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White lie-telling in children for politeness purposes

Victoria Talwar
McGill University,
Canada

Susan M. Murphy
University of
New Brunswick, Canada

Kang Lee
University of Toronto,
Canada

Prosocial lie-telling behavior in children between 3 and 11 years of age was examined using an undesirable gift paradigm. In the first condition, children received an undesirable gift and were questioned by the gift-giver about whether they liked the gift. In the second condition, children were also given an undesirable gift but received parental encouragement to tell a white lie prior to being questioned by the gift-giver. In the third condition, the child's parent received an undesirable gift and the child was encouraged to lie on behalf of their parent. In all conditions, the majority of children told a white lie and this tendency increased with age. Coding of children's facial expressions using Ekman and Friesen's (1978) Facial Action Coding System revealed significant but small differences between lie-tellers and control children in terms of both positive and negative facial expressions. Detailed parental instruction facilitated children's display of appropriate verbal and nonverbal expressive behaviors when they received an undesirable gift.

Keywords: children; expressive display rules; honesty; lying; prosocial behavior; verbal deception

From very early on, children are socialized to be truthful in most social contexts. However, they are also taught implicitly or explicitly that they should not tell the blunt truth in other situations. In these situations, termed politeness settings, the truth may be trivial or even hurtful to its recipient (Sweetser, 1987). To spare the feelings of the recipient and foster amicable social relations, prosocial lies are expected (DePaulo & Bell, 1996; DePaulo & Kashy, 1998).

Research to date shows that white lies are a common form of lie told by adults to maintain social relationships (DePaulo & Jordan, 1982; DePaulo & Kashy, 1998). Despite extensive research on children's lying to conceal transgressions or to win a competition (Chandler, Fritz, & Hala, 1989; Feldman, Jenkins, & Popoola, 1979; Lewis, Stanger, & Sullivan, 1989; Peskin, 1992; Polak & Harris, 1999; Talwar & Lee, 2002a), little is known about children's lie-telling behavior in politeness situations. Thus, studying white lie-telling will not only allow us to form a more comprehensive picture of the development of verbal deception, but also the developmental origin of this pervasive adult behavior. The development of white lie-telling also has more general implications for understanding social development. It provides a window for us to understand the process by which children learn necessary social skills to interact with others and form social relations. White lie-telling is unique in the fact that it is an important social skill that cuts across a number of developmental domains such as verbal-nonverbal communication and deceptive display rule use, and consequently offers deeper understanding of children's development in these domains.

First, white lie-telling in children provides an opportunity for understanding how knowledge about rules governing verbal and nonverbal communication develops. White lies are a form of communication that both violates and upholds the basic rules of interpersonal communication. Grice (1980) suggests

that the Maxim of Quality is fundamental in governing interpersonal communication and white lies clearly violate this maxim, which requires speakers to be truthful to their communicative partners. In contrast, Lakoff (1973) and Sweetser (1987) suggest that fundamental rules also exist that require speakers to be amicable, and to help, not harm, their communicative partners. These two considerations usually promote consistent behaviors to achieve a common communicative goal. In politeness situations they often collide with each other and may require a strategic trade-off. Thus, whether and how children tell white lies allows us to understand if children are capable of reconciling seemingly contradictory rules of communication and use them adaptively in different social situations.

Second, white lie-telling is in essence a form of deception, albeit a prosocial one. Successful deception requires inhibiting genuine verbal and nonverbal reactions to a situation while simultaneously displaying appropriate rules for the situation and simulating the verbal and nonverbal expressions required. It should be noted that the term *display rule* has been used mainly to refer to rules that govern nonverbal emotional expressions (Saarni, 1979). We believe that similar rules also exist for the regulation of verbal behaviors. Both verbal and nonverbal display rules can be defined as rules governing communications between individuals for relaying information, expressing emotion, and conveying attitude. Such rules can guide individuals to modify their public expressions of private information, feelings, and attitudes, and help them determine what behaviors are appropriate. In politeness situations (e.g., when receiving an undesirable gift), one is required not only to suppress the genuine reaction of disappointment, but also use the appropriate display rules (e.g., expressing gratitude and displaying of positive emotional expressions). Thus, examination of children's white lie-telling behavior allows for

understanding their ability at regulating and coordinating multi-channel communications.

Research suggests that the understanding and use of non-verbal display rules in politeness situations develops early in children (Cole, 1986; Saarni, 1984). For instance, using an undesirable gift paradigm in which children received an undesirable toy instead of an expected desirable gift, Saarni (1984) found that school-aged children were able to both mask their natural disappointment reactions and use the appropriate nonverbal display rules for the situation. However, it was not clear whether children would also use the appropriate verbal display rules for the situation (i.e., telling a white lie that they liked the undesirable gift) because in both studies the children were not asked whether they liked the gifts. Nevertheless, their studies suggest that use of nonverbal display rules in politeness situations emerges early in childhood.

To date, only one published study (Talwar & Lee, 2002b) has examined children's white lie-telling behaviors and use of verbal display rules. Talwar and Lee (2002b) used a Reverse Rouge Task in which the experimenter had a conspicuous mark of lipstick on their nose. The child was asked to take a picture of the experimenter, but before the picture was taken the experimenter asked, "Do I look okay for the picture?" Results showed that the majority of children aged 3 to 7 years stated that the experimenter looked okay but later told another adult that the experimenter had not looked okay. Overall, lie-tellers showed less smiling than non-liars.

While the results of Talwar and Lee (2002b) provide the first glimpse of the emergence of white lie-telling in children, they are also equivocal. Their results can be accounted for by two contrasting interpretations. One suggests that children's apparent "prosocial" lie-telling in the Reverse Rouge Task may actually be motivated by self-interest. If children told the truth, they might face negative reactions from the adult; lying not only avoided unpleasant repercussions but also might please the adult. An alternative interpretation suggests that children's white lie-telling may be truly prosocial in nature because children are socialized early on to tell such lies to serve prosocial purposes. The present study aimed at testing these two contrasting interpretations by placing children in a situation where if they choose to tell a white lie, the lie would serve to protect the lie-recipient's feelings, while being contrary to their own desires and feelings.

For this purpose, we adapted a paradigm pioneered by Saarni (1984) and Cole (1986) in which children received an undesirable toy instead of an expected desirable gift. This procedure represents a naturalistic situation where white lies are socially desirable and truth-telling is inappropriate. It is also a situation that children are highly familiar with (e.g., receiving socks as Christmas gifts from grandparents) as they must decide whether to tell the truth in the hope of getting a better gift, or to tell a lie to be polite and to please the gift-giver. Hence, the undesirable gift paradigm provides an ideal situation to examine children's decisions to tell white lies when such a decision is inconsistent with their own feeling and desires. Moreover, it mimics a natural situation in which children are often explicitly taught by their parents to be polite and to tell white lies. Therefore, it is also ideal for examining the effect of parental instruction on children's white lie-telling behaviors, an issue that has not received direct empirical examination.

To examine children's actual white lie-telling behavior, a modified undesirable gift paradigm was used. In the present

study, the experimenter gave children an undesirable gift and left the room immediately before the children could respond to the gift. Upon returning, the experimenter directly asked whether the child liked the gift, requiring the children to verbally express their like or dislike of the gift. This allowed the assessment of both children's genuine verbal and nonverbal reactions to the gift in the absence of the gift-givers, and their dissembled verbal and nonverbal behaviors in front of the gift-giver. In the traditional paradigm, children's disliking of the gift is typically verified on a different occasion by an unfamiliar experimenter. In the present investigation, we asked parents to make such verifications during the same session, as children are presumed to be more inclined to disclose their true feelings to their own parents.

The modified undesirable gift paradigm was used in three experimental conditions with children 3 to 11 years of age. In the Child Undesirable Gift–No Coaching condition, the child received the gift after playing a game and was left alone in the room so that the parent could not influence the child's decision to lie or tell the truth. The experimenter returned and asked the child whether she/he liked the gift. This condition examined whether children would spontaneously tell a white lie or would tell the blunt truth that they disliked the gift.

In the Child Undesirable Gift–Coaching condition, the child's parent was in the room when the gift was given. After the experimenter left the room, the parent explicitly instructed the child not to tell the truth that they did not like the gift. The experimenter returned and asked the child whether she/he liked the gift. This condition examined the influence of parental coaching on children's lie-telling behavior. We predicted that children would be more inclined to lie when instructed to do so by their parent than when not coached. Talwar and Lee (2002b) suggest that children might be socialized to be polite and tell white lies through parental coaching. However, there is no direct evidence suggesting that parental coaching can actually influence children's white lie-telling behavior. In fact, existing studies often showed that parental coaching is not always effective in eliciting lying behaviors in children (Talwar, Lee, Lindsay, & Bala, 2004).

In a third condition, the Parent Undesirable Gift–Coaching condition, children's parents played a game with the experimenter and they received an undesirable gift. The parents told the children that they did not like the gift but instructed their children to conceal this information if the experimenter asked about it. Note that in the previous two conditions the disappointment due to receiving an undesirable gift may decrease children's desire to positively express their liking of the gift, which might lead to increased likelihood of blunt truth-telling. In the present condition, the undesirable gift belonged to their parent, therefore the children should experience less disappointment than children in the other two conditions and might be more inclined to tell a white lie to be polite. We predicted the Parent Undesirable Gift–Coaching condition to yield the highest percentage of lie-telling in children, among the three conditions.

The present study also examined children's positive and negative facial expressive behaviors using Ekman and Friesen's (1978) Facial Action Coding System (FACS). This anatomically based, comprehensive, and objective technique for measuring observable facial movement is a significant improvement over the holistic judgments of children's nonverbal behaviors used by Talwar and Lee (2002b). FACS permits more precise

analysis, which may allow us to identify unique nonverbal behaviors of child white lie-tellers. Two control conditions were included for comparison in which all aspects of the procedure were identical except that a desirable gift was given in place of the undesirable gift. In the Child Desirable Gift-Control condition, the child received a desirable gift, making it comparable to the two Child Undesirable Gift conditions. In the Parent Desirable Gift-Control condition, the parent received the desirable gift, so as to be comparable to the Parent Undesirable Gift-Coaching condition. Children's facial expressions were coded to determine whether white lie-tellers who received an undesirable gift could be distinguished from the control non-liars who received a desirable gift.

With regard to nonverbal display rule use, Saarni (1984) and Davis (1995), found that school-aged children were able to both mask their natural disappointment reactions and use the appropriate nonverbal display rules for the situation. Similarly, Cole (1986) found that even 3- and 4-year-olds masked their disappointed emotional expressions when the experimenter was present, but not when they were alone. Based on these findings, children in the experimental condition were expected to display more negative expressions when receiving the gift than those in the control conditions. Also, we expected that white lie-tellers would attempt to mask their negative expressions in the presence of the gift-giver. Children's negative displays were expected to decrease and their positive displays to increase significantly from the period when they were left alone after receiving the undesirable gift and the period when they were asked by the experimenter about the gift.

Finally, the literature offers contradictory predictions regarding the effect of age on lie-telling and children's abilities to conceal verbally and nonverbally (Cole, 1986; Davis, 1995; Lewis et al., 1989; Saarni, 1984; Saarni & von Salisch, 1993; Talwar & Lee, 2002a; 2002b). It may be that as children get older, they become better at telling white lies, as research on nonverbal behavior suggests (Saarni, 1984). Conversely it may be that young children are already able to use verbal and nonverbal display rules to tell white lies (Cole, 1986; Talwar & Lee, 2002b). Similarly, there are mixed findings in the literature regarding sex differences in display rule use (Cole, 1986; Davis, 1995; Saarni 1984). However, given the findings that girls and boys are socialized differently in terms of emotion regulation (Fuchs & Thelen, 1988; Garner & Power, 1996; Jones, Abbey, & Cumberland, 1998) and that girls are better able to mask their deception (Lewis et al. 1989; Saarni, 1984), we hypothesized that girls may be better than boys in their actual use of verbal and nonverbal display rules.

Method

Participants

A total of 323 children (171 boys) between the ages of 3 and 11 years of age participated (see Table 1). The mean age was 6.7 years ($SD = 2.56$), ranging from 37 to 143 months. There were 74 children in the Child Undesirable Gift-No Coaching condition ($M = 6.8$ years, $SD = 2.53$), 85 children in the Parent Undesirable Gift-Coaching condition ($M = 6.7$ years, $SD = 2.56$), 77 children in the Child Undesirable Gift-Coaching condition ($M = 6.8$ years, $SD = 2.54$), 42 children in Child Desirable Gift-Control condition ($M = 7.1$ years,

Table 1

Distribution of participants across conditions

	<i>Preschoolers (3-5 years)</i>	<i>Early elementary (6-8 years)</i>	<i>Older elementary (9-11 years)</i>
Child Undesirable Gift-No Coaching			
Male	15	15	13
Female	10	11	10
Child Undesirable Gift-Coaching			
Male	15	13	14
Female	12	12	11
Parent Undesirable Gift-Coaching			
Male	16	16	15
Female	14	12	12
Child Desirable Gift-Control			
Male	7	5	6
Female	8	8	8
Parent Desirable Gift-Control			
Male	7	7	7
Female	8	9	7

$SD = 2.6$ years), and 45 children in Parent Desirable Gift-Control condition ($M = 7.5$ years, $SD = 2.78$). The control children were recruited to match as closely as possible the age and gender profiles of the child lie-tellers in their corresponding experimental conditions. As a result, the sample sizes for the control groups were smaller than the experimental groups because only a subset of the children in the experimental conditions lied.

The majority of children were from white, middle and upper middle income families in a medium-sized North American city. Children were recruited through a database of study participants who had indicated interest in future participation in studies as well as through newspaper advertisements. The majority of parents contacted agreed to participate in the study. All were brought to the university lab by their parents and the majority of parents (95%) were mothers. Parental consent and child oral assent were obtained prior to testing.

Materials

The commercial game "Memory" was used with children under 6 years of age, and "Scattergories" was used with the older children and parents. After pilot testing, a wrapped bar of plain white soap was used as the undesirable gift and a wrapped rainbow-colored slinky was used as the desirable gift. One miniature video camera was concealed within a wooden box on the table to obtain a frontal view of children's head and upper body and record their responses.

Procedure

Children and their parents were brought to the playroom to give the child time to adjust to the new people and surroundings and to allow the parent to fill out the consent forms. The experimenter showed the parent the rooms that were used and explained the procedure.

Child Undesirable Gift–No Coaching condition

The experimenter led the child into the testing room. In the center of the room there was a table and three chairs. The child was asked to sit on the chair facing the experimenter. After the child was seated at the table, the experimenter initiated the game and went over the instructions with the child. They were told that after the game they would receive a gift from a prize bucket placed adjacent to the children on the floor. A variety of commercial children's toys could be seen in the bucket. The game was designed such that the child always won. Just before the game was over, a knock at the door was heard and the experimenter was informed that she had a phone call. The experimenter finished the game, congratulated the child, and thanked the child for playing the game. As the experimenter prepared to leave the room she moved towards the door where the prize bucket was placed. Instead of taking a toy from the prize bucket, the experimenter placed the wrapped bar of soap on the table for the child as the promised gift in such a way that the child could not see the experimenter's face or make eye contact with the experimenter. Before the child could unwrap and inspect the toy, the experimenter immediately left the room for one minute claiming to take the phone call. Similar to the Cole's (1986) Experiment 2 procedure, the child was left alone in the room and their parent was not present at any time during the procedure. This allowed the child to privately look at the toy and to react without the influence of another person. These reactions were recorded via the hidden camera.

When the experimenter returned, she asked the critical question, "Do you like your gift?" Once children answered the question, another game was played with them. Following the game the experimenter left the room and the parent came in the room to probe the child to determine whether the child truly liked the unattractive gift. Children were coded as "white lie-tellers" if they told their parent that they did not like the gift but said that they did like it to the experimenter, the gift-giver. No children told their parent that they liked the gift. If children told the experimenter that they did not like the gift, they were coded as "blunt truth-tellers". Following the session, the child was shown the hidden video camera, fully debriefed, and given the opportunity to exchange their gift for another desirable gift from the prize bucket.

Child Undesirable Gift–Coaching condition

The procedure for this condition was the same as the Child Undesirable Gift–No Coaching condition except that (1) the parent was present when the game was played and when the children received the unattractive gift, and (2) the parent was told to coach their children to tell a white lie if the children did not like the gift. However, to ensure that parental coaching was as naturalistic as possible, parents were not specifically instructed on what to say to their children. During the experimenter's absence, the parent asked the children whether they liked the gift. Once it was determined that they did not like the gift, the parent asked the children not to tell the experimenter that they did not like the gift if asked. One minute later, the experimenter returned and asked the parent to fill out a form in another room. After the parent left, the children were asked the critical question: "Do you like the gift?" Children were coded as white lie-tellers if they told their parent that they did not like the gift but told the experimenter they did like it.

Parent Undesirable Gift–Coaching condition

The procedure for this condition was the same as that of the Child Undesirable Gift–Coaching condition except that the experimenter played the game with the parent. The children were told to help their parent if they knew the answers. However, it was made clear that it was the parent's turn to play the game. Just before the game was over a knock at the door was heard and the experimenter was informed that she had a phone call. The game was concluded and the parent was announced the winner. Before leaving to take the phone call, the experimenter gave the unattractive gift to the parent. After the experimenter left the room, the parent, who had been instructed on what to do prior to the start of the experiment, expressed her/his disappointment with the gift and asked the child not to tell the experimenter that she or he did not like it if asked. One minute later, the experimenter re-entered the room and asked the parent to fill out a form in another room. After the departure of the parent, the child was asked the critical question: "Does your mom/dad like her/his gift?" Children were coded as telling a white lie if their parent did not like the gift but children told the experimenter that their parent liked it.

Child Desirable Gift–Control condition

This condition was identical to the Child Undesirable Gift–Coaching condition except that the gift given to the children was an attractive one. Based on pilot testing, the desirable toy was a colourful slinky wrapped in a box. All children expressed their liking of the gift. The experimenter returned and also asked the children the critical question: "Do you like the gift?" All children told both the experimenter and later their parent that they liked the gift. These children are henceforth referred to as "control non-liars."

Parent Desirable Gift–Control condition

This condition was identical to the Parent Undesirable Gift–Coaching condition except that the gift given to the parent was desirable. While the experimenter was away, the parent expressed pleasure at receiving the gift (colourful slinky) as previously instructed by the experimenter. The experimenter then returned to the room, asked the parent to leave the room, and asked the children, "Does your mom/dad like her/his gift?" All children (control non-liars) told the experimenter that their parent liked the gift.

FACS coding for nonverbal behavior

To examine whether children in the experimental conditions could be differentiated from children in control conditions, the facial expressions of the white lie-tellers, blunt truth-tellers, and the control non-liars were coded according to Ekman and Friesen's (1978) FACS. For the three Child Gift conditions, two specific segments of children's facial expressions were selected for analysis from the videotaped session. The first segment of the videotape began after children received and unwrapped the gift and the experimenter left the room and ended when the child's attention shifted to another activity or object in the room. This segment is henceforth referred to as the Reaction Segment ($M = 14s$, $SD = 6.8$). For example, after the initial reaction to the gift, the child might look at pictures

on the wall or the game on the table in the Child Undesirable Gift–No Coaching condition. In the Child Undesirable Gift–Coaching condition, the child might turn to their parents to respond to their inquiries about their liking or disliking of the gift. When such attention shift occurred, the Reaction Segment was considered concluded. The data from this segment allowed for the examination of whether children in the experimental conditions displayed differential facial expressions when they received an undesirable gift when compared to the control children who received a desirable gift.

The second segment of the video began after the experimenter (i.e., the gift-giver) asked the critical question, “Do you like the gift?” and ended after the child responded. This segment (henceforth referred to as the Question Segment) allowed for the comparisons between the facial expressions of the children who told a white lie about their liking of the undesirable gift and those of children who genuinely liked the desirable gift and told the truth about it ($M = 8s$, $SD = 3.2$). Similar to Saarni (1984), the amount of time for each segment varied for each child because the experimenter was instructed to interact with the child as naturalistically as possible.

For the two Parent Gift conditions, only the Question Segment during which children responded to the critical question “Does your mom/dad like the gift?” was coded. The data from this segment allowed for the examination of whether children who told a white lie on behalf of their parent displayed differential facial behaviors from those who told the truth about their parent liking the desirable gift. Children’s reactions to their parent’s initial receipt of a gift were not coded because children were a third party who merely observed the gift-giving.

Using a VCR with the frame-by-frame advancing and rewinding feature, two independent coders watched video clips of each child as many times as desired to code the child’s facial expressive behaviors and to determine whether a particular Facial Action Unit (FAU) was present or absent. Slow-motion playback and still-frame analyses of the tapes were used to code expressive behavior. Similar to the coding procedure of previous research (Cole, 1986; Davis, 1995; Saarni, 1984; 1992), for each segment, the presence of each FAU was recorded and repeated instances of the same behavior were not counted toward frequency totals. During facial coding, the audio portion of the tape was turned off. The two coders were uninformed about the expectations and conditions of the study. The mean inter-coder agreement for all FAUs was 86%, and the range of inter-coder reliability was between 78% and 96%. The differences in coding were later resolved by co-reviewing of the tapes by the coders.

All FAUs as prescribed by Ekman and Friesen (1975) were coded initially. Nevertheless, several FAUs have been identified in previous research as being particularly indicative of negative emotions such as disappointment, sadness, disgust, and anger (see Ekman, 1985; Cole, 1986). Ten of the FAUs were selected for analysis to generate positive and negative display scores. These scores were based on research demonstrating specific actions and their associated emotional displays (Ekman & Friesen, 1975; Izard, 1979). The negative FAUs included brow lower (BL), upper lip raise (ULR), lip press (LP), lip tightener (LT), lip corner depress (LCD), cheek raiser (CR), nose wrinkler (NW), nasolabial furrow deepen (NFD), and chin raise (CHR). These nine FAUs were also the most frequently occurring in our sample. For each participant, a score of 1 was assigned for each FAU present, and a score of 0 was assigned for each FAU that was absent. Then, the

scores for all of the FAUs were added together to derive a negative display score, with the maximum score being 9 and the minimum 0. Among the FAUs that can be unambiguously identified as positive behaviors, only lip corner pull (LCP, smiling) was frequently displayed by our sample. There were three levels of smiling, X, Y, and Z, according to Ekman and Friesen (1975). A positive display score was constructed with a score of 0 if children did not smile or a score of 1, 2, or 3 as the intensity of smiling increased. This method of coding is similar to Cole (1986). The rest of the FAUs were displayed by less than 20% of the children and were not analyzed. For some children, positive display scores were missing due to problems such as their face being turned away or out of the range of the camera.

Results

Children’s lie-telling behavior

As shown in Figure 1, the percentage of white lie-tellers was 68%, 87%, and 87% in the Child Undesirable Gift–No Coaching, and Parent Undesirable Gift–Coaching conditions, respectively. To examine the differences in children’s lie-telling, a series of logistic regression analyses were conducted. Logistic regression can be used to test different models (models with or without higher order interaction terms) and select a final model that best fits a particular set of data in both a theoretical and statistical sense. For this and subsequent logistic regression analyses conducted herein, the independent variables, since they were chosen for theoretical reasons (see Menard, 2002), were first entered as predictors. Additional predictors (i.e., interactions) were added individually to determine whether they would contribute significantly to the model. Significance was assessed by a Block χ^2 test (also known as the χ^2 Difference test). In this test, the retention of each predictor in a model must lower the variability substantially to justify using a more complex model.

Our analyses revealed that the best fit model included age, sex, and condition without interaction terms as significant predictors of children’s white-lie-telling. The regression model was significant, $\chi^2(3, N = 236) = 22.19, p < .01$, and 81% of

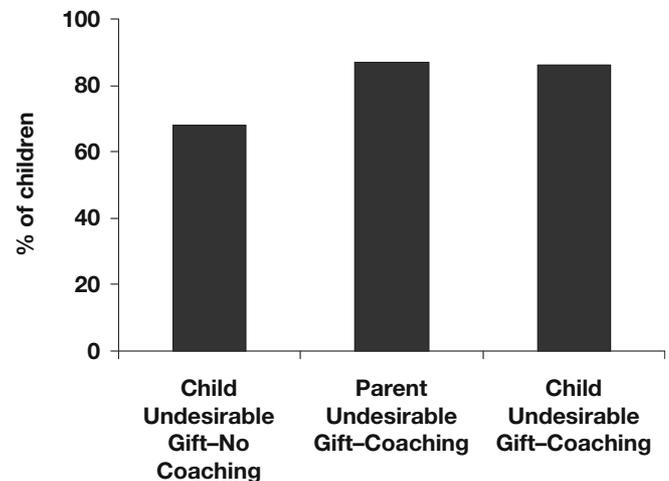


Figure 1. Percentage of white lie-tellers by condition.

cases were correctly classified by this model. All 191 children who lied were classified as lie-tellers. The condition effect was significant, ($\beta = 0.41$, $Wald = 17.95$, $p < 0.01$). Further inspection revealed that the significant condition effect was due to the difference between the Child Undesirable Gift–No Coaching condition and Child Undesirable Gift–Coaching conditions, $Wald(1, N = 159) = 13.12$, $p < .01$, and between Child Undesirable Gift–No Coaching and the Parent Undesirable Gift–Coaching conditions, $Wald(1, N = 151) = 13.27$, $p < .01$. Our hypothesis that more children would lie in the Parent Undesirable Gift–Coaching condition was not confirmed. However, fewer children told white lies in the no coaching condition (50 children lied) than in the coaching conditions (Parent Undesirable Gift–Coaching: 74 children lied; Child Undesirable Gift–Coaching: 67 children lied). The age effect was significant, ($\beta = -0.012$, $Wald = 4.09$, $p < .05$). As age increased, children were more likely to tell a white lie. While 72% of preschoolers (ages 3–5) told a white lie, 80% of early elementary school (ages 6–8) children and 84% older elementary school children (ages 9–11) told white lies. Younger children were slightly more reluctant to lie for their parents than the older children even when they were instructed to do so. There was no significant effect found for sex of child, ($\beta = 0.048$, $Wald = 0.19$, *n.s.*) Lie-tellers' answers to the question "Did you/your mother like the gift?" were further coded for content. Children's answers were coded into two categories: 1) simply indicating that they liked the prize with an affirmative response (e.g. "yes"), or 2) answering positively with elaboration (e.g. "Yes! We collect soap!"; "We need soap"). Overall, 36% of children gave positive answers with elaboration. A logistic regression analysis was conducted with lie-teller's answers entered as predicted variable (DV), and age (continuous variable), sex, and condition (categorical variable) as the predictors (IVs). The regression model was significant, $\chi^2(3, N = 185) = 26.16$, $p < .01$ with 71% of the cases were correctly classified. The condition effect was significant, ($\beta = .562$, $Wald = 17.03$, $p < .01$). Children in the Parent Undesirable Gift–Coaching condition gave more elaborated answers (56%) than children in the Child Undesirable Gift–Coaching (28%) and Child Undesirable Gift–No Coaching conditions (15%). There was also a significant age effect, ($\beta = -0.12$, $Wald = 4.41$, $p < .05$). Older elementary school children were more likely to give elaborated answers (55%) than early elementary school children (31%) and preschoolers (28%). Thus, as age increased, children became better white lie-tellers.

FACS analysis of nonverbal behavior

In order to analyze children's success at concealing their lie in their expressive behavior, children's negative and positive nonverbal expressive displays were analyzed using FACS similar to the method used by Cole (1986). Table 2 shows the means and standard deviations of the positive and negative display scores for each condition. Analyses were conducted on both children's positive and negative expressive behavior to examine whether a) white lie-tellers differed from blunt truth-tellers in each of the Undesirable Gift conditions (Child Undesirable Gift–No Coaching, Child Undesirable Gift–Coaching, and Parent Undesirable Gift–Coaching conditions) and b) white lie-tellers differed from control children in the Child Desirable Gift–Control and Parent Desirable Gift–Control conditions. The FACS data were analyzed separately for the positive and negative display scores for the Child Gift and

Table 2

Means (standard deviations) of positive and negative display scores in different conditions

	Positive display score		Negative display score	
	Reaction segment	Question segment	Reaction segment	Question segment
<i>Child Undesirable Gift–No Coaching</i>				
Lie-teller	.58 (.78)	1.00 (.93)	1.33 (1.59)	.42 (.64)
Blunt truth-teller	.41 (.93)	.89 (.98)	.89 (1.08)	.37 (.79)
<i>Child Undesirable Gift–Coaching</i>				
Lie-teller	.98 (.95)	.86 (.87)	.52 (.93)	.24 (.64)
Blunt truth-teller	.63 (.92)	1.25 (1.16)	1.00 (1.06)	.25 (.46)
<i>Child Desirable Gift–Control</i>				
Control Non-Liar	1.12 (.70)	.73 (.72)	.16 (.33)	.06 (.24)
<i>Parent Undesirable Gift–Coaching</i>				
Lie-teller		.58 (.80)		.15 (.33)
Blunt truth-teller		.25 (.45)		.25 (.85)
<i>Parent Desirable Gift–Control</i>				
Control Non-Liar		.63 (.66)		.03 (.16)

Parent Gift conditions, respectively, because the Parent Gift conditions did not have the data for the Response Segment.

(1) White lie-tellers vs. blunt truth-tellers

Positive display scores. Repeated measures ANOVAs were conducted to compare the positive expressive scores (DV) of the blunt truth-tellers (i.e., who told the experimenter that they themselves or their parents did not like the gift) and those of the white lie-tellers in each condition (Child Undesirable Gift–Coaching and Child Undesirable Gift–No Coaching). The within subject factor was segment (Reaction versus Question) and the between subject factors were sex, type of child (white lie-teller or blunt truth-teller) and age (continuous variable). The reason that the comparison was only made within each condition, rather than across conditions, was to examine whether the blunt truth-tellers displayed positive behaviors differently than did the white lie-tellers, who otherwise encountered exactly the same situation. Significant effects were only found for the Child Undesirable Gift–Coaching condition. For this condition, the age effect was significant, $F(1,62) = 9.83$, $p < .01$, $\eta^2 = 0.87$. As age increased, children increased their intensity of smiling. There was also a significant difference between boys and girls, $F(1,62) = 4.57$, $p < .05$,

ϵ 0.56. Girls showed more positive expressions ($M = 1.20$, $SD = 0.93$) than did boys ($M = 0.57$, $SD = 0.94$). There was also a significant Segment \times Type of Child interaction, $F(1,62) = 5.04$, $p < .05$, ϵ 0.61. Further inspection revealed that the effect was mainly due to the blunt truth-tellers showing less positive expressive behavior ($M = 0.56$, $SD = 0.92$) during the Reaction segment than white lie-tellers ($M = 0.97$, $SD = 0.95$), suggesting that the blunt truth-tellers might be more disappointed by the undesirable gift. However, the blunt truth-tellers showed more positive expressive ($M = 1.19$, $SD = 0.99$) behavior in the Question segment than the white lie-tellers ($M = 0.80$, $SD = 0.87$), even though they verbally declared that they did not like the gift to the experimenter. There were no significant effects for the Child Undesirable Gift–No Coaching condition.

For the Parent Undesirable Gift–Coaching condition, because no Reaction Segment was coded (children themselves did not receive the gift), an ANOVA was performed with children's positive display scores during the Question Segment as the DV. The IVs were: age (continuous variable), sex, and type of child. No significant effects were found. Thus, overall white lie-tellers and non-liars (blunt truth-tellers) did not differ in their positive expressive behaviour.

Negative display scores. Repeated measures ANOVAs were conducted to compare the negative expressive scores (DV) of the blunt truth-tellers and those of the white lie-tellers in both Child Undesirable Gift conditions. The within subject factor was segment (Reaction versus Question) and the between subject factors were sex, type of child (white lie-teller or blunt truth-teller) and age (continuous variable). There were no significant effects for the Child Undesirable Gift–Coaching or the Child Undesirable Gift–No Coaching condition.

For the Parent Undesirable Gift–Coaching condition, an ANOVA was performed with children's negative display scores during the Question Segment as the DV. The IVs were: age (in months, continuous variable), sex, and type of child. No significant effects were found. Overall, white lie-tellers and blunt truth-tellers did not differ in their negative expressive behaviour.

(2) White lie-tellers vs. control non-liars

Positive display scores. The positive scores of the child white lie-tellers in the Child Undesirable Gift conditions (the Child Undesirable Gift–Coaching and Child Undesirable Gift–No Coaching) were compared to those of the children in the Child Desirable Gift–Control condition. The purpose of this comparison was to examine whether the white lie-tellers smiled differently from the control children when they received the gift (the Reaction Segment) and when they told a white lie to the experimenter (the Question Segment). A repeated measures ANOVA was performed with positive display scores as the DV. The within subject factor was segment (Reaction versus Question) and the between subject factors were sex, condition (Child Undesirable Gift–No Coaching, Child Undesirable Gift–Coaching, and Child Desirable Gift–Control) and age (continuous variable). A full model was used. Among the 153 children who were either white lie-tellers or controls in these conditions, 127 children had valid (i.e. not missing due to technical problems) positive display scores for both segments. The ANOVA only revealed a significant age effect, $F(1,120) = 4.63$, $p < .05$, ϵ 0.77. As age increased, children

smiled more, regardless of segments and conditions. No other main effects were significant.

A significant Segment \times Condition interaction was found, $F(2,120) = 6.48$, $p < .01$, ϵ 0.69. To examine this significant interaction, post hoc analyses (pairwise t tests, LSD) was performed to compare the children's positive display scores between the Reaction and Question Segments (Table 2). The white lie-tellers in the Child Undesirable Gift–No Coaching condition significantly increased the intensity of their smile from the Reaction Segment to the Question Segment, $t(60) = 3.67$, $p < .01$. However, no significant increase in the positive scores was obtained for the white lie-tellers in the Child Undesirable Gift–Coaching condition. In contrast, the Control children who received a desirable gift significantly reduced their positive display scores from the Reaction Segment to the Question Segment, $t(32) = 2.52$, $p < .05$.

A significant Sex \times Segment interaction was found, $F(1,120) = 3.88$, $p < .05$, ϵ 0.56. This effect appeared to be due to the fact that regardless of conditions, girls increased their positive expression in the Question segment ($M = 0.96$, $SD = 0.84$) from the Reaction Segment ($M = 0.78$, $SD = 0.90$), whereas boys did not do so between the Reaction ($M = 0.78$, $SD = 0.84$) and Question Segments ($M = 0.73$, $SD = 0.88$).

For the two Parent Gift conditions, because no Reaction Segment was coded (children themselves did not receive the gift), an ANOVA was performed with children's positive display scores during the Question Segment as the DV. The IVs were: age (continuous variable), sex, and condition (Parent Undesirable Gift–Coaching and Parent Desirable Gift–Control). A full model was used. Of the 119 children who were either white lie-tellers or controls in these conditions, 109 had valid positive display score for the Question Segment. The ANOVA revealed a significant age effect only, $F(1,108) = 4.07$, $p < .05$, ϵ 0.69. As age increased, children increased their intensity of smiling regardless of conditions.

Negative display scores. The negative scores of the child white lie-tellers in the Child Undesirable Gift conditions (the Child Undesirable Gift–Coaching and Child Undesirable Gift–No Coaching) were compared to those of the children in the Child Desirable Gift–Control condition. For the Child Gift conditions, a repeated measures ANOVA was performed to examine negative displays (DV) during both the Reaction and Question Segments. The within subject factor was segment (Reaction versus Question) and the between subject factors were sex and condition (Child Undesirable Gift–No Coaching, Child Undesirable Gift–Coaching, and Child Desirable Gift–Control), with age (in months, continuous variable). Among the 153 children who were either white lie-tellers or controls in these conditions, 125 children had valid negative displays scores for both segments. The ANOVA revealed a significant condition effect only, $F(2,118) = 11.34$, $p < .001$, ϵ 0.99 and a significant Condition \times Segment interaction, $F(2,118) = 6.80$, $p < .01$, ϵ 0.84.

To examine the significant interaction, post hoc analyses (pairwise t tests, LSD) were performed to compare the children's negative display scores between the Reaction and Question Segments (Table 2). Only in the Child Undesirable Gift–No Coaching condition did the white lie-tellers' scores between the two segments differ significantly, $t(34) = -3.86$, $p < .01$. As shown in Table 2, the white lie-tellers in this condition reduced their negative expressions significantly from

the time when they just received the undesirable gift and were left alone to the time when they told a white lie in front of the gift-giver.

An ANOVA was performed to examine children's negative display scores (DV) during the Question Segment of the Parent Undesirable Gift–Coaching and the Parent Desirable Gift–Control conditions. The IVs were sex, condition and age (continuous variable). A full model was used. Of the 119 children who were either lie-tellers or controls in these conditions, 109 had valid negative display scores for the Question Segment. No significant effects were found.

Parental instructions

Parent's instructions to their child while the experimenter was absent in the Parent Undesirable Gift–Coaching and Child Undesirable Gift–Coaching conditions were coded. Parent's instructions were coded into the following categories: 1) simply stating the children should not say that they disliked the prize (18% of parents' instructions); 2) asking the children not to hurt the experimenter's feelings by saying that they did not like the prize (34%); 3) telling the children not to say that the prize was undesirable and suggesting to the children what they should say or how they should behave (21%); 4) telling the children not to say the prize was disliked because it would hurt the feelings of the experimenter and suggesting to the children what they should say or how they should behave (22%); and 5) in addition to 3 or 4, children were also asked to "promise" not to tell they disliked the prize (5%). These five categories were collapsed into two categories: simple instruction (1–2, 52%) and elaborated instruction (3–5, 48%). The inter-coder agreement was 90%.

To examine the relation between parents' instructions and their children's decision to lie or to tell the truth, as well as the effect of condition on parental instructions, a logistic regression analysis was conducted. Parents' instructions were used as the predicted variable (DV), and age (continuous variable), sex, type of child (lie-teller or confessor), and condition (categorical variable) were used as the predictors (IVs). The best-fitting model included age, sex, type of child and condition without interaction terms. The regression model was significant, $\chi^2(4, N = 150) = 24.50, p < .01$ and 70% of cases were classified by this model. The condition effect was significant, ($\beta = 1.21, Wald = 11.20, p < .01$). The parents in the Parent Undesirable Gift condition were more likely to use elaborated instructions (48%) than those in the Child Undesirable Gift condition who used more simple instructions (66%). The type of child effect was also significant ($\beta = -1.98, Wald = 8.64, p < .01$). The blunt truth-tellers were more likely to have received simple instructions (85%) compared to white lie-tellers (53%).

The relation between parents' instructions and lie-teller's elaborations in Parent Undesirable Gift–Coaching and Child Undesirable Gift–Coaching was examined. Another logistic regression analysis was conducted with lie-teller's answers used as the predicted variable (DV), and age (continuous variable), sex, parent's instructions, and condition (categorical variable) used as predictors. The regression model was significant, $\chi^2(4, N = 140) = 25.79, p < .01$ and 68% of cases were correctly classified. The condition effect was significant, ($\beta = 1.04; Wald = 7.41, p < .01$). The type of instructions was also significant, ($\beta = 1.31; Wald = 11.99, p < .001$). Children who received simple instructions gave simple answers without elaboration

(72%) while children who received elaborated instructions tended to give elaborated answers (61%).

Additional exploratory analyses were performed to examine the influence of parental instructions on children's nonverbal behaviors during the Question Segment. Separate ANOVAs for positive and negative nonverbal scores (DVs) were conducted for both Child Undesirable Gift–Coaching Condition and Parent Undesirable Gift–Coaching Condition, with type of child and parental instruction type used as IVs. Significant findings were only obtained for the Child Undesirable Gift–Coaching Condition: the type of child \times parental instruction type interaction was significant, $F(1,58) = 4.78, p < .05, \epsilon = 0.62$. This effect seemed to be due to the fact that the white lie-tellers who received elaborated instructions from their parents had higher positive expressive behavior ($M = 0.89, SD = 0.97$) than those who received simple instructions ($M = 0.63, SD = 0.62$). In contrast, the blunt truth-tellers who received simple instructions had higher positive expression scores ($M = 2.00, SD = 0.82$) than the blunt truth-tellers who received elaborated parental instructions. The latter did not display any smiling at all ($M = 0.0$). The observed power was 0.81.

Discussion

The present study revealed that children from 3- to 11-years-old are able to tell white lies and use appropriate verbal and nonverbal display rules when receiving an undesirable gift. In addition, parental coaching had a significant impact on these children's white lie-telling behavior.

Verbal display rule use

In the Child Undesirable Gift–No Coaching condition, 68% of the children spontaneously told a white lie to the gift-giver, suggesting that children will adhere to verbal display rules and spontaneously tell a white lie in a politeness situation. The results from the Child Undesirable Gift–Coaching condition showed that children are highly responsive to parental coaching. When parents provided the prosocial rationale for telling a white lie, 86% of the children subsequently told a white lie, which is significantly greater than the rate in the Child Undesirable Gift–No Coaching condition. This condition effect suggests that while many children spontaneously lie, some children need to be reminded of the politeness rule by a socialization agent. Furthermore, children who received elaborated instructions were more likely to elaborate when lie-telling.

The fact that brief parental coaching produced a significant increase in children's white lie-telling behavior indicates that children are sensitive and amenable to verbal politeness display rules. However, our findings should not be interpreted as suggesting that a brief instruction is sufficient to train a child to be polite. These children might have been socialized to tell white lies by their parents in previous instances and might have told white lies previously. The brief instruction by parents in our study might have served as a reminder of the need to adhere to the appropriate verbal display rules for the current situation.

No significant difference was found in terms of the rate of lying between Child Undesirable Gift–Coaching condition (86%) and Parent Undesirable Gift–Coaching condition

(87%). This result is inconsistent with our prediction that children in the latter condition would be more inclined to tell a white lie on behalf of their parents. However, children in the Parent Undesirable Gift-Coaching condition were more likely to give elaborated answers, which was related to parent's coaching. Parents in the Child Undesirable Gift-Coaching condition were overall less elaborative in their instructions to their children than the parents in the Parent Undesirable Gift-Coaching condition. It is possible that more children might have told a white lie in the Child Undesirable Gift-Coaching condition had these parents given more elaborated instructions. Because we intended to make the parental coaching as naturalistic as possible, parents in the two conditions were not asked to give exactly the same form of coaching. This possibility thus needs to be tested in future studies.

Age effect

Unlike Talwar and Lee (2002b), the present study found that as age increased children were more likely to tell a white lie and become better lie-tellers. Younger children were less likely to tell a white lie than older children and older children were more likely to elaborate on their lies by providing rationales for their "liking" the prize. Several children spontaneously told the experimenter that their parent was "very happy about the soap because they had run out of it at home" or that they "collect soap" (both of the statements were in fact not true!). The difference between our findings and Talwar and Lee (2002b) may be due to the wider age range included in the present study. Our results suggest similar to Talwar and Lee (2002b) that white lie-telling develops early as many young children did tell a white lie. However, it also suggests that this ability develops rapidly as children enter school years and their ability to maintain their white lies improves. These findings are similar to previous studies that have reported that school-age children are better at concealing their lies to cover their transgression when asked follow-up questions (Gordon, Talwar & Lee, 2005; Talwar & Lee, 2002a). Future studies may find developmental differences if children are asked to elaborate their lies in a more prolonged interaction with the gift-giver.

Another noteworthy age-related finding is that as age increased children smiled more, which is consistent with suggestions that children tend to exhibit more positive behaviors to others as they become more socialized (Ekman & Friesen, 1969; Ekman, Friesen, & Ellsworth, 1972; Izard, 1979; Lewis & Michalson, 1985; Saarni, 1979, 1984). However, this age effect was obtained regardless of whether they received a desirable gift or an undesirable gift.

Nonverbal display rule use

Our results suggest that children as young as 3 years of age are able to use nonverbal display rules to mask disappointment and dissemble positive behaviors in the present politeness situation. This finding is consistent with the results of Davis (1995), Saarni (1984), and specifically Cole (1986) who found that preschoolers showed less negative displays to a disappointing gift in front of the gift-giver than when alone. The children in the Child Undesirable Gift-No Coaching condition expressed significantly greater negativity in the experimenter's absence than in her presence.

In the Child Undesirable Gift-Coaching condition there was no significant difference in negative expression scores between

the segment when experimenter was present and the segment when the experimenter was absent. This result was probably due to the fact that children were not actually alone in the room. Although parents were not providing any coaching during the Reaction segment, the mere presence of the children's parents elicited greater positive expressions and less negative expressions in children, perhaps due to their earlier social interaction history in similar situations with parents. In contrast, in the absence of the parent in the Child Undesirable Gift-No Coaching condition, children freely expressed their disappointment with the undesirable gift when alone in the room. However, this negativity was quickly controlled once the experimenter re-entered the room and negative expressions were replaced with smiling, suggesting that children were perhaps making elaborate efforts to adhere to the nonverbal display rules for this situation. Nevertheless, the children's negative scores during the Question Segment in the Child Undesirable Gift-No Coaching condition were still significantly greater than the other two conditions. Thus, without parental coaching, some children found it difficult to suppress completely their negative facial expressions in front of the gift-giver. In contrast, brief parental instruction was sufficient to reduce children's negative expressions to a level that was indistinguishable from the control condition.

In terms of smiling, children in the Child Desirable Gift-Control condition smiled more during the experimenter's absence and less during her presence, which might reflect a natural course of emotional reaction to a desirable gift in children. Children might be initially pleased with the desirable gift and later became habituated to the gift. In contrast, the white lie-tellers in the Child Undesirable Gift-No Coaching condition hardly smiled when they just received the disappointing gift but increased their smiling significantly when the experimenter returned and probed them about whether they liked the gift. This behavior is consistent with nonverbal politeness-related display rules that dictate that one should dissemble positive behaviors in front of a gift-giver (Cole, 1986; Davis, 1995; Saarni, 1984; Talwar & Lee, 2002b), suggesting that the increased smiling might be deliberate.

Interestingly, the type of parental instruction children received from their parent was associated with children's subsequent nonverbal behavior in front of the gift-giver. In the Child Undesirable Gift-Coaching condition, those lie-tellers who received elaborate instructions had more positive nonverbal behaviors than those who only received a simple instruction from their parents. It appears that parents' elaborated instruction facilitated not only children's verbal display rule use (to tell a white lie) but also their nonverbal display use in the politeness situation. This result is in line with the general findings that maternal reports of emotional expressiveness and parental expectations are related to children's expressive behavior (Fabes et al., 1994; Fuchs & Thelen, 1988; Garner & Power, 1996; Jones et al., 1998). It should be noted that the appropriate nonverbal display rule use was achieved despite the fact that no parent actually instructed their children about how to behave nonverbally in front of the gift-giver.

In the same condition, the blunt truth-tellers who acted contrary to their parents' detailed instructions showed little positive expressive behavior. We speculated that this lack of smiling may reflect the blunt truth-tellers' awareness that they were behaving contrary to their parents' clear and detailed instructions. The blunt truth-tellers who received simple instructions from parents displayed the highest level of

intensity in smiling among all types of children in the five conditions. There are several possible explanations: perhaps these children may not have taken their parent's guidance seriously or they might have felt mischievous, or they were using positive display behavior to smooth a potentially negative interaction with the experimenter.

It should be noted that the differences found between the white lie-tellers, the blunt truth-tellers, and the control children were very few and subtle. The differences in facial expressions were only detected by trained coders using the fine-grained analysis of FACS. These differences may not be detectable by the average observer. Talwar and Lee (2002b) found that university students were unable to distinguish white lie-tellers from non-liars despite the fact there were subtle expressive differences between them as identified by fine-grained analyses. Further, studies examining children's lie-telling to conceal their own transgressions (Lewis et al., 1989; Talwar & Lee, 2002a) also found that university students and parents could not detect young children's lies. In addition, police and customs officers who were trained and presumably experienced with lie-detection failed to detect children's lies about their transgressions (Leach, Talwar, Lee, Bala, & Lindsay, 2004). These findings suggest that children as young as 3 years of age can successfully regulate their nonverbal behaviors and lie skillfully. Given these findings, the white lie-tellers in the present study might be difficult to detect by naive adult observers.

Sex differences

With regard to verbal behavior, boys and girls were equally likely to tell a white lie, which is consistent with the findings of the existing studies on children's anti- and pro-social lying behavior (e.g., Lewis et al., 1989; Talwar & Lee, 2002a; 2002b). With regard to nonverbal behaviors, our results added further inconsistency to the already inconsistent literature regarding sex difference. Girls displayed more positive behaviors in front of the experimenter than the boys. However, this sex difference was obtained regardless of whether they received a desirable or undesirable gift. This null effect for positive behavior is consistent with that of Saarni (1984) but inconsistent with the results of Cole (1986) and Davis (1995). In terms of negative nonverbal behaviors, the boys and girls in our study also failed to show any difference, which is in line with the finding of Cole (1986), but not consistent with the results of Saarni (1984) and Davis (1995). The inconsistent findings may be due in part to the use of different types of nonverbal coding systems used (e.g., holistic vs. anatomically based) and different types of experimental design (e.g., within subjects vs. between subjects). Future studies need to harmonize research design and scoring method to delineate the exact nature of the sex differences in children's nonverbal displays when receiving a disappointing gift.

Conclusions and implications

The present study demonstrated that children will tell a white lie in a politeness situation and this ability increases with age. Many children are able to use spontaneously appropriate verbal and nonverbal display rules for this situation. Parental coaching can facilitate children's decisions to tell a white lie and their display of appropriate nonverbal behaviors when telling a white lie. Further, although some children cannot

suppress completely their negative expressions, most of them are able to modify their nonverbal expressions of emotion to be consistent with their verbal statement, with or without parental coaching. These findings suggest that children are able to co-ordinate between the verbal and nonverbal channels in order to deceive. Most of the children in the present study modified their nonverbal expressions of emotion to be consistent with their verbal statement. Thus, our findings suggest that at a young age children may be able to carry out integrated multi-modal social communications with others.

The present findings add to the limited, yet increasing amount of evidence that verbal deception emerges early and develops rapidly (Lewis et al., 1989; Newton, Reddy, & Bull, 2000; Talwar & Lee, 2002a; Wilson, Smith, & Ross, 2003), and children from preschool years onward tell not only "black lies" (Barnes, 1994) that are antisocial, but also white lies that serve politeness purposes (Talwar & Lee, 2000b). In addition, the present finding suggests that children do not follow the rules of social communication rigidly. In the present undesirable gift situation, most children resolved the conflict between the need to inform truthfully (Grice, 1980) and the need to be polite (Lakoff, 1973). They chose politeness over truthfulness exactly as required by the social convention prescribed for this politeness situation (Sweetser, 1987).

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