LYING IN CHILDREN AS A FUNCTION OF ADULT MONITORING

by

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(ABSTRACT)

A procedure similar to correspondence training was used to assess the propensity of children to lie under varying levels of adult monitoring. Thirteen children selected pieces of food to be eaten later as a snack, and reported their selections to an experimenter. The manipulation involved reinforcement for reports of having selected a previously unselected food. Eleven of 13 subjects were completely honest with no differences between subjects with a history of frequent lying and subjects with a generally honest history. These data are inconsistent with previously published correspondence training studies. Subjects may have responded to environmental cues that served as discriminative stimuli indicating that subjects' behavior was being monitored. Subjects may have entered the study with a generalized correspondence rule which left their behavior insensitive to contingencies in the protocol. Parental reports of frequent motives for lying and behavior problem scores are also reported. Suggested directions for future research within this paradigm include comparisons across levels of cognitive development, incorporating naturalistic settings with more familiar adults, examining influence of live or symbolic modeling of lying, and using more clearly aversive target behaviors.
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LYING IN CHILDREN AS A FUNCTION
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Introduction and Review of Literature

Honesty is one of the most valued but least understood ideals comprising the basis of human social exchange. Philosophical and moralistic writers of the western world have directed their attention toward honesty for centuries. Furthermore, truth-telling is one of the most basic and essential underlying assumptions of communication and it has been discussed as essential for the evolution of human social structures (Knapp & Comadena, 1979). Honesty is also central to other constructs such as altruism and trust (Knapp & Comadena, 1979). Paradoxically, the truth is routinely stretched or entirely disregarded in everyday encounters. One survey of adults indicated that on the average only 38.5% of their daily communications were entirely honest (Knapp & Comadena, 1979). These "white lies" or socially appropriate modifications of the truth seem to be conceptually distinct from those untruths that are recognized as morally reprehensible or behaviorally maladaptive. Distinguishing characteristics of various types of lying behavior and whether or not they comprise distinct response classes remains to be explored.

Surprisingly, empirical investigations of honesty, or conversely of lying, have received little attention until recently in the field of psychology (Stouthamer-Loeber, 1986). Within the last five years researchers in the field of child psychopathology have identified lying
as a discrete behavior worthy of further study. Most of the research to date has focused on formulating definitions, quantifying the prevalence and frequency of lying, and assessing its relationship to other problem behaviors in children (e.g., Achenbach & Edelbrock, 1981; Eckman, 1989; Shepherd, Oppenheim, & Mitchell, 1971; Stouthamer-Loeber & Loeber, 1986). Few investigations have moved beyond definition and description to examine the idiographic stability of lying over time, lying's sequential role in the development of oppositional behaviors, or the conditions under which lying is likely to occur.

Researchers have classified lies based on their conceptualization of the perpetrator's motives. When mothers of four-year-olds were asked to name motivations for their children's lies, the most frequently cited were avoiding punishment, self-gain, confusion, and for fun or play (Stouthamer-Loeber, 1986). Eckman (1989) reported that children's most frequently acknowledged motives for lying were 1) to avoid punishment, 2) to gain something otherwise unavailable, 3) to protect friends from trouble, 4) to protect someone from harm, 5) to win admiration, 6) to avoid social faux pas, 7) to avoid embarrassment, 8) to maintain privacy, and 9) to demonstrate power over authority. Eckman (1989) more generally distinguishes between self-serving or "machiavellian" lies and those that do not harm (or help) anyone. One consequence of classifying lies by motive is different labels for the same response classes. For instance, a tall tale of dubious believability, which Ackerman and Kappelman (1978) dubbed the "Whopper", is apparently the same as one
"motivated to win admiration" (Eckman, 1989).

A more parsimonious approach to classification was proposed by DePaulo and Jordan (1982) who pointed to the environmental contingencies which exerted influence on the lying individual. Some lies are followed by positive reinforcement (getting dessert without eating one's vegetables). Other lies may result in negative reinforcement (leaving an undesirable telephone conversation to "answer the door") or avoidance of punishment (denying one spilled the paint). Still other lies, such as the socially appropriate but dishonest compliment, suggest reinforcement by unspecified stimuli. These contingency-based classifications are broad enough to encompass other authors' rationally derived "types" of lies, and may more consistently characterize the phenomena of interest. For instance, one might tell a "whopper" lie (Ackerman & Kappelman, 1978) to gain esteem in one situation, but to avoid embarrassment in another. Lies may vary on two other dimensions, as well. One of them is social acceptability. While it is socially acceptable to lie to hide from a bully, it is unacceptable to lie about the authorship of one's homework. Conventional wisdom would add that any type of lie is likely to become unacceptable if told too often. The proverbial boy who cried, "Wolf!" exceeded this level of acceptability. Thus within social acceptability lies a third dimension of frequency.

In all cases, the foregoing categories were rationally derived and await confirmation through objective observation. If these are valid categories, one might expect some types of lies to be common to all
children, while other types would be restricted to children who display behavior disorders. For instance, while all children might lie to protect themselves from strangers, one might expect to observe more cover-up lies among children who have transgressions to hide. Furthermore, one might expect conduct disordered children to lie more frequently than others. Existing behavior rating scales for children do not offer the rater a means by which to differentiate types of lying behaviors (see for example the Child Behavior Checklist; Achenbach & Edelbrock, 1981). A statistically validated comparison of categories of lies told by problem liars with those by relatively honest children would be likely to reveal existing differential patterns.

Studies of the incidence of lying have yielded widely varied results. Estimates by parents and teachers of the prevalence of occasional lying range between 2% (Rutter, Tizard, & Whitemore, 1970) and 53% (MacFarlane, Allen, & Honzik, 1962) for normal children from 4 to 18 years old. The mean prevalence rate for ten studies was 19.4% for parent reports and 14.4% for teacher reports (Stouthamer-Loeber, 1986). Parent and teacher estimates of the prevalence of chronic lying showed less variability, ranging from 1.6% (Shepherd et al., 1971) to 7.7% (Stouthamer-Loeber & Loeber, 1986), with a mean of 3% (Stouthamer-Loeber, 1986). Retrospective self-ratings for chronic lying were recently observed to be much higher at 15.3% for females and 23% for males (Robbins, 1986). This large discrepancy may have been due in part to an artifact from long-term retrospective self-reports as opposed to
relatively time-limited reports of parents and teachers (Stouthamer-Loeber, 1986). In other words, while only about 3% of any age group frequently lied, approximately 20% of the adult population lied quite often at one time or another in their childhoods.

Survey data indicate that parents and professionals who work with children view dishonesty quite seriously. Mothers tend to rate honesty among the most desired behaviors in their children (Kohn, 1959), and for several decades teachers and clinicians have rated the seriousness of lying at approximately the 90th percentile among problem behaviors (Sparks, 1952; Stouffer, 1952; Vidoni, Fleming, & Mintz, 1983; Wickman, 1928; Ziv, 1970). Even among peers, lying is perceived as serious, falling at the 85th percentile for seriousness of problem behaviors among adolescents (Vidoni et al., 1983). These perceptions of seriousness reflect not only problems that dishonesty creates for the child in present situations, but predictions of problems in future relationships, as well (Stouthamer-Loeber, 1986). Honesty appears to occupy a central role in adults' conceptions of fundamental social expectations and as such plays a significant role in their perceptions of problematic behaviors of childhood.

Such an emphasis may be well-founded, considering the association of lying with other problem behaviors. Factor analyses of behavior problems have consistently shown lying to be associated with other covert behavior such as stealing, fire-setting, and drug use (Stouthamer-Loeber, 1986; Stouthamer-Loeber & Loeber, 1986). Dishonesty
appears to be related to more overt behaviors, as well. In a review of seven factor-analytic studies, Stouthamer-Loeber (1986) lists gang membership, alcohol/drug use, bad companions, stubbornness, fire-setting, and blaming others as those characteristics which most frequently loaded with lying. The behaviors associated with lying appear to be somewhat age-specific with younger children who lie being more aggressive and older children more delinquent (Loeber, 1982; Stouthamer-Loeber, & Loeber, 1986). In addition, the data indicate that children who lie are almost entirely a subset of those who are disobedient or generally oppositional. Within this group there is a further division between those who do or do not steal (Lewis, 1931; Patterson, 1982). Studies have yet to examine differences between children who lie and those who do not. Do chronic liars tell untruths for different motivations and under different circumstances than honest children? Are there situations in which all children are likely to be dishonest, regardless of their long-term behavioral patterns? Do preschoolers who lie continue to lie and/or adopt other antisocial behaviors? Such questions are important because their answers may afford additional information about the role of lying in the larger constellation of maladaptive behaviors.

Eckman (1989) notes that the accuracy of the available data about the incidence of lying and its companion behaviors is questionable because most of it was based on retrospective reports by parents and teachers. Since lying tends to coexist with other problematic
behaviors, rating of its seriousness and/or frequency may be inflated through a "negative halo effect" (Eckman, 1989). In other words, adults may simply assume that children with behavior problems lie because lying is part of a cognitive schema for problem behaviors. Parent ratings of problem behaviors for nonaggressive, emotionally disturbed children in clinic samples, however, frequently do not include lying (DeBlois, 1984; Rutter et al., 1970). This offers some evidence that any such halo effect may be limited to a conduct disordered/aggressive sample and may not be simply part of a construct for the "emotionally disturbed child."

Little is known regarding the conditions contributing to the development of problem lying. While no researchers have addressed the question directly, some have implied etiological frameworks in their discussion of other aspects of lying. In suggesting possible treatments for lying, Stouthamer-Loeber (1986) suggested that lying may be a mere symptom reflecting an underlying problem such as low self-esteem. A similar position was adopted by Ackerman and Kappelman (1978) when they included lying in a list of several maladaptive behaviors which may "signal" a child's underlying emotional problem. Descriptions of external conditions surrounding lies may offer insight as to the manner in which the behavior develops and is maintained. The relatively high rate of lying among parents of children who lie suggests adult modeling may play a role in the development of lying behavior in children (Hartshorne & May, 1928; Kraut & Price, 1976; Lewis, 1931).
An area of behavior analysis which has accumulated a good deal of information about children's lying under controlled conditions is that of correspondence training. This procedure was first discussed in the literature in 1968 (Risley & Hart) as a potential behavior modification program that did not require actually reinforcing low frequency behaviors but rather reinforcing verbalizations about that behavior. In one phase of the procedure, children were reinforced for saying they had performed a target behavior. The reinforcers were delivered non-contingent on whether the behavior indeed occurred. This created a situation in which the child could have been reinforced for lying about his or her behavior. Consistently in studies of correspondence training, a majority of the children emitted positive verbalizations about a behavior that they had not performed; in other words they lied. In the correspondence training phase the researchers reinforced the verbal behavior only when the child had previously performed the corresponding targeted nonverbal behavior. In this condition many more of the children performed the targeted nonverbal behavior. That is, they adjusted their subsequent nonverbal behavior to correspond with their verbalizations. These findings have typically been attributed to the association of corresponding verbalizations and the reinforcer.

Ribeiro (1989) applied the correspondence training protocol to the study of conditions that promote lying. Eight preschoolers were placed in a room with six toys for individual play time. The number of toys with which any child was allowed to play was limited to three. During
baseline, reports of how many toys had been used were largely accurate. During the first experimental condition the child received additional reinforcement for each positive report of having played with a toy (without regard to accuracy). Two of the children shifted to over-reporting in this condition, saying they had played with all six toys when in fact they had played with three or fewer. Over-reporting was adopted by three more children when reporting took place in a group, which provided models of successful lying. In other words, 5 of the 8 preschoolers lied in order to increase reinforcement. When reinforcement was made contingent on corresponding reports, all children returned to their original truth-telling status. This level of correspondence was maintained in a second baseline. Of additional interest is that three of the eight children did not lie as a means for earning reinforcement, even when this behavior was modeled by peers. It is interesting to consider whether this tendency toward honest versus dishonest behavior was observed outside the laboratory situation.

Level of adult supervision or monitoring has gained some attention as a possible factor in the development of lying (Eckman, 1989; Stouthamer-Loeber, 1986). These same researchers have suggested that adequate monitoring is an essential component of interventions to counter lying. Monitoring has a logical place in any intervention, for the adult's ability to recognize a lie and respond appropriately depends on knowing what actually happened. In this sense, monitoring may at times consist of being physically present with one's child and at other
times simply being aware of his or her day to day whereabouts and activities. An even higher level of monitoring might require actively paying attention to what a child is doing in addition to being physically present. In their early work on honesty in the classroom, Hartshorne and May (1928) observed an increased likelihood of cheating when the students believed they could not be supervised. Low levels of monitoring were moderately associated with boys' lying in 4th, 7th and 10th grades with correlation coefficients of .44, .44, and .58, respectively (Stouthamer-Loeber & Loeber, 1986). While these data do not indicate direct causality, they do raise the question of the role that poor monitoring plays among conditions common to children who are generally dishonest.

Ineffective monitoring has been similarly implicated in the genesis of other maladaptive childhood behaviors. Microsocial analyses of family interactions have revealed a strong relationship between lack of parental monitoring and the development of aggressive behaviors among siblings (Patterson, 1986). Furthermore, contingency space analyses provided strong evidence that aggressive behaviors were much more likely when the level of parental monitoring was low (Patterson, 1982; 1986). In the absence of parental monitoring, aggressive exchanges become enmeshed in the social interactions of the children, forming coercive cycles of behavior. Based on analyses of these coercive exchanges, Patterson (1986) proposed that children's behaviors were shaped to be aggressive through the development of contextual response sets. These
series of exchanges or "fight cycles" are composed of "start up," "counter attack," and "continuance" components. The start up behaviors are often aggressive acts elicited by a sibling's behavior that functions as a discriminative stimulus. The problem child's aggressive response introduces the coercive nature of the interaction. The sibling responds to the start up with one of several coercive behaviors which serves as a counterattack. At this point the cycle is likely to escalate until the "pain" (emotional or physical) prompts the sibling to back down. This termination of an unpleasant interaction completes the cycle in the form of negative reinforcement, which in turn increases the likelihood of coercive exchanges in the future. It is quite possible that a similar process contributes to a behavioral pattern of lying.

Retrospective consideration of the correspondence training literature indicates that monitoring may have played a role in the attainment of correspondence. In both the reinforcement for target verbalization condition, and the reinforcement for corresponding responding condition, the experimenter was present to observe the children's non-verbal behavior. (See for example, Israel & O'Leary, 1973; Paniagua & Baer, 1982; Risley & Hart, 1968; Rogers-Warren & Baer, 1976.) However, in the reinforcement for target report condition, the prototypical experimenter's response was such that the children may have been led to believe that they had not been closely supervised, after all. That is, the experimenters did not confront the child's dishonest answers, but reinforced them as if they were believed to be true.
Confrontation of dishonest answers was, conversely, a part of the reinforcement for correspondence phase. When children issued noncorresponding reports in this condition, the experimenter acknowledged the reports as inaccurate and withheld the reinforcer. In effect, the shift from reinforcing any verbalization of a target behavior to reinforcing only true reports of the behavior was confounded with the child's awareness that he or she had been supervised. It seems that lying took place almost exclusively in clearly unsupervised situations.

Risley and Hart (1968) investigated this possibility in their initial studies. In their third experiment, these researchers varied the presence of the teacher's comments regarding inaccurate responding in both the reinforcement for verbalization and reinforcement for correspondence conditions. With or without comments, the actual reinforcers were delivered as usual. The results indicated that teacher comments had little effect. Unfortunately the data were presented with group percentages of responding, precluding examination of individual response patterns. It was therefore impossible to discern whether the same children whose reports did not correspond in the teacher comment condition also lacked correspondence in the no comment condition.

The present study utilized a procedure similar to that in Risley and Hart's (1968) third experiment. Children reported which foods they selected for a snack. Verbalizations of having selected a target snack were reinforced in unmonitored and monitored conditions, regardless of
accuracy. A third condition offered reinforcement only for accurate reports. This study sought to augment the knowledge about lying behavior in four ways. The children participating in this study were older than those who have typically participated in correspondence training and thus closer to the age when lying tends to be recognized as a behavioral problem. Previous researchers have suggested that the cognitive abilities necessary to lie develop around the age of five or six years (Eckman, 1989; Ribeiro, 1989; Stouthamer-Loeber, 1986). The behavior of individual subjects was examined across experimental conditions to determine whether truth-telling varies with different levels of monitoring, for all subjects. The behavior of generally honest subjects was compared with subjects who were reported to lie frequently, to determine differences in responses to monitoring.

Finally, the types of lies fabricated by children whose lying creates problems were compared with those types employed by children whose lying is not typically a problem.

Five hypotheses were tested.

1. Honest and dishonest children will be truthful during baseline.

2. All children will lie to earn a reinforcer when they are surprised by a change in contingency instructions under no supervision condition.

3. At the first available opportunity, honest children will adjust their subsequent nonverbal behavior to correspond to the
previously changed contingency, thereby returning to honest reporting. Dishonest children, however, will continue target reporting without adopting target nonverbal behavior until reinforcement is made contingent on accurate reports of target nonverbal behavior (i.e., the correspondence condition).

4. All subjects will report accurately under the correspondence condition.

5. Finally, children who are problem liars will tell different types of lies than honest children as reported by their parents on a questionnaire.
Method

Subjects

Twenty-one children, 5 to 10 years old, participated in this study. Children were recruited at an after-school care program sponsored by a local parks department (n = 11), a university-affiliated psychology clinic (n = 5), and from the community (n = 5). Two subjects were disqualified because they could not understand the directions; one subject was disqualified because his parent divulged the purpose of the study; and five subjects were disqualified because their parents did not complete the necessary questionnaires. This left 13 subjects (11 boys and 2 girls) for data analysis.

Subjects were assigned to groups based on their parents' responses on the Child Behavior Checklist (CBCL), a lying behavior questionnaire designed by the experimenters (see the Appendix), and interviews with parents and after school program counselors. Subjects were designated as Dishonest (n = 2) when their parents (a) endorsed item 43 on the CBCL ("Lying or cheating") with a score of 2; and (b) endorsed question number 1 of the lying behavior questionnaire (frequency of lying) with a 4 or 5, or endorsed question number 8 of the lying behavior questionnaire (frequency compared to peers) with a 3, 4, or 5. All other subjects were designated as Honest (n = 11). Experimenters cross-validated these designations in telephone interviews with parents regarding the children's lying behavior.
Settings and Materials

The study was conducted in one of two locations, depending on where the subjects were recruited. For subjects from the after-school care program the study was conducted in the hallway of an elementary school. For all other subjects, the study was conducted in two rooms of a psychology clinic. In both settings, two areas which were isolated from one another were used for the procedure. One area was the selection area where subjects selected snack foods; a second area was the reporting area where subjects reported what foods they selected in each trial.

Six snack foods were used in the study: pieces of gummi worm, pumpkin seeds, pieces of turnip, pieces of licorice rope, pieces of rye cracker, and Reese's Pieces peanut butter candies. Food portions were uniform in size (approximately 6mm x 6mm x 3mm). In the selection room, food was displayed in an egg tray with six rows of four cups each. Four portions of each of the six foods were displayed on every trial, one food per row, for a total of 24 portions. Children were given a smaller egg tray with four cups in which to place four portions that they selected on a given trial. Experimenters found that this step helped children keep track of how many portions of food they had selected on each trial. Subjects also received a brown paper bag with their names on it into which they emptied the small tray and stored their snack foods.
In the reporting area, portions of each snack food were displayed in separate paper cups. During the part of the study in which contingencies were operative, several small toys (e.g., small cars, coloring books, modeling clay, etc.) were also displayed in the reporting area. Reinforcement tokens consisted of poker chips with which subjects "bought" toys at the end of the study.

Procedure

Data for each subject were collected in one session that lasted about 1½ hours. The first experimenter (1) took each child individually to the reporting area where he introduced the snack foods by naming them and instructing the child to taste them. Children rinsed their mouths with water between foods.

A second experimenter (2) then led the child to the snack selection area and modeled the selection procedure while reading the following instructions:

You are going to get to choose a bunch of different pieces of food that you can save for a snack. Later we will take some time to sit down and eat our snacks together. The way it works is that you will pick four pieces of food at a time. As you pick each piece of food you can put it in this tray. When you have picked all four pieces take a good look at them so that you will remember which ones you picked; you will need to know that later. You can pick whatever snacks you want. For instance, you may pick four of the same kind,
or you may pick different kinds. Pick whatever you think you will like to eat later. After you look at the snacks, you may dump it into your snack bag, and close it. What you choose will be your secret. You will only pick four pieces at a time, but you will be able to keep coming back and in the end you will have lots of snacks. After you close your bag you can put it in your snack spot over here, and sit down to wait for me to tell you to go.

Experimenter 2 then queried the child to make certain he or she understood the procedure. When it was clear that the child understood, he or she was left alone in the selection area to make the first selection. Experimenter 2 then instructed the child to set aside the snack bag and go to the reporting area.

In the reporting area, Experimenter 1 inquired what snacks the children had selected and recorded their responses. The children continued to alternate between making snack selections and reporting what they had selected until all experimental manipulations had been administered. Experimental manipulations were made by Experimenter 1 in the reporting area. They consisted of different instructions stating reinforcement contingencies and implying the level of monitoring.
Design

There were seven experimental conditions defined as different levels of monitoring and different reinforcement contingencies. (See Table 1.) The seven conditions were Baseline (Condition A), Noncontingent Reinforcement (Condition B), Target Reinforcement (Condition C), Monitored Target Reinforcement (Condition D), Correspondence (Condition E), Second Baseline (Condition A'), and Target Reinforcement with Nontarget Punishment (Condition C'). Each condition continued until stability of corresponding/noncorresponding reports was observed (i.e., similarly accurate reports in at least two consecutive trials). Data were compared across these conditions, within subjects. The study also included two subject groups (Honest and Dishonest) that experienced the same procedure, thus allowing comparisons across children.
In keeping with exploratory single subject research and in attempting to enhance the manipulation, the experimenters carefully and methodically adapted the protocol over the course of the study. (See Table 2.) Slight changes (noted below) were made in the instructions after Andy and Brad had completed the protocol, in order to emphasize the unmonitored nature of Conditions A, B, and C. Chuck, Dean, Fred, Eve, Greg, Helen, and Isaac completed the protocol with these modified instructions. The order of experimental conditions for these first nine subjects are displayed in Figures 1 and 2. To investigate the possible influence of participation in Baseline (Conditions A) and Noncontingent Reinforcement (Condition B), Leo skipped these conditions and started with Condition C (displayed in Figure 2). For the three remaining subjects, two changes were made in the manipulation. In order to increase motivation for behavior change, Jon and Keith experienced punishment for nontarget responses in addition to reinforcement for target responses (Condition C' rather than Condition C). Max also experienced Condition C' in place of Condition C, and to discern learning that occurred from experiencing the contingencies within the study, Max was tested on two target foods consecutively. To rule out the possible influence of Noncontingent Reinforcement, Jon, Keith, and Max skipped Condition B, moving directly
from Condition A to Condition C'. The order of conditions for these 3 subjects is displayed in Figure 3.

Insert Table 2 about here.

Experimental Conditions

Baseline (Condition A). The experimenter showed the subject a portion of each snack choice and said, "Did you choose any (snack name) this time?" If the response was "yes", the experimenter responded with "How many?" After the child responded "yes" or "no" for each food, he or she was allowed to return to the selection area and begin the next trial. On the second trial, Experimenter 1 pretended to inaccurately guess the foods the subjects selected, in order to create the impression that he was unaware of actual selections.¹

Noncontingent Reinforcement (Condition B). The procedure in this condition was like that during baseline with one exception. Prior to the child's report of what foods were selected, the experimenter displayed several small toys and read the following instructions:

Starting now you will be able to win plastic money. Some people will win enough money to buy one of these toys at the end. How much money each toy costs is a secret so you will want to get as many pieces as you can. Right now all you need to do to win money is to keep telling me what snacks you pick. Do you have any questions? If you miss out on
any tokens, you probably will not have enough to buy a toy. In this condition the child was awarded one token at the end of each session. Reporting of food choices followed procedures from the baseline condition.

**Target Verbalization (Condition C).** Referring to baseline data, Experimenter 1 designated the food chosen least frequently by each child as the "target food." When foods were selected with similar infrequency, selection of target food was randomly determined by Experimenter 1. On the first trial of this condition, the experimenter said, "Now, it's really important to tell me you chose a lot of the _ (target snack)_, so this time I will give you a token for each one of those that you say you picked. Do you understand?" Additional questions were asked as necessary to ensure that the child understood the contingency. For instance, the experimenter might have asked, "Now, what do you need to do to get tokens?" or "What if you say you picked (non-target food)?" Reporting of food choices followed procedures from the baseline condition except that the child received a token for each report of selecting the target food. Following each report of having selected the target food, the experimenter responded by saying, "Good," and gave the child a token. Following reports of selecting a non-target food, the experimenter responded by saying nothing and nodding his head. When the child reported each snack choice, he or she returned to the selection room for the next trial. Before obtaining the child's report in the remaining trials of this phase, the experimenter said, "Remember
now, to get tokens you need to say you picked the ___(target snack)___." The rest of the procedure remained the same.

**Monitored Target Reinforcement (Condition D).** This condition was the same as Condition C with the following changes. During reporting of food choices, the experimenter responded to inaccurate reports by saying, "But you didn't really pick that." The experimenter responded to accurate reports by saying, "You really did pick that." Tokens were delivered for reports of selecting the target regardless of accuracy. The rest of the procedure remained the same.

**Correspondence (Condition E).** This condition was the same as Condition D, except that the experimenter delivered tokens only for accurate reports of having selected target foods.

**Second baseline (Condition A').** A second baseline condition, identical to the first, followed the last experimental condition. This condition continued until accuracy of food choice reporting returned to baseline levels.

**Target reinforcement and Nontarget Punishment (Condition C').** After 15 subjects had completed the protocol as described above, the experimenters wished to investigate the possibility that a stronger manipulation was necessary to prompt inaccurate reports of selecting the target food. To increase the intensity of the manipulation in Condition C, the experimenter added a response-cost contingency in this condition by substituting the following instruction: "Now it's really important to tell me you chose a lot of the ___(target snack)___, so this time I
will give you one token for each one of those you tell that you picked. Also, I will take away one token for each snack you picked that was not (target snack). Do you understand?" Conditions D and E were adapted in these trials to reflect these changes, as well. The contingency was implemented as described in these instructions.

**Debriefing.** After subjects had completed the second baseline, Experimenter 1 questioned them about their understanding of the study's purpose. The experimenter then explained the purpose of the experiment, noting that this was a make-believe situation and that in real life, people are better off telling the truth. Children who told the truth were praised for having done so. This interview provided the format for an informal manipulation check.

**Measures**

Experimenter 2 determined the number of each snack selected by counting the empty cups in the egg tray. Experimenter 1 recorded subjects' reports of their selections as they responded to questions in the reporting area. An observer, naive to the conditions of the experiment, recorded data from audio tapes of a sample of subjects' selection reports in order to monitor reliability of Experimenter one's observations. Percentage of agreement between the naive observer and the experimenter who recorded the data ranged from 90% to 100% with overall agreement at 96.5%. Types of lies the children had told frequently in the past were recorded by parents on the lying behavior questionnaire (see Appendix). Behavior problem scores were obtained from parents' responses on the CBCL.
Results

Correspondence Data

Data for subjects' selections of target foods and subsequent reports are presented in Figures 1, 2, and 3. Convergent data points indicate accurate reports of how many pieces of the target food were selected. Divergent data points indicate inaccurate reports.

__________________________

Insert Figures 1, 2, and 3 about here.

__________________________

Baseline. Baseline data indicate overall reliability of children's reports of how many pieces of target food they selected. Three subjects (Eve in Figure 1; Jon and Max in Figure 3) were inaccurate on one report during baseline, probably due to becoming familiar with the procedure. By definition, children selected target foods infrequently during baseline. Seven of the children did not select any of the target food; four of them selected one piece; one selected two pieces.

Noncontingent Reinforcement. The addition of noncontingent reinforcement for children's reporting of the foods they picked effected no changes in level of accuracy nor frequency of selecting target foods. All subjects accurately reported low levels of selecting target foods in this condition.

Target Reinforcement. Ten of 13 subjects participated in this condition. On the first trial of this condition, when subjects had
selected snacks before becoming aware that reinforcement was contingent on reporting that they had selected the target food, 8 of 10 subjects (80%) accurately reported that they had selected no pieces of the target food. Honest reporting on this trial resulted in failure to gain tokens, and risk of losing the prize. Only two of the subjects (20%) reported having selected pieces of the target food when in fact they had not. Andy reported having selected one when he had actually selected none, and Dean reported having selected two, when he had actually selected none. These two subjects returned to their previous truth-telling on the next trial, however, by selecting target foods and accurately reporting about their selections. Therefore, all subjects changed their verbal behavior and corresponding nonverbal behavior once they were aware of the target contingency and could choose their snack selections accordingly.

**Monitored Target Reinforcement and Correspondence.** No change in truthfulness was observed in these conditions. In actuality, the subjects' experience of these conditions was no different than that in Target Reinforcement or Target Reinforcement with Nontarget Punishment because their reports were always accurate. Thus the experimenter was not able to disconfirm any reports and always delivered reinforcing after accurate reporting of selections.

**Second Baseline.** Accuracy during this condition was similar to that in the initial Baseline conditions. One subject (Greg), who made a previous inaccurate report unrelated to reinforcement contingencies,
made one inaccurate report in this condition. Frequency of selecting the target food decreased to the level observed in the initial Baseline conditions for 10 of 13 (77%) subjects.

**Target Reinforcement with Nontarget Punishment.** Three subjects participated in this condition rather than the Target Reinforcement condition. Data for this condition, shown in Figure 3, reveal levels of compliance with the contingency similar to those for the Target Reinforcement condition. Only one subject lied to obtain additional tokens. Jon reported that he had selected two pieces of target food when in fact he had selected only one piece. On subsequent trials, however, he returned to his previous truthful status. Max remained truthful in this condition, even when the target food was changed after he had experienced punishment and reinforcement for reports on a first target food. On the first trial of this condition he accurately reported that he had selected no gummi candy, thus losing 4 tokens. On the next trial he changed his nonverbal behavior so as to gain tokens. When the experimenter switched the target food to cracker, Max again accurately reported that he had selected none and lost 4 more tokens. Keith, the other subject in this condition, took two trials to change his nonverbal behavior thus losing 4 tokens. He too was honest throughout.

**Effects of Baseline and Noncontingent Reinforcement on subsequent honesty.** The data for Jon, Keith, Leo, and Max suggest that the level of correspondence observed in the Target Reinforcement and Target
Reinforcement with Nontarget Punishment conditions is not due to experience with truth-telling during the Baseline and Noncontingent Reinforcement conditions. Leo's reports were entirely accurate, although he had no experience reporting his food selections prior to the Target Reinforcement condition. Furthermore, although Jon, Keith, and Max moved directly from Baseline to Target Reinforcement with Nontarget Punishment, the accuracy of their reports was similar to that of subjects who participated in the Noncontingent Reinforcement condition.

**Honest versus dishonest subjects.** Two subjects, Andy and Max, met the criteria for having a dishonest history. Of these two, only Andy was dishonest in the study, and his dishonest behavior resembled that of those subjects with an honest history who lied (i.e., Dean and Jon). These data suggest that history of lying—as assessed in this study—had no impact on subjects' behavior in this study.

**Excluded subjects.** Selection and report data were collected for an additional 5 subjects who completed the protocol, but whose parents did not complete the CBCL nor lying questionnaire. The results for these children were similar to those presented, and thus were not included in the data analysis.

**Behavior History Data**

Information about subjects' past behaviors was collected with the CBCL and the Lying Questionnaire. Comparisons were made between subjects with honest versus dishonest histories and between subjects who did lie in the study versus those who did not. Because of the small
sample sizes, conclusions and generalizations are quite tentative. Furthermore, there were too few observations per cell to satisfy statistical assumptions; thus no statistical comparisons were made.

**Behavior problem scores.** Means and standard deviations for CBCL Internalizing, Externalizing, and Total scores are displayed in Table 3. Mean standard scores for behavior problems were higher for dishonest subjects versus honest subjects, on the Total scale, Internalizing scale, and Externalizing scale of the CBCL. The CBCL showed similar differences when comparing subjects who lied in the study versus those who did not, on Total scale and Externalizing scale, but not on the Internalizing scale. Taken together these comparisons suggest that lying may be part a larger of constellation of behavior problems, particularly externalizing behaviors.

Insert Table 3 about here.

**Lying Questionnaire.** Children with a history of dishonesty also tended to score higher on the Lying Questionnaire than those with a history of being honest for Frequency and Frequency Compared to Peers (also in Table 3). Differences were similar in comparisons between subjects who lied in the study and those who did not.

The groups were also compared on types of lies they told most often. Figure 4 illustrates the percent of children in each group whose parent endorsed a reason for lying as occurring most frequently.
Children with an honest history developed a similar profile to those with a dishonest history. In these groups, two of the most prevalent reasons for lying were 1) to cover up something else done wrong and 2) to test limits. The three least frequent reasons were 1) bragging, 2) thinking the lie was true, and 3) for no apparent reason. Of the subjects with a history of lying, it is further interesting to note that all of the reasons for lying were instrumental (i.e., not to brag, because they believed it to be true, nor for no apparent reason). This was true of no other group in the study.

Dividing the subjects into groups of those who lied in the study and those who did not revealed somewhat different profiles. Of those who lied in the study the two most frequent reasons for telling lies were 1) to cover up something else done wrong and 2) testing limits; whereas, the two most frequent reasons for lying among those who did not lie in the study were 1) to cover up something else done wrong and 2) to get something. Surprisingly, none of the subjects who lied in the study had a history of lying to get something.
Discussion

This study sought to examine the effect of being monitored by an adult on children's truthfulness. Children played a game in which winning a prize was made contingent on reporting that they had selected low-desirability foods. The primary dependent variable was the accuracy of subjects' reports of what foods they had selected. The data, presented in Figures 1, 2, and 3, offer partial support of the hypotheses.

Subjects reliably reported foods that they had selected during the Baseline and Unconditional Reinforcement conditions. Except for an occasional sporadic error in reporting, all subjects reported accurately. Adding noncontingent reinforcement in Condition B caused no changes in the types of food that were selected, nor in the level of accuracy in reporting. These results are consistent with those from numerous correspondence training studies that included similar conditions (e.g., Israel, 1973; Israel & Brown, 1977; Karoly & Dirks, 1977; Risley & Hart, 1968), and they confirm the ability of the subjects to reliably report nonverbal behaviors. In the absence of contingencies, all children were equally truthful, regardless of lying history.

Condition C made reinforcement contingent upon reporting that one selected a target food (i.e., a food with a previous low frequency). Condition C' was similar but added the aspect of token loss for selecting nontarget foods. The first trial of these conditions was of
particular interest because in this trial, the contingency was changed after subjects had selected food but before they reported, thus making it impossible to earn tokens without issuing an inaccurate report. Surprisingly, only 23% of the subjects (n = 3) lied on this trial and consequently inflated the number of tokens they received. The remainder of the subjects accurately reported that they had selected no pieces of the target food, thus forfeiting tokens, and ostensibly risking loss of the prize. Within two trials all of the subjects adapted their nonverbal behavior in order to conform to the contingency without lying. Not only did their verbal behavior conform to the contingency, but so did their corresponding nonverbal behavior. In other words, nonverbal behavior changed even though reinforcement was not contingent on nonverbal responding.

These results are different from those reported for similar conditions in every published correspondence training study to date. In previous studies, most of the subjects reported having performed the target behavior without actually having done so. Investigators of correspondence training have concluded that rewarding verbalizations about nonverbal behaviors would change the verbalizations but not the nonverbal behaviors, themselves. The results of the present study suggest that under some conditions, reinforcement contingent upon reports of target nonverbal behaviors will increase the frequency of those reports and of the behaviors themselves.
The accuracy of subjects' reports persisted throughout the remaining trials, thus precluding the analysis of increased levels of monitoring (Condition D), or of making reinforcement contingent upon target reports that corresponded with target nonverbal behaviors (Condition E). Because subjects changed their nonverbal behavior as well as their verbal behavior in the Target Reinforcement condition, no further manipulations were possible.

Several possible explanations for the high level of honesty in this study as compared with previous studies in correspondence training should be considered. One is that the subjects in this study were more developmentally advanced than those in previous studies. Many of the correspondence training studies were conducted in preschools or special education classes for the mentally retarded. However, in an examination of factors affecting the accuracy of children's self-reports, Ribeiro (1989) concluded that older children were more likely to inaccurately report on their behavior so as to gain reinforcement. Eckman (1989) reported that almost all mothers of 5-year-olds believed that their children would lie deliberately, and the prevalence increased to 100% for mothers of 6-year-olds. However, he further notes that children are more likely to be successful at older ages and tend to adopt a consistently instrumental conception of lying. These lines of argument would predict much higher levels of dishonesty than those reported here for school-age children.
Another possibility is that subjects' experience with reporting in the Baseline and Noncontingent Reinforcement conditions inadvertently provided a history of reinforcement for accurate reporting, thus establishing a pattern of accurate responding. Two facts argue against this possibility. Subjects in previous studies that evinced inaccurate reports also experienced noncontingent reinforcement during the baseline conditions. Furthermore, three subjects in this study did not participate in the noncontingent reinforcement condition and another subject did not participate in the Baseline or Noncontingent Reinforcement conditions, yet the accuracy of their reports were similar to that of other subjects.

A third factor that may have contributed to the honesty observed in this study is stimulus generalization based on the learning history of the subjects prior to participation in the study. The hypotheses of this study relied on the expectation that children with a history of lying had experienced a low level of parental monitoring. However, all of these children had experience with school, a setting that involves an extraordinarily high level of monitoring. Although the ratio of children to adults tends to be higher at school than at home, a central role of grade school teachers is to supervise their students. At times when the teacher is occupied with other tasks, the peer group provides several other witnesses, thus leaving little time when no one is monitoring a child's behavior. Furthermore, grade school provides a set of behavioral standards and consequences which are applied uniformly to
children with diverse home-lives. This information is consistent with data indicating that while teachers tend to see lying as seriously as parents, they tend to report a lower incidence of problematic lying (Stouthamer-Loeber, 1986).

In many ways the setting in which this study took place was more similar to school than home. The experimenters were relatively unfamiliar adults who dressed semi-formally, similar to school teachers or administrators. Some of the subjects actually completed the study in the hallway of their school, and the remainder of the subjects completed the study in a setting with a clearly institutional appearance. It is possible that the features shared by the setting of the study and school served as a collective discriminative stimulus signalling that a reinforcement contingency was in place for honest behavior or conversely that a punishment contingency was in place for dishonest behavior.

Some researchers have recently suggested that correspondence training may constitute an example of rule-governed behavior (Deacon & Konarski, 1987; Ward & Stare, 1990). Briefly, the concept involves the development of a verbal rule that serves as a discriminative stimulus to signal the availability of a reinforcer for performing a behavior which is stated in the rule (c.f. Baldwin & Baldwin, 1981; Cerruti, 1989). One study reported that a subject did not generalize correspondence across behaviors until she was taught a "correspondence rule" (Williams & Stokes, 1983). Deacon & Konarski (1987) found that subjects who had been reinforced for reporting a target behavior then reinforced for
performing that behavior without reporting about it, later increased the frequency of a second nonverbal behavior when reinforced for simply reporting that they had performed it. That is, they generalized correspondence although they had not received correspondence training per se. The authors proposed that when subjects generalize correspondence from one behavior to another, they are actually using a generalized correspondence rule which states, "In order to get the reinforcer, I must state that I performed the requested behavior, and I must have actually performed that behavior." They further suggested that this rule could be developed from experience with reinforcement for its two component rules (i.e., "Report what I did" and "Do the target behavior"). The results of the present study could be interpreted as evidence that the subjects entered the study with a correspondence rule in place. In other words, perhaps the subjects were operating on the basis of a rule that stated, "In situations like this one, I am most likely to get the reward if I tell the truth." The fact that they were insensitive to the actual contingencies in place for this study is consistent with the demonstrated characteristics of rule-governed behavior (Baldwin & Baldwin, 1981; Cerruti, 1989). In exit interviews, some of the subjects were asked why they had not simply lied to get the tokens. While most of them simply said, "I don't know," one subject replied, "Because I wouldn't have gotten the prize"--a rule that honesty is the best policy. It should be noted that while data from the present study are consistent with the notion of rule-governed behavior, these
comments are speculative and are by no means conclusive.

Parents' ratings of the most frequent reasons for lying were largely similar for children with honest and dishonest histories. The two most frequently cited reason for both groups was to avoid punishment for something else they had done wrong. The second most frequently cited reason among dishonest subjects (to test limits) was also a top reason among honest subjects, although it tied with attention-getting, to get something, and protecting oneself in the latter group. Comparing subjects who lied in the study with those who did not revealed more striking differences. Among subjects who were honest in the study, the two most frequent reasons for lying were to avoid punishment for something else they did and to get something they wanted. This finding is consistent with previous data regarding reasons children tell lies (Eckman, 1989; Stouthamer-Loeber, 1986). While subjects who lied in the study had a history of lying to avoid punishment, all of them also tended to lie in order to test limits, compared with only 30% (n = 3) of the honest subjects. This tendency to lie in order to test reinforcement and punishment contingencies in a situation is logical in light of the unfamiliar nature of the contingencies in the present experiment. As noted previously it was also the second most frequently cited reason for subjects with a dishonest history. This finding suggests that some children utilize lying as a means of exploring environmental contingencies and/or how they will be enforced. These questionnaire data should be interpreted with caution since no data are
available regarding their validity or reliability and the sizes of the
groups are small.

Behavior problem scores for subjects in the present study are in
accordance with data in the literature that shows a relationship between
lying and other problem behaviors. Subjects with a history of dishonest
behavior had higher behavior problem scores on the Total, Internalizing,
and Externalizing scales of the CBCL. Similarly, subjects who lied in
the study tended to have higher behavior problem scores than subjects
who did not lie. Subjects with a dishonest history and subjects who
lied in the study also tended to have higher scores on the lying
questionnaire than their honest counterparts.

These results indicate several possible directions for future work
in this line of research. Modifications to this protocol might increase
the frequency of lying by eliminating cues that may serve as
discriminative stimuli for monitoring contingencies. One such change
would be to conduct the study in a more naturalistic setting, such as a
child's home or other non-structured setting. This endeavor would
logically be preceded by empirical documentation about specific
locations and social situations in which children with a dishonest
history have lied in the past. These adaptations might involve
employing adults with whom the youngsters are familiar in the role
recording responses. The task itself could be less structured so that
it would seem less likely that lies would be noticed. For example, the
foods could be displayed in bowls with several dozen portions available
rather in trays with portions displayed individually.

The study could be restructured so that several children played the game simultaneously and reported their selections together. This arrangement might increase the level of dishonesty by offering the children models of successful lying as was noted in a previous study (Ribeiro, 1989). A more controlled investigation of the effects of modeling could include a child acting as a confederate who was instructed to lie. A videotape of a child who blatantly over-reported the target behavior would provide standardized symbolic modeling. Similarly, standardized verbal prompts from one of the experimenters or from a confederate in the study might further heighten the salience of the manipulation.

Another possible change in the protocol would be to choose a target behavior that was more dramatically aversive. While the target snacks in this study were those foods that were selected least often, they did not seem to be equally aversive to all of the subjects. Some subjects refused to swallow some foods when they were sampling them at the beginning of the protocol, while others did not seem to actively dislike any of the foods. Furthermore, it is possible that some subjects believed that they would not be forced to eat the snacks once they had won a prize. These problems could be remedied by basing the selections on parental reports of foods for which the child showed strong affinity or dislike, and requiring the child to eat the snack after each trial. Another possible method for making the target food
equally aversive to all subjects would be to use an additive to make it extremely salty or sour.

Because previous correspondence training studies observed a relatively high incidence of lying among subjects who were mentally retarded or who were younger than subjects in the present study, a more systematic comparison between age groups would also be in order. Such studies should include a standardized measure of cognitive development rather than simply using chronological age. Differences in honest behavior between various levels of cognitive functioning could provide insight into the operational role of dishonesty and the skills necessary to implement it.
Literature Cited


children. *Psychology in the Schools*, 20, 93-98.


Appendix

BEHAVIOR QUESTIONNAIRE

Please complete the following statements by circling the number that describes your child.

1. My child is dishonest ("tells stories", "fibs", "lies", "has trouble with the truth", etc.) . . .

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>seldom.</td>
<td>sometimes.</td>
<td>often.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. This dishonest behavior began around the age of ___ years.

3. When it occurs, my child's dishonesty creates problems for me . . .

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>seldom.</td>
<td>sometimes.</td>
<td>often.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. When it occurs, my child's dishonesty creates problems for my child . . .

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>seldom.</td>
<td>sometimes.</td>
<td>often.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

45
5. When it occurs, my child's dishonesty creates problems for teachers . . .

| 1 | 2 | 3 | 4 | 5 |
|---------|---------|---------|---------|
seldom. sometimes. often.

6. When it occurs, my child's dishonesty creates problems for other caretakers (babysitters, grandparents, etc.) . . .

| 1 | 2 | 3 | 4 | 5 |
|---------|---------|---------|---------|
seldom. sometimes. often.

7. When it occurs, my child's dishonesty creates problems for his or her peers . . .

| 1 | 2 | 3 | 4 | 5 |
|---------|---------|---------|---------|
seldom. sometimes. often.

8. I believe my child is dishonest more than other children his/her age and sex.

| 1 | 2 | 3 | 4 | 5 |
|---------|---------|---------|---------|
strongly agree strongly disagree agree
9. Reasons for my child's dishonesty are (check all that apply). . .
   _ bragging; trying to look good
   _ getting attention
   _ trying to get something
   _ protecting him/herself (from stranger, bully, etc.)
   _ protecting someone else
   _ hiding something he/she did wrong
   _ he/she imagines that it is true
   _ seeing what will happen; testing limits
   _ no apparent reason
   _ other ______________________
       __________________________
       __________________________
**Please circle the three most frequent reasons.

10. My child refuses to eat and/or is allergic to the following food(s):
    __________________________
    __________________________
    __________________________

Thank you!

David L. Jaquess
Footnotes

1 Experimenter 1 issued no guess for Andy or Brad who were among the first subjects to participate in the study. The guess was added to enhance the impression of not being monitored.

2 To Andy and Brad, the experimenter did not say, "If you miss out on any tokens, you probably will not have enough to buy a toy." This instruction was added to increase motivation to win tokens.

3 For Andy and Brad, the experimenter said, "Now it's really important that you choose a lot of the (target snack), so this time I will give you a token for each one of those that you picked. Do you understand?" The change in instruction from "Now it's really important that you choose . . ." to "Now it's really important to tell me you chose . . ." was made to enhance the impression of not being monitored. On subsequent trials the experimenter prompted with, "Remember now, to get the tokens, you need to have picked the (target food)."
Table 1

<table>
<thead>
<tr>
<th>Condition</th>
<th>Variable of interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Reliability of reports without reinforcement</td>
</tr>
<tr>
<td>B</td>
<td>Presence of a noncontingent reinforcer</td>
</tr>
<tr>
<td>C</td>
<td>Reinforcement of a target response</td>
</tr>
<tr>
<td>D</td>
<td>Monitoring</td>
</tr>
<tr>
<td>E</td>
<td>Reinforcement contingent on correspondence</td>
</tr>
<tr>
<td>C'</td>
<td>Reinforcement of target and punishment of nontarget</td>
</tr>
</tbody>
</table>
Table 2

List of subjects by version of the protocol.

<table>
<thead>
<tr>
<th>Subject(s)</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andy, Brad</td>
<td>Original instructions for Target Reinforcement:</td>
</tr>
<tr>
<td></td>
<td>A-B-C-D-E-A'</td>
</tr>
<tr>
<td>Chuck, Dean, Eve,</td>
<td>Modified instructions for Target Reinforcement:</td>
</tr>
<tr>
<td>Fred, Greg, Helen,</td>
<td>A-B-C-D-E-A'</td>
</tr>
<tr>
<td>Isaac</td>
<td></td>
</tr>
<tr>
<td>Leo</td>
<td>Modified instructions for Target Reinforcement;</td>
</tr>
<tr>
<td></td>
<td>Baseline and Noncontingent Reinforcement omitted:</td>
</tr>
<tr>
<td></td>
<td>C-D-E-A'</td>
</tr>
<tr>
<td>Jon, Keith</td>
<td>Modified instructions for Target Reinforcement</td>
</tr>
<tr>
<td></td>
<td>and Nontarget Punishment; Noncontingent Reinforcement omitted: A-C'-D-E-A'</td>
</tr>
<tr>
<td>Max</td>
<td>Modified instructions for Target Reinforcement</td>
</tr>
<tr>
<td></td>
<td>and Nontarget Punishment with two foods used consecutively as target snacks; Noncontingent Reinforcement omitted: A-C'-D-E-A'</td>
</tr>
</tbody>
</table>
Table 3. Results from behavior history questionnaires.

<table>
<thead>
<tr>
<th></th>
<th>Honest History</th>
<th>Dishonest History</th>
<th>Honest in Study</th>
<th>Dishonest in Study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>n</strong></td>
<td>11</td>
<td>2</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td><strong>CBCL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>53 (11.07)¹</td>
<td>69.5 (2.12)</td>
<td>54.38 (13.42)²</td>
<td>60.3 (6.81)</td>
</tr>
<tr>
<td>Internalizing</td>
<td>51.1 (11.43)¹</td>
<td>63.5 (4.95)</td>
<td>53.5 (13.32)²</td>
<td>53 (6.24)</td>
</tr>
<tr>
<td>Externalizing</td>
<td>54.3 (11.21)¹</td>
<td>69.5 (4.95)</td>
<td>54.75 (13.29)²</td>
<td>63.3 (2.31)</td>
</tr>
<tr>
<td><strong>Lying Questionnaire</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>11.36 (5.64)</td>
<td>21 (2.83)</td>
<td>11.8 (6.27)</td>
<td>16.3 (6.43)</td>
</tr>
<tr>
<td>Frequency</td>
<td>2.09 (1.22)</td>
<td>4.5 (0.71)</td>
<td>2.2 (1.4)</td>
<td>3.3 (1.53)</td>
</tr>
<tr>
<td>Compared to peers</td>
<td>1.36 (0.67)</td>
<td>2 (1.41)</td>
<td>1.67 (1.15)</td>
<td>1.4 (0.7)</td>
</tr>
</tbody>
</table>

¹\(n = 9\) due to incomplete CBCL for 2 subjects
²\(n = 8\) due to incomplete CBCL for 2 subjects
Figure 1. Number of pieces of target food reported and number actually selected with reinforcement for reporting target behavior. Convergent data points indicate honest reports, \( x \) = honest history; \( \times \) = dishonest history. One child with a dishonest history (Amy) and one child with an honest history (Dean) lied on one occasion. In Target Reinforcement condition, subjects began to select the target food although reinforcement was contingent on simply saying that one had done so.
Figure 2. Number of pieces of target foods reported and number actually selected for additional subjects with reinforcement for reporting target behavior. Convergent data points indicate honest reports. * = honest history. All 5 subjects reported honestly. Lew did not experience reporting prior to Target Reinforcement condition but still reported honestly.
Figure 3. Number of pieces of target foods reported and number actually selected with reinforcement for reporting target behavior and punishment for reporting nontarget behavior. Convergent data points indicate honest reports. × = honest history; + = dishonest history. One child with an honest history (Ian) lied on one trial. Ian experienced contingency consecutively on two target foods.
Frequency by Behavior History

Frequency by Study Behavior

Types of Lies
A. Stealing
B. Attention-seeking
C. To get something
D. Self-promotion
E. Cover-up
F. Think it's true
G. Test limits
H. No reason

Figure 4. Frequent motives for lies told in the past for subjects with honest versus dishonest histories (top graph) and those who did lie in the study versus those who did not (bottom graph). Compared by history of lying, motives were similar, although all motives for subjects with a dishonest history were operant-oriented. Compared by behavior in the study, subjects who were dishonest in the study lied more frequently to test limits and less frequently to get something than did their honest counterparts.
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EDUCATION

VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY (August 1988-present).  
Master of Science in Clinical Psychology.  
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Bachelor of Arts Degree in Psychology (Music Minor).  
Graduation Date: May 1985.  GPA 3.94/4.00

WORK EXPERIENCE

NATIONAL INSTITUTE OF MENTAL HEALTH (NIMH) FELLOW, VPI & SU, May 1990 to present. Design and implement study of individual and familial etiological factors of depressed and conduct disordered adolescent inpatients.

GRADUATE ASSISTANT, Psychological Services Center and Child Study Center, VPI & SU, August 1989 to May 1990. Review client files, train first-year clinical psychology graduate students in clinical interviewing, administrative responsibilities for the clinical centers.

DIRECTOR OF DAY CAMPS, New River Community Action, May 1989 to August 1989. Responsibilities: Plan, organize, and supervise summer day camps serving 150 low income youths, ages 3-13; Train and supervise volunteer staff; Supervise purchase and use of equipment, supplies, and vehicles; Coordinate publicity; Oversee operation and records for USDA Summer Feeding Programs; Act as agency liaison for accidental injury research project.

GRADUATE CLINICIAN, Psychological Services Center and Child Study Center, VPI & SU, August 1988 to May 1989; August 1989 to May 1990. Responsibilities: Provide supervised clinical evaluation and treatment services for child, family, and adult clients in the Department of Psychology's training clinics.

GRADUATE TEACHING ASSISTANT, VPI & SU, August 1988 to May 1989. Responsibilities: Lead lab discussions for Introductory Psychology, instruct and evaluate 50 students, Lead review sessions, Participate with teaching team in designing lesson plans and test questions, Proctor examinations.
GROUP LIFE COUNSELOR, Graydon Manor Psychiatric Hospital for Children and Adolescents, August 1986 to August 1988. Responsibilities: Provide basic child care for twenty-three emotionally disturbed boys, Record daily behaviors, Utilize group process and individual treatment plans as therapeutic interventions (within a behavior modification framework), Supervise less-experienced staff members, Write and present quarterly clinical reports at case conferences, Lead staff in-service training, Complete training in Non-violent Crisis Intervention.

EXTENSION AGENT-YOUTH, Loudoun County Cooperative Extension Service, May 1987 to October 1986 (Part-time). Responsibilities: Organize and administrate day camp for underprivileged youth, Act as liaison and advocate for volunteer adult leaders, Support county-wide 4H events (eg. County fair, 4H Camp), Coordinate public relations campaign for National 4H Week and Loudoun County trade exposition.

PROGRAM ASSISTANT, SUMMER YOUTH PROGRAM, Grace Presbyterian Church, June 1984 to August 1984. Responsibilities: Design and lead recreational and educational programs in an inner-city day camp, Supervise city-funded youth workers, Institute program documentation and evaluation system, Complete Hot-line Training for abused women's shelter.

HONORS AND AWARDS

HONOR SOCIETIES
Alpha Lambda Delta
Phi Eta Sigma
Psi Chi (Psychology)
Mortar Board

FELLOWSHIP
NIMH Fellow in Child Clinical Psychology

PAPERS AND PRESENTATIONS


