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The Imitation of Prosocial Behaviors in Children: The Effects of Peer and Adult Models and Vicarious Reinforcement

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THE IMITATION OF PROSOCIAL BEHAVIORS IN CHILDREN:
THE EFFECTS OF PEER AND ADULT MODELS
AND VICARIOUS REINFORCEMENT

by
Richard Louis Sanok

A dissertation submitted in partial fulfillment of the requirements for the degree of
DOCTOR OF PHILOSOPHY
in
Psychology

UTAH STATE UNIVERSITY
Logan, Utah
1980
ACKNOWLEDGMENTS

This dissertation would not have been possible without the support and help of many people. I am indebted to Dr. Frank R. Ascione, teacher, colleague, and friend. His suggestions, encouragement, advice, and support were invaluable during the formulation of this dissertation.

I would like to thank Dr. Richard M. Lerner who stimulated my interest in human development; Dr. Marvin Fifield for allowing me to conduct this research at the Exceptional Child Center; and Joseph Williams for many hours of technical and statistical assistance.

I am especially grateful to my loving wife, MaryEllen, for her love, confidence, sacrifice, patience, and prayers.

Finally, a special thanks goes to my parents, Louis and Jeanette Sanok, whose everpresent love and enthusiasm have supported me throughout my education and life.

Richard Louis Sanok
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ABSTRACT

The Imitation of Prosocial Behaviors in Children: The Effects of Peer and Adult Models and Vicarious Reinforcement

by

Richard Louis Sanok

Utah State University, 1980

Major Professor: Frank R. Ascione
Department: Psychology

The purpose of the present laboratory study was to investigate the relative effects of sharing and nonsharing peer and adult models on the facilitation of prosocial behaviors with and without reinforcement to the model. One hundred and sixty second and third grade children served as subjects and were randomly assigned to six treatment groups and one control group. For replication purposes, half of the subjects participated in each condition prior to the second half doing so.

Children in the treatment groups viewed videotaped sequences portraying both a male and female model sharing or not sharing tokens with poor children. Models were either peers or adults. Sharing was either reinforced by praise from an adult or not reinforced; nonsharing was not reinforced.

Children in the control group viewed an entertainment program devoid of prosocial or antisocial content. All children received instructions with respect to the acquisition and distribution of tokens which were exchangeable for prizes at the end of the session.

Prosocial behaviors were assessed following the videotaped
sequences and included token donations, volunteering of work, and offering help following a staged accident. Children viewing non-sharing and nonreinforced peers had lower token donations than children in other treatment groups and the control group. Although not statistically significant findings, children who viewed peer models exhibiting prosocial behaviors that were reinforced had greater token donations and tended to help in the staged accident more than children in other treatment groups. No differences were found between treatment groups with respect to volunteering work. More children provided help in a staged accident when they had observed sharing peers who were reinforced than children in other conditions. However when children observed nonsharing and non-reinforced adults, they displayed a lower incidence of helping. Vicarious reinforcement produced greater, though not statistically significant, token donations as compared with the absence of reinforcement in both adult and peer treatment conditions. The correlations among donations, volunteering, and helping were found to be low.

Modeling in combination with reinforcement of the model was not sufficient to increase prosocial behaviors significantly beyond the performance of a control group. The contribution of peer modeling to the facilitation of prosocial behaviors in the early elementary grades appears slight. Nevertheless, peer models were especially influential in inhibiting prosocial behaviors by the modeling of antisocial responses. The observation of reinforcement contingencies applied to models only slightly increased prosocial
behaviors and can not be considered a potent variable in this behavior domain.
INTRODUCTION

In recent years there has been an increased interest in positive social (or prosocial) behavior as an aspect of human development worthy of scientific investigation. No doubt one impetus for these studies is the national indignation resulting from the seemingly pervasive and shocking indifference of many Americans to the serious, and sometimes fatal, plight of others (Latané & Darley, 1970; Zimbardo, 1969). An example of the urban American's growing indifference was the highly publicized rape and murder of Kitty Genovese in 1964. The most shocking part of the killing was that the victim lay wounded in a doorway for ten minutes while 38 persons who had seen her stabbed or heard her screams did nothing to help. Unfortunately, the Genovese murder is not an isolated incident of the lack of bystander intervention. Furthermore, other contemporary conditions (mushrooming crime, racial conflict, terrorism, injustices suffered by women, wartime atrocities) have probably contributed to society's wider concern for the development of prosocial conduct.

In contrast to the sometimes vicious, selfish, and inhuman behaviors of human beings, the positive attributes of man are evidenced in displays of kindness, love, generosity and similar positive actions. One example was the heroic action of a petite Connecticut mother who saved the life of an injured truck driver by dragging him up a steep highway embankment moments before his oil truck burst into flames. Onesided theoretical positions portraying humans as either cruel or kind seem inaccurate since humans may be either or both.
What causes man to act kindly as opposed to cruelly? What motivates behavior benefitting others? How are positive social tendencies acquired and maintained? The spirit of the times as well as interest in the nature of man has spurred research about what environmental conditions facilitate or inhibit expressions of generosity, helping, and altruism, and the variables in socialization that foster or inhibit the development of prosocial behavior.

**Development of Prosocial Behavior**

Prosocial behaviors are also of interest since development of this set of behaviors constitutes a central goal of early socialization (Krebs, 1970). It is clear that children can acquire helpful, cooperative, and empathic behaviors through the influence of parents, teachers, and other socializing agents.

The development of positive social behaviors is not simply an age-dependent phenomenon. Some studies have found evidence for increased prosocial responding with increasing age (Midlarsky & Bryan, 1967; Staub & Feagans, 1969; Ugurel-Semin, 1952), but these findings are not entirely consistent (Floyd, 1964). Since age, per se, does not cause, but only correlates with, development of positive social behaviors, it should be considered an index variable rather than an independent variable in relation to the development of these behaviors. A more profitable developmental approach investigates the relationship between antecedent and consequent events and the acquisition and maintenance of prosocial behaviors. Thus, if one is concerned with explaining how a tendency for acting prosocially develops among children it is important to determine
what variables are influential in development.

**Definitional Issues Related to Prosocial Behavior**

Prosocial behavior is often defined as actions that benefit another person or group of people without the obvious presence of extrinsic consequences for the behavior. Myriad behaviors are subsumed under this rubric such as generosity, sharing of possessions, donating to charity, helping or assisting others, kindness, sympathy, and participation in activities serving to enhance public welfare.

Even a simple definition of prosocial behavior can be problematic. By what criteria is an action to be judged as beneficial? How are ulterior motives ruled out? Is it reasonable to assume that no reinforcement of any kind will result for the benefactor?

By creating situations in which a certain behavior is defined as prosocial (an operation definition), psychologists have tried to circumvent some of these issues. By using operational definitions, the variables affecting the inhibition or facilitation of prosocial behavior may be systematically studied in natural or laboratory settings.

The term "altruism" has been avoided in the present paper. Although a variety of definitions exist, altruism typically refers to self-sacrificial behavior that results in substantial benefit to another. It has been implied in past discussions of prosocial behavior (e.g. Leeds, 1963) that for an action to be altruistic, no reinforcement of any kind would result for the benefactor. Thus, prosocial behaviors are viewed out of the context of their consequences. Behavioral psychologists note, however, that sacrificial behavior,
if not reinforced in some manner, will extinguish. Staub (1978) has added that prosocial behavior should not be labelled as altruistic or not, but rather defined in context of varied motives.

But rewards for prosocial actions may not be obvious or immediate. For example, subtle social consequences for prosocial actions may come from the individuals in a person's religious community. Prosocial responses may also be separated in time from their reinforcing stimuli, for example, parents who save for their child's college education.

From a learning perspective, behaviors that appear altruistic may, in fact, be maintained in at least three ways (Ferster & Skinner, 1957; Goldiamond, 1968):

1. by lean intermittent schedules of reinforcement which maximize resistance to extinction,
2. by net gains as compared to costs,
3. through subtle or unique forms of reinforcement (e.g. masochism),

In the present paper, three operationally defined measures of prosocial behavior (viz. sharing, volunteering, and helping) will be used.

**Influences on Prosocial Behavior**

Since many determinants of prosocial behavior have been investigated, it is difficult to gain an overview of research. Previously proposed classifications of these variables, however, do provide an organizational framework for the study of prosocial behavior. Krebs (1970) and Staub (1978) together identified seven classes of independent variables:
1. Situational state variables which refer to temporary psychological states that have an immediate, temporary and relatively limited effect such as the increased salience of social norms.

2. Trait variables or personality characteristics which refer to general and lasting attributes of people such as the need for approval.

3. Social roles and demographic variables such as social class, age, and sex.

4. Social norms which refer to internalized social guidelines, such as the norms of giving and reciprocity.

5. Situations which refer to social influence, the nature of the stimulus for prosocial behavior, and the conditions surrounding the stimulus.

6. Relationships to potential recipients of help, for example the quality of prior interactions and mutual obligations.

7. Psychological processes which refer to the internal processes that mediate helping, such as memory.

The present author's interest lies in the general area of social influences on the development and facilitation of prosocial behaviors. Specifically, social influences involve the stimulus conditions produced by people that enhance or decrease the likelihood of people behaving prosocially. A subarea of particular interest is the observation of models in the acquisition and maintenance of prosocial human behavior. Even though the influence of models has been studied in diverse behavioral areas including prosocial behavior, the relationship between modeling and other influences (e.g. reinforcement) is relatively unexplored.
Relationship of Modeling to Prosocial Behavior

Behavioral scientists have approached the study of social influences on prosocial behavior in various ways including the investigation of family constellations, the presence of bystanders, and the influence of the approval of others. Among the social influence variables of particular concern to some researchers has been the role of observation of models (peer and adult) in the development of prosocial behaviors. A substantial portion of human behavior may be learned as a result of watching others behave. It has been assumed that modeling would contribute to the development of prosocial behaviors, since its effectiveness had been substantiated experimentally with children in many areas such as the reduction of phobic behaviors (Bandura, Grusec, & Menlove, 1967; Bandura & Menlove, 1968) and the modification of social withdrawal (Evers & Schwartz, 1973; O'Conner, 1969).

A number of terms have been used to describe the imitative process including "modeling," "observational learning," "behavioral example," "copying," "matched dependent behavior," and others; however, Bandura (1969) has questioned the advantage of distinguishing among the various terms. All of these descriptive terms refer to the causal relationship between a model's actions and an observer's behavior. Consequently, the term "modeling" is retained in this paper and is used to describe the process by which responses are acquired by, facilitate, or inhibit an observer in response to behavior exhibited by a live or televised model.

Why does modeling have an influence on prosocial behavior?
Krebs (1970) summarized the explanations of many writers: "At the most elementary level, models make behavioral alternatives salient. They draw attention to particular courses of action and increase the salience of social norms (p. 268)." Additionally, models may supply information about the most appropriate course of action given a certain situation or about the likelihood of external or internal rewards of punishments.

Theoretical Underpinnings of Modeling

Reinforcement Theories

Miller and Dollard (1941) noted that "the study of socialization in children" offered "innumerable examples where children match behavior." Thus, these writers proposed an explanation of modeling based on the reinforcement of imitative behavior and related modeling to a variety of social responses. They argued that the tendency to imitate in an observer results from the coincidental repetition of a modeled act and reinforcement for the observer's resultant behavior when it matches that of the model. If reinforcement does not occur, or if nonimitative behavior are reinforced, the child would no longer imitate social responses. Overall, the Miller and Dollard position suggests that children would imitate another only to the extent that they were so shaped in a step-by-step fashion by having similarity rewarded and dissimilarity punished. Skinner (1953) proposed an identical operant conditioning analysis of modeling but deleted the motivational requirement. Bandura (1971a) contends that Miller-Dollard and Skinner's interpretations explain how performance of established
matching responses are facilitated but do not adequately explain how a new matching response is initially acquired.

Albert Bandura's Social Learning Position

In contrast to Miller-Dollard and Skinner, Bandura assigns a more prominent role to cognitive functioning with respect to the modeling phenomenon. Social Learning Theory assumes that modeling serves an informative function and that observers acquire symbolic representations of modeled behavioral sequences rather than specific stimulus-response associations (Bandura, 1969). According to this view, individuals do not simply learn a separate response to each observed stimulus but rather learn a general pattern of responses and their consequences.

The modeling process. From the social learning viewpoint, four interrelated processes are necessary in order to insure imitation. The first three processes refer to acquisition of modeled behaviors and the last to subsequent performance of the behaviors. They are:

1. Attention to the model, observing appropriate and distinctive aspects of the performance,
2. Retention of the modeled events,
3. Motoric reproduction directed by internal cues to duplicate the model's actions, and
4. Incentive variables to justify the imitative act such as external, internal, and vicarious rewards.

From the social learning perspective, the reproduction of simple responses or complex response sequences is a multiprocess phenomenon
in which the absence of a major component of the phenomenon would prevent the acquisition or performance of modeled behaviors. For example, a person may acquire and retain the capability to skillfully execute a modeled behavior but learning will not result in action unless incentives were provided.

The Effects of Modeling

The ways in which modeling affects behavior (Bandura, 1965; Bandura, 1969; Bandura & Walters, 1963) include:

Acquisition of New Responses

An observer may exhibit a response previously not in his/her repertoire (novel response) following the performance of the response by the model. One example would be a child displaying a novel aggressive response after viewing a television show (e.g., the Three Stooges) when such a response was not previously in the behavior repertoire of the child.

Inhibition or Disinhibition of a Response

The observation of a model's response consequences may increase (disinhibit) or decrease (inhibit) the performance of acts of the same class as performed by the model. One example of an inhibitory effect is the reduction of aggression with observed punishment of aggressive actions (Bandura, 1965) and a disinhibitory effect is the decrease in phobic responses with observed positive consequences to a model exhibiting fearless behaviors.
Response Facilitation Effect

A model's behavior may simply provide a discriminative stimulus for the observer to facilitate the emission of a previously acquired response. For example, people looking up when they see others doing so.

Relationship of Peer Modeling to Prosocial Behavior

Although there has been extensive interest in the influence of modeling in the development of social behaviors, most of the research with children has involved adult models. Some studies show clearly that children are responsive to peer models in the development of certain responses. For example, peer models increase novel aggressive behaviors (Hicks, 1965), decrease inappropriate classroom behavior (Csapo, 1972), and decrease phobic responses (Bandura, Grusec, & Menlove, 1967).

Recently, it has been suggested by Mussen and Eisenberg-Berg (1977) that "repeated exposure to prosocial peer models might be expected to induce strong, generalized and enduring prosocial dispositions" and may, in fact, be as effective as exposure to adult prosocial models, if not more so (p. 102). What part do peer models play in the acquisition and facilitation of prosocial behaviors? Comparatively, do peer models (playmates, friends) have a greater influence on prosocial behavior than adult models (parents, teachers)? Do peer and adult models contribute in different ways to the development of prosocial behaviors?

Research in areas other than prosocial behavior suggests that
influences of peers and adults are both additive and interactive in their effects on children's behavior (Hartup, 1970). In some situations, the norms or behaviors of the peer group buttress the influences of adults. In other situations and at other points in development, peer influence is preeminent with adult influences prevailing in other situations. For instance, elementary school children have been found to imitate adults to a greater extent than peers in tasks involving suggestion and self-reward (Bandura & Kupers, 1964; Takubczak & Walters, 1959). However, among preschool children, aggressive male peer models are imitated more frequently than adults or aggressive female peers. Furthermore, Kazdin (1974) and Kornhaber and Schroeder (1975) found peer models to be more effective than adults in the area of emotional behavior. Peer models were also found to be more effective in developing concept attainment in educable mentally retarded children than adult models (Barry & Overmann, 1977). Thus, the influence of peers as compared to adults appears to depend upon the type of situation and the behavior studied.

The results of investigations aimed at determining the effects of peer models as compared to adult models on the prosocial behaviors of observers have been at best, equivocal. Additionally, an empirical comparison of adult and peer modeling effects on prosocial behavior has not been conducted.

Role of Reinforcement in Facilitating Prosocial Behavior

An issue of considerable interest is how reinforcement relates to modeling in the acquisition and facilitation of prosocial behaviors.
In everyday life positive behaviors are rewarded, ignored, or punished. Additionally, people routinely observe the behavior of others and the resulting consequences. With respect to the first observation, it has been well documented that the learning of prosocial responses may be inhibited or facilitated through the use of consequent rewards and punishers. For example, children may learn to expect rewards for helping others and punishment for not helping others (Staub, 1975). Among the studies testing this possibility, Moss and Page (1972) manipulated positive and negative consequences for a helping response in an effort to alter subsequent helping behavior and found that almost all subjects who helped one confederate and received rewards helped a second confederate. Various researchers have also investigated the use of praise for increasing prosocial behavior and have found it less effective than tangible rewards (Fisher, 1963), sometimes ineffective unless paired with affection (Midlarsky & Bryan, 1967), or effective when used with prompting (Gelfand, Hartmann, Cromer, Smith, & Page, 1975).

Vicarious Reinforcement

With reference to the second observation, reinforcement may be related directly to antecedent events such as the modeling of behaviors. For example, an observer may view a model receiving rewards (vicarious reinforcement) for exhibiting positive social behaviors. Knowledge that performance of similar behaviors produces valued rewards or averts punishment is likely to increase observing responses, to strengthen retention of what is viewed and may increase verbal rehearsal of the behaviors observed. Thus, anticipated consequences
may increase the usefulness of an observing response. Hence, behavior
can be regulated not only by directly experienced consequences but
also by vicarious reinforcement (Bandura, 1971a). Considerable empirical
evidence (e.g., Bandura, 1965; Stumphauzer, 1972) exists that the
behavior of an observer can be modified as a function of viewing
another person's behavior and its consequences. Unlike the influence
of direct reinforcement, the influence of vicarious consequences
has not been fully investigated with respect to the acquisition and
facilitation of prosocial behavior. The relationship between vicarious
reinforcement and prosocial behavior may explain how behavior is
interpreted to be "altruistic." Prosocial acts which are judged
as altruistic are likely to be associated with the cues predicting
future rewards, vicariously reinforcing experiences, or with a self-
reward mechanism.

Measures of Prosocial Behavior and Issues
of Generalization

Studies examining prosocial behavior patterns have used a variety
of dependent measures in situational laboratory tests and naturalistic
observation or by sociometric ratings. Some researchers (e.g., Rutherford
& Mussen, 1968) have argued that the strong relationship sometimes
found among measures of prosocial behavior indicates a generalized
prosocial behavior pattern or a "prosocial disposition" which is
resistant to changes in setting or type of prosocial behavior sampled.
With few exceptions (viz. Barton & Ascione, 1979; Rogers-Warren &
Baer, 1976), research has not been directed to generalization issues
with respect to the training of prosocial behaviors.
To judge accurately the comparative influence of peer and adult models on the development of prosocial behaviors, attention must be directed to the resultant consequences to the model. The present dissertation compares in a laboratory setting peer and adult modeling influences under different conditions of reinforcement to the model on a number of behavioral measures of positive social behavior.
REVIEW OF LITERATURE

This evaluative review of literature emphasizes research investigating the effects of peer models on the facilitation of prosocial behavior and will serve to clarify the research basis for the proposed study. Research in the area of prosocial behavior will not be considered unless it is related to peer modeling, vicarious reinforcement, or interactions between these two influences. Surprisingly, little systematic research has been focused on the effects of peer models on the acquisition and maintenance of prosocial behavior in children. The conclusions from existing research tend to be only suggestive primarily due to equivocal or contradictory results, and methodological problems. The following review should serve to underscore the more reliable findings and some of their interpretations and methodological issues. Research will be evaluated which addresses the questions of whether exposure to a prosocial peer model facilitates prosocial behavior and what conditions maximize the effects of peer models.

Peer Modeling Influences

The use of peer models to facilitate prosocial behaviors of observing children has been typically examined by comparison with children not exposed to a model. Variables related to the observer's attending behaviors and retention of the modeled scene have also been manipulated in the context of the peer modeling situation. Some research has been directed to the influences of reinforcement to the model, reinforcement to the observer, and punishment of the model.
Sprafkin, Liebert, and Poulos (1975) examined the hypothesis that regularly broadcast, commercial entertainment television programs can facilitate positive social behavior in children and designed their study to incorporate an additional comparison of peer modeling with a control condition with no modeling. A 3 X 2 factorial design was used; the three levels of the independent variable were the observation of a prosocial "Lassie" show, a neutral "Lassie" show, and a neutral "Brady Bunch" show. Sex was a blocking variable, with 15 boys and 15 girls randomly sampled from the pool of first grade classes. Five children of each sex were randomly assigned to each of the three treatment conditions.

The children were escorted individually from the classrooms to a television viewing room where they watched the videotaped programs. In the prosocial "Lassie" program, one of Lassie's puppies fell onto a ledge in a mine shaft. Lassie brought the boy, Jeff, to the scene and Jeff risked his life by hanging over the edge of the shaft to save the puppy. The neutral "Lassie" show did not depict prosocial behavior, but portrayed Jeff's attempts to avoid violin lessons. The show featured the dog, Lassie, in a positive way, but contained no example of a human helping a dog. In another neutral control condition, a generally pleasant situation comedy, the Brady Bunch, was shown. No dogs were included in the story and no cues pertinent to human or canine heroism were given.

After viewing the televised program, each child was taken to a second room. The measurement of the effect of the three shows on the children's prosocial behavior involved placing each child in a conflict situation requiring a choice between continuing to
play a game for personal gain or trying to get help for puppies in distress. The child was invited to play a game in which points could be earned by pressing a button that illuminated a bulb and started a digital timer. The number of points earned was the number displayed on the timer, and the more points earned, the more attractive the displayed prize that could be traded for the points. The experimenter further explained that the child could help her by listening through some earphones. The earphones were ostensibly connected to a distant kennel full of puppies. The puppies were alone and were judged to be "O.K." if no barking could be heard. If the puppies barked, pressing the "Help" button located outside the experimental room would call the experimenter's helper to aid the puppies. The child was asked to wear earphones while playing the point game and was told, "If you hear barking, you can help the puppies if you want by pressing the help button" (p.123). The children were also told that there was a better chance that the helper would hear the signal the longer the help button was pressed. The children were instructed to try and get as many points as they could, and that if the puppies started barking, they would have to choose between helping the puppies and getting more points.

After leaving the room, the experimenter turned on a tape recorder that provided 30 seconds of silence followed by 120 seconds of increasingly frantic barking. After the end of the barking (the helper had supposedly arrived), the experimenter re-entered the room and awarded the prize. The total seconds of help-button pressing and the latency of helping were the dependent measures.
Overall, the subjects who viewed the prosocial, televised, "Lassie" program helped more than those who viewed the two neutral programs. Average helping times (males and females combined) were 93 seconds for the prosocial Lassie show, 52 seconds for the neutral show, and 38 seconds for the Brady Bunch show. It was concluded that a televised example of prosocial helping behavior can increase a child's willingness to engage in helping behavior. Prosocial behavior as demonstrated by Jeff was the critical factor, since the alternate dog show and "Brady Bunch" program produced less helping. The results were generally the same for both sexes. Questions still remain concerning whether the observation of a model's prosocial behavior would also influence situations that were somewhat dissimilar from the situation observed, and whether peer models are more salient than adult models under similar conditions. Also, research has not fully assessed the influence of consequences to the model for prosocial actions on the later behavior of observers. In fact, if Jeff had been scolded in the television show for his risk-taking behavior in the mine shaft, it is likely that the children in the study would have been more hesitant to help in a similar situation.

Attention/Retention Factors

Some investigators have focused on variables that may influence the probability that modeling cues and scenes will be observed or ignored. Bandura (1969) has noted that the variables may include the distinctiveness, vividness, and novelty of modeling stimuli as well as other aspects of the learning situation.

In what is now considered a classic study, Hartup and Coates
(1967) not only demonstrated that peers may positively affect pro-
social behaviors, but also that the nature of a child’s typical inter-
actions with the peer group may be an important determinant of the
extent of a peer’s influence. Hartup and Coates initially observed
the frequency with which positive social responses (i.e., attention,
affection, sharing, giving of objects) were dispensed and received
by each child in his/her nursery class. (Note: Positive social responses
were considered to be reinforcers, although this was not empirically
tested by the authors. In the discussion of the study, the term
reinforcer will be used for this class of responses.) On the basis
of these observations, children were classified as either high or
low in terms of amount of positive peer interaction received. Children
(three to five years) were then exposed to a live peer model who
acted in a highly generous fashion by sharing his winnings (five
out of six trinkets) from a maze game with another child. One group
of children (N = 12) who received frequent peer reinforcers in typical
interactions observed a model who had previously interacted positively
with them in social interactions (i.e., dispensed a large number
of social reinforcers). In contrast, a second group of children
(N = 12) who received few peer reinforcers were exposed to a peer
model who had a similar history of low peer group interactions (i.e.,
dispensed no social reinforcers). The third group of children (N
= 24) viewed a peer model who had a different history of social interac-
tion than themselves. For example, children who received a high
level of social reinforcers observed a model who was associated
with no peer reinforcement. The influence of the model’s behavior
on the subject was assessed by the degree of imitation the observing child displayed on a prosocial donation task in which earned trinkets could be given to another child.

The results were that children who had a history of frequent reinforcement and social interaction imitated a highly reinforcing model more than a nonreinforcing one. In contrast, children who had been observed to receive little reinforcement from their peers imitated nonreinforcing models more than highly reinforcing one. Observation of any model (like or unlike peer) produced more imitation than the observation of no model (control group). In summary, the effectiveness of the model may, to a considerable degree, be determined by the relationship between the individual's history of receiving social reinforcement and the degree to which the model dispenses social reinforcers in typical interactions. Thus, the observer's emulation of observed prosocial behaviors may be heightened by the relationship between the model's and observer's reinforcement history.

Elliot and Vasta (1970) demonstrated that symbolization, the verbal description of what takes place in a modeled scene, may be a facilitative factor in the learning process involving peer modeling. These researchers contend that the verbal description of the modeled scene, or symbolization, is an attention/retention-controlling variable that may increase the probability of imitation.

Symbolization may serve to make explicit to the observer the response-reinforcer relation, or what is happening in the modeling scene, and has been emphasized in the investigation of a variety
of responses, such as aggression (Bandura, 1965) and social approach (O'Connor, 1969). Elliot and Vasta (1970) used symbolization with peer modeled prosocial behavior, and attempted to manipulate the variables of model reward and symbolization to assess the influence of these factors on the performance of prosocial acts. The experimental conditions included peer-modeled sharing without reward to the model (Model), peer-modeled sharing with reward to the model (Model + Reward), and modeled sharing with reward to the model followed by adult explanation (Model + Reward + Symbolization). A no-treatment control group was also employed. Twelve children, two of each sex, at the ages of five, six, and seven, were assigned to each of the experimental conditions. Random selection and random assignment of subjects were not employed.

After the child's arrival at the experimental setting, a pretest was conducted in which standardized questions were asked by the experimenter. The child was then handed a bag containing 25 candies, was shown a box on a nearby table, and was told by the experimenter that he was "collecting candies for a little boy who (had) no candy and no money" (p. 10). The child was told to put some candy into the box on the way back to the classroom, if he/she wanted to. In essence, the child was asked to make a conspicuous and public donation, since the experimenter remained in the room (although with his back turned), and he possibly could be perceived by the child as attending to and hearing the donations made.

At a posttesting session, the child was brought to the same room and viewed a movie portraying a 6-year-old boy on the day of his
birthday. After receiving a whole bag of candies, the peer model liberally donated four handfuls of candy (75%) into an envelope to send to a poor boy who was also having a birthday. Following the model's demonstration of sharing, an adult female entered the taped scene and responded in one of three ways to establish the treatment conditions:

Model: "OK, Johnny, now let's go back to the classroom."

Model + Reward: Hands Johnny a teddy bear and says, "That was very nice, Johnny. Here's a toy for you to keep."

Model + Reward + Symbolization: Hands Johnny a teddy bear and says, "That was very nice, Johnny. Here's a toy for you to keep. If you do something nice for someone else, it means that you are a good boy." (p. 11).

At the end of the movie the experimenter once again gave the subject a bag of candies and again requested a donation for a "little boy who has no candy and no money" (p. 11). In the posttesting session, the donation was made anonymously, i.e., the experimenter left the room. A supplemental measure of giving was also used, in which the subject was asked to give one of two toys (one being noticeably larger and fancier) to someone else, while keeping the other. Finally, the experimenter gave the subject 25 pennies and requested an anonymous donation to a poor boy.

A five-way analysis of variance employing the variables of tests (candy or pennies), sex, order (which test was given first), experimental condition, and the three ages was used (four subjects in each cell). It was found that all modeling conditions produced more sharing of
candy and pennies than the control condition. The modeling condition in which the model was rewarded and told why, resulted in greater sharing than that in which the model was not rewarded, or that in which the model was rewarded without explanation. The no reward and reward conditions failed to result in different levels of sharing (both were higher than the control group) which poses a major explanatory problem for the study. Observation of the peer model did not affect the topographically different sharing, which involved giving up the more preferred of two toys to a stranger.

Certainly one can speculate why the reward condition failed to produce the expected positive effect on prosocial behavior. The authors contend that prosocial responses are rewarded so directly in the natural environment that they may carry conditioned reinforcement that other imitative responses do not. An equally plausible explanation might involve the reinforcement value of the "reward", a teddy bear, which was employed in the experiment. It is conceivable that the subjects did not judge the teddy bear as a reward to the model, since it may have been considered a non-preferred toy for themselves.

The use of a conditioned reinforcer, such as an exchangeable token or money, would probably have eliminated the a priori assumption regarding reinforcer effectiveness in the study. Furthermore, it is possible that the subjects may have perceived the toy as simply another present being given to the model, therefore, not contingent upon a specific response.

A number of methodological difficulties limit the generality of Elliot and Vasta's results. The first difficulty is the variation
in pretest and posttest conditions. Specifically, donations were public in the former and anonymous in the latter. If the children were aware that they were being observed by the experimenter during the pretest, they may have behaved atypically. Additionally, the absence of the experimenter in the posttesting situation may have systematically served to decrease donations by children in some experimental conditions, if not all conditions. Second, pretest sensitization to treatment may have occurred, since the subjects were given a test prior to the independent variable manipulation. The administration of the pretest in this manner may alert or sensitize subjects to the independent variable so that they react differently to the treatment than they would have, if there had not been a pretest (Matheson, Bruce, & Beauchamp, 1978). Finally, the lack of a random selection of subjects from the school population may have produced a biased sample (Matheson, Bruce, & Beauchamp, 1978). The characteristics (availability, intelligence, etc.) used to determine a subject's inclusion in the study can only be inferred. Hence, differences in past experience may not have been controlled when the subjects were assigned to groups. A valid and methodologically sound replication of Elliot and Vasta's study would be a timely contribution to the area of peer modeling.

As noted above, the generous, or donating, behavior of children may be influenced by the similarity and dissimilarity of the reinforcement patterns of the model and the observing child (Hartup & Coates, 1967). Additionally, Elliot and Vasta's research, although methodologically weak, has demonstrated that verbalizations
about the modeled act may facilitate the observer's imitation of prosocial actions.

Although not investigated by Hartup and Coates or Elliot and Vasta, it has been shown that other model variables, such as age, race, and sex, which match the characteristics of the observer similarly influence observational learning of prosocial behavior (Mussen & Eisenberg-Berg, 1977).

In a number of observational learning studies, children's imitative behavior has been influenced strongly by the degree of similarity between the model and observer. For instance, Rosekrans (1967) demonstrated that children who observed a highly similar peer (dressed alike, described as having similar interests, skills, and residence) showed more spontaneous rehearsal of the model's behaviors and recalled more of his behaviors than children who observed a dissimilar peer (dressed differently, described as unlike observer on various dimensions). Thus, social factors such as perceived similarity in background and interests between the model and observer may have a significant effect on behavior. Likewise, same-sex models have in some instances been more effective in increasing imitation behavior than an opposite-sex model (Bandura, Ross, & Ross, 1961; Maccoby & Wilson, 1957; Wolf, 1973). Possible reasons for the influence of the model's characteristics on imitation have been offered. For example, children may, through the model's characteristics, infer whether similar responses will be appropriate or will lead to desirable outcomes (Liebert & Allen, 1967; Liebert & Fernandez, 1970). Alternatively, the characteristics of models may simply maintain strong attending behaviors. Therefore,
peers are likely to be more potent models of prosocial behavior than adults when reinforcement value is held constant.

**Reinforcement and Punishment**

**Direct reinforcement.** In a naturalistic setting, Doland and Adelberg (1967) attempted to delineate the social factors, or social class differences, that may facilitate or inhibit the effects of systematic training of prosocial behaviors. Concurrently, these researchers used peers in their training procedures, thus extending the potential utility of peer models suggested by Hartup and Coates (1967). These researchers devised a test to determine whether initial differences would be evidenced in sharing between children from a favorable environment (upper middle class private nursery school) and children from a less favorable environment (welfare center) and whether these differences could be reduced using social reinforcement and peer modeling. The upper middle class group consisted of ten Caucasian boys and ten Caucasian girls, the welfare center group was composed of nine black boys and seven black girls. The children's mean age was four and one half years.

The "sharing game" involved a child confederate (two boys and a girl, all Caucasian) of approximately the same age as the subjects. The subjects were encouraged to share mimeographed animal pictures, given to them by the experimenter, with the child confederate. Data were collected on three successive learning trials for the number of children who shared (1) in a pre-training situation, (2) after the experimenter indicated approval of the sharing response, and
(3) after the peer confederate shared and received experimenter social approval.

Doland and Adelberg found that the nursery school children were more likely to share valued pictures than children in the welfare center. Additionally, the nursery school children were more likely to learn to share with less extensive training than the welfare children. In fact, five of the 16 welfare center children did not exhibit sharing after the two learning trials, whereas all the nursery school children learned to share.

Although Doland and Adelberg interpreted their results in terms of the more frequent opportunities of upper middle class children to observe the generosity of others and to be reinforced for their own generosity, the results can clearly be interpreted as resulting from a surplus of goods available to children from economically favorable environments. It is also plausible that Caucasian children may have responded to the experimental demands they perceived, that they anticipated social approval from the Caucasian experimenter, that the Caucasian children were more advanced intellectually, or that the black children preferred to share with black children but not with the Caucasian confederates. The last point is a critical one, since social class was confounded with race, and since the child with whom the subject was always instructed to share was Caucasian. The study does suggest, however, that social approval paired with the performance of a prosocial model may produce an increase in the performance of a similar act by an observing child. The first appearance of sharing behavior for seven children (out of 36) was correlated
with the confederate's sharing and profuse social reinforcement by the experimenter. Because of the absence of control conditions, cause-effect relations can only be inferred. The research of Doland and Adelberg complemented Hartup and Coates' research by arguing for the therapeutic and educational use of peer models and sets the occasion for more rigorously designed research investigating techniques for furthering the development of prosocial behaviors.

**Vicarious reinforcement.** The results of aforementioned studies (Doland & Adelberg, 1967; Hartup & Coates, 1967; Sprafkin, Liebert, & Poulos, 1975) suggest that the behavioral example of both live and filmed prosocial peers may serve to facilitate similar behaviors of observing children. However, the generality of this conclusion have been questioned by two investigations (Ascione & Beuche, 1977; Bryan & Walbeck, 1970). Taken together, these studies suggest that peer modeling effects may not endure when the model is not reinforced for the prosocial actions which are displayed.

A study by Bryan and Walbeck (1970) investigated the contrasting effects of a model's exhortations and actions. The researchers were also interested in the effects of a contradictory model (i.e., actions different from statements) upon children's prosocial behaviors. However, the findings of Bryan and Walbeck also served to demonstrate the variability of peer modeling effects when power of or reinforcement to the model was not present.

According to the findings of Bryan and Walbeck (1970), preaching has considerably less effect than a model's actions on the generosity
(donations) of grade school children. In a series of experiments, Bryan and Walbeck exposed children to videotaped peer models who were either consistent or inconsistent in their actions or preachings concerning generosity. Models practiced generosity by donating one out of three earned certificates to the March of Dimes, or selfishness, making statements like, "I don't think people ought to give money to those children." Other preached generosity, and made statements such as, "People ought to give to those kids." Finally, other models made neutral statements, such as "This is a nice game" (p. 337).

Bryan and Walbeck found only a partial and weak replication of the peer modeling effect in one experiment which compared model acts to exhortations, a significant peer modeling effect with males but not with females in another experiment which investigated model attractiveness, and no peer modeling effect in a final experiment which replicated the previous two experiments. Consequently, the inconsistencies present in their results do not yield firm conclusions regarding the effects of modeling on the prosocial responses of children.

Bryan and Walbeck cast considerable doubt on the notion that the observation of a generous peer without reinforcement to the model (vicarious reinforcement) will produce substantial behavior change. Nevertheless, Bryan and Walbeck demonstrated that in comparison to moral exhortations, behavioral example in the form of peer modeling is a more potent source of influence on prosocial behavior. The superiority of behavioral example over moral exhortations argues for attention to the systematic use of modeling in the facilitation of prosocial behavior.
Using an across-subjects multiple baseline and reversal design with three female subjects, Ascione and Beuche (1977) investigated the effects of peer modeling with or without praise and the mere presence of a peer on donations. By using single subject analysis, these researchers were able to address questions of behavioral stability and individual differences in prosocial behavior under the experimental conditions. The five-year-old subjects participated separately and daily (45 sessions) in an operant task in which tokens were gained that could be traded for candy and toys. Unlike many measures of prosocial behavior, the game utilized by these researchers provides the child with numerous successive opportunities to demonstrate sharing. In this case, children earned two tokens on each of ten trials, and thus had 20 opportunities to share tokens during each session (900 opportunities over the course of the experiment!). The percentage of tokens donated to a "poor children's bank" was the dependent measure.

Ascione and Beuche demonstrated that neither the presence of a peer nor peer modeling alone increased the token donations of the observing children above the baseline frequencies of donation. It was found that when adult praise accompanied the model's donation, two of the observing subjects evidenced a moderate increase and one a large increase in the percentage of donations made to poor children. Praise of the subject's donations was found to have a substantial and immediate influence on the maintenance of donations over time. However, it appeared that some deterioration in the reinforcing value of praise occurred in later sessions.

It can be tentatively concluded from the results of Ascione
and Beuche's study that both peer modeling with praise of the model and praise of the subject's sharing had a facilitative influence on the sharing behavior of an observing child, while modeling alone did not. Consequently, the research by Ascione and Beuche corroborates the suggestions of Bryan and Walbeck (1970) that substantial behavior change will not be likely with a model who is not reinforced for positive behaviors. Taken together, the results of these two studies set the occasion for a systematic and methodologically sound comparison of adult and peer modeling conditions with and without consequences to the model.

Vicarious punishment. The studies described above have investigated the effects of prosocial peer models upon the prosocial behaviors of an observing child. What effect would the viewing of a nonsharing child who is punished for not sharing have on an observing child? Morris, Marshall, and Miller (1973) hypothesized that sharing as assessed by candy donations would be greater by children who observed a nonsharing peer model being punished (verbal reprimands, withdrawal of toys) as compared with children in a control group. The researchers used a 4 X 2 factorial design with four modeling conditions and two socializing agents (disciplining adults) portrayed on videotape. The four conditions included (1) a model who refused to share and was punished, (2) an interaction involving no sharing or punishment, (3) a model who refused to share, and (4) a model who was punished only. Additionally, it was hypothesized that sharing would be greater when the socializing agent (disciplining adult) in the film and the experimenter were identical than when they were different. Hence,
half the children in each modeling condition were exposed to an experimenter who was identical to the disciplining adult they saw on the film, while the other half were exposed to a disciplining adult who was different from the experimenter.

Subjects were 112 first and second grade girls (mean age = 7.5 years). The subjects were brought individually to the experimental room and were assigned to one of the eight experimental conditions by order of their arrival. The experimenter asked each child three standardized questions related to demographic information and requested that each child watch the television. Then the experimenter left the room while an assistant presented a videotape of a modeling condition. At the conclusion of the videotape, the experimenter re-entered the experimental setting and gave the subject a bag containing 100 M&M's. The experimenter suggested that the subject leave "some candy for children coming later" and pointed to a bowl on the table. The experimenter remained in the room until the subject decided what to do with the candy, i.e., the subject was requested to make a public donation.

Morris et al. indicated that the children in the "nonsharing, punished" and "punishment only" groups shared more than the "nonsharing, no outcome" and control groups. No main effect was found for the socializing agent, therefore, it made no difference whether the experimenter was the same person as in the taped modeling scenes. Although the findings of the study supported the hypothesis that sharing will be more frequent in children who observe a nonsharing peer model being punished as compared to a control group, the results were
confusing, since children shared more than controls when they simply were punished verbally for no reason (noncontingent punishment).

In a second experiment, the researchers attempted to determine whether noncontingent punishment (verbal reprimand, withdrawal of toys) of the model, as compared with contingent punishment of the model, served to increase the probability of positive social behaviors of the observer, even though the behavior being punished was omitted from the film. It was hypothesized that the child may acquire a "generalized caution" to avoid adult reprimands. Helping in the form of sorting papers, rather than sharing, was used as the dependent variable. Morris et al. indicated that the viewing of noncontingent punishment to a model resulted in a generalized inhibitory effect on antisocial behaviors (i.e., not helping) thus causing increased helping. Contingent vicarious punishment did not increase helping above the control conditions in the second experiment yielding results inconsistent with the first experiment.

In summary, the research of Morris, Marshall, and Miller extended the demonstrations of peer model influence on the prosocial behaviors of children, and pointed out that vicarious punishment of a model's antisocial behaviors (nonsharing, nonhelping) may facilitate the sharing behaviors of an observing child (but not always, as shown in Experiment 2).

**Generalization of Prosocial Behavior**

Training of a specific behavior in one setting with one individual may transfer to other settings with other individuals or may not.
Some researchers (e.g., Sanok & Striefel, 1979) have shown that specific programming techniques may be necessary to facilitate the transfer of training effects to other settings and to seemingly similar responses. Most behavioral research concerning prosocial behavior has involved the identification and selective training of a specific response and assessment of the training effects by measurement of the subsequent frequency of the same response. For example, Sprafkin et al. (1975) trained subjects to help a puppy and assessed whether subjects later "helped puppies." Elliot and Vasta (1970) trained children to donate candy and observed other donations (candy, pennies, toys) at another time.

Correlational studies suggest that generalization of prosocial behavior training may occur across responses and situations. Research evidence shows a significant relationship between situational laboratory tests employing behavioral measures and naturalistic observations or sociometric ratings of prosocial behavior. Specifically, children's donation rates in a laboratory to "charity" or "poor children" relate positively to prosocial behaviors in home and school settings, and consequently, laboratory donations may be predictive of prosocial behavior in different settings. For example, four-year-old boys who demonstrated generous behaviors in the sharing of candy were independently rated by nursery school teachers as high in generosity and kindness (Rutherford & Mussen, 1968). Similarly, Rubin and Schneider (1973) found that among 7-year-olds, measures of generosity (donations to charity) and indices of helping behavior (amount of work done for peers) were significantly correlated ($r = .40, p < .01$). Finally,
donations in a highly controlled laboratory setting have been found to predict charity in the classroom setting (Midlarsky & Bryan, 1972). Research evidence lends substantial support to a cross-situational consistency hypothesis with regard to prosocial behaviors (Mussen & Eisenberg-Berg, 1977). However, it is not known whether the consistency of prosocial responding is a product of a history of training on each individual behavior or training on a few behaviors with generalization across other responses and settings.

Response generalization (the transfer of training effects across different responses) has only recently been examined. In a study comparing the use of modeling and social reinforcement on any report or true reports of sharing, Rogers-Warren and Baer (1976) found that preschool children generalized sharing to another setting to a limited extent. Elliot and Vasta (1970) found that training the donation of candy generalized to the donation of pennies but not to the donation of toys. Finally, Barton and Ascione (1979) found a unidirectional effect in that training in verbal sharing (requests, compliance, invitations, or acceptance of invitations to share) generalized to physical sharing, but training in physical sharing did not generalize to verbal sharing. The present study investigated whether the training of donation behavior in one setting produced an increase in volunteering and helping within a generalization setting highly similar to the training setting.

To summarize this review, peer prosocial modeling includes live (Hartup & Coates, 1967; Doland Adelberg, 1967) or televised (Elliot & Vasta, 1970; Sprafkin, Liebert, & Poulos, 1975) models as compared
with no model conditions. A history of reinforcing interactions between the peer model and observer may influence the effectiveness of the model, i.e., the likelihood that the model's actions will be imitated (Hartup & Coates, 1967). Additionally, a verbal description of the modeled scene when paired with reward of a peer model may produce a greater level of prosocial behavior by children than conditions not using a verbal description. Ascione and Beuche (1977) and Bryan and Walbeck (1970) questioned the effectiveness of peer modeling in the absence of reinforcement to the model by demonstrating that peer modeling alone did not produce increased prosocial behavior in children. Morris, Marshall, & Miller (1973) further examined the extent of vicarious influences by demonstrating that punishment of the model's nonsharing behaviors could increase the sharing of observing children. Available information concerning the generalization of prosocial responses across settings, trainers, or responses indicates that generalization occurs in a limited way without special programming.
STATEMENT OF THE PROBLEM

In this dissertation, the relative effects of peer and adult models on the facilitation of prosocial behaviors were investigated. Specifically, it was asked whether peer modeling of prosocial actions is more influential than adult modeling under otherwise identical conditions in a laboratory setting. The importance of a comparison of peer and adult influences on prosocial behavior is twofold. First, it has been demonstrated by the research reviewed earlier that at some points in development, or in specific situations, the similarity between the physical and personal attributes of the model and the observer may make the model's behavior more likely to be imitated. Specifically, does the similarity between the model and the observer serve to facilitate imitation of prosocial behaviors?

Second, although the potency of peer influence on the acquisition and facilitation of maladaptive and deviant behavior has been well documented, the systematically programmed effects of peers on prosocial behaviors has been largely ignored. In a recent book examining the development of prosocial behaviors in children, the authors noted the absence of research involving peer prosocial models (Mussen & Eisenberg-Berg, 1977). Clearly, children have been found useful in the enhancement of prosocial dispositions of their classmates in cultures such as that of the Soviet Union (Bronfenbrenner, 1963). Thus, the present research served to fill a gap in the child development literature by extending the findings of studies of peer influence, and specifically peer modeling, on the facilitation of prosocial
behavior.

Further, in the present research, the effectiveness of using rewards to a prosocial model (vicarious reinforcement in relation to the observer) was also empirically tested. Elliot and Vasta (1970) have challenged the necessity for rewards in this respect; however, as previously noted, their study is methodologically weak. Elliot and Vasta's findings are particularly disturbing in light of the substantial evidence to the contrary in other areas of behavioral development (e.g., Bandura, 1965; Kanfer, 1965; Parke & Walters, 1967). Bandura (1969) has noted that "there is considerable evidence that the behavior of observers can be substantially modified as a function of witnessing the other people's behavior and its consequences for them" (p. 30). Two studies (Ascione & Beuche, 1977; Bryan & Walbeck, 1970) tentatively concluded that reinforcement of the model may be the key variable facilitating prosocial behavior when combined with a peer model. Therefore, a definitive clarification of the effects of reinforcement to prosocial models is a timely addition to the literature.

In selecting the age group for the present dissertation, two factors entered into the decision. First, for comparibility to previous research, children in the second and third grades were best suited for this investigation, since the majority of research studies used this age group. Second, peers begin to exert a significant influence during the early elementary years, which may rival or complement that of adults (Hartup, 1970).

The present dissertation addresses the effects of
the variables of model similarity (peer and adult) and vicarious reinforcement on the prosocial behaviors of early elementary school children in a laboratory setting. Based on the reviewed research of these two variables, it was hypothesized in the present study that treatment effects would be obtained in the following order: Sharing + Reinforcement greater than Sharing + No Reinforcement greater than Nonsharing + No Reinforcement less than or equal to the Control group. Peer models were expected to have a greater influence on imitative behavior than adult models. Finally, generalized prosocial responding as measured by two additional behavioral measures (volunteering, helping) was expected to follow a similar order and to be influenced to a greater extent by peer as compared to adult models.
METHOD

Subjects

Following approval of the study by the Utah State University Human Subject's Protection Committee (September 25, 1978) and the Logan City Board of Education Pupil Personnel Director (December 21, 1978), class lists were obtained for second and third graders attending Logan City schools. A letter describing the research was sent to each child's parents requesting permission for their child's participation. The letter (Appendix A) provided the parents with essential information on which they could base their decision regarding their child's participation. A consent form was also included (Appendix B). Of the 505 letters sent to the parents of potential participants, 2 (0.02%) were undeliverable. Of 291 (59%) consent forms returned, 253 (87%) indicated parental permission and 38 (13%) refused permission. The subject pool of 253 children included 124 males and 129 females. Forty boys and forty girls were selected randomly from each grade level (total N = 160). Parents were then contacted by telephone to arrange the scheduling of their child's participation (See Research Schedule, Appendix C). Before a child's participation in the study began, the experimenter or an aide briefly described the task to the child and the potential subject had the right to participate or not participate in the study, as he/she chose. Children were transported after school to the research laboratory and were randomly assigned to one of seven treatment groups prior to the start of the experiment.
Experimental Design

A 2 (sex of subject) X 2 (block) X 7 (six model-reinforcement groups and control) factorial design was used. This design was selected since the assumptions of the analysis of variance can be appropriately fulfilled when a control group is treated as a comparison group rather than as a level within an independent variable category as previously designed. Consequently, the design permitted comparisons between each model-reinforcement condition and the control group. For ethical reasons, a condition in which a model exhibited nonsharing with reinforcement to the model (i.e., nonsharing + reinforcement) was not employed in the study, since the observer might have acquired behaviors incongruent with societal norms. The design also permitted a comparison of the treatment groups with respect to differential sex effects. Finally, to determine the reliability of treatment effects across time, subjects were organized into two sequential blocks. Thus, one half of the subjects (5 in each treatment group; 10 in the control group) individually participated in the experiment prior to the second half doing likewise. Consequently, a replication of the experiment was conducted. A summary of the experimental design and the number of subjects assigned to each group is presented in Table 1.

Setting, Apparatus, and Materials

The study used facilities available at the Utah State University's Exceptional Child Center. Equipment was housed in an experimental room 20 X 22 feet (5 X 6.6m) which included a one-way mirror and
Table 1
Independent Variables and Subject Distribution

(2 x 7 factorial design)

<table>
<thead>
<tr>
<th>Peer Sharing Model + Reinforcement</th>
<th>Peer Sharing Model +</th>
<th>Peer Nonsharing Model + No Reinforcement</th>
<th>Adult Sharing Model + Reinforcement</th>
<th>Adult Sharing Model + No Reinforcement</th>
<th>Adult Nonsharing Model + No Reinforcement</th>
<th>No Model Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
</tbody>
</table>


overhead microphones and allowed observation of the child from an adjacent room. A television monitor with a concealed Sony Videorecorder mounted on top of a sharing apparatus was used to present the modeling tapes. The electromechanically controlled sharing apparatus was designed to deliver tokens to the child contingent upon the child’s responses on a button (see Figure 1). When the button was pressed five times, two tokens were delivered through a chute. Those tokens retained by the child could be traded for pennies, candy, trinkets, or toys at the end of the experimental session. Boxes located at each side of the sharing apparatus were used to store tokens which the child deposited. Microswitches in the boxes triggered a counter in the adjacent room which recorded the number of tokens deposited.

**Modeling and Control Films**

In the modeling conditions, ten-minute videotapes were used to depict the model’s behavior. The content of each tape consisted of four components: (1) an introduction of the sharing game and instructions on how to play the sharing game; (2) two peer or adult demonstrations of the sharing game, one by a male and another by the female, with subsequent sharing or nonsharing of tokens; (3) contingent reinforcement or nonreinforcement, whichever was appropriate, of the model’s sharing and (4) an instruction for the child to begin playing the game. Variations within the modeling tapes in accordance with the experimental conditions are described below.

In the control condition, an eight-minute videotape was used. The subjects in the control condition viewed an eight-minute Sesame
Figure 1. Diagram of Sharing Apparatus
Street program which depicted neither prosocial nor antisocial behavior. Three judges, naive as to the purpose of the study, were asked to rate the eight-minute tape and recorded no instances of prosocial and antisocial behavior. Since all the judges agreed that no occurrences of these behaviors were present in the tape, the cartoon was considered suitable for use in the study. The control tape served to hold constant variables associated with viewing videotapes and to provide identical instructions for gaining tokens across treatment groups. Thus, in both modeling and control films, the introduction of the sharing game, the instructions on how to play the sharing game, and the instruction for the subject to begin playing the game, were identical. Omitted from the control tape were the treatment variables including peer or adult modeling, sharing or nonsharing incidents, and the contingent consequences for those behaviors. The components of the treatment and control films are summarized in Table 2. Descriptions of the treatment tapes will be presented below.

Confederates

Peer or adult models were required for each of the modeling tapes. Two questions could be raised: What constitutes a peer? How should peers be presented on the treatment tapes? Peers possess stimulus properties different in many ways from those of adults. For example, their activity is often fast paced and their voices higher in pitch (Rheingold & Eckerman, 1975). Peership in this study was characterized by similarity in chronological age. ¹

¹Lewis et al. (1975) have raised the general question of whether peership should be based on function or age. An example of categorizing peers by function would be to consider all children peers if they could all climb a tree. Other subsets of peers would be determined by the task or skill demonstrated. The utility of this approach has not been demonstrated.
Table 2

Component Analysis of Treatment and Control Films

<table>
<thead>
<tr>
<th>Peer Sharing + Reinforcement</th>
<th>Peer Sharing + No Reinforcement</th>
<th>Peer Nonsharing + Reinforcement</th>
<th>Adult Sharing + Reinforcement</th>
<th>Adult Sharing + No Reinforcement</th>
<th>Adult Nonsharing + No Reinforcement</th>
<th>No Model Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Introduction</td>
<td>Introduction</td>
<td>Introduction</td>
<td>Introduction</td>
<td>Introduction</td>
<td>Introduction</td>
</tr>
<tr>
<td>Rewarding Statement</td>
<td>Neutral Statement</td>
<td>Neutral Statement</td>
<td>Rewarding Statement</td>
<td>Neutral Statement</td>
<td>Neutral Statement</td>
<td></td>
</tr>
<tr>
<td>Peer Sharing Model (F)</td>
<td>Peer Sharing Model (F)</td>
<td>Peer Nonsharing Model (F)</td>
<td>Adult Sharing Model (F)</td>
<td>Adult Sharing Model (F)</td>
<td>Adult Nonsharing Model (F)</td>
<td></td>
</tr>
<tr>
<td>Rewarding Statement</td>
<td>Neutral Statement</td>
<td>Neutral Statement</td>
<td>Rewarding Statement</td>
<td>Neutral Statement</td>
<td>Neutral Statement</td>
<td></td>
</tr>
<tr>
<td>Final Instruction</td>
<td>Final Instruction</td>
<td>Final Instruction</td>
<td>Final Instruction</td>
<td>Final Instruction</td>
<td>Final Instruction</td>
<td>Final Instruction</td>
</tr>
</tbody>
</table>
Peers and adults in the present study were differentiated by the stimulus properties (e.g., dress, size, voice quality) associated with age differences.

To serve as adult models, a male and female, in their mid-twenties were solicited from the University community. To serve as peer models, two third graders, a male and a female, were solicited from outside the Logan school district which assured a lack of recognition by the participants in the study. All models had no prior involvement in psychological research and were naive regarding the purposes of the study at the time of the taping.

**Procedure**

Each child was transported individually to the Exceptional Child Center from his/her home by an undergraduate or graduate student. Children were randomly assigned to one of the seven experimental conditions by order of their arrival at the experimental setting with the sequence of treatments also being randomly determined. The child was taken to the laboratory and was met by the experimenter. After introducing himself, the experimenter asked the child his/her name, grade, and the name of his/her teacher for verification purposes. After asking the child to be seated in front of the apparatus, the experimenter directed the child's attention to the television
monitor, and instructed the child in the following manner (referring to the apparatus pictured in Figure 1):

I would like you to play a game for a little while. A movie on this television (experimenter pointed to the monitor) will teach you how to play the game. Watch the whole movie carefully because it's very important that you be correct in everything you see, hear, and do. First, you will be watching the movie until it is finished. Then, this green light will come on (experimenter pointed) and you will play a game. The game will not work until after the movie is finished. I have to leave for awhile, but I will be back soon after you watch the movie and play the game.

The experimenter then returned to the observation room and turned on the videotape recorder. No further contact occurred between the experimenter and the child until the experimental session had ended.

Introduction

Both the modeling and control conditions portrayed on tape were introduced with the following narration:

Hello. We are testing a new button pressing game, and we need your help.

First, I will show you how to play the game. Then you will be able to play the game yourself. If I press this button a lot of times when the light is on, tokens will come out of the chute (the narrator pointed to the button, the green light, and the chute).

Watch. I will press the button a lot of times and the tokens come out of the chute. (The narrator pressed the
button five times, tokens dropped into the tray, the narrator picked up the tokens, and held the tokens in plain sight.) When you are done, the tokens may be traded for prizes, like pennies or candies or small toys (The camera panned a variety of these items.) The more tokens you have, the bigger and better the prizes you will be able to get.

When you win tokens, you may take the tokens and keep them for yourself. This bank is yours (the narrator pointed to the bank on the left side of the apparatus). The tokens you keep for yourself go here (the narrator indicated the location of the slot). Or, you may give your tokens to the poor children in Logan, and the tokens for the poor children go here (the narrator pointed to the bank on the right side of the apparatus and indicated the location of the slot). You can put both tokens in your own bank, or one in your own bank and one in the poor children's bank, or both tokens in the poor children's bank (the narrator held the tokens over the banks in the order the alternatives were mentioned). The green light won't come on again until both tokens are put in the holes. Now you can't play the game yet, you must wait and watch this movie first.

Modeling Conditions

Following the introduction of the sharing game and the instructions on how to play the sharing game, the narrator said to the subjects in the modeling conditions:

Now, I would like you to watch closely so you will be able
to play the game too.

Children assigned to the modeling conditions then observed both a male and a female model each perform ten successive trials of button pressing, receiving two tokens on each of the trials after five responses on the button. Half of the children observed peer models, and half of the children observed adult models. The variation among treatment conditions was determined by whether or not the models shared and by the statements made to the models (by the narrator) following the models' sharing, or nonsharing. The treatment conditions are presented below:

**Sharing model + reinforcement.** All children exposed to the Sharing Model + Reinforcement treatment condition saw the model place one or both of his/her token(s) won on each trial into the poor children's bank, after gaining the tokens. In an attempt to make the winning of tokens and token donations to the poor children more salient, statements by the models were included before and during the game. Prior to the first trial, the model said:

> If I win any tokens today, I'm going to give some to the poor children. The man said I didn't have to, but I think it would be a good idea. It will make the poor children happy.

The distribution of tokens and statements of the sharing model are presented in Table 3.

After the sharing model completed ten trials in which either one or two tokens were donated to the "poor children", the adult male narrator entered the scene, emptied the poor children's bank, and made the following praising statement:
Table 3

<table>
<thead>
<tr>
<th>Model 1 Trial</th>
<th>Model 2 Trial</th>
<th>Upon Acquisition of Tokens</th>
<th>Tokens Retained</th>
<th>Tokens Donated</th>
<th>Upon Distribution of Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,7</td>
<td>6</td>
<td>I won two tokens.</td>
<td>1</td>
<td>1</td>
<td>I think we should give some tokens to poor children.</td>
</tr>
<tr>
<td>2,8</td>
<td>5</td>
<td>Won again.</td>
<td>0</td>
<td>2</td>
<td>It's good to donate to poor children.</td>
</tr>
<tr>
<td>3,9</td>
<td>4,10</td>
<td>Oh boy! More tokens!</td>
<td>1</td>
<td>1</td>
<td>Yes sir, people ought to share with other people.</td>
</tr>
<tr>
<td>4,10</td>
<td>3,9</td>
<td>Won again.</td>
<td>0</td>
<td>2</td>
<td>I think we should give tokens to poor children.</td>
</tr>
<tr>
<td>5</td>
<td>2,8</td>
<td>Won another time.</td>
<td>1</td>
<td>1</td>
<td>People should help other people.</td>
</tr>
<tr>
<td>6</td>
<td>1,7</td>
<td>I won two tokens.</td>
<td>0</td>
<td>2</td>
<td>Yes sir, people ought to share with other people.</td>
</tr>
</tbody>
</table>


It was nice for you to share the tokens you won with the poor children. If you do something nice for someone else, it shows you are a good person. That was a very nice thing for you to do.

Another sharing model opposite in sex from the first model then performed ten trials in a similar manner. Overall in the Sharing + Reinforcement condition, thirty out of forty tokens earned, or 75%, were shared by the models.

**Sharing model + no reinforcement.** All children exposed to the Sharing + No Reinforcement treatment condition saw the model place one or both of his/her tokens won on each trial into the poor children's bank after gaining the tokens. In an attempt to make the winning of the tokens and token donations to the poor salient, statements by the models were included before and during the game. Prior to the first trial, the model said:

*If I win any tokens today, I'm going to give some to the poor children. The man said I didn't have to, but I think it would be a good idea. It will make the poor children happy.*

The distribution of tokens and statements made by the sharing model are presented in Table 3.

After the model completed ten trials in which either one or two tokens had been donated to the "poor children's bank", the adult male narrator entered the scene, emptied the poor children's bank, and said the following:

*It looks like you are done with the game. Thank you for trying our game.*
Another sharing model, opposite in sex from the first model, then performed the trials in a similar manner. Overall, in the Sharing + No Reinforcement condition, thirty out of forty tokens earned, or 75%, were shared by the models.

**Nonsharing model + no reinforcement.** All children exposed to the Nonsharing Model + No Reinforcement treatment condition saw the model fail to donate to the "poor children." In other words, the model placed all gained tokens into his or her bank. Prior to the first trial, the model said:

> If I win any tokens today, I'm going to put the tokens in my own bank. The man said I didn't have to give some to the poor children. I think it would be good to keep the tokens for myself today.

In an attempt to make the winning of tokens and token donations to self more salient, statements by the models were included before and during the game. The distribution of tokens and statements of the nonsharing model are presented in Table 4.

After the model completed ten trials in which no tokens were donated to the "poor children's bank", the adult male narrator entered the scene, emptied the model's bank, and said the following:

> It looks like you are done with the game. Thank you for trying our game.

Another nonsharing model opposite in sex from the first model then performed ten trials in a similar manner. Overall in the Nonsharing + No Reinforcement condition, no tokens were shared by the models.
<table>
<thead>
<tr>
<th>Model 1 Trial</th>
<th>Model 2 Trial</th>
<th>Upon Acquisition of Tokens</th>
<th>Tokens Retained</th>
<th>Tokens Donated</th>
<th>Upon Distribution of Tokens</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,7</td>
<td>6</td>
<td>I won two tokens.</td>
<td>2</td>
<td>0</td>
<td>I think I'll keep these two tokens.</td>
</tr>
<tr>
<td>2,8</td>
<td>5</td>
<td>Won again.</td>
<td>2</td>
<td>0</td>
<td>I'm going to put these in my bank.</td>
</tr>
<tr>
<td>3,9</td>
<td>4,10</td>
<td>Oh boy! More tokens!</td>
<td>2</td>
<td>0</td>
<td>Yes sir, these go in my bank.</td>
</tr>
<tr>
<td>4,10</td>
<td>3,9</td>
<td>Won again.</td>
<td>2</td>
<td>0</td>
<td>These will go into my bank.</td>
</tr>
<tr>
<td>5</td>
<td>2,8</td>
<td>Won another time</td>
<td>2</td>
<td>0</td>
<td>I think I'll hold onto these tokens.</td>
</tr>
<tr>
<td>6</td>
<td>1,7</td>
<td>I won two tokens.</td>
<td>2</td>
<td>0</td>
<td>I think I'll keep these tokens.</td>
</tr>
</tbody>
</table>
Final Instructions

Following the two demonstrations of the sharing game with subsequent sharing or nonsharing of the earned tokens by the model and contingent reinforcement or no reinforcement of the model, or the Sesame Street program in the control condition, the narrator once again appeared on the film and said to the child:

Now it is your turn to play the button pressing game. You may start when the green light come on (Note: A green light remained illuminated on the machine until 30 trials were completed by the child). Don't forget, you have to put the two tokens in a bank so that the machine will work again. Don't forget, you can put both tokens in your own bank, or one in your bank and one in the poor children's bank, or both tokens in the poor children's bank. It's time for the movie to end and for you to start playing the game. Look at your game to see if the green light is turned on. Goodbye.

On each trial, the response button remained inoperative until both tokens were deposited. During each trial, automatic recording equipment registered the placement of each token. The session was completed when 30 trials had elapsed. Thus each child had the opportunity to donate up to 60 tokens.

Generalization Measures

At the end of the donation session (signalled by the session light going off and the response button becoming inoperative),
generalization of the experimental and control condition effects was assessed across two types of prosocial behavior. Specifically, the effects of the treatment manipulations were not only measured by the donations of subjects, but were also assessed using two qualitatively different measures of prosocial behavior. Subjects were given the opportunity to engage in two structured "helping" opportunities immediately following the donation session, but prior to the exchange of their earned tokens. This ordering of events prevented the intervention of extraneous variables (e.g., experimenter praise of sharing) that conceivably could affect the dependent measures. The measures of prosocial helping behavior had been useful in previous studies of prosocial behavior (Green & Schneider, 1974), and included: (a) volunteering free time to work for needy children and (b) offering physical assistance, or help, to the experimenter.

Following the donation session, the experimenter re-entered the experimental room and said to the subject:

It looks like you are done with the game.

Volunteering. The experimenter then explained to the subject that he was working on a project to help poor children and said:

We are putting together books for poor children to use in school because these poor children don't have many books to learn from.

The experimenter went to a small table, also located in the experimental room, on which there were stacks of printed paper and book covers. The experimenter showed the child how the books were to be assembled. The experimenter then asked the child if he/she wanted to work on the project.
I am working with another person putting books together for poor children. I am asking children if they would like to help to put these books together for the poor children. The work will be done in your home after school for 15 minutes each day. Would you like to volunteer to help?

If the child replied yes, the experimenter then asked:

Would you like to work for 1, 2, 3, 4, 5, 6, or 7 days?

Then the experimenter said:

I am going to write down your name.

**Helping.** The experimenter then picked up one of six unsharpened pencils lying near the table's edge. He stood up and said that he had to sharpen the pencil. As he rose, he "accidentally" knocked the other pencils off the table onto the floor. He said "Oh, no", but made no attempt to pick up the pencils, and left the experimental room to go to the pencil sharpener in the hallway. Upon returning (30 seconds later), if the child had not picked up the pencils, the experimenter slowly picked up one, starting with the one farthest from the child, i.e., gave a manual prompt. From the time the pencils were dropped to the time the experimenter wrote down the child's name, the experimenter said nothing to the child, except to thank the child if he/she picked up the pencils.

Following the three measures of prosocial behavior (i.e., donations, volunteering, helping) the tokens were removed only from the child's bank and were exchanged for pennies, toys, and/or candy. Each token equaled one penny in value. The experimenter commented on the donations made to the poor children's bank, if any were made, and made a statement such as "It was nice for you to share your tokens with the poor
children." Each child was given another small toy in addition to their winnings for participating in the study. Before leaving the experimental setting, the children were told the reasons for the study, and had any of their questions answered. Additionally, they were told that the experimenter had just been contacted by the other person working on the "book project" and that children would not be needed to help anymore. However, the experimenter thanked each child for whatever time they said they would have volunteered.

Behavioral Measures of Prosocial Behavior

The response measures used in the study were (a) frequency of donations made by the subjects to the "poor children's bank", ranging from 0 to 60 tokens, (b) the mean number of work periods volunteered, and (c) the number of subjects picking up pencils. In the remaining discussion, the three variables will be referred to as donations, volunteering, and helping. The frequency of donations was recorded by electromechanical equipment. The subject's score on volunteering free time to work for needy children could range from 0 (a child who refused to volunteer) to 7 (a child who volunteered for seven days). The third response measure, helping, was based on whether the subject picked up one or more of the pencils dropped by the experimenter before the experimenter returned to the room or after a manual prompt (scored as helping), or did not (scored as not helping).
RESULTS

The data for the dependent measures of donations, volunteering, and helping are discussed in order. Preliminary inspection of the data revealed few differences attributable to sex of subject or block; however, these variables were entered in the subsequent analyses to verify visual inspection.

Tokens donated and kept by each child were permanently recorded by electromechanical equipment. Prior to the subject trading in his/her tokens for the backup reinforcers, the tokens in the banks were counted, serving as a second check for the number of tokens donated. All data were recorded on an individual data collection sheet along with any comments by the child following the experiment (See Appendix D).

Two undergraduate students naive to the purposes of the study performed independent ratings for a randomly selected 20% (N = 32) of the subjects on the three prosocial behavioral measures. Subject responses for helping and volunteering were scored as the subject was observed through a one-way mirror. Token donations were recounted after the subject had left the laboratory. Across all treatment and control conditions, 100% accuracy was obtained for the reliability samples. The high percentage of agreement reflects the objective nature of the dependent variables.

Token Donations

Each child earned 60 tokens during the 30 trials of the button pressing game. In sharing conditions, behavioral performance that
matched that demonstrated by the model was exhibited when a child donated 75%, or 45 out of 60 tokens. In the nonsharing conditions, behavioral performance which matched the model’s performance was demonstrated by donating no tokens.

The mean number of tokens donated in each treatment group as compared with the control group are shown in Figure 2. Token donations in the Peer Sharing + Reinforcement group were highest as compared to all other groups. Donations were higher in groups observing a sharing peer or adult model who was reinforced than who was not reinforced with the exception of the male group with adult models. Donations were lowest and substantially below the control group in the Peer Nonsharing + No Reinforcement group.

A 2 (sex of subject) X 2 (block) X 7 (six combined model-reinforcement treatment groups; control group) analysis of variance was performed on token donations and partially confirmed the visual inspection of Figure 2. The obtained F values and corresponding significance levels are presented in Table 5. The main effect of group was statistically significant (F = 8.97, p < .001).

Because a main effect was found for group, an additional analysis of variance was conducted in which the factors of model (peer and adult) and treatment condition (Sharing + Reinforcement, Sharing + No Reinforcement, Nonsharing + No Reinforcement) were separated.

Thus, a 2 (block) X 2 (model) X 3 (treatment condition) analysis of variance was conducted. The obtained F values and corresponding significance levels are presented in Table 6. The results revealed main effects for treatment condition, F = 14.55, p < .001; and model, F = 4.59, p < .05. The overall effect of model although important
Figure 2. Mean number of tokens donated for each group. Dashed line indicates the mean donation level of the male and female control groups combined.
Table 5
Summary of Analysis of Variance
for Token Donations

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of Subject</td>
<td>11.56</td>
<td>1</td>
<td>11.56</td>
<td>.11</td>
<td>NS</td>
</tr>
<tr>
<td>Treatment</td>
<td>5860.87</td>
<td>6</td>
<td>976.81</td>
<td>8.97</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Block</td>
<td>63.76</td>
<td>1</td>
<td>63.76</td>
<td>.58</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Treatment</td>
<td>851.27</td>
<td>6</td>
<td>141.88</td>
<td>1.30</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Block</td>
<td>79.80</td>
<td>1</td>
<td>79.81</td>
<td>.73</td>
<td>NS</td>
</tr>
<tr>
<td>Treatment X Block</td>
<td>1055.67</td>
<td>6</td>
<td>175.95</td>
<td>1.61</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Treatment X Block</td>
<td>349.42</td>
<td>6</td>
<td>58.24</td>
<td>.53</td>
<td>NS</td>
</tr>
<tr>
<td>Error</td>
<td>14377.10</td>
<td>132</td>
<td>108.92</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Talile 6
Summary of Analysis of Variance for Token Donations
with Model and Condition as Separate Variables

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condition</td>
<td>3622.62</td>
<td>2</td>
<td>1811.31</td>
<td>14.55</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Model</td>
<td>572.03</td>
<td>1</td>
<td>572.03</td>
<td>4.59</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>Condition X Model</td>
<td>1649.72</td>
<td>2</td>
<td>824.86</td>
<td>6.62</td>
<td>p &lt; .05</td>
</tr>
<tr>
<td>Error</td>
<td>11952.00</td>
<td>96</td>
<td>124.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

is difficult to examine due to the divergent effects of the peer model in the reinforcement and no reinforcement conditions. However, the main effect for model can be more fruitfully examined in the context of the statistically significant treatment condition X model interaction effect, \( F = 6.62, p < .05 \). Specifically, the treatment group viewing a peer model who did not share and who was not reinforced tended to have lower token donations than other treatment groups.

Newman-Keuls pairwise comparisons were made of the combined model and reinforcement treatment groups and control group conditions.

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2. The Newman-Keuls multiple comparison technique was selected as the method of choice for a number of reasons. In the Newman-Keuls method, alpha is .05 for each individual null hypothesis tested, i.e., a contrast based error rate. In the Dunn, Dunnett, Tukey, Marascuilo, and Scheffé methods, alpha is .05 for the entire set or family of hypotheses found in the experiment, i.e., an experiment based error rate. The Newman-Keuls method is recommended for pair-wise comparisons and is considered to be the most powerful for detecting differences between pairs of means.
Once again, for token donations, all groups differed significantly from the Peer Nonsharing + No Reinforcement condition ($p < .05$). No statistically significant differences were found among all other groups, consequently, from a statistical viewpoint all other treatment conditions had donations at approximately equal levels with some above and below the untreated control group.

Individual data are presented in Appendices E and F. Actual donations ranged from 0 to 60 tokens donated across groups. Groups viewing adult and peer models who did not share and were not reinforced for their behaviors were the only groups evidencing instances of zero token donations for some subjects. Additionally, the adult nonsharing and no reinforcement group was the only group evidencing instances ($N = 2$) of total generosity, i.e., all tokens being donated.

Volunteering

The mean number of work periods volunteered in both the treatment and control groups are shown in Table 7. Little variation is apparent in volunteering among the treatment groups, however, volunteering among treatment groups was higher overall as compared with volunteering in the control group.

A 2 (sex of subject) X 2 (block) X 7 (six combined model-reinforcement treatment groups; control group) analysis of variance was performed on volunteering and confirmed the visual analysis from Table 7. The obtained $F$ values and corresponding significance levels are presented in Table 8. The main effect for group was statistically significant ($F = 4.70, p < .01$).

To further examine the nature of the differences, Newman-Keuls
Table 7

Mean Number of Work Periods Volunteered

(Range = 0 to 7 work periods; mean value represents 5 subjects in treatment groups; 10 subjects in control group)

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Male</th>
<th>Female</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer Sharing +</td>
<td>6.0</td>
<td>6.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Adult Nonsharing +</td>
<td>6.0</td>
<td>6.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Control</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Peer Sharing +</td>
<td>7.0</td>
<td>6.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Adult Sharing +</td>
<td>6.2</td>
<td>5.8</td>
<td>6.0</td>
</tr>
<tr>
<td>No Model</td>
<td>4.5</td>
<td>4.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Peer Sharing +</td>
<td>6.0</td>
<td>5.4</td>
<td>6.0</td>
</tr>
<tr>
<td>Adult Nonsharing +</td>
<td>6.2</td>
<td>5.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Control</td>
<td>4.6</td>
<td>4.2</td>
<td>4.4</td>
</tr>
<tr>
<td>Peer Sharing +</td>
<td>5.5</td>
<td>5.8</td>
<td>6.0</td>
</tr>
<tr>
<td>Adult Sharing +</td>
<td>6.2</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>No Model</td>
<td>4.5</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Combined</td>
<td>6.5</td>
<td>6.2</td>
<td>6.0</td>
</tr>
</tbody>
</table>

(Range = 0 to 7 work periods; mean value represents 5 subjects in treatment groups; 10 subjects in control group)
Table 8
Summary of Analysis of Variance for Volunteering Work

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F Value</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of subject</td>
<td>.02</td>
<td>1</td>
<td>.02</td>
<td>.01</td>
<td>NS</td>
</tr>
<tr>
<td>Treatment</td>
<td>79.80</td>
<td>6</td>
<td>13.30</td>
<td>4.70</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Block</td>
<td>.10</td>
<td>1</td>
<td>.10</td>
<td>.03</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Treatment</td>
<td>17.97</td>
<td>6</td>
<td>3.00</td>
<td>1.06</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Block</td>
<td>3.02</td>
<td>1</td>
<td>3.02</td>
<td>1.07</td>
<td>NS</td>
</tr>
<tr>
<td>Treatment X Block</td>
<td>23.20</td>
<td>6</td>
<td>3.87</td>
<td>1.36</td>
<td>NS</td>
</tr>
<tr>
<td>Sex X Treatment X Block</td>
<td>29.57</td>
<td>6</td>
<td>4.93</td>
<td>1.74</td>
<td>NS</td>
</tr>
<tr>
<td>Error</td>
<td>373.80</td>
<td>132</td>
<td>2.83</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
pairwise comparisons were conducted. For volunteering, all groups differed significantly from the control group ($p < .05$). No statistically significant differences were found among all other groups, consequently, all treatment groups volunteered at approximately equal levels and differed substantially from the control group.

**Helping**

The number of children helping the experimenter to pick up one or more pencils after the staged accident are shown in Table 9. Only one child helped to pick up pencils following the experimenter's manual prompt. Consequently, for data analysis purposes, this child was considered as having helped. More children (11 out of 20) in the Peer Sharing + Reinforcement group provided assistance to the experimenter than in any other group. In all other groups with the exception of Adult Nonsharing + No Reinforcement, the number of children providing assistance to the experimenter was approximately equal (about 8 out of 20). In the Adult Nonsharing + No Reinforcement group, only 3 out of 20 children assisted the experimenter. Few females (2 out of 10) assisted the experimenter in both the Peer and Adult Nonsharing + No Reinforcement groups.

Since the helping data were composed of frequencies in discrete categories, the chisquare ($\chi^2$) test was applicable and used. Specifically, a 2 X 7 chi square analysis comparing the dichotomous variable of helping (yes, no) across the model-reinforcement conditions and control group was made for each sex. No statistically significant differences were found between the groups for the helping variable for males ($\chi^2 = 4.19$, $df = 6$, $p > .05$) or for females ($\chi^2 = 7.26$, $df = 6$, $p > .05$)
### Table 9
Number of Subjects Helping Experimenter Following Pencil Dropping Accident

<table>
<thead>
<tr>
<th></th>
<th>Peer Sharing + Reinforcement</th>
<th>Peer Sharing + No Reinforcement</th>
<th>Peer Nonsharing + Reinforcement</th>
<th>Adult Sharing + Reinforcement</th>
<th>Adult Sharing + No Reinforcement</th>
<th>Adult Nonsharing + Reinforcement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Male</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block A</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Block B</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Combined</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Female</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block A</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Block B</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Combined</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>*</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>11</td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

*Since control group data were based on 40 subjects for statistical purposes as compared to 20 subjects in each of the treatment conditions, it is difficult to present the data in tabular form for comparison purposes. Seventeen subjects out of 40 helped the experimenter following the pencil dropping accident. This ratio is less than the Sharing + Reinforcement group and more than the Nonsharing + No Reinforcement group but is essentially equivalent to all other groups.*
In sum, from a statistical viewpoint, differences in helping exhibited by subjects within the treatment and control conditions were not greater than those expected by chance.

**Correlations Among Measures of Prosocial Behavior**

An examination of Table 10 shows that no relationship was apparent between token donations and the work periods volunteered or token donations and whether the subject helped the experimenter. A slight association was found between the work periods volunteered and whether the subject helped the experimenter.

**Table 10**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Correlation</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donation, Volunteering</td>
<td>.01</td>
<td>NS</td>
</tr>
<tr>
<td>Donation, Helping</td>
<td>.00</td>
<td>NS</td>
</tr>
<tr>
<td>Volunteering, Helping</td>
<td>.13</td>
<td>p &lt; .10</td>
</tr>
</tbody>
</table>

**Subject Verbalizations during Token Donations**

During the donation trials incidental data were collected on the verbal behavior of children by means of a tape recorder. In
In some instances, children have been found to imitate verbalizations as well as irrelevant actions of prosocial models (Hartup & Coates, 1967). Only one child out of 160 emitted verbal statements of any significance during the token donation trials. This child repeated verbatim a number of the statements made by the peer models who exhibited sharing and were reinforced for their behavior. In sum, rarely did children spontaneously imitate model verbalizations during subsequent token donation trials.

**Reliability of Treatment Effects**

Visual comparison of the dependent measures (donations, volunteering, and helping) between the two blocks indicated marked consistency in the pattern of responses across treatment and control conditions. One exception was that fewer tokens were donated in the Nonsharing + No Reinforcement condition during the first block than in the second. Furthermore, the lack of a statistically significant block effect in all analyses indicated that this variable was well controlled.

In sum, a replication of the treatment and control conditions yielding highly similar data was successfully accomplished within the experiment with two randomly sampled subject pools.
DISCUSSION

Children, who observed nonsharing peer models who received neutral reactions from an adult, donated approximately half as many tokens as the control group. Visual inspection indicated that children who observed sharing peer models receiving positive consequences for their behaviors were more generous in sharing tokens with "poor children" and, as a group, were more likely to assist in a related prosocial task (helping) at the end of the experiment than children in other treatment groups.

When children observed adult models who did not share and who received neutral reactions from an adult, children were observed, as a group, to rarely assist in the prosocial helping task at the end of the experiment. Overall, the children involved in the treatment conditions volunteered work periods to a greater extent than children in the control group. Thus, the dependent measure of volunteering did not discriminate among the various treatment groups.

The remainder of this section will address issues and questions raised in the Statement of the Problem. Explanations and implications of the research results, the relationship between the measures of prosocial behavior, and an integration of the present research with previous studies will be included.

Comparison of Peer and Adult Models

The central issue addressed in this study was whether the physical and personal similarities between the model and the observer
would influence the behaviors of the observer. Specifically, do peers influence the prosocial behavior of early elementary school children to a greater degree than do adults?

Considering token donations, peers were more influential than adults. Sharing and reinforced peer models were slightly more effective at increasing the sharing of observing children than their adult counterparts; nonsharing and nonreinforced peer models inhibited sharing as distinct from their adult counterparts.

With regard to the effects of peer and adult models on helping, peers were more influential in the Sharing + Reinforcement condition and adults in the Nonsharing + No Reinforcement condition. Helping was greater in the subject group that viewed a sharing and reinforced peer and was lower in the subject group that viewed a nonsharing and nonreinforced adult model.

With respect to volunteering, there was no difference between the effects of peer and adult models or between the effects of sharing and nonsharing models. Peer and adult treatment groups produced an approximately equal rate of volunteering which exceeded that of the control group.

The findings indicate that when facilitating sharing through the use of models neither adult or peer models are overwhelming potent or influential in all situations, i.e., across all measures. Additionally, the behavior changes of subjects in potentially powerful conditions, i.e., when the prosocial behavior was demonstrated and the model reinforced, were not as large as expected. Yet, the findings suggest that modeling effects may influence the emission of prosocial behaviors in one manner. Peers were found to be especially influential when
they exhibited deviant or asocial behavior such as not sharing and when adults reacted neutrally to the situation.

Two major conclusions can be drawn from the findings of the study regarding the relative effects of peer and adult modeling. First, peer influences must be questioned as contributing to the development or facilitation of prosocial behaviors in the early primary grades. Although peers may be a potent source of influence in some behavior domains during the early primary grades, their influence was not evident in the facilitation of positive social behaviors of the type studied here and in the laboratory setting. One exception, which will be discussed below, is that children may imitate negative behaviors or be inhibited in the performance of prosocial behaviors when they have observed peers who are not prosocial and who suffer no adverse consequences for adults.

Second, the overall absence of strong and consistent effects for direct exposure to models as compared with the no model control group clearly brings into question the utility of modeling in developing prosocial behaviors. Modeling alone and in combination with reinforcement of the model were not sufficient to increase sharing beyond the level displayed by the control group. As mentioned above, the modeling treatments did not produce drastic behavioral changes on the generalization measures. These findings are in contrast to the findings of earlier studies which indicated that modeling may be an effective means of increasing prosocial behavior. However, the present results are consistent with more recent findings from studies which have minimized the interaction of the model with the observer to tease out the effects of modeling characteristics alone (Barton, 1979;
Rogers-Warren, Warren, & Baer, 1977). When Rogers-Warren et al. found that modeling failed to influence the frequency with which children shared their toys, they concluded that (1) earlier studies may have maximized the demand-for-sharing or (2) modeling may be more effective under certain stimulus conditions than under others. Certainly, in a controlled group study the demand-for-sharing would be equal for all groups and, therefore, would not be an appropriate explanation for the lack of a modeling effect in the present study. The second explanation refers to the saliency of the model, that is, a model in a stimulating environment may not be observed as frequently as a model in a tightly controlled experimental environment. This explanation does not account for the present results since the models used were highly prominent and few, if any, distractions were present. Consequently, the most tenable conclusion for the present findings is that televised modeling alone or with reinforcement to the model is not sufficient to facilitate sharing.

Modeling of negative social behaviors followed by no reinforcement is an exception to this general rule and has been shown in the present study to inhibit sharing. This is an interesting finding that may, in fact, point to a significant social influence of peers in development. Morris et al. (1973) found that the punishment of a model (vicarious punishment in relation to the observer) who exhibited nonsharing facilitated the sharing of candies as compared to the control condition. However, if the negative social behaviors of a peer model are not punished, that is, the adult responds neutrally as in the present study, children will exhibit less frequent prosocial responses on the average. Such a finding is noteworthy since adults may permit
inadvertent peer modeling (among classmates, among siblings) without due concern for the developmental consequences of such actions. Present and previous research identifies two alternatives for adults, reinforcement to the observer when prosocial models are imitated (Doland & Adelberg, 1967) or punishment of negative social responses when they are imitated (Morris et al., 1973), which may alternatively facilitate future prosocial responses of observers.

One possible explanation for the less frequent token donations in the Peer Nonsharing + No Reinforcement group could be that only the models in that condition provided a specific example of the behavior of retaining tokens. In this nonsharing condition, the child viewed 40 repetitions of nonsharing behavior by the models. However, this explanation alone can not account for the absence of a similar effect with the Adult Nonsharing + No Reinforcement condition since an equal number of demonstrations of nonsharing were presented in that condition.

A second explanation that seems tenable involves the disinhibition of behavior. Typically, a child might desire to behave in a "greedy" manner in a situation where highly valued rewards may be earned if tokens are retained; however, the child might anticipate that such actions would produce adult disapproval. However, the neutral response of the narrator, in this study, to nonsharing may have been perceived as implicit approval of the models' behavior or at least a lack of disapproval. Observation of the peer model not being punished could have indicated that retention of tokens was acceptable by a child in that particular setting and thus
could have enhanced the likelihood of "greedy" behavior. Consequently, the observation that a prosocial behavior is not reinforced in the particular setting and that an alternative, but typically inhibited, behavior is at least not punished disinhibits the performance of the latter. Furthermore, nonsharing clearly increases the number of tangible reinforcers obtained by the subject, increasing the likelihood of that behavior occurring.

**All or None Patterns of Prosocial Responses**

Two behavior patterns, donation of all or no tokens, were evidenced within the Nonsharing + No Reinforcement treatment groups and are of interest since these behavior patterns were not displayed in other groups. Donation of no tokens which implies the retention of all tokens for personal benefit (exchange for rewards) and exact imitation of the nonsharing model, was evidenced under both peer and adult modeling conditions (N = 6). In contrast, four subjects in the Adult Nonsharing + No Reinforcement treatment condition shared all or almost all tokens, thus exhibiting total generosity and surpassing the level of generosity even displayed by the sharing models which was 75% of all earned tokens.

With respect to the latter finding, Staub (1978) has pointed out that "reactance" to the model may occur when behaviors displayed by the model contrast sharply with an observer's perception or internalization of societal norms. Thus, some children may have perceived the model's retention of tokens as conflicting with inculcated values, whereas other children, notably those who did not donate, may not have learned culturally preferred standards of conduct by which to
judge the model's behavior. Since donation of all tokens occurred exclusively in the adult model condition, it is likely that children viewed greediness as unacceptable adult behavior which conflicted with previously learned standards. The occurrence of this unique behavior pattern may explain why the Adult Nonsharing + No Reinforcement group approximated the donation level of the control group.

Self-reinforcement research (e.g., Bandura & Kupers, 1964; Kanfer & Marston, 1963) had dealt with the transfer of reinforcement standards and may provide an explanation for the present findings. When a model adopts a criterion of what constitutes a worthy performance and consistently reinforces an observer for matching or exceeding a performance standard, the observer is likely to subsequently reinforce himself or herself in a similar manner. Self-reinforcement studies have shown that observers not only adopt standards of self-reinforcement exhibited by models, but also evaluate their performance relative to that standard.

Subjects displaying considerable self-denial (i.e., donating high levels of tokens) may have a prior reinforcement history typified by reinforcement for matching models who adhered to high performance criterions. Alternatively, subjects displaying considerable greediness (i.e., retaining all tokens) may have not been exposed to models displaying exacting standards or may not have been rewarded previously for matching responses. Consequently, the exposure to a model displaying a low criterion for donations produced a comparatively low level of generosity performance. In the present study, high (generous) and low (greedy) standards of performance were displayed by some individuals, however, direct reinforcement to the subject for matching
responses was absent in the treatment procedures. Optimal matching could be expected by the addition of reinforcement for matching the exhibited standards.

**Vicarious Reinforcement**

A second question addressed in this study was whether changes in the prosocial behavior of children occurred when they observed others but were not themselves directly exposed to reinforcement contingencies. Specifically, do early grade school children increase the frequency with which they share or help when they have observed a peer or adult receive positive consequences for a similar behavior?

Vicarious reinforcement produced greater, though not statistically significant, token donations by subjects than the absence of reinforcement to the model for both peer and adult treatment conditions in most cases. Fewer donations resulted when subjects observed a nonsharing model who received neutral reactions from an adult. Were the reactions of adults the factor that inhibited the subjects' prosocial responses?

The results are uninterpretable with regard to whether the neutral consequences or the observation of nonsharing behaviors, or the unique combination of the two variables produced the behavior decrement. Lacking is another comparison group in which subjects observed nonsharing behavior with no consequences, neutral or otherwise occurring contingent upon the model's behavior.

With regard to helping, vicarious reinforcement of peer models increased the number of subjects who assisted the experimenter in the helping task. Vicarious reinforcement of adult models did not increase helping over the level exhibited when the adult model was
not reinforced. Since the only difference between the comparative treatment groups was whether or not the model received a positive adult reaction or a neutral one, it can be concluded that vicarious reinforcement was the sole factor producing the behavioral changes. Although vicarious reinforcement did produce some behavior changes, they were not of great magnitude. The present study as well as several studies (Brown & Pierce, 1970; Budd & Stokes, 1977; Christy, 1975; Kounin, 1970; Ward & Baker, 1968) present sufficient evidence to question the generality of vicarious processes in some behavioral domains. Of course, many studies could also be cited with positive, opposing results and did, in fact, set the occasion for the present study. Nevertheless, the presence of weak effects in the present study challenges the generality of vicarious processes in the facilitation of prosocial behavior in the age group and of the type studied here.

Kazdin (1979) has noted that inconsistent effects of vicarious reinforcement may simply be the result of a failure to understand the variables that control vicarious effects (e.g., reinforcement history of the subjects, saliency of reinforcement delivery). Moderator variables should be considered in the interpretation of the present results. Conspicuousness of reinforcer delivery has been documented as a variable that may contribute to or enhance vicarious processes. For example, Kazdin (1975) found that verbal as compared with nonverbal approval was more discriminable by peers when used to reinforce a model's attending behavior. In the present study, the adult reactions to the model's behavior were discriminable, i.e., at an appropriate volume, easily seen, and filmed using closeup. Thus, the conspicuousness of reinforcer delivery can not be considered
a legitimate explanation for the weak vicarious effects.

The possibility exists that the narrator's statements were not a potent reinforcer for the subjects (a possibility also noted in Elliot & Vasta, 1970). Although social reinforcement has been repeatedly shown to be generally effective as a reinforcer for early elementary school children, there may be reasons that the effectiveness of praise may have been reduced. For instance, Babad (1972) has argued that a person's previous interactions with another individual may determine the potency of social reinforcers dispensed by the individual. Since no previous interaction had occurred between the praising narrator and the subjects, the person-specific effectiveness of praise may not have been maximized. Nevertheless, Morris et al. (1973) did suggest in previous research that no differences were found when the socializing agent was either the same as the experimenter or different. To insure that the effectiveness of the reinforcer was not the reason for the lack of the vicarious effect, a variety of reinforcers (e.g., praise, tangible rewards, affection) or a conditioned reinforcer might be used in future research.

Reinforcement history of the observing child has been noted as a variable which may affect the child's responsiveness to social reinforcers in a vicarious situation. In other words, children who have responded to direct social reinforcers in the past may be more apt to respond to the same reinforcers when they view them used with others. In the present study, the procedural randomization of subjects served to control the individual differences of subjects such as reinforcement history.

The above considerations do not sufficiently account for why
vicarious social reinforcement did not facilitate an overall and significant increase in the prosocial behaviors of subjects. Rather, the conclusion that vicarious reinforcement has not been demonstrated as a consistent or potent technique to enhance prosocial behavior in early elementary school children still stands.

**Relationship Among Measures of Prosocial Behavior**

The statistical relationship (correlation) between donations, volunteering, and helping was found to be nonexistent or minimal. Thus, tendencies to act prosocially in one situation (e.g., donation task) were not related to the tendency to act prosocially in another situation (e.g., request for volunteering). This finding contrasts with abovementioned research results (e.g., Rubin & Schneider, 1973) in which a significant relationship between measures of prosocial behavior was found. The lack of positive correlations between donations and the two other measures of prosocial behavior (volunteering, helping) supports the conclusion that treatment effects obtained for donation behaviors did not substantially transfer to different categories of responses. One exception was the high level of donations as well as helping demonstrated by subjects in the Peer Sharing + Reinforcement condition. Yet, even in that condition no transfer of the training effect was found in relation to volunteering. Inasmuch as the consistency of prosocial behaviors was not apparent across responses, evidence suggests that each specific form of prosocial responding may need to be trained by socialization agents to develop a "prosocial disposition" in children. These findings argue against the
cross-situational consistency hypothesis (Mussen & Eisenberg-Berg, 1977) which contends that training in a specific prosocial behavior domain is apt to create a prosocial tendency across many behavior domains. Rather training techniques to maximize the generalization of prosocial responses across settings, responses, and persons seem necessary to produce such a behavior pattern.

**Relationship to Previous Research and Implications**

The present research results may be viewed in the context of previous research in developmental psychology which has investigated the influence of peer prosocial models. Sprafkin et al. (1975) suggested that peer models could increase prosocial responding in a laboratory setting by increasing the duration of helping. Additionally, Hartup and Coates (1967) showed that peer models produced more sharing of trinkets than the observation of no model. Similarly, the present study noted greater (though not statistically significant) donating with the peer modeling group as compared to the control group. The present study answered questions raised by the Sprafkin et al. study concerning whether peer modeling of a particular response would influence dissimilar responses. The relationship between the observer and the model with regard to previously reinforcing social interaction was not found to be necessary to produce some degree of modeling of peers (as in Hartup and Coates), but such an interaction might have produced stronger treatment effects.

The tentative conclusion raised by Ascione and Beuche (1977) that peer modeling with adult praise to the model would increase the prosocial behavior of observing children was supported, however,
the effect was not as large as expected, nor did it differ significantly
from the effect produced by adult models. Also, it was demonstrated
that training in one area of prosocial behavior had little facilitative
influence with respect to other areas except in the case of peer
modeling of prosocial behaviors with reinforcement to the model.

The present findings extended previous research by clarifying
the role of vicarious reinforcement to modeling in the development
of prosocial behaviors as well as empirically comparing the influence
of peer and adult models.

A number of future research directions are suggested based on
the results of this study. First, the saliency of "poor children"
may have been low due to the verbal methods used to describe the
children and may have decreased subsequent donation behavior. The
concept of poor children might be enhanced through the use of a
picture depicting a poor child. Whether or not this would have
differential effects as a function of differing treatments is an
empirical question. In addition, other variables such as the sex
and race of the pictured child would need to be controlled in the
design of the study. Second, other variations in the modeling
treatment could produce a stronger treatment effect and might be
accomplished through increased exposure to treatment films, a
variety of models, or increased demonstrations of the target
behavior. Third, in rare instances, children may not have oriented
consistently to the television screen. The amount of time children
actually looked at the film would be useful ancillary data. Another
area of interest related to the influence of modeling on prosocial
behavior is the role of familiarity in modeling. Are peer and adult models who are familiar to the observer more potent in the facilitation of prosocial behaviors than strange models? The present study did not address this issue. Finally, it is possible that the combined use of male and female models as opposed to only male or female models may have minimized the modeling effect. Future research could address the issue of whether the model's sex is an influential variable in peer and adult modeling.
REFERENCES


Babad, E. Y. Person specificity of the "social deprivation-satiation effect". Developmental Psychology, 1972, 6, 210-213.


Csapo, M. Peer models reverse the "one bad apple spoils the barrel" theory. Teaching Exceptional Children, 1972, 5, 20-24.


Appendix A

Parental Permission Letter
Dear Parent:

With the approval of the Logan City Board of Education and the Exceptional Child Center, a research project has been developed to find out the key factors that influence the development of positive social behaviors in children. Information from the project will lay the groundwork for educators and mental health professionals to improve programming and services which will enhance positive social behaviors such as sharing and cooperation.

Approximately 500 parents of children in the second and third grade classes of Logan City schools are being contacted to solicit their participation in this study. You have been selected to be a part of this group.

If you grant permission for your child's participation, and your child is selected to be involved in the study, your child will be transported by a responsible university student one day after school to the Exceptional Child Center's research laboratory.

During the visit to the Child Center, each child will view a videotaped program, which may or may not be designed to increase positive social behaviors. Measurements will then be taken to determine whether the film had a positive effect on your child's behavior. In addition, your child's verbal comments after viewing the videotape will be recorded. Consequently, we will be able to determine whether or not
these program materials have an immediate effect on the child's positive behaviors. The programs are not intended to have long term effects on the children in the study. However, if such effects do occur, they would be expected to be desirable.

At the end of the Center visit, your child will be given a small reward for participation. All in all, we expect that the one-time involvement of your child will take approximately one hour. Your child's results will be kept anonymous and strictly confidential. At the completion of the study you will be sent a description of the results, and we will be happy to answer any questions you may have.

You may grant or refuse permission for your child's participation in this study on the enclosed form. We believe that most children will find the experience an extremely positive one. A stamped addressed envelope is enclosed for your convenience. Whatever your decision, we would appreciate you putting your answer in tomorrow's mail, if possible.

To insure the success of the project, we request that you not discuss the nature of the project with your child until after your child has participated in the research. Thank you in advance for your cooperation.

Sincerely,
RLS; na

Enclosure
Appendix B

Parental Consent Form
PERMISSION REQUEST FORM

I hereby GIVE permission for my child, ____________________,
to participate in the research project described in Mr. Sanok's letter.
I understand that my child may withdraw at any time for any reason,
and I understand the nature and content of the project.

__________________________  __________________________
(Date)                      (Parent's Signature)

* * * * *

I hereby REFUSE permission for my child, ____________________,
to participate in the research project described in Mr. Sanok's letter.

__________________________  __________________________
(Date)                      (Parent's Signature)

* * * * *

If you GAVE PERMISSION above, you will be given a phone call to make
arrangements for the date and time of your child's participation.
Please provide the following information:

Telephone Number: ________________

Days and times that your child is usually available (check all that apply):

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<td>___</td>
<td>___</td>
<td>___</td>
<td>___</td>
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<tr>
<td>3:00 p.m.</td>
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<td>___</td>
<td>___</td>
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<td>4:00 p.m.</td>
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<td>___</td>
<td>___</td>
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<td>5:00 p.m.</td>
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Appendix C

Research Schedule
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</table>
Verification Questions: Name ___________ Grade ___ Teacher ___

Subject ID # ____________

Group: P A S-R S-NR NS-NR Control

Sex: M F

Yes No Name card written?

Yes No Able to read donation card?

Tokens donated (to poor children)?

Tokens retained?

Yes No Volunteer to help?

Work periods volunteered?

0 1 2 3 4 5 6 7

Yes No Picked up pencils (one or more)?

Yes No Picked up pencils (following prompt)?

Comments following experiment:

Comments in car:

Experimenter comments:
Appendix E

Individual Data for Tokens Donated (Male)
Table 11

Individual Data for Tokens Donated (Male)

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<th>Subject Number</th>
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Appendix F

Individual Data for Tokens Donated (Female)
Table 12

Individual Data for Tokens Donated (Female)

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Appendix G

Means and Standard Deviations for
Token Donations
Table 13
Means and Standard Deviations for
Token Donations

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<td>10.60</td>
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<td>Adult Model</td>
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</table>
VITA

RICHARD L. SANOK

ADDRESS:

Home: 124 West Second
       Gaylord, Michigan 49735

Phone: (517) 732-4977

Office: Alpine Regional Center for Developmental Disabilities
        P.O. Box 578
        Gaylord, Michigan 49735

Phone: (517) 732-1741 Ext. 271

DATE OF BIRTH: June 16, 1950

PLACE OF BIRTH: Detroit, Michigan

EDUCATION:

M.S. Eastern Michigan University (Ypsilanti, Michigan). December, 1975
Specialty area: Experimental Psychology

B.A. The University of Michigan (Ann Arbor, Michigan). May, 1972

EMPLOYMENT AND PROFESSIONAL EXPERIENCE:


Courses in Behavior Modification, Abnormal Psychology, and Developmental Disabilities.

February 1980 to present.

1979-Present  Psychologist. The State of Michigan, Department of Mental Health, Alpine Regional Center for Developmental Disabilities, Gaylord, Michigan.

Responsibilities include coordination and administration of behavior therapy services, management of multidisciplinary assessment and treatment team, staff training in the area of behavior therapy, consultation with community placement and therapy services, design and supervision of research projects in behavior modification and therapy, professional consultant to Human Rights Committee. June 1979 to present.

1977-1979  Staff Psychologist (Clinical internship). Exceptional
Child Center, Utah State University, Logan, Utah.

Responsibilities included interview and evaluation of developmentally disabled children and their parents, management of multidisciplinary assessment teams, consultation with school psychologists, special educators, etc., selection and administration of psychological and educational assessment batteries, development and implementation of behavioral treatment programs, parent/child counseling and therapy, supervision of graduate students, staff presentations, preparation of reports, case summaries, and correspondence as needed.

July 1977 to June 1979

1977-1978
Instructor of Psychology, Utah State University, Logan, Utah.

Taught courses in Human Development.

January to March 1977, and June to August 1978

1976
Instructor of Psychology, Jackson Community College, Jackson, Michigan.

Taught courses in Introductory Psychology, Adjustment, and Adolescence.

March to August 1976

1975-1976
Psychologist, The State of Michigan, Department of Corrections, Reception and Guidance Center, State Prison of Southern Michigan, Jackson, Michigan.

Responsibilities included providing diagnostic intake evaluations and outpatient psychotherapy to a correctional clientele, treatment planning, crisis intervention, testing, some consultation and training of staff, work with specialized groups including sex offenders, assaultive offenders, drug and alcohol offenders.

December 1975 to August 1976

1975-1976
Instructor of Psychology, Detroit College of Business, Dearborn, Michigan.

Taught course in Social Contemporary Problems

October 1975 to March 1976
1974-1975
Co-Instructor for courses in Introductory Psychology and Child Psychology, Eastern Michigan University, Ypsilanti, Michigan.

September 1974 to May 1975

1972-1973
Supervisor and Child Care Worker, The Methodist Children's Village, Detroit, Michigan.

Responsibilities included supervision and instruction of six child care workers in a residential treatment facility for seriously disturbed children and adolescents (ages 6 to 17).

May 1972 to September 1973

1972-1973
Crisis Staff Member, Westland Drug Abuse Center, Westland, Michigan.

Responsibilities included crisis intervention work with drug abusers.

July 1972 to June 1973

HONORS:
Dean's Honor List, Utah State University, 1976-1978
Graduate Fellowship, Utah State University, 1977-1979
National Honor Society in Psychology (Psi Chi)
Awarded Graduate Assistantship, Department of Psychology, Eastern Michigan University, September 1974 to May 1975

AWARDS:
First place award, Sigma Xi research competition, Utah State University, May 1979.

Second place award, Association for Advancement of Behavior Therapy research competition, Utah Chapter, June 1978.

PAPERS AND PUBLICATIONS:

Sanok, R. L. & Striefel, S. Elective Mutism: Generalization of verbal


**PRESENTATIONS:**


Sanok, R. L. The effects of reduced time limits on prolonged eating behavior. Presented at the Utah Psychological Association convention, Salt Lake City, November 1977.


Innocenti, M. S. & Sanok, R. L. Aspects of Normal Child Development. In Correlates of learning disorders of the severely/profoundly handicapped: Conditions within the learner. Workshop presented at the meeting of the Mountain Plains Regional Center for Services to Deaf/Blind Children. Utah State University, October 1978.


**PROFESSIONAL INTERESTS:**

PROFESSIONAL SOCIETY AFFILIATIONS:

Society for Research in Child Development
American Association for the Advancement of Science
American Psychological Association (Student member)
Scientific Research Society of North America (Sigma Xi)
Association for Advancement of Behavior Therapy

REFERENCES:

Dr. Richard M. Lerner
College of Human Development
The Pennsylvania State University
University Park, Pennsylvania 16802

Dr. Frank R. Ascione
Department of Psychology
Utah State University UMC 68
Logan, Utah 84322

Dr. Sebastian Striefel,
Exceptional Child Center
Utah State University UMC 68
Logan, Utah 84322