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The Impact of Peer Observational Learning on Honesty Following a Transgression

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THE IMPACT OF PEER OBSERVATIONAL LEARNING ON HONESTY FOLLOWING A TRANSGRESSION

by

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ABSTRACT

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Parents and teachers concerns about the development and socialization of lying aligns with research suggesting that persistent lying is related with delinquency, aggression, and conduct problems. We were interested in examining the difference between two groups: Honest and Praise (HP), and Control Group (CG) for the extent to which exposure to the experimental condition influenced a child's decision to be honest and confess after a transgression. The study was designed to examine the extent to which observing peers of similar age receiving praise for being honest can promote honesty amongst children. Further, the study determined if gender influences honest reporting. The results suggest that there was no significant difference in honesty amongst children who were assigned to HP condition compared to the children randomly assigned to the CG. Participants confessed to peeking at similar rates across conditions. Gender differences in honest reporting were also not detected. This study's results help us understand the effects of different consequences on children's decision-making with honesty. These results suggest that other factors might play a more substantial role in fostering honest behavior in children.

Keywords: Honest, Lying, Transgression, Observation, Peer Influence

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CHAPTER I

INTRODUCTION

Lying is a conscious false statement that is deliberately untruthful. To successfully tell a lie an individual must remember and take into account multiple perspectives at a given time. The individual must hide true information while creating a statement that is false portraying a nonexistent reality that is designed to establish an untruthful belief in another individual (Evans & Lee, 2013; Talwar & Lee, 2008). Expressive behaviors are required to successfully tell a lie. Two major factors of expressive behaviors are verbal and nonverbal expressive behaviors. A verbal expressive behavior consists of the content of the statements that individuals make during dishonesty, which includes the lie and other statements that are made in the instance. Nonverbal expressive behavior includes facial expressions, body language, and vocal prosody which are more effective when they are congruent with the lie (Talwar & Lee, 2022). Unfortunately, parents and caregivers report that lying is a frequent concern in schools and at home. Research has been primarily aimed at how adults' effect sociomoral behaviors of children rather than peers of similar age. For decades, researchers have been interested in why lie-telling occurs and what functions lying serves the individual lying (Hall, 1891; Hartshorne & May, 1928; Nyberg et al., 1993; Stern & Stern, 1909).

PARENTAL FIGURES AND SIBILING INFLUENCE

There is an abundant amount of research pertaining to parental influence however there is a lack of research that examines peer influence. The way in which parental figures respond to children's lies teaches children about the value of honesty and can influence children's lie-telling behaviors (Talwar & Crossman 2022). Some parental figures encourage their children to lie for

instrumental goals such as the child's age to order from the child's menu at a restaurant. In these cases, parental guidance supports more lying rather than honesty. In addition to parents, siblings appear to impact children's lie-telling behavior (Talwar & Crossman 2022). Older siblings are more likely to lie if there is a large age gap between them and their younger siblings. Research also suggests that children who have young siblings are better at maintaining their lie when asked follow-up questions (Talwar & Crossman 2022). Children who are between two and five years that have older siblings lie more frequently than children who do not have older siblings (Talwar & Crossman 2022).

CILTURAL AND SOCIAL VALUES

Cultural and social values can structure lie-telling behavior (Ding et at., 2019). A study conducted by Fu and colleagues (2007) suggest that cultural differences amongst children are embedded in their decision whether they choose to lie along with moral evaluation. In a study conducted by Lee and Ross (1997) it was discovered that Canadian adolescents were more hesitant to label a lie as an untruthful statement that was told to help an individual rather than an untruthful statement that is used to harm an individual. In a study conducted with Australian children, it was found that white lies are not viewed as negatively as antisocial lies (Bussey, 1999). A study conducted by Talwar and Lee (2011) investigated West African children whose ages ranged from three to four years old from a punitive and nonpunitive school. A punitive school involves punishment and reprimands for undesired behaviors that occur. The children at each school were asked not to peek at a toy when the investigator left the room. The results suggest that children in punitive schools lie more frequently than then children at nonpunitive schools (Talar & Lee, 2011). Children in the punitive school were able to maintain their deception more effectively than children from the nonpunitive school when investigators asked

follow-up questions. These results suggest that environments that are punitive create increased lying behaviors along with a child's ability to conceal their transgression (Talar & Lee, 2011).

Taiwanese, Chinese, and Canadian children's concepts, and moral judgement about lying were investigated by Lee and colleagues (2010). Each participant was read a story about a character that either completed an action that was considered "good" or "bad" and either told the truth or a lie about their action. Participants were asked if the statement the character stated was the truth or a lie and whether it was considered "good" or "bad." The results suggest that as age increased for Taiwanese and Chinese children, lying about one's own good actions was viewed as positive, however, telling the truth about good actions became less positive (Lee et al., 2010). Canadian children in general suggested that lying about good actions was negative and telling the truth about a good action was positive (Lee et al., 2010). A study conducted by Sweet and colleagues (2010) investigated 9 to 11 year-old Chinese and American children. The children were asked to assess stories where the protagonist was either honest or lied about their group's transgression. The children were then asked if the protagonist's motivations and justifications for their own evaluations (Sweet et al., 2010). The results suggested that American children viewed lying to conceal a group's transgression as more favorable action than Chinese children. Children from both countries were focused on the impact to self when they were asked to discuss motivation for the protagonist to lie (Sweet et al., 2010). The results suggest that American and Chinese children are more likely to lie for individual purposes rather than a group purpose (Sweet et al., 2010). These cross-cultural differences are engrained by societies' differential emphasis on the relative importance of individuals versus groups regarding social interactions (Fu et al., 2001; Lee et al., 1997, 2001; Fu et al., 2007).

DEVELOPMENTAL PROGRESSION OF LYING

Children are socialized at a young age to be honest and receive messages from adult figures that discourage lying (Lavoie et al., 2016; Stouthamer-Loeber, 1986; Talwar & Crossman, 2011). One of the ways that children learn about behaviors, attitudes, and values is by observing the behavior of other individuals and that behavior's consequences (Bandura, 2008). One of the primary social-environmental influences on child development is their parent figures (Talwar & Crossman 2022). Most adults have admitted that they have lied to children (Hays & Carver, 2014). Lying is occasionally promoted by parents which is an irony of lying given parents' concerns regarding this behavior (Lavoie et al, 2016). Lies by adults often occur to children as a way to control their behavior and emotions, cooperation, or its easier than providing correct information that may be inconvenient (Heyman et al., 2009; Hays & Carver, 2014). In a study conducted by Hays and Carver (2014) researchers investigated learning through modeling and imitation of adult figures. Preschool and school-aged children were assigned randomly to either a lie or no lie condition. In these conditions, the adult would either lie to the child or not lie before the game. The results suggested that school-aged children more often lied and peeked in the game when they were lied to by an adult (Hays & Carver, 2014). However, the preschoolers' behaviors were not affected by whether an adult had lied to them or not. Perchance the preschoolers were unable to recognize that they had been lied to, due to difficulty understanding false beliefs and other individuals' thoughts (Hays & Carver, 2014). Children can be influenced by parents either directly through observation or through explicit instructions about being honest. Honesty can also be influenced indirectly through observing parental lying or truth-telling and by different parenting styles (Talwar & Crossman 2022). Different parenting styles set a tone in a family that can impact the motivational benefits of lying compared to telling the truth. Prosocial

liars are individuals who tell lies with the intention to benefit other individuals and reduce harm. Children who are prosocial liars are suggested to have more authoritative parents who don't express as many positive emotions within their household (Popliger et al., 2011; Talwar & Crossman 2022). A child learns about the acceptability, consequences, and value of being honest or dishonest by observing individuals around them telling lies or the truth. Stourthamer-Loeber (1986), suggests that when a child witnesses an adult lie they are more likely to be dishonest themselves. This observational learning is consistent with social learning theory. Social learning theory suggests that a child extracts more information about the value of behaviors from observing the context and resulting consequences of the behaviors (Engarhos et al., 2020). Bandura (1977) proposed that a child is more likely to imitate a behavior if the model has a valued outcome as a consequence. Internalized self-sanctions and social sanctions are two psychological mechanisms that are implicated in the regulation of moral conduct within social learning theory (Bandura 1986, 1991). Social sanctions maintain behavior when an individual abstains from transgressions because they fear external consequences. Observational learning is used to understand information about the risk of consequences in a certain context (Engarhos et al., 2020). However, internalized self-sanctions result in an individual using self-control to behave pro-socially because this results in a positive feeling of self-respect (Bandura, 1986, 1991). Children who have internalized moral standards prohibiting lying and the importance of being honest may be more likely to tell the truth, even when that has negative operant outcomes, due to the risk of aversive internal consequences (Engarhos et al., 2020).

DEVELOPMENTAL MODEL OF LYING

A developmental model of lying was proposed by Talwar and Lee (2008). Primary lies emerge among children who are two to three years old, where a child is able to begin to

deliberately make untrue statements. A primary lie is a lie that is told solely based on an individual's desire (Talwar & Lee 2008). An example of a primary lie is when a child initially denies they have played with a toy that they were not supposed to touch, however lying was not significantly related to the child's ability to pretend to be ignorant (Talwar & Lee, 2008). A child at this stage is not competent to produce any other types of lies. However, it is uncertain whether the statements are a form of wish fulfillment, wordplay, or authentic deception. When children began to lie it is frequently linked to situations of rule violations, avoiding incrimination, presenting themselves as desirable, or protecting self-interest (Talwar & Lee, 2008). Secondary lies then emerge around four years of age which requires a child to understand that the listener does not necessarily know the true state of affairs and can believe the false statement. Secondary lies are defined as lies children immediately tell to conceal their own transgression (Talwar & Lee, 2008). Children who use secondary lies can act ignorant of the situation and answer follow-up questions that are presented. Banerjee and Yuill (1999) found that children who have mastered secondary lies are likely to point out that protagonists in stories lies to make themselves appear more in a positive light. Talwar and Lee (2008) results suggest that children who understand how to tell a primary lie may have a significantly quicker development to be able to tell secondary lies.

Sematic leakage control is the detection of a lie due to inconsistencies in the individuals' statements and children tend to have difficulty with controlling it with secondary lies (Talwar & Lee, 2002). Last, tertiary lies began around 7-8 years of age. A tertiary lie is defined as when a child is able to conceal their lies by making subsequent statements that are consistent with their initial lies and follow-up statements (Talar & Lee, 2008). Children who tell tertiary lies are more advanced at semantic leakage control. Talwar and Lee (2002) suggest that children can reason

about interactions that are complex between sustaining a lie and acting appropriately when the lie is told.

INCENTIVES FOR LYING

Research suggests that dishonesty is either moderately independent of the reward size (Abeler et al., 2019; Fischbacher & Föllmi-Heusi, 2013; Hugh- Jones, 2016; Kajackaite & Gneezy, 2017) or that greater incentives increase lying (Conrads et al., 2014; Gneezy, 2005; Kajackaite & Gneezy, 2017). The hypothesis is that more powerful rewards increase the temptation for lying (Gerlach et al., 2019). A sizeable number of individuals behave honestly even when material incentives are available for dishonesty (Abeler et al., 2019; Fischbacher & Föllmi-Heusi, 2013).

GENDER INFLUENCE ON LYING

Whether there are gender differences in honest and dishonest behavior has been a subject of research and disagreement since early in the history of this research (Capraro, 2018). Most studies of honesty have concluded that males behave more dishonestly than females (e.g., Cappelen et al., 2013; Conrads et al., 2013; Friesen & Gangadharan, 2012; Holm & Kawagoe, 2010; Houser et al., 2012; Ruffle & Tobol, 2014), while others have not found a gender difference (e.g., Abele et al, 2014; Aoki et al., 2013; Arbel et al, 2014; Erat & Gneezy, 2012; Holm & Kawagoe, 2010; Lundquist et al., 2009). Gender was researched broadly amongst age (e.g., children and adults). Research suggest that males are more likely to tell a “black lie” than females to get their preferred outcome of interest (Maggian & Villeval, 2016). A “black lie” is a lie that is told for personal interest or gain for the individual telling the lie. Maggian and Villeval (2016) suggest that females tell more “white lies” than their male counterparts. A “white lie” is

deemed as usually trivial or harmless and is told when an individual is avoiding another's feelings.

ADDITIONAL FACTORS INFLUENCING HONESTY

In addition to gender differences, researchers have been interested in the extent to which personality, temperament, or other individual factors may affect honesty. Talwar and Crossman (2011), proposed that children's social experiences in their environments, cognitive maturity, and dispositions interact in multifaceted ways which over time that potentially allows for the prediction of the development of lying. For example, children who are selfish and resentful are predicted to lie more than other children (Maggian & Villeval, 2015). Many parents are concerned with the development and socialization of lying due to research suggesting that persistent lying is related with delinquency, aggression, and conduct problems (Achenbach & Edelbrock, 1979, 1981; Gervais et al, 2000; Rutter, 1967; Stouthamer-Loeber & Loeber, 1986). Numerous children lie regularly, which compromises trusting relationships with adults and peers. As children age into adolescents, they lie more frequently (Wilson et al, 2003), and are more persuasive in how they deliver the lie (Lee, 2013; Talwar & Lee, 2002; Talwar et al, 2007). Lying is viewed as one of the first antisocial behaviors that young children participate in, and it could be considered a building block for other covert behaviors that develop in later years (Stouthamer-Loeber, 1986). The environment can also influence a child, including being socialized about the value of being honest (Lavoie et al., 2016). A study conducted by Williams and colleagues (2013) investigated whether children lie to their parents or unfamiliar adults. The first experiment investigated antisocial lies while experiment two investigated prosocial lies that were told to parents and unfamiliar adults. Antisocial lies are told strictly for an individual's personal gain. Prosocial lies are defined as lies told for the sole purpose to benefit others and

prevent harm (Harvey et al., 2018). Results suggest that across both types of lies, children will lie more often to an unfamiliar adult than their parents (Williams et al., 2013). Parents and teachers relay social messages about the importance of telling the truth. Particularly, "white lies" can be beneficial when used for prosocial purposes, such as when an individual is trying to avoid interpersonal conflict or to refrain from hurting another individual's feelings (i.e., prosocial lies; Backbier et al, 1997; DePaulo & Kashy, 1998). Prosocial lies are typically encouraged and are used to form and sustain positive interpersonal relationships (DePaulo & Kashy, 1998; Talwar & Crossman, 2011). Prosocial lies tend to emerge in early child development however this type of deception occurs more often in older children. In tempting situations, some children will occasionally lie; others will lie only in certain contexts (e.g., school, to gain status by teachers or peers, Gervais et al., 2000). A study conducted by Fu and colleagues (2012), investigated whether young children decide to lie strategically based on the recipient's knowledge or if children tell lies more impulsively. Results suggest that young children are able to recognize and are strategic about when to tell a lie based on what other individuals know. Evans and colleagues (2011) suggest that children who are five years old and younger fail to lie strategically when probed with follow-up questions. Children this age usually reveal information that reveals their initial lie (Evans et al., 2011, Polak & Harris, 1999; Talwar & Lee, 2002, 2008). A study conducted by Talwar and Lee (2002) examined whether children lied about peeking at a cartoon character stuffed toy as part of a game. Children were asked a follow-up question about what the toy was. If the children answered correctly they were asked, "How did you know who the toy was?" Results suggest that the children's verbal statements were often not consistent with their initial denial and leaked critical information revealing that they had lied (Talwar & Lee 2008).

Older children are competent to lie strategically by pretending to be ignorant about the identity of the object and discussing probable explanations for their knowledge about the object.

Children's struggles with maintaining deceptions have been illustrated by a number of studies. For example, Talwar and colleagues (2007) conducted a study where children between the age of six to eleven were asked not to peek at the answer to a trivia question when the experimenter left them alone in a room. Over half of the children in the experiment peeked at the trivia answer. When the experimenter asked whether the children had peeked, the majority of the children lied about peeking. However, their responses to follow-up questions were not always consistent with their denial (Talwar et al., 2007). Talwar and colleagues (2007) found that as age increased a child's ability to make follow-up statements that were consistent with the initial lie increased.

INTERVENTIONS TO INCREASE HONESTY

Treatments. Promoting honesty is a core concern for parents and teachers. One evidence-based recommendation on websites and parenting books involves the use of moral stories to promote honesty (Bronson & Merryman, 2009; Kennedy-Moore, 2015). Lee et al. (2014) found that the consequences inferred through moral stories and instructions can affect telling the truth about a transgression. These stories teach children about the consequences of lying and how honesty is rectitude. "Pinocchio", "The Boy Who Cried Wolf", and "George Washington and the Cherry Tree" are examples of stories that have been read to child participants in studies examining lying in studies where the participants were exposed to a temptation to lie. These stories were particularly chosen due to their common use by parents and teachers to promote honesty and because each story promotes honesty differently (Lee et al., 2014). "Pinocchio" and "The Boy Who Cried Wolf" results in negative consequences for dishonesty, while "George

Washington and the Cherry Tree" results in a positive consequence for honesty. Prior research has found a positive effect for moral stories such as "George Washington and the Cherry Tree" among young children (ages three to seven years) in a brief experimental manipulation (Lee et al., 2014). This research has found a more positive effect for stories emphasizing the positive characteristics of honesty, "George Washington and the Cherry Tree," rather than stories such as "Pinocchio" and "The Boy Who Cried Wolf" which focus on negative consequences of being dishonest.

Social learning theory has been suggested as an alternative framework for teaching children about the value and consequences of lying and honesty. Ma and colleagues (2018) investigated promoting honesty in children through observational learning. Two experiments were conducted to examine whether honesty could be promoted in children by observing a peer display honest behavior. A temptation resistance paradigm was used to assess honesty. In this paradigm, children are requested to guess the identity of an unobserved object and are tempted to cheat by peeking when the experimenter leaves the room. This arrangement allows the children to have an opportunity to lie about a transgression they have committed. When the experimenter returns, they are asked if they peeked. Observing a classmate confess to peeking without any explicit consequence for confession did not promote honesty in the observing children. When a participant observed a classmate confess to having peeked and received praise and a prize the observing child was found to be more likely to be honest and to confess their own peeking. A second experiment within this study replicated this observational learning effect with praise alone for confession. This suggested that observing verbal feedback alone was sufficient to induce honest behavior (Ma et al., 2018). Ma and colleagues' (2018) results suggest new strategies to promote honesty in children while demonstrating that young children's observations

of social consequences of other individuals' sociomoral behaviors can support them to dictate their own behaviors.

THEORETICAL FRAMEWORK

Social Learning Theory. Social Learning Theory (Bandura, 1977) is a psychological theory that predicts how specific dimensions of models, their environments, and the consequences of their actions change or fail to change the behavior of observers (Mearns, 2009). This theory examines how an individual's perspectives about the consequences of different behaviors might affect how one acts and how it can potentially transform an individual's general perspective and thought process when deciding to lie (Maftei & Lăzărescu, 2022). An individual learns by either observing or taking part in social interactions that are then facilitated by cognitive processes. This means that the individual makes sense of what they see to replicate the behavior (Horsburgh & Ippolito, 2018). Children replicate behaviors or avoid behaviors that are observed in their environment in part as a result of the observed reinforcers and punishments that follow those behaviors (Bandura, 1977). The social learning framework has proven to be an effective framework for examining and changing human behavior including lying behavior in children (Ma et al., 2018).

Social learning theory is described as requiring at least four learning processes: attention, retention, reproduction, and motivation (Horsburgh & Ippolito, 2018). This is a mediational process by which one variable affects another. When an individual is in the attention stage the individual needs to be attending to the model's behavior for that behavioral episode to have the possibility to influence the observer's subsequent behavior (Horsburgh & Ippolito, 2018). Next, the individual must retain what they have seen and be able to internalize the information. The individual may mentally rehearse the behavior that they intend to replicate (Horsburgh &

Ippolito, 2018). Third, the individual must reproduce the behavior and turn it into an action. Finally, the individual needs to be motivated to imitate the behavior they have observed. The motivation transpires via reinforcement: direct reinforcement (positive and negative reinforcement), vicarious reinforcement, and self-reinforcement (Horsburgh & Ippolito, 2018). Direct reinforcement occurs when a behavior is performed, and the behavior results in positive reinforcement or it leads to the avoidance or removal of something that is aversive. Vicarious reinforcement is described as learning through observation of the consequences of the actions of other individuals. Self-reinforcement, which can be automatic reinforcement in some contexts, occurs when an individual creates and delivers a consequence contingent on their own behavior or the consequence is a natural byproduct of the behavior.

CURRENT STUDY

As children transition to adolescence, lying is predicted to increase as age increases (Sauter et al., 2020). Thus, promoting honesty early in a child's life may reduce lying by changing this early trajectory. Although Social Learning Theory may play a role in the development of both honest and lying behaviors in children, the research base examining observational learning and honesty is exceedingly limited. Further experimental research is needed to develop a better understanding of the processes that influence when children lie and when they tell the truth. It is important to understand if peers of similar age can influence one another as models for honesty. A better understanding of the impact of observational learning on lying also has the potential to inform interventions and parent education programs aimed at addressing lying.

Research Aims. The current study aimed to determine whether observing a peer of similar age receiving praise for being honest for lying can promote honesty amongst children. The following research questions were investigated:

1. Will more participating children be honest about a transgression after viewing a peer of similar age receiving praise for being honest about a transgression?
    a. (Hypothesis 1): Children will be honest about transgressions if they have previously viewed a peer of relative age who is praised for being honest about a transgression.
2. Does the gender of the child influence honesty about a transgression?
    a. (Hypothesis 2): Females will be more honest about a transgression than males.

CHAPTER II

METHODOLOGY

PARTICIAPNTS AND RECRUITMENT

Eighty-seven children were recruited from regional elementary schools in Virginia to participate in this study. Participants' ages ranged from four to seven years old and were in pre-kindergarten, kindergarten, 1st grade, or 2nd grade. The principal investigator (PI) secured principal consent for their schools to participate in the study. After agreement from the principal, the experimenters sent an invitation to participate, and the IRB approved informed consent form home with eligible students who were enrolled at the participating schools. The invitation to participate explained the nature of the study and provided contact information if the parents had any questions. Informed consent from a parent or legal guardian and child assent was required prior to participation in any study activities. Children were granted the option to stop the study at any point for any reason.

Sample Size. A power analysis for a linear logistic regression model with two predictors indicated the minimum sample size of participants who lie ($N = 45$). The power estimate was based on an alpha of 0.05 a beta of .8 and an odd ratio of 3.5. This odds ratio was adopted based on the obtained odds ratio of 7.89 in a study examining observational learning effects on honest reporting that parallels the current methods Ma et al. (2018). The study needed a minimum of forty-five children who peek therefore we recruited more participants than the sample size suggested ($N = 51$). A power analysis for an Independent-Samples Binominal Test with two predictors to detect a gender difference indicated the minimum sample size of participants ($N = 210$) would be required to achieve a power of 0.80. In this current study, the obtained power

based on observed differences was .281 with a sample size of 51. Gender differences were an exploratory focus of the study.

DESIGN

To examine the proposed research questions and hypotheses, we utilized a between-subjects design with participants randomly assigned to one of two experimental groups. The two experimental groups include observing a child being praised for honesty and observing a neutral video (control). The study was designed to examine the extent to which observing peers of similar age receiving praise for being honest or reprimands for dishonesty can promote honesty amongst children.

MATERIALS

One iPad was used to play one of the two video recordings during the temptation resistance game for each participant. Two children (one male and one female) and an adult were recruited to create two video recordings and a tic tac toe board was used. The experimenter recorded the interactions and provided the scripted lines described above. The video was recorded on the Photos application on the iPad. Each participant was assigned to watch one video that corresponded with the group they were randomly assigned to (HP or CG). Participants watched a video depicting a child who is matched to their gender (Perloff, 1982). The HP video displays a child lying about cheating during a game of tic tac toe that was played with an adult. The adult in the video asked the child if they lied about cheating and the child replied “Yes.” The child was praised for being honest even though they did something that they weren’t supposed to, “Even though you cheated, I am proud of you for telling me the truth. Telling the truth is important.” The CG received a video of a child and an adult playing tic tac toe. The recorded game play is identical to the other video, but the verbal interaction between the adult and child in

the video is simply asking and answering unrelated questions about the game rules. All prerecorded videos were less than 30 seconds long. Another iPad was used to play an audio file of the objects' corresponding noises on the voice memos application. Prizes included stickers, play-doh, coloring books and markers, small toys, and slime that the participants chose from. A tupperware container was used to carry and store all the prizes. A dog and pig stuffed animals, and a toy car was used during the temptation resistance game. A watch was used for timing-related purposes. A webcam was used to monitor the child's safety and behavior while the experimenter was out of the room.

PROCEDURE

Participants were randomly assigned to one of two groups with assignments constrained to produce equal-sized groups: Honest and Praise (HP), or Control Group (CG). In each group, a prerecorded video was presented that was based on group assignments. Regardless of the condition, all participants took part in the temptation resistance game (Ma et al., 2018).

Temptation resistance game. The experimenter informed the child that they would be guessing the identity of three unseen toys based solely on the sound they made and that peeking was not allowed (Ma et al., 2018). The experimenter told the child that if they guessed all three sounds correctly they would receive a prize. Before the game began the experimenter showed the participant all the prizes (see materials section) that were available to win. The participant was then prompted to choose their prize should they win. The toy that was selected by the participant was taken out of the prize box and placed near the child. This procedure was included to increase the motivation to peek during the temptation resistance game. After the prize was placed near the participant, the experimenter placed each toy on a table behind where the child was sitting and activated its sound from an electronic device. The sounds were on a prerecorded audio clip that

was 25 seconds long. Before the three sounds were activated the experimenter told the child that they had to leave the room, but they could listen to the sounds while the experimenter was out. Before leaving the experimenter told the child once more that peeking is not permitted (Cortez et al., 2022 & Ma et al., 2018). The experimenter left the room to decrease social inhibition for peeking (Cortez et al., 2022). The first two toys played a sound that was unambiguously related to their identity (i.e., a dog barking, and a pig oinking). The third sound was unrelated to its identity; therefore, the third toy (a car making a popping noise) was very unlikely to be guessed without peeking at it (Ma et al., 2018). Additionally, a car was an unlikely guess when the preceding sounds and cued responses were animals creating an availability or priming effect for an animal guess (Ma et al., 2018). There were low levels of peeking as six of the eighteen participants peeked at the beginning of the experiment. The participants appeared to assume they knew what the sound (a car making a popping noise) was and as a result the experimenters changed the sound to white noise to increase ambiguity. Participants reported that the white noise was the ocean or a fan, again without peeking. Finally the sound was changed to silence to maximize ambiguity of the stimulus. Following the change to silence peeking behavior increased. A hidden webcam was installed before the study which was used to view the child's behavior while the experimenter was out of the room.

After one minute the experimenter reentered the room again (Lee et al., 2014). The experimenter asked the child what three objects make those types of sounds. After the participant responded, one of the two prerecorded videos was presented. After the video was displayed the experimenter asked the participant the confession question, "Did you peek at the toys while I was away?" All participants were rewarded a prize at the end of the study regardless of their response for participation.

ANALYSES

Participants peeking behavior was coded as peeked or did not peek. The webcam was examined to determine whether the participant peeked. Peeking was defined as the child rotating their gaze sufficiently that they place the toys in their field of vision. If the child did not peek, we did not code for lying and they were removed from the study. After the participants identified the three objects that produced the sounds and then viewed the condition video, they were asked if they peeked. Participant responses were coded as either honest (admitting to peeking) or lying. All coding was conducted by two experimenters by viewing the webcam of each individual session with the participant.

Experimenters subjected the data to a linear logistic regression to examine the differences between HP, and CG to test for the extent to which exposure to the experimental conditions influenced a child's decision to be honest and confess after a transgression. The regression tested coefficients for dummy codes for both groups, HP, and CG. In addition, we tested whether gender predicted participants' behavior with regard to lying or confessing. Prior to analyses, the statistical assumptions were examined. We were additionally interested if gender plays a role in children being honest when they have the opportunity to lie. Stratification for gender (female and male) and grade (pre-kindergarten, kindergarten, 1st grade, and 2nd grade) occurred before the data were collected. We tested whether stratified randomization was successful using a chi-square test.

Honesty. To analyze honesty amongst children we ran a logistic regression to test for a statistically significant effect on honest reporting amongst children based on differential condition assignment. Specifically, we will examine two groups: HP, and Control. As described

above, honest reporting was coded dichotomously based on whether the participant admitted to peeking.

Gender. To determine if gender roles influence honest reporting, we included gender as a predictor in the logistic regression.

CHAPTER III

RESULTS

Eighty-seven children participated in this study and 51 (58.6%) of those children peeked. Random assignment resulted in 24 children being assigned to the control video modeling condition and 27 children were assigned to the Honesty and Praise video modeling condition. Preliminary analyses revealed no significant effects of gender, $\chi^2(1) = 1.91$ $p = .167$, age, $r = <.001$, $p = 1.000$, school, $\chi^2(1) = 1.58$ $p = .691$, or grade level, $r = -.077$, $p = .589$ (crosstabulations presented on Tables 1-5 below), on honest responding among children, therefore the data were collapsed for subsequent analyses. We assigned age and grade as continuous variables and utilized a point biserial correlation to assess their relationship with honest reporting. We found no statistically significant correlation between the age or grade of the children and their honest reporting. The variable of interest was dichotomous (i.e., telling the truth or lying about peeking), therefore we used a logistic regression model to test the effects of the experimental conditions (i.e., Control (CG), and Honesty and Praise (HP)). Exposure to the video model condition was modeled as a predictor in the logistic regression using a dummy code. Prior to the logistic regression, we examined all statistical assumptions. We graphically examined the distribution of the variables and checked for outliers, examined the linearity for the regression, assessed the normality of the residuals, and checked the data for lack of independence, homoscedasticity, and multicollinearity issues. All assumptions were upheld. The logistic regression did not detect a statistically significant effect for the HP condition, $\chi^2(1) = .001$, $b = -.022$, $SE = .616$, $Wald(1) = .001$, means odds ratio = .978, 95% confidence interval = [.292, 3.270], $p = .971$. The results suggest that there was no significant difference in honesty amongst

children who were assigned the HP condition compared to the children randomly assigned to the control condition. Participants confessed to peeking at very similar rates across conditions. Participants in the HP confessed in 8 of 27 (29.6%), while participants in the CG condition confessed in 7 of 24 (29.2%) of cases.

Table 1

Crosstabulation of Age and Lying Behavior

Age	Truth	Lied	Total
4	50.00%	50.00%	100.00%
5	23.50%	76.50%	100.00%
6	27.30%	72.70%	100.00%
7	37.50%	62.50%	100.00%
Total	29.40%	70.60%	100.00%

Note. Age 4 $n = 4$, Age 5 $n = 17$, Age 6 $n = 22$, Age 7 $n = 8$.

Table 2

Crosstabulation of Gender and Lying Behavior

Gender	Truth	Lied	Total
Female	39.10%	60.90%	100.00%
Male	21.40%	78.60%	100.00%
Total	29.40%	70.60%	100.00%

Note. Males $n = 28$, Females $n = 23$.

Table 3

Crosstabulation of Grade and Lying Behavior

Grade	Truth	Lied	Total
Pre-K-4	25.00%	75.00%	100.00%
Kindergarten	29.40%	70.60%	100.00%
1st Grade	26.30%	73.70%	100.00%
2nd Grade	42.90%	57.10%	100.00%
Total	29.40%	70.60%	100.00%

Note. Pre-K-4 $n = 8$, Kindergarten $n = 17$, 1st Grade $n = 19$, 2nd Grade $n = 7$.

Table 4

Crosstabulation of School and Lying Behavior

School	Truth	Lied	Total
School A	26.90%	73.10%	100.00%
School B	32.00%	68.00%	100.00%
Total	29.40%	70.60%	100.00%

Note. School A $n = 26$, School B $n = 25$.

Table 5

Crosstabulation of Video Condition and Lying Behavior

Video	Truth	Lied	Total
Control	29.20%	70.80%	100.00%
Honesty and Praise	29.60%	70.40%	100.00%
Total	29.40%	70.60%	100.00%

Note. Control $n = 24$, Honesty and Praise $n = 27$.

CHAPTER IV

DISCUSSION

The current study examined the efficacy of observational learning in fostering honest responding in children after they had committed a minor transgression. We tested whether children would be more likely to confess to a transgression after viewing a peer of similar age receiving praise for being honest while playing a different game (tic-tac-toe). Children who observed another child via a video recording who received praise for being honest did not confess to peeking more often than the children in the control condition.

The absence of a statistically significant effect for the video modeling condition could potentially result from several factors. The videos in the current study presented children playing tic-tac-toe rather than a guessing game. The video displaying a different activity than the one the child was engaged in may have presented too great a challenge for the young children to generalize from the short video vignette to the experimental context (Cooper, Heron, & Heward, 2007). It is possible that generalizing across two different tasks was too distant a generalization for children who are four through seven years old. It is also possible that the video was too subtle in the interaction between the child and adult actors, leaving the participant uncertain about the message delivered by the adult actor. It is unclear which of the viable hypotheses resulted in the failure to replicate the prior research.

Ma and colleagues (2018) found that children confessed much more frequently when they saw another child receive praise and a material reward or praise alone for confessing. In the Ma and colleagues (2018) study, children observed the peer being praised and rewarded in person rather than via a video recording. This procedural difference may explain the differences in the

findings. Children may be more likely to exhibit observational learning following in-person encounters rather after observing video recordings. This is an important issue that is discussed below. Our study overlapped the age range in the Ma and colleagues (2018) study, but extended beyond it. Their participants were 5 and 6-year-old children, while in the current study, we worked with children ages 4-7. This demographic difference could have contributed to our failure to replicate. Children who were 4 years old may not have understood the concept of lying as clearly. Additionally, the 7-year-old children may not have perceived the task and risks of lying similarly to the 5 and 6-year-olds. To test this possibility an exploratory analysis was complete using just the 5- and 6-year-old participants to determine the extent to which extending the age range may have been an issue. We found that there is no statistically significant difference within the age range of 5- and 6-year-old participants for confessing response to the independent variable, suggesting that extending the age range did not significantly affect the results.

Children were recruited from a preschool in Hangzhou, China in the prior study (Ma et al., 2018). Cultural differences surrounding honesty and confession in China versus the United States may have contributed to the failure to replicate (Lee et al., 2001). Ma and colleagues (2018) found that 13% of their participants confessed while 29% of our participants confessed in the control condition. Ma and colleagues' (2018) found that 55% of their participants confessed to peeking after watching the praise and prize condition, and 61% with praise alone. This differs from our study, where only 29% of the participants confessed. This suggests that participants in Ma and colleagues' (2018) study associated observing the individual receive praise with significantly higher honesty reports compared to our study. Research suggests that Americans demonstrate stronger evaluative reactions towards lying but have stronger behavioral intentions

towards honesty whereas individuals in East Asia exhibit greater indifference (Wang et al., 2010).

In another study conducted by Ma and colleagues (2022) researchers examined the influence of guilt on young children's honesty about their transgression. Children who were placed in a guilt condition lied less about peeking compared to children in the sadness and control condition. Ma and Colleagues (2022) induced guilt using a revised mishap paradigm in one condition while inducing children with sadness by watching a video in another condition (Ma et al., 2022). The mishap paradigm is a procedure in which participants unintentionally cause damage or disruption, often leading to guilt induction (Kochanska et al., 2002; Ma et al., 2022). The guilt induction procedure involved the experimenter setting up a scenario where a child unintentionally caused damage, then asking the child if they peeked at a toy, questioning what the toy was, and finally reassuring them of their innocence. Children in the control condition did not participate in any emotion-inducing task. The guilt condition resulted in promoting honesty in young children. These results suggest that when children undergo self-conscious emotions, which amplify their focus on self-awareness, it may lead to improved moral decision-making and an increased likelihood of honest behavior (Ma et al., 2022). Ma and colleagues (2022) results suggest the importance of considering both internal emotional states and external social consequences when developing strategies to promote honesty in young children.

Cortez and colleagues (2022) conducted a study in which children played a computer game and had to report on their performance during and at the end of each session. Cortez and colleagues' (2022) study helps us contextualize our results by suggesting that the physical presence of our experimenters asking if the participant peeked might have influenced the

children's decision to behave honestly. The computer automatically recorded the participant's performance while the examiner was examining the participant's behavior through a one-way minor. An adult was in the room during the audience condition, watching as the child played the computer game. Researchers found that the presence of an adult exerted control over children's honest reports in comparison to an alone condition (Cortex et al, 2022). The results imply that an adult exerts some level of influence over the children's behavior, to lie or report accurately. These results are generally consistent with learning theory if the children previously learned that adults are likely to provide differential consequences for truthfulness and dishonesty. The discrepancy between Cortez and colleagues (2022) and our study's findings suggests that there may be additional nuances influencing children being honest. Our results along with Cortez and colleagues (2022) lead us to question how the status of the relationship between the adult (e.g., stranger, teacher, or parent) and the child plays a role in influencing the child's behavior. The unfamiliarity between the investigator and the participant could have had the potential to increase lying behavior due to there not being an emotional connection between the investigator and the participant (Bussey, 2010).

There is a substantial body of research that demonstrates that video modeling changes behavior for children across a variety of tasks (Spriggs et al., 2016; Ozen et al., 2012). The children in our study could have been unfamiliar with the context of the study therefore this could have influenced their behaviors to be less honest. Children in Ma and colleagues (2018) were more likely to be familiar with the context due to watching the live model. Ergenekon and colleagues (2014) conducted a study comparing video and live modeling in teaching response chains to children with autism. The authors found that there was not a significant difference between the video and live model (Ergenekon et al., 2014). Researchers conducted a

neuroimaging study that revealed that individuals pay attention more during live observation than video observation, as well as during observation from a first-person perspective compared to a third-person perspective (Rohbanfard & Proteau, 2012). However, in a study conducted by Flynn and Whiten (2013), children were shown a video model demonstrating the use of tools to extract a reward item from a complex puzzle box. The children between the ages of 3-5 completed the same task themselves successfully after viewing the video model. These results suggest that children younger than participants in our study were able to focus and retain information regarding the video model. It is possible that the video in Flynn and Whiten (2013) study was more engaging for their participating children than the video used in the current study. It is worth noting that most studies displaying the effectiveness of video models assess skill acquisition, which is quite distinct from promoting honesty. Observational learning studies using video recordings study have predominantly examined observational learning as a means of skill acquisition. In this case participants are observing a new behavior and observing its novel consequences. We were examining whether observational learning would influence motivation to tell the truth or lie. We were examining the extent to which we could modify the appetitive function of a behavior with which the participants presumably had an extensive learning history before the study. Examined in that light retrospectively, it seems that a salient, powerful, and definite stimulus and learning experience was likely needed.

There have been mixed gender difference findings in honest and dishonest behaviors since the early stages of this type of research (Calraro, 2018). Most studies on honest behaviors have concluded that males behave more dishonestly than females (e.g., Cappelen et al., 2013; Conrads et al., 2013; Friesen & Gangadharan, 2012; Holm & Kawagoe, 2010; Houser et al., 2012; Ruffle & Tobol, 2014). In this study, there was not a statistically significant difference

between gender in honesty. Gender was underpowered to test differences in lying. In the control condition, ten males and seven females lied. However, in the HP condition, twelve males and seven females lied. Males lied more often than females about peeking, although the results did not achieve statistical significance. It is also worth noting that some previous studies have not found differences between males and females (Abele et al, 2014; Aoki et al., 2013; Arbel et al, 2014; Erat & Gneezy, 2012; Holm & Kawagoe, 2010; Lundquist et al., 2009). The differences across studies may be due in part to statistical power as well as the tasks that elicit the opportunity to lie.

LIMITATIONS

Although not a primary aim of the study, the sample size to detect gender differences was a limitation as it was underpowered. This specific limitation reduced statistical power to detect a significant correlation between gender and lying. Our sample was limited to schools that consented to host the study and as a result, we recruited from private schools in Norfolk, Virginia. Private school students are a unique demographic group whose response to the stimuli may not generalize well to the more diverse population of children nationally or internationally. Another limitation of the study was that the stimulus materials were not standardized as they were developed by the researchers. In the video model the adult and child played tic-tac-toe, while the participants in our study played a guessing game. This discrepancy in games may have reduced the participant's perception of the relevance of the video to the activity they were participating in. Furthermore, the recorded video models may not have been salient enough for the child, potentially leading to distractions or lack of comprehension. The video models were less than 30 seconds long therefore it is possible that the video was not lengthy enough to engage the children. The children could have had difficulty with comprehending what was occurring in

the video and repeating the same scenario but with a different game. The sounds used for the guessing game were also developed by the researchers. It is possible that some of the participants found the sounds ambiguous since each sound lasted less than 5 seconds and was played in quick succession. The setting of the video models was in the researcher's laboratory which was a different setting of where data collection occurred. Therefore, the participant could have not anticipated that their response would have a similar outcome as the child in the video. All of these limitations were discussed at length earlier. These limitations create the risk that our findings failed to detect meaningful observational learning effects that are possible but require stimuli that are better tuned to elicit them.

FUTURE DIRECTIONS

Future research might begin to bridge the results between the current null findings and Ma and colleagues (2018) significant findings by presenting the same activity the participants were engaged in the video model. The results from Ma and colleagues (2018) suggest that children are more likely to confess to a transgression after witnessing a classmate being praised for confessing to the transgression in person. This suggests that cultivating honesty may be more effectively achieved through a live model rather than a video presentation. Future research should compare a live-action model directly to a parallel video model. Furthermore, future research should investigate whether the child's relationship with the child they observe makes a difference in observational learning. If we were to extend this line of research, we would change our stimulus material to replicate the game the participant is engaging in. The stimulus material would be enhanced to make it more explicit when the child is being praised for their honest behavior. Collecting data in public schools may also be a useful extension due to the population

being more diverse. It may also prove fruitful in the future to investigate cultural and social values that can structure lie-telling behaviors through observational learning.

CHAPTER V

CONCLUSIONS

We need a better understanding of the impact of observational learning on lying as it has the potential to inform interventions and parent education programs aimed at addressing lying. Social learning may play an important role in the development of honest behaviors among children, however, considerable additional research is needed to clarify the conditions under which it changes behavior.

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EDUCATION

Ph.D. The Virginia Consortium Program in Clinical Psychology — Expected 2027

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B.A. The University of Alabama, Psychology — May 2022
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BACKGROUND

Hannah M. Sliman is a second-year graduate student in the Virginia Consortium Program in Clinical Psychology. She is currently pursuing her M.S. in Psychology and, in Spring 2024, her Ph.D. in Clinical Psychology. Her research interests involve investigating hierarchical categorical reasoning and rule-governed behavior among children.

SELECTED POSTER PRESENTATIONS

Sliman, H., De Lucia, D., Noell, G., & Gansle, K. (2023). *Developing Hierarchical Class Reasoning in Young Children: Directly Taught and Emergent Skills.* Poster presented at the American Psychological Association. Washington D.C.

Grinshpun, S., Smith, A., Elgamal, K., Sandy, A., **Sliman, H.,** Zakrzewski, S., Yang, Y., Conners, F., Roskos, B., & Merrill, E. (2023). *Play Time!: Using Block and Puzzle Play to Train Mental Rotation Abilities in Children.* Poster presented at the Society for Research in Child Development Biennial Meeting. Salt Lake City, UT.

Sliman, H., & Glatz M. (2022). *Gender differences in the association between parental autonomy support and parent-child relationship.* Poster presented at The University of Alabama Undergraduate Research and Creative Activity Conference. Tuscaloosa, AL.

Grinshpun, S., Smith, A., Dahimene, N., Elgamal, K., Sandy, A., **Sliman, H.,** Zakrzewski, S., Kent, B., O'Meara, L., Yang, Y., Conners, F., Roskos, B., & Merrill, E. (2022). *Training perspective taking and mental rotation abilities in typically and atypically developing children and adolescents: A demonstration study.* Poster presented at the Cognitive Development Society Biannual Conference. Madison, WI.