on outcome

information, ignoring intent or motive (Armsby, 1971). Specifically, in a study of 240 children, Armsby (1971) found that young children (ages 6- to 8- year-olds) were more likely to judge another child as “naughtier,” regardless of intention when they were presented with a high-consequence scenario (i.e., behaviour led to a broken television). This same reliance on outcome information was not present when children were presented with a low consequence scenario (i.e., a single cup was broken). In fact, when the discrepancy between accidental (e.g., the action was a mistake) and purposeful (e.g., the action was intentional) levels of intent were low, 90% of 6- and 8-year-old children made judgments based on intent, rather than outcome information; with this number decreasing to 60% when the discrepancy between accidental and purposeful levels of intent were high (Armsby, 1971). These results were not found in 10-year-old children; and 10-year-old children were found to make intentionality judgments at a higher rate than 6-year-old children.

Outcome and valence. One distinction that should be made regarding outcome and intention information is whether the information is negative or positive (Grueneich, 1982). Specifically, do the individual’s actions result in a negative outcome, or does the action positively benefit the actor (or perpetrator) in question? Research suggests that children respond and remember differently depending on whether the events have a negative versus positive valence (Feldman, Chereskin-Klosson, Parsons, Rholes, & Ruble, 1976). Feldman and colleagues (1976) examined the influence of intent and outcome information, when intent was either positive or negative, and the outcome was either positive or negative. Feldman and colleagues (1976) found that both younger (i.e., aged 4-, 5- year-olds) and older children (i.e., 8- to 9- year-olds) rated an actor more

positively (i.e., when rating “how good” or “how bad” an actor is) when presented with positive intent or positive consequence stories. Older children were found to use intent information more so than younger children, and also had a tendency to rate actors more positively when presented with positive intentions, and more negatively when presented with negative intentions, than did younger children. On the other hand, there were no age differences in the use of consequence information. These findings suggest that young children (e.g., 4- and 5-years-old) do not use intention information as regularly as older children when making decisions.

Intention independent of outcome. Although research has focused primarily on the use of outcome and intention information when making judgments of others, few studies focus primarily on the use of outcome or intention information independent of the other. Baird and Astington (2004); however, conducted a study examining whether children are able to use motive information independent of outcome information to make evaluations of others’ behaviour. According to Baird and Astington, the ability to use intentionality or motive information are used primarily by adults during the decision making process. Both intentionality and motive information will change how an adult evaluates an action. For example, an action may be evaluated more harshly if it was purposeful (e.g., first degree murder versus manslaughter) and can be evaluated differently based on motive (e.g., murder for self-defence versus for personal gain; Baird & Astington; 2004). However, it is unclear if children use this information in the same way as adults. Baird and Astington (2004) argue that although research has examined the combination of outcome and intention information when examining children’s decision-making, it is unclear if young children understand and rely on intention information to

make evaluations because outcome information is always included in these studies (i.e., outcome information makes it difficult to assess children's ability to use motive information).

In order to determine how children use intention information to make evaluations, Baird and Astington (2004) presented children (ages 4-, 5-, and 7-year-olds) with stories of two actors who performed the same action, but had different motives. Outcome information was not included. Children were asked to rate the actions from "really good" to "really bad". They found that children of all ages (4-, 5-, and 7-year-olds) were able to appropriately judge the actors motives (i.e., rating bad motives as "bad" and good motives as "good"); however children ages 5- and 7-years-old were significantly better than 4-year-old children at making this distinction. Children were also asked to provide punishment evaluations (i.e., should the actor "get into trouble?" and "a lot or a little trouble?"). Again, they found that 4-year-old children were capable of differentiating the actors based on motive information; however, 5- and 7-year-old children were significantly better at assigning appropriate amounts of punishment in terms of motive information. This study suggests that children can use motive information correctly; however younger children (e.g., 4-year-olds) struggle with incorporating motive information as part of their decision-making framework. These results support the conclusions that, although children can use motive information, outcome information may outweigh motives when children are making evaluations of others' behaviour. Specifically, this study showed that children as young as four and five-years-old can make distinctions in evaluations of others (i.e., how good or bad an actor is) and

punishment (i.e., how much trouble an actor should get in); however, young children appear to place more weight on outcome information.

Overall, research in these areas suggests that although younger children can understand intention information, outcome information is primarily relied upon in the decision making process (e.g., Baird & Astington; 2004; Piaget, 1948; Surber, 1982). Children's reliance on outcome information may be critical in understanding children's decisions when acting as an eyewitness. For example, the act of choosing an individual from a lineup involves the evaluation of an individual, as well as a judgment of culpability (e.g., is the person in the lineup or not?). It is possible that negative outcome information (e.g., a crime), may be influencing children's decisions when making an identification. The main goal of the present study is to determine how negative outcome information plays a role in young children's (e.g., age 4- to 6-year-olds) identification accuracy in both target-present and target-absent lineups. As research suggests that children in this age group primarily use outcome information, as opposed to intent information, when making-decisions, the present study manipulated outcome information (e.g., negative vs. neutral), while keeping intent information neutral (e.g., neutral motive and intention information was provided).

Understanding Children's Punishment Decisions through "Tattling"

As mentioned previously, children's judgments of culpability and punishment decisions may follow a developmental trend, in which younger children (e.g., under 10-years-old) make decisions differently than older children (e.g., over 10-years-old; Piaget, 1948). Research examining children's 'tattling' behaviour may be insightful into understanding children's decisions to punish transgressors. The tattling literature may

provide insight into how children distribute punishment, in that the act of ‘telling’ on an individual who commits a transgression can be seen as an attempt to hold that person accountable for their actions. The next section will therefore, provide an overview of the developmental literature examining “tattling” behaviour in children.

Some research has examined how the reporting of transgressions (i.e., ‘telling’ or ‘tattling’) is insightful into children’s decisions regarding the appropriateness of punishment (e.g., Fang et al., 2003; Loke et al., 2011). Research has shown that children 2-years-old and older will engage in tattling behaviour (i.e., reporting a transgression to a third party, specifically tattling on a sibling to a parent; Dunn & Munn, 1985), although there is a lack of consistency in describing situations that lead children to tattle. When examining tattling behaviour in preschool aged children, Ingram and Bering (2010) found that young children are able to distinguish between major and minor transgressions (i.e., negative outcomes), with preschoolers being less likely to report transgressions against a third party and being more likely to report transgressions against themselves.

There has been some research examining how children’s responses to transgressors, or ‘rule-breakers’ develop with age. For example, Fang, Fang, Keller, Edelstein, Kehle, and Bray, (2003) examined responses to transgressors in a sample of Chinese children. Fang and colleagues presented children (age 7-, 9-, 12- and 15-year-olds) with a situation in which they had to make a ‘moral judgment’ (i.e., to tattle or not to tattle). Specifically, they were presented with a dilemma in which a mother promised her daughter that she may attend a concert, but changed her mind at the last minute. The daughter then told her older sibling that she intended to go to the concert without permission. The children were then asked whether the older sibling should inform the

mother of the younger sibling's intentions. Fang and colleagues found that children's decisions to tell (i.e., tattle) varied by age. Specifically, the decision "to tell" or "not to tell" differed as a function of age, where younger children (i.e., aged 7- to 9- years old) chose to "tell" more often than "not to tell." The decision "not to tell" increased as the children aged; more specifically 94% of 7-year-olds chose "to tell", whereas only 77% of 15-year-olds decided "to tell".

Loke and colleagues (2011) also examined how the reporting of minor and major transgressions differs as children age. In this study, children (e.g., 6- to 11-year-olds) were presented with vignettes in which characters engaged in either a major or minor transgression (e.g., pushing a classmate to the ground, or spilling a classmate's juice, respectively). A bystander was also included in the vignette, in which he actively chose to tell or not tell after witnessing the transgression. Children were asked an "obligation to tell" question, in which they were asked what the bystander should have done in the situation (i.e., to tell or not to tell). Loke and colleagues found that all children, regardless of age, viewed major transgressions as more serious than minor transgressions, and rated the telling of major transgressions more positively than minor transgressions, suggesting that children can distinguish between different types of transgressions. However, they found that younger (e.g., 6-year-olds) and older children (e.g., 11-year-olds) differed in the reporting of minor transgressions, with younger children finding the reporting of minor transgressions as important as major transgressions, suggesting an "obligation to tell" regardless of transgression severity. In this case, young children viewed reporting transgressions as necessary (i.e., stating that the bystander should tell and that they themselves would tell in the situation), whereas older children did not. These results

suggest that although young children can distinguish between minor and major transgressions, they appear to support the reporting of any type of transgressions, whereas older children are more selective in the transgressions they choose to report.

Tattling in an eyewitness context. The concept of tattling may be insightful when examining children's decisions when acting as an eyewitness. Specifically, engaging in tattling behaviour to hold a wrongdoer accountable for their actions may also be reflected in the lineup task (i.e., the lineup task may be an additional tool used to punish individuals, where an identification may lead to punishment, similar to tattling). Past research has indicated children feel an obligation to punish rule-breakers (Piaget, 1948) as well as an obligation to report minor and major transgressions through tattling (Loke et al., 2011). Therefore, it is possible that children may also feel a similar obligation when making a decision in a lineup task. Specifically, children may have an increased rate of choosing in a target-absent lineup because they are using the lineup as a tool to punish wrongdoers (i.e., "he did something bad/ he should be punished). If children in fact use the lineup task as a form of punishment, children's decisions during the lineup task should differ depending on the information the children receive. For example, children should be using the lineup as a tool to punishment only when there is a need to punish (i.e., children view a negative outcome versus a neutral outcome). The current study seeks to examine how exposure to a negative outcome influences children's responding during the lineup task. The next sections will discuss how outcome information may play a role when children make decisions to punish others.

Children's Use of Outcome Information when Making Punishment Decisions

In the previous sections, the use of outcome information when making judgments (i.e., evaluations of others' behaviour) was discussed, as well as understanding children's punishment decisions through tattling behaviour. Although there are numerous studies examining punishment through tattling behaviour, as well as research examining children's use of outcome information when evaluating others, research examining punishment decisions based on outcome is not as common. However, there are some studies that examine how outcome information plays a role when children are asked to punish others. For example, Zelazo and colleagues (1996) examined children's punishment decisions while varying outcome and intention information. They exposed children to conditions in which the outcome matched intention (i.e., congruent situation) or conditions in which the outcome did not match the intention (i.e., incongruent situation). For example, children were shown a situation in which an animal experienced pleasure from being pet (i.e., a positive intention matched a positive outcome) or experienced pain from being hit (i.e., negative intention matched a negative outcome). Children also were exposed to incongruent situations where animals experienced pain from being pet, or pleasure from being hit (intention and outcome information were inconsistent). Zelazo and colleagues found that children (e.g., 3-, 4- and 5-year-olds) made punishment judgments based on outcome information (i.e., harmful consequences), regardless of the intention. In addition, children were more likely to assign more severe punishment when they witnessed a harmful outcome (i.e., the animal cried in pain), regardless if the scenario was congruent (i.e., outcome matched intention) or incongruent (i.e., outcome did not match intention) in nature. Again, these findings provide more

support that children rely on outcome information (i.e., the consequences of an act) when making punishment decisions, rather than the intention of the act itself.

Helwig, Zelazo and Wilson (2001) also examined children's use of intention and outcome information when making punishment decisions. Specifically, they examined how outcome and intention information was used in punishment decisions when exposed to psychological harm (as opposed to physical harm). Children (3-, 5-, and 7-year-olds) were exposed to eight stories in which the outcome information was a 'psychological consequence' (i.e., fear) and the intention was positive or negative, and were then asked to make a punishment judgment. For example, in one story scenario, children were presented with a story in which one child gave another child a puppy or a tarantula as a birthday present. The child receiving the gift either: (a) liked puppies and was afraid of tarantulas (normal condition); or (b) liked tarantulas and was afraid of puppies (i.e., incongruent condition). Intention information was varied as: (a) congruent (i.e., positive intention gives an animal that produces a positive emotional consequence; negative intention gives an animal that produces a negative emotional consequence) or (b) incongruent (i.e., positive intention gives an animal that produces a negative emotional consequence, where the wrong animal was given to the child accidentally, or vice versa). They found that most of the children age 5-years-old, and the majority of children age 7-years-old made punishment decisions based on outcome information (i.e., the amount of psychological harm that was produced). This reliance on outcome information was also consistent across a second story, where the psychological harm was embarrassment instead of fear. Younger children (i.e., age 3-years-old), however, were found to be unlikely to assign punishment in either outcome. Helwig and colleagues (2001) suggest

that this may be because younger children do not yet understand the importance of psychological harm when judging culpability, and that the appreciation of the effect of psychological harm may increase with age.

Punishment decisions related to an eyewitness context. Overall, the findings by Zelazo and colleagues (1996) and Helwig and colleagues (2001) provide additional support that children (age 5- to 7-year-olds) rely primarily on outcome information when judging culpability and making decisions regarding punishment. This is true when the outcome is either physical harm or psychological harm. These findings are important for the present study, in that they give insight into how children respond to outcome information when making punishment decisions. Based on this research, children should distribute more punishment (i.e., be more likely to make an identification) when they witness a negative outcome compared to a neutral or positive outcome. Within the present study, it is speculated that young children may use their responding during the lineup task as a method to punish an individual who commits a transgression. As past research suggests that false-positive responding in target-absent lineups are largely driven by social processes (e.g., Pozzulo & Lindsay, 1998), it is possible that children's decision during the lineup task is influenced by their desire to punish when they witness a negative outcome. If this is true, children should have an increased rate of false-positive errors (i.e., increased identifications) after witnessing a negative outcome compared to a neutral outcome.

Examining Outcome Information in an Eyewitness Context

Within the eyewitness literature, there is a lack of research examining how outcome information and punishment decisions may play a role when making a decision in a lineup task. Although research in this area is minimal, one study has examined how ‘moral decision making’ may impact eyewitness identifications (see Spring, Saltzstein, & Peach, 2012). In order to examine this, they conducted three different studies, two of which are relevant to the present study (see Study 1 and Study 3).

In their first study, Spring and colleagues (2012) examined how children’s identification decisions differed in a target-present lineup when presented with a negative outcome (i.e., a theft) and a positive outcome (i.e., pro-social helping behaviour). In a sample of children ages 6- to 9-year-olds, and 11- to 14-year-olds, they found that children had a higher number of incorrect identifications (i.e., false positives) when they witnessed a negative outcome compared to a positive outcome.

In study 3, Spring and colleagues (2012) again examined how outcome information may influence children’s responding during the lineup task. Study 3 differed from Study 1 in that Spring and colleagues also manipulated the intention information that was presented with the outcome. Specifically, children were exposed to one of two conditions: (a) a scenario in which malicious intention was paired with a neutral outcome; and (b) a scenario in which neutral intention (i.e., accidental) was paired with a negative outcome. Similar to study one, Spring and colleagues found differences in identification accuracy across negative and neutral outcomes, however out of three samples of children (i.e., children ages 7- to 9-years-old, 10- to 12-years-old, and adolescents), they found differences in the rate of incorrect identifications in only the sample of older children (aged 10- to 12-year-olds). On the other hand, younger children (aged 7- to 9-year-olds),

had more incorrect identification decisions overall (i.e., they were more likely to choose an innocent person from the lineup when compared to older children and adolescents), however no differences were found across outcome type.

Overall, the two studies conducted by Spring and colleagues (2012) have mixed findings, as Study 1 suggests outcome information influences children's accuracy in the lineup task, while Study 3 suggests that it does not. Despite this, there are limitations to both studies in that findings cannot be generalized. One limitation of the Spring et al., (2012) studies is the methodology used to present the target to the children. In both study one and study three a variation of a sequential lineup was used. Specifically, children were exposed to the lineup several times, with each lineup member shown 1/3 of the time frontally, 1/3 of the time showing the left profile, and 1/3 of the time showing a right profile. Overall, children were exposed to the target 9 times and the foils 45 times in a sequential order (Spring et al., 2012). Although there is a lack of research examining the effect of repeated lineup exposure in children research looking at adult eyewitnesses suggests that allowing an eyewitness to view a lineup repeatedly (i.e., a second 'lineup lap'), increases the number of errors and decreases the number of correct identifications from the first identification to the second (Stebly, Dietrich, Ryan, Raczynski, & James, 2011). Therefore, the act of viewing the sequential lineup repeatedly (i.e., the lineup was viewed 3 times in the Spring et al study), may influence children's performance during the lineup task. Moreover, children also were only exposed to a target-present lineup in both studies.

The type of lineup (i.e., target-present or target-absent) shown to children may also have impacted their performance. Past research has indicated that performance in

the lineup task may be driven by two different processes. Specifically, research has found that eyewitnesses rely on cognitive processes (i.e., memory) when making decisions in a target-present lineup, and rely on a combination of cognitive and social processes (e.g., familiarity) when making decisions in a target-absent lineup (Pozzulo & Lindsay, 1998, 1999). Because children were only exposed to a target-present lineup, it is unclear if children were using outcome information to make decisions during the lineup task (i.e., a social process) or relying primarily on their memory of the target (i.e., cognitive process), as research suggests.

Lastly, in the third study by Spring and colleagues (2012), the design employed both intention and outcome information. In Study 3, intention information was combined with outcome information in an attempt to determine what information was relied upon during the identification task. However, Spring and colleagues did not fully cross the design, that is, every child did not see every combination of variables (i.e., pairings of intention and outcome information). Therefore, it is unclear what information children were taking into account when making decisions in the lineup task. Given that the design was not fully crossed for all variables (i.e., children were never exposed to a ‘no intention – low severity outcome’ or a ‘purposeful intention—high severity outcome’), it is difficult to make conclusions regarding what information children were considering during the lineup task.

Despite its limitations, the study conducted by Spring and colleagues (2012) is the first set of studies examining how outcome information may play a role in children’s responding during the lineup task. The present study attempted to address the limitations of Spring et al., (2012) through a number of ways. First, in the present study, children

were exposed to a simultaneous lineup as past research suggests that children are more accurate when a simultaneous lineup is used compared to a sequential lineup (Lindsay et al., 1997; Pozzulo & Lindsay, 1998). Second, the present study included target-present and target-absent lineups. Finally, in order to properly determine how outcome information may influence children's decision-making, the present study kept intention information consistent across all outcome conditions (i.e., intention was neutral or 'accidental'). Overall, the present study aims to improve upon the studies conducted by Spring and colleagues (2012), and furthermore add to the small amount of existing literature in this area. The present study was conducted in hopes of providing a stronger foundation for which future research can continue to examine the implications of moral judgment and eyewitness identification.

Perceived Significance of Punishment Decisions

Eyewitness research has tried to understand why children are less accurate when presented with a target-absent lineup. Given that false-positive errors are the leading cause of wrongful convictions (Innocence Project, 2012) it is important to understand which factors are driving children's high false-positive responding. Some eyewitness research has examined how children perceive the significance of incorrect identification decisions, such as a false-positive error. For example, Spring and colleagues (2012) examined how serious children perceived a 'false alarm' (i.e., choosing an innocent suspect or a foil, a false-positive error), or a 'miss' (i.e., incorrectly rejecting a lineup). Spring and colleagues found that the majority of young children (i.e., 6- to 9-year-olds) generally did not understand the significance of an identification mistake. However, when children in this age group did acknowledge the significance of a mistake, children

believed that a 'miss' (i.e., incorrectly rejecting a lineup, letting a perpetrator 'go free') was significantly worse than a 'false alarm' (i.e., identifying an innocent person as the perpetrator). Older children (e.g., 11- to 14-year-olds) appeared to understand the significance behind making a mistake, however similar to young children, they perceived an incorrect rejection as worse than identifying an innocent suspect as guilty. Adolescents, on the other hand, perceived false-positive errors as more serious than incorrect rejections. These findings suggest that as children age, their perceptions of the seriousness of mistakes change.

Although Spring and colleagues measured perceived significance of punishment decisions, they did not examine how this influences children's identification accuracy. This relationship is important because children's perception of how serious punishment mistakes are (i.e., making a false-positive error), may also give insight into young children identification decisions. Therefore, the present study adds to the existing literature in that it examined whether children's false-positive responding was influenced by the perceived significance of punishment decisions. Specifically, it examined whether identification accuracy is related to children's belief in how fair punishment is, where children were asked to rate whether or not it was fair to punish an individual for something he/she did not do (i.e., wrongfully punish). This was chosen as a means to measure how children perceive the gravity of making a false-positive lineup decision. Specifically, asking children about their perceptions of when punishment is inappropriate (i.e., "*Is it fair if someone gets into trouble for something they did not do?*") may reflect children's perceptions of when false-positive identification is inappropriate. Based on the previous findings for this age group (i.e., 6- to 9-year-olds Spring et al., 2012), it was

predicted that children would perceived the punishment of an innocent individual as fair more often than not fair.

Hypotheses

1. Based on past research suggesting differences in children's identification accuracy across lineup type (Beal et al., 1995; Dekle et al., 1997; Pozzulo & Lindsay, 1998; Pozzulo et al., 2011), the present study hypothesized that children will be more accurate when shown a target-present lineup when compared to a target-absent lineup.
2. It was hypothesized that children will be less accurate (have a higher rate of false-positive identifications) when presented with a negative outcome in both target-present and target-absent lineups. This is based on past research suggesting that outcome information influences children's accuracy when making an identification (Spring et al., 2012)
3. Based on past research examining the use of extended instructions (e.g., Pozzulo & Lindsay, 1997), it was hypothesized that children will be more accurate in both target-present and target-absent lineups when extended instructions are used compared to standard lineup instructions.
4. It was hypothesized that children's rating punishment fairness will be related to identification accuracy, such that children who rate punishing an innocent individual as fair, will be more likely to make an inaccurate lineup identifications (i.e., an increase in false-positive errors).

Pilot Study

A pilot study was conducted to ensure that children's understanding of the materials (i.e., the outcome videos) was consistent with the intention of the design. Specifically, the pilot was to ensure that, as research suggests: (1) children use outcome information to make moral evaluations (i.e., was the target rated more negatively when children were shown a negative outcome?); and (2) children make punishment decisions (i.e., distribute punishment) in response to a negative outcome (i.e., was the target punished more when children were shown a negative outcome than a neutral outcome?).

Participants

Participants included children ($N = 20$) age 4- to 6- year-olds ($M = 4.65$, $SD = 0.81$) recruited from two daycares in the Ottawa area. 13 children were male (65%) and 7 children (35%) were female. Children received a small token for participating (e.g., crayons and a colouring book).

Materials

Informed consent form. The parent/ guardian of the child were asked to complete an informed consent form to give his/her child permission to participate in the study (Appendix A).

Demographics form. The parent/guardian of the child was asked to complete a demographics form asking general questions about the child's demographics (i.e., their age, gender, primary language, and their ethnicity; Appendix B).

Video. All participants were shown two of four videos. Two separate scenarios were created for the four videos (i.e., one scenario involving the target playing with dog, and one scenario involving the target cooking dinner; Appendix C). All videos consisted

of a series of pictures presented in a slide sequence with audio overlaid on top. This method was chosen over a live-action video given the nature of the events depicted (e.g., a pan catching fire). Two neutral outcome (i.e., no consequence) videos were constructed and two negative outcome (i.e., negative consequence) videos were constructed. Children viewed two videos, each video from a different scenario (i.e., one scenario involving a dog and one scenario involving cooking dinner). The outcome type was randomized for each video.

Video 1 (cooking scenario—negative outcome). A female individual is depicted in a kitchen cooking dinner on her stove. The female hears her doorbell ring and leaves her stove unattended. The pan catches fire. The female returns to the kitchen and puts out the fire.

Video 2 (cooking scenario—neutral outcome). A female individual is depicted in a kitchen cooking dinner on her stove. The female hears her doorbell ring and leaves her stove unattended. The female returns to the kitchen and serves her dinner.

Video 3 (dog scenario—negative outcome). A female individual is outside playing with a dog in a fenced area. The woman hears her telephone ring, and walks inside to answer the phone. The female accidentally leaves a gate open. The dog runs away. The woman returns and the dog has run away.

Video 4 (dog scenario—neutral outcome). A female individual is outside playing with a dog in a fenced area. The woman hears her telephone ring, and walks inside to answer the phone. The female accidentally leaves a gate open. The dog remains in the fenced area. The woman returns and the dog is waiting for her.

Outcome Rating Form

Outcome rating practice form. The participants were asked questions regarding their understanding of neutral and negative (i.e., consequential) outcomes (Appendix D). Children were read six different situations in which they heard 3 neutral outcomes (e.g., Sally ate an apple) and 3 negative outcomes (e.g., Dave broke a lamp). Children were asked to rate “how good” or “how bad” the actor was in each scenario. All scenarios were presented in a randomized order. The rating scale consisted of five smiley faces ranging from very sad (-2) to a neutral face (0) to a happy face (2). The purpose of this form was to ensure that children understood how to use the rating scale, and using the rating scale correctly (i.e., they used a sad face to rate an actor as “bad” and a happy face to rate an actor as “good”). Once children rated 2 neutral scenarios and 2 negative scenarios correctly, it was considered that they understood the rating scale.

Outcome rating response form. The participants were asked questions regarding their understanding of the outcome presented in the video (Appendix E). All participants were asked to rate “how good” or “how bad” the actor was in the video, immediately after viewing each video. The participants were required to rate the actor once for the first video, and once for the second video. The rating scale consisted of five smiley faces ranging from very sad (-2) to a neutral face (0) to a happy face (2). Participants also were asked to make a punishment decision after providing a rating for the first video, and again after providing a rating for the second video. Participants were asked to choose whether the target they witnessed in each video should be punished (i.e., “get into trouble”). The participants could assign: no punishment (“no trouble” coded as “0”), yes, a little punishment (“a little trouble” coded as “1”), and yes, a lot of punishment (“a lot of

trouble” coded as “2”). Researchers recorded their answer. Participants therefore provided two ratings on outcome (neutral/ negative) and two ratings on the appropriateness of punishment.

Procedure

Parents of the children at participating schools were provided with a consent form (Appendix A) and a demographics questionnaire (Appendix B). Parents were asked to return the consent form and questionnaire to the school teacher. Only children with consent were invited to participate.

Those who had consent and wished to participate were separated from the rest of the children. In order to build rapport with the children, the researchers provided a craft activity (e.g., mask making). One researcher assumed the role of facilitator and continued to entertain the children (e.g., through crafts, games, and play-doh). Each child was then separated from the group to be shown two videos with another researcher (Appendix C). Before showing the video to the child, the researcher familiarized the child with the ‘smiley face rating scale’ they would be using to rate the actor in the video (Appendix D). Children were read six statements (3 negative and 3 neutral) and were asked to rate “how good” or “how bad” the actor was in each statement. Once the researcher established that the child understood how to use the rating scale, the child was shown the first video. The child was then asked to use the smiley face rating scale to rate the actions of the character in the first video and to assign punishment (Appendix E). The child was then shown the second video, and again was asked to rate the actor using the smiley rating scale, as well as to assign punishment. Following this, the child returned to the group to continue making crafts.

Following the end of the study, the children were read a short story about “remembering” and why remembering some things or people can be easy or hard. The children were thanked (Appendix I) and given a small token (e.g., crayons and colouring book) for their participation. The researchers also answered any questions that the children had following their participation.

Pilot Results

Outcome Rating

Two negatively valenced videos were created with a neutral alternative for each. The first two videos involved a female taking care of a dog (i.e., the negative dog video and neutral dog video; see the method section for a complete description of both videos). The second two videos involve the same female cooking dinner (i.e., the negative cooking video and neutral cooking video; see the method section for a complete description of both videos). An independent t-test was calculated to determine whether the two cooking videos differed in valence. A significant difference was found across both the cooking neutral outcome and cooking negative outcome, with children rating the cooking negative outcome video as more negative ($M = -1.67$) than the cooking neutral outcome video ($M = 1.73$), $t(1, 18) = 11.20, p < .001$. A significant difference was found across both the dog neutral outcome and dog negative outcome, with children rating the dog negative outcome as more negative ($M = -1.30$) than the dog neutral outcome ($M = 1.10$), $t(1, 18) = 3.96, p = .001$. Results for the two negative videos were collapsed for future analyses as well as the two neutral videos were collapsed for future analyses.

Punishment Rating

Participants' provided a punishment rating indicating whether the target should be punished for their actions, and were asked to quantify the amount of punishment (e.g., a lot or a little). Punishment selections were coded as follows: no punishment = 0; a little punishment = 1; and a lot of punishment = 2. In order to ensure that participants were assigning greater punishment when exposed to a negative outcome rather than a neutral outcome, independent samples t-tests were conducted. When examining the cooking videos, a significant difference in punishment rating was found across the cooking neutral outcome and cooking negative outcome, where the negative outcome was assigned greater punishment ($M = 2.00$) than the neutral outcome ($M = 1.09$), $t(2, 18) = -2.88$, $p < .001$. When examining the dog videos, a significant difference in punishment rating was found across the dog neutral outcome and dog negative outcome, where the negative outcome was assigned greater punishment ($M = 2.00$) than the neutral outcome ($M = 1.10$), $t(2, 18) = -2.86$, $p < .001$. Results for the two negative videos were collapsed, as well as the results for the two neutral videos.

Overall, the results in the pilot study suggest that children respond to neutral and negative outcomes in a way that is consistent with past research (e.g., Armsby, 1971; Loke et al., 2011; Surber, 1982) and the goals of the present study. Therefore, the materials were maintained through the remainder of the research study.

Present Study—Method

Participants

Participants included children ($N = 149$) ages 4-to 6 years-old ($M = 4.94$, $SD = 0.79$) recruited from private schools ($n = 43$ children) and daycares ($n = 106$ children) in the Ottawa area. 74 (52.5%) participants were male, 63 (44.7%) were female, and 12 (2.8%) were unreported. Most participants were of White ethnicity ($n = 110$; 73.8%), followed by 14 (9.4%) mixed origin, 4 (2.7%) West Asian, 3 (2%) Black, 3 (2%) East Asian, 2 (1.3%) Southeast Asian, 2 (1.3%) Aboriginal, and 11 (7.4%) were unreported. English was the primary language for the majority of the sample ($n = 136$, 91.3%). Children received a small token for participating (e.g., crayons and a colouring book).

Design

A 2 (lineup type: target-present vs. target-absent) x 2 (outcome: negative vs. neutral) x 2 (instructions: standard vs. extended) between subjects factorial design was used.

Materials

Informed consent form. The parent/ guardian of the child were asked to complete an informed consent form to give his/her child permission to participate in the study (Appendix A).

Demographics form. The parent/ guardian of the child was asked to complete a demographics form asking general questions about the child's demographics (i.e., their age, gender, primary language, and their ethnicity; Appendix B).

Video. All participants were shown one of four videos (Appendix C). Videos were counterbalanced across participants. See the pilot method section for a complete description of each video.

Lineup

Lineup construction. Photos were taken of volunteers resembling the target to construct a six-person lineup. The photos were colour, head and upper body photographs measuring approximately 4 x 6 inches. The same photographs were used in the target-present and target-absent lineups, with the exception of a substitution of a similar looking confederate in place of the target in the target-absent lineup.

Foils were chosen for the lineup by having two independent judges rank order the photographs based on their similarity to the target. Lowest total rank indicated higher similarity between foil and target. The rankings for both judges were totaled and the required number of photographs were chosen based on the lowest rank. As suggested by Luus and Wells (1991), mock witness descriptions were used to ensure that there was sufficient similarity/ dissimilarity between the target and foils. Mock witnesses, ($N = 42$) were given a description of the target (e.g., female, long brown hair, thin eyebrows, white t-shirt, etc) and asked to identify the target from the constructed lineup based on the description provided. Results indicated a fair lineup, with each lineup member receiving a similar number of identifications (number of identifications ranged from 6 to 9 per each lineup member). See Table 1 for frequency of identifications for all lineup members.

Table 1.*Frequency of Lineup Member Identification.*

Lineup Member	Frequency of Identifications (%)
Target	9 (20)
Foil 1	7 (15.6)
Foil 2	5 (11.1)
Foil 3	5 (11.1)
Foil 4	6 (13.3)
Foil 5	7 (15.6)
Foil 6	6 (13.3)

Simultaneous lineup procedure. Following the video clip, the participants were presented with a corresponding six person photo array. All six photographs were presented to the participant at the same time (simultaneously), in two rows. At the bottom of the two rows, an empty box with the words “not here” was included to allow the participant to indicate that the target was not present in the lineup. Researchers recorded the participants’ responses on a lineup form. The lineup form had six numbered boxes (1-6), and one empty box indicating the person was “not here” (see Appendix F; Appendix G).

Participants also heard standard or extended lineup instructions. The instructions were as follows:

Standard lineup instructions: “Think back to the video I just showed you. Think back to what the person from the video looks like. I am going to show you some pictures. Please look at the pictures. The person from the video may be in these pictures or may not be in the pictures. If you see the person from the video, please point to her. If you do not see the person from the video, please point to the empty box.”

Extended lineup instructions: “Think back to the video I just showed you. Think back to what the person from the video looks like. I am going to show you some pictures. Please look at the pictures. The person from the video may be in these pictures or may not be in the pictures. If you see the person from the video, please point to her. If you do not see the person from the video, please point to the empty box. Remember, it is very important that you pick the right person from the video, because if you pick the wrong person, she may get into trouble for something she did not do.”

Fairness of punishment form. Children were asked to provide an opinion of the fairness of punishment (Appendix H). Specifically, children were asked to indicate how fair it is for someone to be punished for an act that they did not do. Children’s responses were organized into three categories: (a) yes it is fair; (b) no it is not fair; and (c) sometimes it is fair. Children were then asked to justify their responses. This question was included as a means to understand how serious children perceive false-positive identifications to be (i.e., do children believe it is fair if someone is wrongfully punished).

Procedure

Parents of the children at participating schools were provided with a consent form (Appendix A) and a demographics questionnaire (Appendix B). Parents were asked to return the consent form and questionnaire to the school teacher. Only children with consent were invited to participate.

Those who have consent and wished to participate were separated from the rest of the children. In order to build rapport with the children, the researchers provided a craft activity (e.g., mask making). One researcher assumed the role of facilitator and continued to entertain the children (e.g., through crafts, games, and play-doh). Each child was then

separated from the group to be shown one video with another researcher (Appendix C). Once the child was shown the video, the child was asked to orally recall anything that he/she could remember about the video. The researcher recorded all answers (Appendix I). The child was then shown a corresponding six person photoarray. The photoarray was either a target-present or target-absent and contained standard or extended lineup instructions which were randomly determined (Appendix F; Appendix G). Children were then asked a question regarding the fairness of punishing someone for an act they did not commit (Appendix H). Following this, the child returned to the group to continue making crafts.

Following the end of the study, the children were read a short story about “remembering” and why remembering some things or people can be easy or hard. The children were thanked (Appendix J) and given a small token (e.g., crayons and colouring book) for their participation. The researchers also answered any questions that the children had following their participation.

Results

Accuracy in Target-Present versus Target-Absent Lineups

A mean correct identification rate per child was produced in order to determine a stabilized correct identification rate across both outcome and instruction conditions in target-present lineups. Following this same logic, a mean correct rejection rate per child was produced, in order to determine a stabilized correct rejection rate across outcome and instruction conditions in target-absent lineups.

Correct identifications. Correct identification rates were averaged to produce an overall correct identification rate for target-present lineups of 0.37.

Correct rejections. Correct rejection rates were averaged to produce an overall correct rejection rate for target-absent lineups of 0.51.

In order to determine if there was a difference in accuracy (i.e., correct identifications versus correct rejections) as a function of lineup type, a chi-square was conducted. Contrary to hypotheses, no differences in accuracy was found as a function of lineup type, $\chi^2(1, 148) = 2.90, p = 0.09$.

Data were then divided into target-present versus target-absent lineups. The data were separated given that the correct identification decision differs for target-present lineups (i.e., a correct identification involves selecting a face) versus a target-absent lineup (i.e., a correct rejection involves *not* selecting a face). Also, research suggests that target-present lineup decisions are driven by cognitive processes, while target-absent lineup decisions are driven by both cognitive and social processes (see Pozzulo & Lindsay, 1998).

Target-Present Lineups

In order to produce a stabilized correct identification rate per child, an average correct identification rate for each video, per child was produced. This eliminates any video specific peculiarities. A mean correct identification rate was calculated for the neutral videos per child. Following the same logic, a mean correct identification rate for negative videos per child was calculated. See Table 2 for individual video's correct identification rates (target-present lineups) as a function of lineup instructions.

Neutral videos. Correct identification rates were averaged to produce an overall correct identification rate for neutral videos of 0.32.

Negative videos. Correct identification rates were averaged to produce an overall correct identification rate for negative videos of 0.42.

Video Outcome

Neutral versus negative outcome. The goal of this study was to determine how the outcome of a target's actions influences children's accuracy during a lineup identification task. A chi-square was conducted to determine how outcome type (neutral versus consequential) influenced children's accuracy in target-present lineups. Contrary to predictions, children produced a comparable correct identification rate when presented with a neutral versus a consequential outcome (0.32 versus 0.42, respectively), $\chi^2(1, 75) = 0.91, p = 0.34, \eta = 0.11$.

Table 2.*Children's rate of identification accuracy (SD) as a function of lineup instructions*

		Standard Instructions			
		<u>Dog Neutral</u>	<u>Dog Negative</u>	<u>Fire Neutral</u>	<u>Fire Negative</u>
Target Present	Correct Identification	.20 (2)	.30 (3)	.30 (3)	.56 (5)
	Foil Identification	.20 (2)	.10 (1)	.10 (1)	.22 (2)
	False Rejection	.60 (6)	.60 (6)	.56 (5)	.22 (2)
Target Absent	Correct Rejection	.62 (5)	.44 (4)	.33 (3)	.56 (5)
	False Positive	.38 (3)	.56 (5)	.67 (6)	.44 (4)
		Extended Instructions			
		<u>Dog Neutral</u>	<u>Dog Negative</u>	<u>Fire Neutral</u>	<u>Fire Negative</u>
Target Present	Correct Identification	.30 (3)	.67 (6)	.44 (4)	.20 (2)
	Foil Identification	.20 (2)	.22 (2)	.22 (2)	.30 (3)
	False Rejection	.50 (5)	.11 (1)	.33 (3)	.50 (5)
Target Absent	Correct Rejection	.56 (5)	.60 (6)	.50 (5)	.38 (3)
	False Positive	.44 (4)	.44 (4)	.50 (5)	.62 (5)

Lineup Instructions

Standard versus extended instructions. In order to determine how differing lineup instructions influenced accuracy in target-present lineups, a chi-square was conducted. Contrary to predictions, children produced a comparable correct identification rate when presented with standard versus extended lineup instructions (0.34 versus 0.39, respectively), $\chi^2(1, 75) = 0.23, p = 0.63, \eta = 0.06$.

Target-Absent Lineups.

In order to produce a stabilized correct rejection rate per child, an average correct rejection rate for each video, per child was produced. This eliminates any video specific peculiarities. A mean correct rejection rate was calculated for the neutral videos per child. Following the same logic, a mean correct rejection rate for negative videos per child was calculated. See Table 2 for individual video's correct rejection rates (target-absent lineups) as a function of lineup instructions.

Neutral outcome videos. Correct rejection rates were averaged to produce an overall correct rejection rate for neutral videos of 0.51.

Negative outcome videos. Correct rejection rates were averaged to produce an overall correct rejection rate for negative videos of 0.50.

Video Outcome

Neutral versus negative outcome. In order to determine how video outcome (i.e., neutral versus consequential) influences children's correct rejection rates in target-absent lineups, a chi-square was conducted. Contrary to prediction, the correct rejection rate was comparable across both outcome conditions (0.51 versus 0.50, respectively), $\chi^2(1, 72) = 0.01, p = 0.91, \eta = 0.01$.

Lineup Instructions

Standard versus extended instructions. In order to determine how type of lineup instructions (i.e., standard versus extended) influences children's correct rejection rates, a chi-square was conducted. Contrary to prediction, children's correct rejection rates were comparable across both types of lineup instructions (0.50 versus 0.53, respectively), $\chi^2(1, 72) = 0.12, p = 0.73, \eta = 0.04$.

Fairness of Punishment Data

Participants were asked to provide a fairness rating regarding the punishment of innocent individuals (i.e., is it fair if someone gets into trouble for something they did not do?). The majority of participants ($n = 94, 63\%$) rated the punishment as "not fair", whereas 22 participants (14.8%) rated the punishment as "fair", and 33 participants (22.1%) rated the punishment as "sometimes fair". As the present study is interested in conclusive punishment decisions (i.e., yes punishment, no punishment), the participants who rated the punishment as "sometimes fair" were not considered further in the analyses.

In order to test how children's fairness of punishment ratings are related to outcome type (i.e., neutral versus negative) and accuracy in lineup decision (i.e., correct versus incorrect) a logit loglinear was conducted, with the fairness of punishment rating as the dependent variable (DV) and the outcome type, lineup type (i.e., target-present versus target-absent), and accuracy in lineup decision as the independent variables (IV). No significant main effect was found for lineup type ($Z = -0.86, p = 0.39$), outcome ($Z = -1.33, p = 0.18$), or accuracy in lineup decision ($Z = -1.59, p = 0.11$), and there was no significant 3-way interaction. Please see Appendix K for a logit loglinear analysis with

identification accuracy as the DV, and lineup, outcome and instruction type as the IV as an alternative analysis.

The data were then divided into target-present and target-absent lineups, given that different processes may drive decisions during the lineup task (e.g., cognitive versus cognitive/social processes).

Target-present lineups. In order to test how children's fairness of punishment ratings are related to outcome type (i.e., neutral versus negative) and accuracy in lineup decision (i.e., correct versus incorrect), a logit loglinear was conducted, with the fairness of punishment rating as the DV and the outcome type and accuracy in lineup decision as the IV. No significant main effect was found for outcome ($Z = -0.48, p = 0.63$), or accuracy in lineup decision ($Z = -0.71, p = 0.48$), and there were no significant interactions. Please see Appendix K for a logit loglinear analysis with identification accuracy as the DV, and outcome type and instruction type as the IV for target-present lineups as an alternative analysis.

Target-absent lineups. In order to test how children's fairness of punishment ratings are related to outcome type (i.e., neutral versus negative) and accuracy in lineup decision (i.e., correct versus incorrect) a logit loglinear was conducted, with the fairness of punishment rating as the DV and the outcome type and accuracy in lineup decision as the IV. No significant main effect was found for outcome ($Z = -1.33, p = 0.18$), or accuracy in lineup decision ($Z = -1.59, p = 0.11$), and there were no significant interactions. Please see Appendix K for a logit loglinear analysis with identification

accuracy as the DV, and outcome type and instruction type as the IV for target-absent lineups as an alternative analysis.

Discussion

The present study examined whether different outcomes (i.e., negative or neutral) of an event were related to young children's lineup decision-making. Past research suggesting that children rely on outcome information when making: (a) evaluations or judgments of others (e.g., how good/bad someone's actions are perceived to be; Armsby, 1971; Piaget, 1948), and (b) when making punishment decisions (e.g., Helwig et al., 2001; Zelazo, 1996). As a result, the present study postulated that children would use their identification decisions during a lineup task as a way to distribute punishment to a wrongdoer (i.e., get someone into trouble) when exposed to a negative outcome.

A small amount of previous research has looked at how different event outcomes (e.g., a transgression versus pro-social behaviour; a negative versus neutral outcome) influence lineup decisions in young children (see Spring et al, 2012); however, using this information in understanding eyewitness lineup performance is a fairly novel idea. The purpose of this study was to determine how outcome information influences children's decisions when acting as an eyewitness. To be more specific, this study examined children's identification accuracy when exposed to an outcome of negative valence (i.e., a consequential event) compared to a neutral outcome.

How Does Outcome Information Influence Identification Accuracy?

Given that past research suggests that children rely on outcomes when making evaluations of others behaviour (Surber, 1982; Piaget, 1948; Yuill, 1984) and that children have been found to use outcome information to make judgments regarding

punishment (i.e., punishment decisions; Zelazo et al., 1996), it was hypothesized that outcome information would influence identification accuracy. Specifically, it was predicted that children would be less accurate (i.e., have a higher rate of false-positive or foil selections) after witnessing a negative outcome, compared to a neutral outcome. This decrease in accuracy should be seen in both target-present and target-absent lineups, as children may be more likely to make a selection in the lineup when witnessing a negative outcome in order to punish (i.e., the 'target' did something bad and, therefore, must be punished). Contrary to predictions, children had comparable rates of accuracy when exposed to a negative or neutral outcome in target-present and target-absent lineups. This finding suggests that children were not using outcome information when making an identification decision.

Punishment in a Rule-breaking Context

Previous research examining punishment has argued that children feel obligated to punish a transgressor after witnessing a negative outcome (Helwig et al., 2001; Piaget, 1948; Zelazo et al., 1996). However, this research is not clear on the meaning and interpretation of the term 'transgression,' and in turn, how it relates to children's understanding, and following of rules. As outlined in Piaget's theory (1948), children's understanding or interpretation of different situations can largely be determined based on their understanding of, and adherence to, rules where children in this age range (e.g., 4- to 6-year-olds) believe that rules cannot be broken and that individuals must be punished if they are broken. Despite Piaget indicating rules as an important component in children's interpretation of a situation, his theory assumes that the 'rules' are a constant factor, or consistently present, when children are interpreting negative outcomes. In other words,

his theory assumes that children are always aware that a rule exists, and aware that the rule was/was not broken, when interpreting outcome information. Furthermore, the theory suggests that children's interpretation of how flexible the rules are (i.e., rules can or cannot be broken) is an important determinate in their punishing behaviour. However, within the punishment literature, the relationship between transgressions and punishing behaviour is not examined using methods that provide children with a context in which to interpret the transgressions (i.e., negative outcomes). For example, Loke and colleagues (2011) examined children's reporting of transgressions by telling the participants that a child had spilt another child's drink. In this case, Loke and colleagues provided children with a negative outcome (e.g., the spilt drink), but did not provide any contextual information about the transgression, such that children were not explicitly told that a rule was broken. Therefore, it is not clear how children interpreted the transgression—did children perceive a negative outcome as the 'breaking of a rule?'

There is a small body of research (see Leon 1984) suggesting that the way children conceptualize rules (i.e., their awareness of which behaviours mean a rule was broken) moderates how young children assess and distribute punishment. This small, and largely overlooked body of research, refers to this conceptualization as the "rule governed nature of judgement" (p. 2106). In other words, it is the nature of the rules themselves that influence: (a) what behaviour children will interpret (i.e., outcome versus intent information); and, (b) whether that behaviour should result in punishment. Leon suggests that punishment decisions are made one of two ways. First, punishment is determined by separate evaluations of both intention and outcome information (i.e., intention and outcome information are evaluated independently of each other). Thus, punishment can

be the result of either intention or outcome information, or a combination of intention and outcome. Second, punishment is determined by an evaluation of both intention and outcome, where intention and outcome are dependent of each other. Thus, punishment decisions are determined by an evaluation of outcome, moderated by intention. That is, outcome can only be evaluated (i.e., does this outcome deserve punishment?) through the nature of the intention (e.g., was it purposeful or accidental?).

According to the theory set out by Piaget (1948), young children (e.g., ages 4- to 6-year-olds) focus primarily on outcome information when judging culpability. Piaget suggests that children focus on outcome information due to the developmental changes in how flexible they perceive rules to be (i.e., as they age, rules shift from being 'unchangeable' to 'modifiable'). In contrast, Leon (1984) argues that social learning theory may provide additional information when determining when children rely on outcome information versus intention, in that the relationship between the 'rule makers' and the 'rule enforcers' warrants consideration. For example, Leon (1984) conducted a study in which children (i.e., the rule enforcers) and their mothers (i.e., the rule-makers) were asked to make punishment decisions in a number of situations with varying outcome and intention information. He found that children's punishment decisions were largely dependent on the way in which their mothers provide a framework for punishment (i.e., the information on which they base their punishment decisions). In other words, children learned how to distribute punishment based on the method of punishment used by their parents. Specifically, when mothers based punishment decisions on outcome information, children also distributed punishment by examining the outcome information provided to them. If mothers based their punishment decisions on intent, then children

also learned to distribute punishment through the use of intention information, and so forth.

This research suggests that children's use of outcome/ intention information when making punishment decisions may not solely be based on children's inflexible conceptualization of rules, as proposed by Piaget (1948), but may also be based on social learning and their subjective interpretation of the rules. Children may learn a framework in which to understand rules (i.e., was a rule broken?) based on either outcome, intention, or both through social means. Therefore, their 'rule' framework may limit children's ability to perceived rules as being broken in different contexts. For example, if children learn that punishment is distributed based on intent (e.g., they see their mother punish if negative / malicious intention is present, regardless of outcome), children may not understand that a rule has been broken if malicious intent is not present (e.g., someone breaks a television accidentally). In this case, there is a lack of a framework for children to understand that a 'rule' has been broken.

This framework in which to understand rules, or Leon's 'rule governed nature of judgment' is important, as children's punishment decisions may vary depending on whether or not they believe a rule has been broken. As mentioned earlier, many studies examining children's use of outcome or intention information when making punishment decisions, or evaluations of other people, do not take into account whether children understand that a 'rule' has been broken. Therefore it is unclear if the children in these studies (i.e., the studies examining how outcome information relates to decision-making) actually perceived a negative outcome as a rule that has been broken. The lack of context provided in these studies reveal a 'disconnect' between theory (i.e., to understand

children's moral development one must understand their view of rule-breaking), and how theory is tested. The present study exposed children to a negative outcome, but did not provide a context for children to interpret the outcome (i.e., the children were not informed that a rule was broken). In other words, the non-significant findings in the present study may be related to the fact that the conceptual framework of the rules was left ambiguous to the child participants. For example, when "Sarah" left the stove to answer the door resulting in the food catching on fire, the children were not provided a context for which to interpret whether or not "Sarah" broke a rule. If, for example, children were informed that Sarah was told that she shouldn't leave the stove when cooking because the food may catch on fire, the 'breaking of a rule' would have been more explicit and thus, may have influenced children's lineup decision. Therefore, if children were provided with a context to understand the outcome (i.e., that a rule was broken), children's punishment decisions may have been reflected in the lineup task.

Lineup as a Tool for Punishment

The present study hypothesized that if children would use the lineup as a tool to punish, and thus, there would be an increased rate of false positive selections when a negative outcome was shown compared to a neutral outcome. However, no differences were found, suggesting that this hypothesized 'punishing behaviour' was not apparent through examining the lineup task. This disconnect may suggest that children did not understand that the lineup was a method of punishment. In other words, children may not be aware that the lineup task is associated with judgments of guilt and children in this age group may fail to recognize the implications of their decision-making when making an identification (i.e., that an (mis)identification can lead to a (wrongful) conviction. Thus,

children may not see their decisions in a lineup to be significant (i.e., they are not using the lineup to punish transgressors). Spring and colleagues (2012) speculate that children may not recognize the implications of the lineup task because young children in general lack the ability to understand the implications of their behaviour or actions from the point of view of others.

Victim of the Transgression

This disconnect found in the present study between children's punishing behaviour and their lineup decisions may also be examined through the tattling literature. This research suggests that young children feel an obligation to tell when they witness a transgression (see Loke et al., 2011), and the primary goal of tattling is to either receive help or to punish a transgressor (Ingram & Bering, 2010). Some research has found that children's tattling may be in response to a transgression that was committed against themselves, as opposed to a third party (e.g., Ingram & Bering, 2010). A child's tendency to report harmful behaviour directed at himself/ herself, as opposed to a third party, may provide insight as to why children's punishment decisions were not reflected in the lineup task in the present study. It could be that, because the transgression did not directly affect them (i.e., the transgression harmed an unknown, third party "Sally"), they were less inclined to 'punish' by choosing from the lineup. These findings suggest that children's responding on the lineup task may have been different if the children viewed the transgression as directly harming themselves, as opposed to a third party.

Outcome in an Eyewitness Context

Research examining the influence of outcome information within an eyewitness context is rare. In fact, the present study and the study conducted by Spring and

colleagues (2012) are the only known studies examining how outcome information may influence children's responding in an identification task. When examining the findings from the present study and the study by Spring and colleagues (2012), there appears to be mixed findings as to whether children use outcome information when making an identification decision. In the present study, it seems that young children (i.e., aged 4- to 6- years old) did not rely on outcome information when making identification decisions in either the target-present or target-absent lineup conditions.

Despite Spring and colleagues (2012) finding some support that outcome information influences lineup identifications (Study 1), and some support that it did not (Study 3), it is not possible to draw conclusions regarding children's use of outcome information during identification decisions. As the present study found that outcome information did not influence accuracy in identification decisions, it is possible that outcome information may not be a driving factor in children's identification decisions. Instead, children's identification decisions in target-absent lineups may be due to other social processes.

How do Lineup Instructions Influence Identification Accuracy?

A secondary goal of this study was to determine whether different lineup instructions influenced children's accuracy in lineup tasks. The present study employed standard lineup instructions, as well as extended lineup instructions based on the method used in Pozzulo and Lindsay (1997). Based on findings by Pozzulo & Lindsay (1997) it was hypothesized that children would have increased accuracy in target-present and target-absent lineups when provided with extended compared to standard instructions (Pozzulo & Lindsay, 1997).

Contrary to hypotheses, the present study found that children had comparable rates of correct identifications in target-present lineups with standard instructions and extended instructions. These findings contradict past findings that suggest that extended lineup instructions can improve correct identifications in target-present lineups when used with children (Pozzulo & Lindsay, 1997). The present study also did not find any improvement in children's accuracy in target-absent lineups when presented with extended instructions. There are a number of explanations as to why the present study did not find an improvement in identification accuracy with the use of extended lineup instructions. First, the only known study to examine extended lineup instructions, Pozzulo and Lindsay (1997), was used to develop hypotheses for the present study. However, the present study used a younger sample of children (i.e., 4- to 6-year-olds) than Pozzulo and Lindsay (1997) (i.e., 10- to 14-year-olds). For example, it is possible that, although the extended lineup instructions benefited older children, it is possible that the 'added detail' was lost with a young sample. This may suggest an underlying developmental difference in young children's ability to comprehend and remember instructions. For example, research has shown that children's ability to remember pieces of information, (i.e., hold two pieces of information in their mind) improves with age, with young children (e.g., 3- to 4-year-olds) being unable to do so, with improvements at 6-years-old (e.g., Diamond & Taylor, 1996). It is possible that when given extended lineup instructions, children can remember the first piece of information (i.e., instructing the child to choose the person from the video), however they may not be able to remember or use the second piece of information (i.e., warning them to make the correct choice). This is important to consider when children are shown a lineup in a real

eyewitness setting, in that it is important for police to distinguish between beneficial information (e.g., such as informing the child that the guilty person may not be present), and too much information (e.g., warning them of possible false-positive errors). The present study is the first study suggesting that extended instructions may not benefit children in this age group (i.e., 4- to 6-year-olds), however more research on the use of extended instructions in this sample must be conducted before any conclusions can be made regarding the appropriateness of their use.

Fairness of Punishment Related to Identification Accuracy

The present study also examined how children's perceptions of fairness of punishment related to identification accuracy and outcome. Past research has examined how young children (e.g., 6- to 9-year-olds) perceive the seriousness of incorrect identifications (i.e., false alarms/misses). The present study hypothesized that when asked to make decisions regarding the fairness of mistaken punishment (i.e., *is it fair for someone to get into trouble for something they did not do?*) children would more often report the punishment as fair compared to not fair. Moreover, it was predicted that children's ratings of fairness would be related to outcome information and their identification accuracy.

Contrary to predictions, children were found to rate the punishment scenario as "not fair" more frequently as "fair", with over half of the sample (63.1%, $n = 94$) reporting "not fair". Moreover, children's ratings of fairness were not related to either outcome information or identification accuracy. These findings may suggest that children do not perceive the lineup task to be relevant when they are determining the fairness of punishment. In other words, if children perceived their identifications in the lineup task to

be a way to punish wrongdoers, their perceptions of fairness should theoretically be related to their accuracy when making identifications. Given that the present study did not find a relationship between identification accuracy and ratings of punishment fairness, this suggests that children may not understand the significance of the lineup decision or use the lineup as a method to punish wrongdoers.

Limitations and Future Research

An interesting finding in the present study is children's increased rate of accuracy in target-absent compared to target-present lineups. Although not significant, children in the present study had higher rates of correct rejections than correct identifications, suggesting that children were more likely to reject the lineup than make a selection. These findings are contrary to past research suggesting that young children are more accurate in target-present lineups (e.g., Beal et al., 1995; Dekle et al., 1996; Lindsay et al., 1997). Children's increased accuracy in target-absent lineup conditions may suggest possible problems with the materials presented, for example the lineup may have been too difficult for children.

One limitation of the present study is that outcome information was not presented to children with a contextual framework in which to understand the outcome. Specifically, it is unclear as to whether children understood the outcome in the context of a 'broken rule.' Given the importance of children's interpretation of rules (Leon, 1984; Piaget, 1948) future research examining children's moral decision making when exposed to different outcomes should ensure that children have a framework in which to understand the outcome (i.e., children should be explicitly informed that a rule was broken).

Similar to this, another limitation of the present study may be that only outcome information was manipulated. Although past research suggests that children rely primarily on outcome information, some research suggests that in some cases, children can consider and use intention and motive information when making moral judgments (see Armsby, 1971; Baird & Astington; 2004; Piaget, 1948). In an attempt to focus primarily on outcome information, the present study kept the intention information neutral (i.e., all the videos had accidental intention information). However, as some research suggests that children can use intention information when making moral judgments (Leon, 1984), it is possible that children still used the neutral intention information in their decision-making process. Future research may want to include both intention (purposeful and accidental) and outcome (negative and neutral) information to determine when children are using outcome information to make lineup decisions.

Another limitation of the current study is that children may not have understood the purpose of the lineup (i.e., that their decision in a lineup can lead to a punishment). Some research in this area suggests that children in this age group (i.e., under 6-years-old), do not understand the implications of making an identification during the lineup task (e.g., Spring et al., 2012). It is unclear then, if children's decision-making during the lineup task would differ if children were explicitly informed that their choices in a lineup can lead to the punishment of that individual. Future research may explore this concept by providing children with instructions that specifically inform them: (a) what a lineup is; and (b) what their choices in the lineup task mean (i.e., what are the implications of their choices?). Although extended instructions touch upon the implications of an

identification (i.e., the instructions provide a caution for false-identifications), the instructions fail to explicitly inform children of the implications of their decisions.

Overall, the present study has found that outcome information may not play a role in children's identification decisions. Despite this, there is very little research examining how outcome information may play a role in an eyewitness context. More research in this area is needed to better understand children's false positive responding.

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Appendices

Appendix A – Parental Consent Form

Dear Parent(s)/Guardian(s),

As researchers from Carleton University, we are conducting a study to better understand children's memory and their ability to report what they see. The Department of Psychology's Ethics Committee at Carleton University and the principal and teacher of your child's school have granted us permission to request your child's participation in this study.

This study is directed at understanding children's memory. We are interested in understanding how accurately children can describe an event and identify those involved. We are examining whether children show differences in their memory for people whether they are presented with actions that result in negative (i.e., frying pan catching fire; dog running away) or neutral (frying pan cooking; dog waiting for the owner) outcomes. This study will also examine how your child view's punishment (i.e., when it is appropriate to get someone "in trouble" if they do something wrong). Your child will be shown one short video clips (about 90 seconds long). The video will contain a female actor engaging in simple tasks (i.e. cooking dinner or playing with a dog). Following the viewing of the video clip, your child will be asked a series of questions about what they can remember about the video. Then your child will be presented with a series of photos and asked to pick out the actor in the video. Your child will also be asked simple questions regarding the appropriateness of punishment. This research is important because it will help identify whether consequences influence memory.

We would greatly like to include your child in this project. Results from previous research have shown that children have enjoyed the experience of participating in this type of study. The study will take place at your child's school, during class time and at the teacher's convenience. Three-four female researchers will work with small groups of children at one time for approximately 60 minutes. Children will be shown the video clips and asked questions individually.

Participation in the study is completely voluntary and your child may withdraw from the study at any time. As well, your child may choose not to participate even though you have granted permission for him/her to do so. Participants' responses will remain completely anonymous and strictly confidential. The information that is gathered will not appear on any school records and will have no bearing on their evaluation of classroom performance. The information gathered is solely for research purposes and will only be seen by the researchers involved. The consent forms will be kept by the researcher's for no longer than 7 years. Also, note that the gathered information will not contain your child's name or any other form of identifying information.

Please indicate on the form below whether or not you give your child permission to participate and return the bottom portion to your child's teacher as soon as possible. **We ask that if you do decide to give your child permission to participate in the study that you please save this letter with the contact information in the event that you or your child have any questions after participating.** Attached is a consent form that can be cut off and returned to your child's teacher. We sincerely appreciate your co-operation. If you should have any questions or comments about this research please feel free to contact, Dr. Joanna Pozzulo (Faculty advisor, 613-520-2600, ext.1412), or Chelsea Sheahan (Principle Investigator, 520-2600, ext. 3695). If you should have any ethical concerns about this study please contact, Dr. Monique Sénéchal (Chair, Carleton University Ethics Committee for Psychological Research, 613-520-2600, ext. 1155). Should you have any other concerns please contact, Dr. Anne Bowker (Chair, Department of Psychology, 613-520-2600, ext. 8218).

Sincerely,

Joanna Pozzulo, Ph.D., C.Psych.
Professor
Department of Psychology
Director, Institute of Criminology
and Criminal Justice
Carleton University

Chelsea Sheahan, B.A. (Hons)
Department of Psychology
Carleton University

(Please cut off and return to teacher)

The information collected for this project is confidential and is protected under the Municipal Freedom of Information and Protection of Privacy Act. (1989, Bill 49)

I have read and understood the request for my son/daughter to participate in the study on children's memory. Please select one of the following:

I have discussed this with my son/daughter and

___ I **give permission** for my son/daughter to participate in this study and to see researchers on the day of testing in my child's school. I understand that my child will be asked to watch videos and provide information regarding people in those videos. I understand that all of my child's responses will remain anonymous and that he/she is participating voluntarily and is able to withdraw at any time. Any questions or comments I may have will be answered by the principal investigator.

___ I **do not give permission** for my son/daughter to participate in this study.

Name of Student (please print): _____

Name of Parent/Guardian (please print): _____

Signature of parent/guardian: _____

Date: _____

Appendix B—Participant Demographics Form

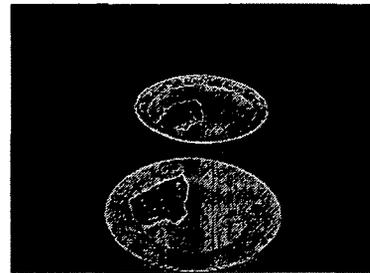
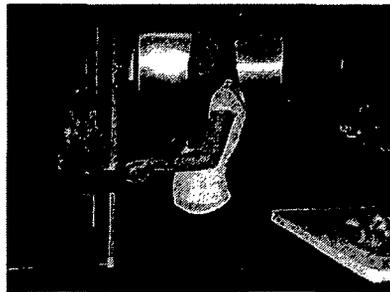
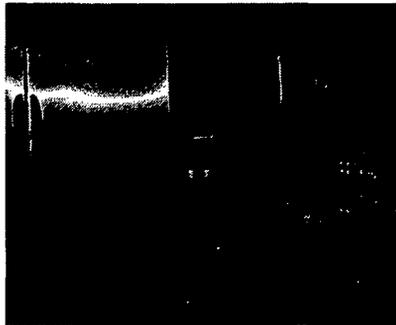
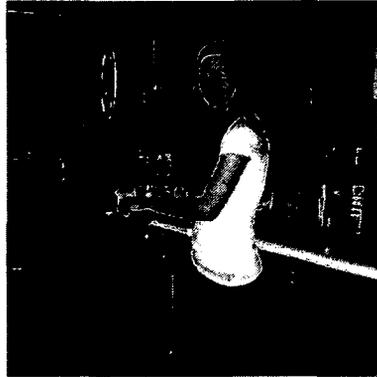
To gain a greater understanding of our participants, we ask that you complete the information below. Please note that this information is for research purposes only and these answers will be kept confidential; no one will be able to identify you, your child, or your answers.

Please answer the questions below regarding your **child** who is participating in this study. Thank you!

- 1) Please indicate your child's gender: Male Female
- 2) Please indicate your child's age in years and months: _____
- 3) Please indicate the primary language used in the home to communicate with your child: _____
- 4) Please indicate which ethnic group you would consider your child to belong to (OPTIONAL):
 - White (e.g., European)
 - Black (e.g. African, African American, African Canadian, Caribbean)
 - East Asian (e.g. Chinese, Japanese, Korean, Polynesian)
 - South Asian (e.g. Indian, Pakistani, Sri Lankan, Bangladeshi)
 - Southeast Asian (e.g. Burmese, Cambodian, Filipino, Laotian, Malaysian, Thai, Vietnamese)
 - West Asian (e.g. Arabian, Armenian, Iranian, Israeli, Lebanese, Palestinian, Syrian, Turkish)
 - Latin American (e.g. Mexican, Indigenous Central and South American)
 - Aboriginal Canadian/Native Canadian/First Nations
 - Mixed origin, please specify: _____
 - Other: _____

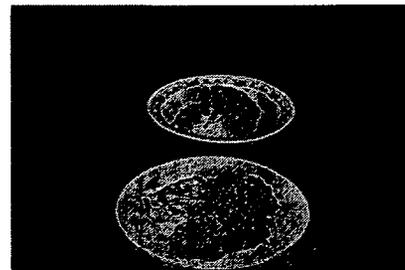
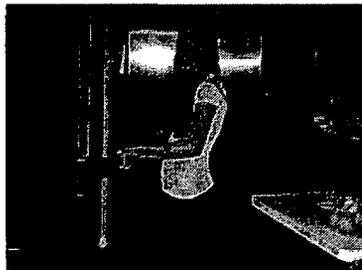
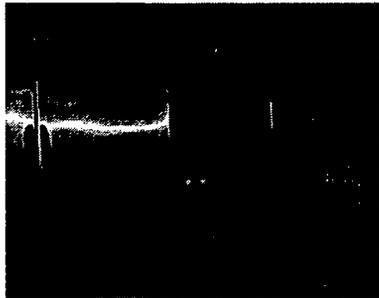
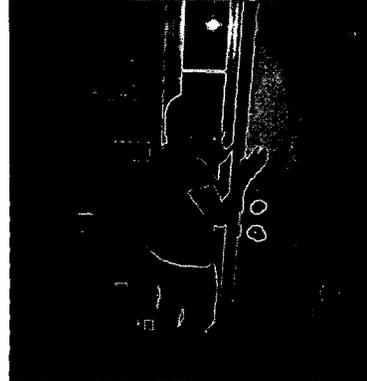
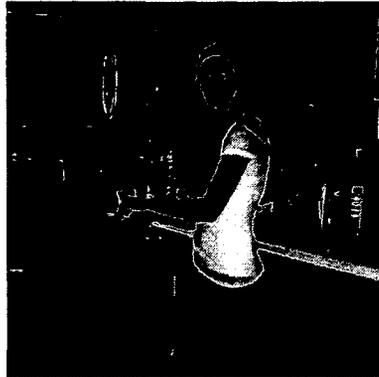
Appendix C– Neutral and Negative Outcome Videos

Cooking Scenario—Negative Outcome:



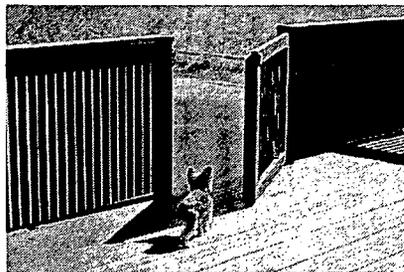
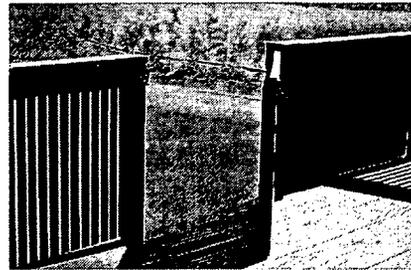
Story: Sarah was making dinner in her kitchen. This was a special dinner because she was making it for her best friend. While she was making dinner, Sarah heard the doorbell ring. Sarah left her dinner cooking to go see who was at her front door. While Sarah was answering the door, she left her food cooking on the stove, and the dinner she was cooking caught fire. When she was finished talking to the person at his front door, Sarah walked back to his kitchen to check on her dinner. That was when Sarah saw that her dinner was on fire. Sarah decided to quickly and safely stop the fire. When Sarah put out the fire, the dinner she made was burnt and ruined. Sarah was very sad because she ruined the special dinner she made for her friend.

Cooking scenario—Neutral outcome:



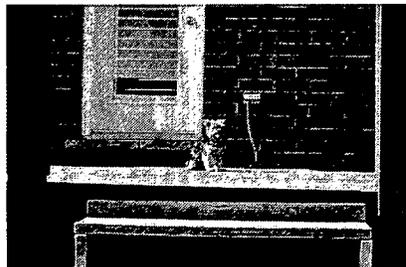
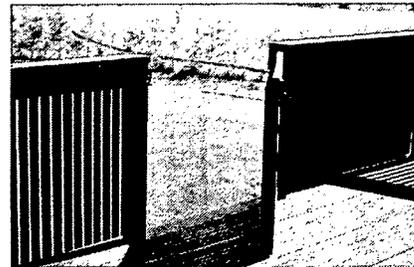
Story: Sarah was making dinner in her kitchen. This was a special dinner because she was making it for her best friend. While she was making dinner, Sarah heard the door bell ring. Sarah left her dinner cooking to go see who was at her front door. While Sarah was answering the door, she left her food cooking on the stove. When she was finished talking to the person at her front door, Sarah walked back to his kitchen to check on her dinner. Sarah saw that her dinner looked ready to eat. Sarah thought her dinner looked really yummy, and she was excited to show her best friend the special dinner she made.

Dog scenario—Negative outcome:



Story: One day, a girl named Sarah was taking care of a dog named Pepper. Pepper belonged to Sarah's best friend, Sally. Sarah and Pepper were playing outside when Sarah heard the telephone ring. Sarah went inside the house to answer the telephone, leaving Pepper the dog outside all alone. Sarah forgot that she left the gate unlocked and wide open when she went inside to answer the telephone. Pepper the dog ran through the open gate when Sarah was inside. When Sarah came back outside, Sarah could not find Pepper anywhere. Sarah was very sad that she lost her best friend's dog, Pepper.

Dog Scenario—Neutral outcome:



Story: One day, a girl named Sarah was taking care of a dog named Pepper. Pepper belonged to Sarah's best friend, Sally. Sarah and Pepper were playing outside when Sarah heard the telephone ring. Sarah went inside the house to answer the telephone, leaving Pepper the dog outside all alone. Sarah forgot that she left the gate unlocked and wide open when she went inside to answer the telephone. Pepper was a very good dog and waited for Sarah while she was inside. When Sarah came back outside, Pepper was very excited to see her. Sarah was very happy to take care of her best friend's dog.

Appendix D—Outcome Response Form (Practice Form)

Note: Place a copy of the smiley face scale in front of the child. Point to the smiley face scale in front of the child while giving instructions. Record their answers on your own sheet.

Instructions: Now we are going to use smiley faces. Do you remember the smiley face game we played with the rest of the class? We are going to do that again! Remember, if you think something is really good, you are going to point to this face (indicate). If you think something is a little bit good, you are going to point to this face (indicate). If you think something wasn't good, but it wasn't bad either (i.e., in the middle!), you can point to the face in the middle (indicate). If you think something is really bad, you point to this face (indicate). And if you think something is just a little bit bad, point to this face (indicate). Now let's practice! Where do you point to if something is good? Bad? In the middle?

Great! Let's practice some more. I am going to tell you something, and you tell me if it is good, bad, or in the middle. Just like we did with the faces before with the class. Do you understand?

Statement Number: _____ Correct /
Incorrect



Statement Number: _____ Correct /
Incorrect



Statement Number: _____ Correct /
Incorrect



Statement Number: _____ Correct /
Incorrect



Statement Number: _____ Correct /
Incorrect



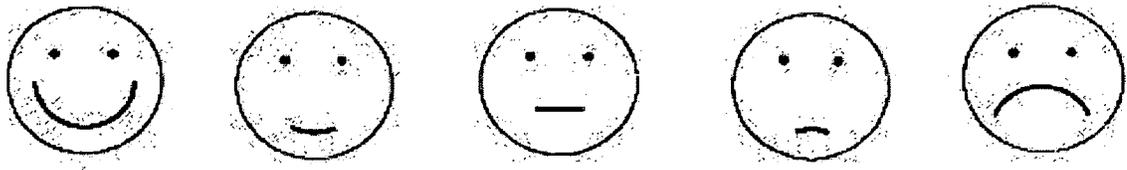
Statement Number: _____ Correct /
Incorrect



Appendix E— Outcome Response Form

1. Researcher: “Now, I am going to ask you some questions about what you think about the girl in the video (Sarah).”

Let’s try using these faces. Remember, you’ll point to this face if you think what Sarah did was really good, you’ll point to this face if you think what Sarah did was a little bit good, you’ll point to this face if you think what Sarah did wasn’t good, and wasn’t bad, but was in between, you’ll point to this face if you think what Sarah did was a little bit bad, and you’ll point to this face if you think what Sarah did was really bad.”



Researcher: “What do you think about what Sarah did? Do you think it was good, bad or in between? Show me what you think by pointing to a face”.

After child points to face, Researcher: “That face means you think Sarah did something _____”.

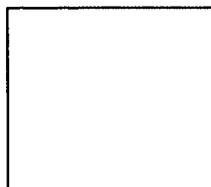
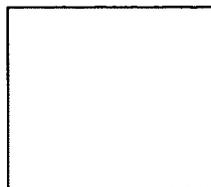
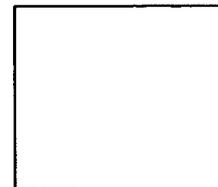
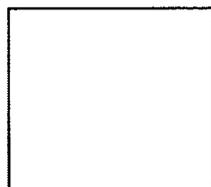
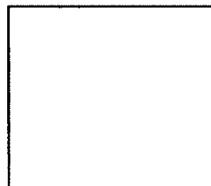
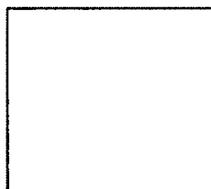
2. Now I am going to ask you another question about Sarah. Do you think Sarah should get into trouble?

Yes No

[If Yes] A little trouble or a lot of trouble?

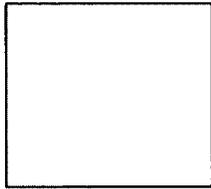
Appendix F – Photo Array Response Form (Standard Instructions)

Instructions: Think back to the video I just showed you. Think back to what the person from the video looks like. I am going to show you some pictures. Please look at the pictures. The person from the video may be in these pictures, or may not be in these pictures. If you see the person from the video, please point to her. If you do not see the person from the video, please point to the empty box.

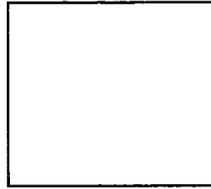
**1****2****3****4****5****6****NOT HERE**

Appendix G – Photo Array Response Form (Extended Instructions)

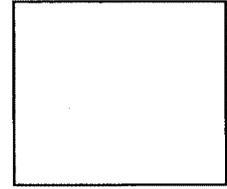
Instructions: Think back to the video I just showed you. Think back to what the person from the video looks like. I am going to show you some pictures. Please look at the pictures. The person from the video may be in these pictures, or may not be in these pictures. If you see the person from the video, please point to her. If you do not see the person from the video, please point to the empty box. Remember, it is very important that you pick the right person from the video, because if you pick the wrong person, she may get into trouble for something that she did not do.



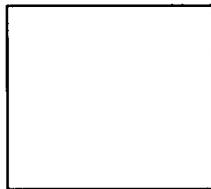
1



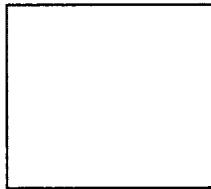
2



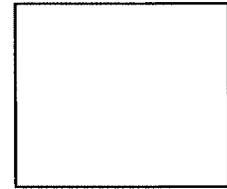
3



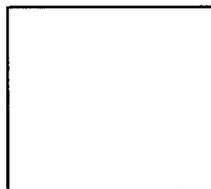
4



5



6



NOT HERE

Appendix H – Fairness of Punishment Form

Please ask children the following question. Record their answers by indicating in their selection in the boxes below.

1. Do you think it is fair if someone gets in trouble for something they did not do?

- Yes, it is fair.
- No, it is not fair.
- Sometimes it can be fair.

Please record child's justifications for their answer in question 1.

2. Why do you think it is (Fair/ Not fair/ Sometimes fair)?

Appendix I – Free Recall Form

What did the person in the video look like?

Do you remember anything else about the person in the video?

Tell me what happened in the video.

Appendix J – Debriefing Form

I would like to thank you for helping us with our project. Your help has given us information on how well people your age can remember people. People your age might be better “rememberers” depending on what you are trying to remember. With your help today, we can learn how often people your age can pick out the right person in a set of pictures and how often they pick out the wrong person.

Do you have any questions?

Thank you for all your help!

Appendix K—Logit Loglinear Analyses

In order to test how children's identification accuracy are related to lineup type (i.e., target-present versus target-absent) outcome type (i.e., neutral versus negative), and instruction type (i.e., standard versus extended), a logit loglinear was conducted, with identification accuracy as the dependent variable (DV) and the outcome type, instruction type, and lineup type as the independent variable (IV). No significant main effect was found for lineup type ($Z = -0.47, p = 0.63$), outcome ($Z = -0.30, p = 0.76$), or instruction type ($Z = 0.00, p = 1.00$), and there were no significant 3-way interactions.

The data was then divided into target-present and target-absent lineups, given that different processes may drive decisions during the lineup task (e.g., cognitive versus cognitive/social processes).

Target-present lineups. In order to test how children's identification accuracy is related to outcome type (i.e., neutral versus negative) and instruction type (i.e., standard versus extended), a logit loglinear was conducted, with identification accuracy as the DV and the outcome type and instruction type as the IV. No significant main effect was found for outcome ($Z = -0.32, p = 0.75$), or instruction type ($Z = 0.00, p = 1.00$), and there were no significant interactions.

Target-absent lineups. In order to test how children's identification accuracy is related to outcome type (i.e., neutral versus negative) and instruction type (i.e., standard versus extended), a logit loglinear was conducted, with identification accuracy as the DV and the outcome type and instruction type as the IV. No significant main effect was found

for outcome ($Z = 0.30, p = 0.76$), or instruction type ($Z = 0.00, p = 1.00$), and there were no significant interactions.