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## Donating Behavior in Children: The Effects of the Model's Similarity to the Observer, the Observer's Familiarity With the Model and Parental Models

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DONATING BEHAVIOR IN CHILDREN:  
THE EFFECTS OF THE MODEL'S SIMILARITY TO THE OBSERVER,  
THE OBSERVER'S FAMILIARITY WITH THE MODEL  
AND PARENTAL MODELS

by  
Charles Ray Owens

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

Approved: \

UTAH STATE UNIVERSITY

Logan, Utah

1985

## ACKNOWLEDGEMENTS

It is true that this dissertation, as it is true for all dissertations, is not the product of a solitary undertaking. Without the help and support of many people it would not have come into existence. Dr. Frank R. Ascione has guided my work throughout my studies at Utah State University and has been particularly helpful in this project. To him I am very grateful. I count him among my good friends. The other members of my committee have all provided counsel and support at innumerable times: Edward Crossman, Alan Hofmeister, Sebastian Striefel, Grayson Osborne and Richard Powers. To each of these I owe my thanks. A special thanks goes to Dr. Striefel who allowed me to be inexperienced but did not make me feel inadequate as he supervised my work at the Exceptional Child Center. He has been a good colleague and friend.

To my wife, Penny, who has never known me other than as a student, I am eternally thankful. Her love, patience, gentle prodding, sacrifice and prayers have sustained me. To Candace and Amy, my daughters, I owe my thanks for allowing daddy to be busy and for making my time away from this project a joy.

To my Mom, Dad and sisters, Peggy and Jill, who have loved me throughout my life I am grateful for their support, encouragement, understanding, unwavering faith in me, and continual prayers. I thank them all.

Also to my myriad inlaws I owe a great deal of thanks. Their support and encouragement have been felt. To my father-in-law I am particularly indebted. My academic career would literally not have

been possible without the concern and care he provided.

Finally I am indebted to Richard Whitford, Principal, who when it looked as if no one was going to let me run my research enthusiastically allowed me to conduct my project and provided me with unrivaled cooperation and assistance.

Charles Ray Owens

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## ABSTRACT

Donating Behavior in Children:  
The Effects of the Model's Similarity to the Observer,  
the Observer's Familiarity with the Model and  
Parental Models

by

Charles R. Owens, Doctor of Philosophy

Utah State University, 1985

Major Professor: Frank R. Ascione  
Department: Psychology

Model similarity and familiarity were investigated for adult and similar aged models demonstrating prosocial behavior. Third, fourth and fifth graders (75 male and 75 female) participated.

Subjects were given questionnaires regarding their most and least preferred peers and their most preferred parent. The models were described as similar to the subject for some groups. Subjects were given instructions concerning a sorting task and cash certificates they would earn.

Fifty control subjects viewed a video that contained neither prosocial nor antisocial behavior. For the remaining subjects, a 2 (sex of subject) X 2 (similar age model versus adult model) X 5 (treatment) factorial design was employed. The 5 treatment factors were: unfamiliar models described as a) similar, b) dissimilar, c) with no similarity mentioned, and familiar models who were d) preferred (either a best friend or preferred parent), and e) least preferred (either a least preferred peer or parent).

Subjects (except the control group) saw a video taped model who

demonstrated a sorting task and collected 20 certificates. All models shared 10 certificates by placing them in a canister marked "for the poor children". Subjects completed the task and had an opportunity to share while alone.

Significantly more sharing occurred in the similar age than in the adult model group. Both of which imitated more than the control group. There was no difference in the imitation of males and females overall.

There was no difference between the groups that saw unfamiliar models who were described as similar and the groups that saw unfamiliar models with no similarity mentioned. Each of these produced more imitative donating than the control, the familiar preferred model, and the unfamiliar model described as dissimilar groups. The familiar least preferred model group shared more than the control group. There were significant interaction effects between sex and treatment and between sex, treatment, and age of model. Unfamiliar models with no similarity mentioned and peer models each produced more sharing than parent models. Subjects who observed an unfamiliar model described as similar donated more than those seeing an unfamiliar model described as dissimilar. An unfamiliar age-mate model produced more sharing than a familiar and preferred friend. Donations were greater when the subject observed a least preferred peer rather than a best friend. This difference was due to the female subjects' performance.

(208 pages)

## INTRODUCTION

The study of prosocial behavior in children may help answer many questions about the conditions under which people do or do not engage in prosocial behavior as well as the patterning and frequency of that behavior (Rushton, 1982). Prosocial behavior or altruism can be defined broadly as "behavior carried out for the benefit of another" (Rushton, 1976, p. 898). It is during the process of childhood socialization that many of the adult behaviors related to altruism are learned (Rushton, 1976). Therefore, it is important to understand the variables in a child's environment that play a role in producing prosocial behaviors (Mussen & Eisenberg-Berg, 1977). In addition, other factors (e.g., role-taking skills, history, and prior training) may be important in understanding how prosocial behavior in children develops. One author sees a lack of altruism as the major problem of our society (Rushton, 1980). The solution to this problem may lie in causing changes in the process of socialization (Rushton, 1980).

In light of the fact that one of the major processes of socialization is modeling (Bandura, 1971; Rushton, 1980), it is not surprising that within the relatively new field of study concerning the development of prosocial behavior (Eisenberg, 1982b) a great deal of attention has been paid to studying the effects of modeling on prosocial behavior. It is clear that modeling does have an influence on prosocial and other behavior, but why (Staub, 1978)? Krebs (1970)

suggested three possible reasons. First, modeling may make behavioral alternatives salient. Second, modeling may demonstrate what is and is not appropriate in a particular situation. This may be accomplished by establishing a norm of behavior. Third, under some conditions, a model may provide the observer with information concerning consequences for certain behaviors. These three different aspects of a modeling situation are related. They may be viewed as having a hierarchical relation with the third aspect being the most inclusive: "...models who supply information about behavioral consequences usually supply information about what is appropriate, and they usually make a course of action salient" (Krebs, 1970, p. 268).

There are many unanswered questions concerning the relative effectiveness of different models of prosocial behavior for children. Three variables will be addressed that may affect how and under what conditions modeling contributes to the production of prosocial behavior: familiarity, similarity, and parental models.

#### Familiarity

The first variable is that of familiarity of the model to the observer. Most of the early research on the effects of modeling on prosocial behavior used adults as models (Mussen & Eisenberg-Berg, 1977). Recently, studies have pointed out the role that peer models play as determiners of prosocial behavior in children. It is known, for instance, that a peer modeling prosocial behavior can be more effective than a no-model control condition in producing prosocial

behavior (Elliot & Vasta, 1970; Hartup & Coates, 1967). However, not all studies have had success with peers as models for prosocial behavior (Ascione & Bueche, 1977; Ascione & Sanok, 1982; Barton, 1981). Ascione and Sanok (1982), for instance, found that although the contribution of peer models to the enhancement of prosocial behavior was small, their effect on inhibiting prosocial behavior was significant. In the Ascione and Sanok (1982) study and most other studies peership has been defined as similarity in chronological age. The "peers" were not people who were known to the subject or who were identified as being similar to the subject. The question of the differential effects of unfamiliar peers (age-mates) and adults versus known peers (acquaintances and friends) and adults (parents) is one that has not been adequately addressed (Ascione & Sanok, 1982). Mussen and Eisenberg-Berg (1977) concluded that it is probable that even though parental modeling is a powerful antecedent of sharing, the influence of an admired peer may be even greater. If an admired peer can be equated with a friend or acquaintance then it might be expected that a friend would in many cases have a greater effect (as a model of prosocial behavior) than an unfamiliar (unadmired) age-mate. Indeed, Rushton (1980) suggested that the peer group and relations within the group are critical to our understanding of the role of modeling in children's prosocial behavior. There are several theoretical reasons why familiar peers might be expected to be more effective models of prosocial behavior than unfamiliar age-mates (who have been routinely used in prosocial research). Throughout this document the term "peer" will refer to a

similar aged person who is known to the subject (an acquaintance.) The term "age-mate" will refer to a person who is not known by the subject but is of similar age.

### Nurturance

The first reason why familiar peers might be expected to be more effective prosocial models than unfamiliar age-mates deals with the model's nurturance. Nurturance has typically been defined, for research purposes, in a manner similar to that used by Grusec and Skubiski (1970): interaction "with the subject in a warm, friendly, and rewarding manner" (p. 354) for a short period of time usually 10-15 minutes.

Not all models are equally effective in producing prosocial behavior. Under some conditions nurturant models are more effective than non-nurturant models (Yarrow, Scott, & Waxler, 1973) while under other conditions they are not more effective (Grusec, 1971; Grusec & Skubiski, 1970; Rosenhan & White, 1967; Staub, 1971). It is not clear why these differing results have been obtained.

Mussen and Eisenberg-Berg (1977) pointed out one possible reason. They suggested that experimental situations often fall short of duplicating real life socialization processes in that experimental models often display a prosocial behavior once or at best a few times, whereas a parent (or friend) would likely have a long history of model-observer interactions. This history of interaction may be related to increased nurturance which has been demonstrated to enhance a model's effectiveness (Yarrow et al., 1973). Yarrow et al. concluded that nurturance might enhance prosocial behavior most when



the following conditions were met: (a) there was a warm and meaningful relationship established across time, (b) when during the relationship the nurturance had been contingent upon behavior (i.e., there had been periods or instances where nurturance was withheld), and (c) when the nurturance preceded and continued during the modeling situation. All of these conditions are likely to be met by a friend or parent as a model but not by an unfamiliar model. It is likely that a friend or parent who has a history of model-observer interactions (many of which are likely to be nurturant) would be a more effective model of prosocial behavior than an unfamiliar model. This history of interaction and its relation to the variable of nurturance will be addressed further in the review of literature.

#### Previous Imitation

A second reason why familiar models may be more effective than unfamiliar models relates to previous imitation. Thelen, Dollinger, and Roberts (1975), using adult models for children in the first grade, found that the subjects were more likely to imitate those models who had, rather than those who had not, previously imitated the subject's behavior on a task involving choosing colors. It seems likely that peers who are identified as friends will have a history of reciprocal imitation and, if the results of Thelen et al. (1975) generalize to child models and prosocial behavior, will be more effective prosocial models than age-mates.

### Reciprocation

A third reason for the possibly superior effectiveness of familiar models is based on Peterson (1980) who demonstrated that children will choose to aid those people who are in a position to reciprocate that help. Based on Peterson's (1980) findings and in line with the Thelen et al. (1975) study cited in the preceding paragraph it might be expected that children will imitate friends (familiar peers) at a higher rate than age-mates due to the fact that the friends would then be in a position to reciprocate the imitation. An age-mate would not have this opportunity for future imitation and might not foster imitation of the modeled behavior to as great a degree.

### History of Reinforcement

A final reason why familiar peers might be expected to be more effective models will be discussed in greater detail in the review of literature. The reasoning is that familiar models are more likely to provide a history of reinforcement for imitating their behavior than are unfamiliar models. This reinforcement history may be direct, such as when a person says something nice to one who has imitated them or imitates them in return, or indirect in the sense that imitated behavior results in positive consequences not directly attributable to the model.

### Similarity

The second aspect of modeling that will be addressed is the

contribution that similarity of the model to the observer plays in the effectiveness of prosocial models. We know that there are certain aspects of a model that contribute to whether or not an observer will imitate the model. Generally, successful rather than unsuccessful, powerful rather than nonpowerful, and similar rather than dissimilar models are more effective (Rushton, 1980). All of these aspects are typically defined independent of the model's effectiveness.

Staub suggested that the effectiveness of a model may be at least partially determined by the degree to which the observer identifies with the model, which is in turn possibly determined by the model's similarity to the observer (Staub, 1978). We know that under many conditions a same-sexed model is more effective than an opposite-sexed model in producing imitation (Bandura, Ross, & Ross, 1961; Maccoby & Wilson, 1957). We also know that at least for some behaviors similarity in a model's and observer's ages increases the effectiveness of the model (Kornhaber & Schroeder, 1975). Rosekrans (1967) demonstrated that perceived similarity to a model does increase the amount of imitative behavior of children. Bandura (1977) suggested that one explanation for the increased effectiveness of similar models is the generalization that occurs from one model to another and from one situation to another. If a person is not clear about whether it is prudent to imitate someone in a given situation they may rely on cues such as appearance, style, age, and similarity. He suggested that unfamiliar persons gain influence according to how similar they are to past models whose behavior was successful.

Because similarity in interests, attitudes, and activities, often (if not generally) overlap with the variables of familiarity (friendship) and the parental role, the variable of similarity was included in this research to clarify what aspects of familiar and parental models contribute to the expected increase in their effectiveness as prosocial models.

### Parental Models

The third aspect of the effects of modeling on prosocial behavior that deserves attention is the contribution of parents as models. In 1975, Hoffman concluded that the role that parents play in a child's altruism had not received much experimental attention. In real life, parents frequently serve as models for their children. Children generally identify with their parents and have a long history of often close and affectionate interactions. It would at least appear from this that modeling by parents is a powerful determinant of sharing (Mussen & Eisenberg-Berg, 1977).

Historically, the significance of a model-observer relation can be traced at least as far back as Freud. He suggested that imitation was particularly intense when based on a significant person in the young child's life (Yando, Seitz, & Zigler, 1978). Yando et al. suggested that the most important contribution that Freud's thoughts on imitation made was to direct attention to the importance of the relation between the model and observer.

Correlational studies have related children's altruism and their having at least one parent who serves as a communicator of altruistic

values (Hoffman, 1975). Some have suggested that children's imitation of parents and their imitation of others may be qualitatively different and that the intensity of the observer-model relation may be of great importance (Yando et al., 1978). Despite these observations the experimental data concerning the contribution of parental models to prosocial behavior in general and donation behavior in particular are conspicuous by their absence. The research reported here addresses the need for information concerning parent models of prosocial behavior.

This study will investigate the effects on children's donation behavior of several different categories of models: (a) familiar or unfamiliar, (b) similar or dissimilar, and (c) age-mate or adult.

## REVIEW OF RELATED LITERATURE

A variety of behaviors have been used as dependent variables to measure altruism. The behaviors include: donating possessions to others, helping and rescuing, consideration for others in competitive games, and significant others' ratings of altruism (Rushton, 1976).

Casual observation indicates that parents and other socializing agents spend a considerable amount of effort attempting to get their charges to share or donate their possessions (Rushton, 1982). This may take various forms such as asking a child to let another child play with his or her toys or giving another child part of their possessions such as a sandwich, a soft drink, or a cookie. Because of this concern on the part of parents and others much research has used donating behavior as a measure of prosocial behavior. Krebs (1978) has criticized the use of donations to charity because of the presumed lack of ecological validity. Children are rarely asked to donate to charity in "real life". Rushton and Wheelwright (1980) responded to this criticism on two levels. The first is that laboratory studies are not meant to be analogous to real life. Rather they are "controlled situations for clarifying essential determinants and processes of phenomena" (p. 803). The second response is that in this case the laboratory measures have been shown to be valid indicators of the phenomenon under study. In a study relating donation behavior in a laboratory setting to teachers' ratings of altruism, sharing candy with a friend, and lack of

competitiveness on a car race game, Rushton and Wheelwright (1980) found a positive correlation between these measures. Thus, donating to charity can be used with some confidence to study various variables and their effect on prosocial behavior in general.

Because the literature in the area of prosocial behavior is so extensive this evaluative review will be limited. Primarily (but not exclusively) those studies that operationally define altruistic or prosocial behavior as the donation by children of physical resources to another person will be reviewed. Within this restriction three general variables and their possible effects on children's donation behavior will be discussed. As mentioned in the introduction these areas are familiarity of the model to the observer, similarity of the model to the observer and the effects of parental models who normally will be familiar and may be similar to the child observer. This review will include neither studies that used helping or rescue behavior, consideration of others, or significant others' ratings of altruism as dependent variables nor will it include studies of non-imitative prosocial behavior. These areas are being omitted due to the limited nature of the present study (i.e., imitation of donation behavior in children). Recently several excellent books have reviewed the area of prosocial behavior (Bar-Tal, 1976; Eisenberg, 1982a; Mussen & Eisenberg-Berg, 1977; Rushton, 1980). The reader is referred to these references for a more complete review.

#### Familiarity

It has been suggested that studying the effects of familiarity

may clarify the effects of models of prosocial behavior (Ascione & Sanok, 1982). Familiarity will be used here in the rather broad sense of two people who have met and interacted with one another. This definition does not include as familiar those people about which a great deal may be known (such as those known through printed or broadcast media) but whom the individual has never met. This is not to imply that this is not perhaps an important aspect of familiarity that may need to be investigated.

There are several variables affecting prosocial behavior that may be related to familiarity either directly or indirectly.

However, few of these have been examined within the context of the model-observer relation. Most have addressed the donor-recipient relation. Reviewing some of this material will help to support why familiarity may be an important variable within the model-observer relation. The variables that will be addressed are reinforcement history, previous imitation and reciprocal aid, nurturance, and friends/acquaintances versus unknown models.

#### History of Reinforcement

Gelfand and Hartmann (1982) have pointed out that many definitions of altruism exclude behaviors that are reinforced by external events. Altruism has been said to involve self-sacrifice (Krebs & Wispe, 1974) and to have "little possibility of material or social rewards" (Bryan and London, 1970, p. 200). However, it is likely that observers (professional and otherwise) often overlook the possibility that altruistic behavior is reinforced in some way. Quite often very subtle reinforcers, such as praise or social



approval, may be responsible for strengthening prosocial behavior. When these possible variables are overlooked as contributors to the socialization of prosocial behavior, valuable interventions and opportunities to promote positive behavior are ignored (Gelfand & Hartmann, 1982).

In addition to the numerous studies showing that rewards, both material and social, will strengthen helping, sharing, and cooperating (Azrin & Lindsley, 1956; Fischer, 1963; Gelfand, Hartmann, Cromer, Smith, & Page, 1975; Hartmann, Gelfand, Smith, Paul, Cromer, Page, & LeBenta, 1976) it has been demonstrated that contingent verbal praise can strengthen the imitation of donating. Rushton and Teachman (1978) praised, verbally punished or gave no consequences to children who had imitated a generous model in a donation situation. As might have been expected, subsequent donations immediately and at a two-week follow-up were highest for the positive praise group and lowest for punishment conditions.

Miller and Dollard (1941) suggested that an important condition for learning imitative behavior is the existence of "hierarchies of individuals who differ greatly in the degree to which they have learned to make independently those responses which are most likely to be rewarded" (p. 165). People are more likely to imitate those whom they know (from past experience) are likely to exhibit behaviors that will be reinforced. Following this line of thought, Hartup and Coates (1967) suggested that a variable that might account for imitation is the history of reinforcement provided to the observer by the model or people similar to the model.

The Hartup and Coates' (1967) study was one of the first that used peer models in the investigation of prosocial behavior. Fifty-six children, ages 3 years 9 months to 5 years 4 months, participated in the study. The children were classified into two groups: those who received frequent and those who received infrequent social reinforcement from their peers. Within each of these groups a peer who had dispensed rewards to the subject or a peer who had not dispensed rewards to the subject was chosen to serve as a model for each subject (N = 12 for each of the four groups). Additionally eight no-model control subjects were included in the study. Subjects were given six toy cats that they were asked to share by placing the toys in another child's bowl.

The observation of a peer model resulted in more donating than the no-model control condition. Those subjects with a history of frequent reinforcement from peers imitated the rewarding peer more than the non-rewarding peer. The opposite was found for the subjects with a history of infrequent reinforcement; that is, those subjects imitated the non-rewarding peer more than the rewarding peer.

The authors discuss two interpretations of the results. It was suggested that the children who received little social reinforcement from peers were also likely to be anxious when placed in contact with other children. Consequently a child with a nonrewarding history would not imitate a rewarding model because being in the presence of a rewarding model reduced anxiety and thus the "motivation" for imitating.

A second interpretation of their findings was based on

"perceived similarity". They suggested that those subjects who think of themselves as similar to the model will increase their imitation of the model (Maccoby, 1959; Rosekrans, 1967). This interpretation will be discussed more fully in the section below dealing with model-observer similarity.

Given that history of reinforcement has been shown to influence the imitation of prosocial behavior, it is logical to assume that exposure to a familiar model who is likely to have a history of reinforcing the observer for past imitative behavior (directly or indirectly) would be more effective than exposure to an unfamiliar model without a direct reinforcement history.

#### Previous Imitation and Reciprocal Aid

Despite the fact that most research on prosocial behavior in children has used an imaginary and/or absent recipient of help from the child, sharing normally occurs "between interacting individuals" (Staub & Noerenberg, 1981, p. 271). This interaction may be a key aspect of prosocial behavior and the possibility of future interaction has been shown to have a part in determining who will and will not be aided. Peterson (1980) gave children the opportunity to award good behavior stars to subjects in a verbal story who either helped another child because they had been previously helped (reciprocity) or who helped based solely on the need of the recipient (no reciprocity). Subsequently the same children were given the chance to help either a child who might or a child who could not return the favor. Although children preferred the reciprocating donor less on the verbal task (awarding the story characters stars)

the majority of children helped those children who might reciprocate their help.

A third situation was presented to the same subjects when they were given a chance to help a child who had helped them but would not be able to help them further or to aid someone who had not and would not help them but needed help. In this situation there was no preference for helping either person. It would seem that the possibility for future reciprocation increases the probability of help being given.

Given that a child is more likely to help someone who may be able to help them in the future, is it correct to conclude that one is more likely to imitate someone who has imitated them? This very question was addressed by Thelen et al. (1975). Having noted that attitude similarity has been shown to lead to attraction (Byrne, 1969) the authors suggested that behavior similarity (imitation) may also lead to increased attraction and to reciprocal imitation. This was in fact the outcome of their study using first grade students and adult male models (who were either imitative or nonimitative) in a task that involved choosing colors and nonsense names.

Thelen and Kirkland (1976) conducted a similar study that used peer models who were "previously acquainted" with the observers. The study looked at the effects of grade level of the model on imitation. It was found that observers imitated models who were a grade ahead of them more than models who were a grade behind. The models were peers who had or had not previously imitated the behavior of the observer. Previous imitation was found to lead to more imitation than no

previous imitation.

How can the tendency for children to display reciprocal aid (Peterson, 1980) and reciprocal imitation (Thelen et al., 1975; Thelen & Kirkland, 1976) provide strength for the hypothesis that increased familiarity of a model and observer will increase imitation? Staub (1981) suggests that peers provide extensive socialization for each other during the course of their interactions. He further concluded that interaction between children is guided by reciprocity or the "tendency of children to be recipients of the kinds of behaviors they direct toward others" (p. 124). Thelen et al. (1975) suggested that normative behavior may be partially maintained through the process of reciprocal imitation. It would seem logical to assume that the possibility of future reciprocal imitation and the probability of a history of reciprocal imitation are present for a model familiar to the observer but not present for an unfamiliar model with no past imitation and no possibility of future imitation. If this is so, a familiar model should be a more effective model of prosocial behavior than an unfamiliar model. This issue was raised in a slightly different form by Thelen et al. (1975) who wanted to know what the effect might be of "being imitated when the child is acquainted with... the person who imitates him" (p. 472). The current research will attempt to determine if familiarity of a model has an effect on imitation of donating.

### Nurturance

Identification theories such as those of Freud (1925), Mower (1950), and Sears (1957) have emphasized the importance of nurturance

between model and observer in facilitating imitation. Indeed several studies have found this to be true (Bandura & Huston, 1961; Hetherington & Frankie, 1967; Mischel & Grusec, 1966; Mussen & Parker, 1965). However, this relation between nurturance and increased imitation seems, at least in some cases, to break down when the behavior to be imitated is prosocial in nature.

Basically the research can be divided into two categories: studies that have found either no effect or an inhibitory effect of nurturance on the imitation of prosocial behavior and those that have found a positive effect of nurturance on imitation of prosocial behavior. As previously stated nurturance for the purpose of experimental investigation is usually defined as a brief (10-15 minutes) period of positive, rewarding interaction between two people.

One of the first studies to investigate the effects of nurturance on prosocial behavior (Rosenhan & White, 1967) manipulated the model's prior interaction with the observer. Sixty-five boys and 65 girls in grades four and five were divided into four groups. The first group experienced a brief interaction, with the adult male model, that was negative (critical). For the second group, the interaction was positive. The other two groups were a no interaction group and a no model group. Subsequent to the above procedures the subjects were asked to participate in a miniature bowling game during which they could "earn" gift certificates. The model and the subjects alternated turns on the game. On trials in which the model won he always donated one certificate to a group of needy orphans.

After the first game of 20 trials the model left the room and the subject was allowed to play another game without anyone present. The authors found that observing a generous model produced more giving than under similar conditions without a model. There were no significant differences for the effects of positive, negative or no prior interactions. The authors suggested that the treatments used may have been too brief and innocuous to produce effects. When the data are considered from subjects who either had a prior interaction (familiar) or did not have a prior interaction (unfamiliar), girls gave more than boys in the model's presence if the girls had a prior interaction with the model. However, in the model's absence the boys gave more than the girls. This may have been an artifact of using a male model for both girls and boys. The authors also pointed out that even though observation of an altruistic model results in altruistic behavior, it is not sufficient, since in this study many subjects failed to donate in the model's absence.

Another study with similar results was conducted by Grusec and Skubiski (1970). A major focus of their study was to determine the effects of a nurturant relation. A second focus of the study was to assess the hypothesis concerning the role that modeling plays in imitation. Does it merely provide information to the subjects about expected behavior? Eight subjects from the third and fifth grades participated. Half of the subjects interacted for 10 minutes with a nurturant, same sexed adult and the other half with a non-nurturant same sexed adult. Subsequently the subjects either saw the model perform an altruistic behavior (sharing marbles obtained from a

bowling game) or heard an adult verbalize information concerning the appropriate way to behave. The results were that there was no main effect of nurturance, sex or grade on the amount of sharing. However, modeling produced more sharing than did verbalization. Additionally, nurtured girls in the verbalization group were significantly more generous than the other three verbalization groups and just as altruistic as the modeling groups.

In this study (Grusec & Skubiski, 1970) 75% of the subjects did not share in the absence of modeling. The exception was for girls with a nurturant history. The authors suggest that this may be the result of the adult female model (only girls had a female model) being more like a school teacher than the adult male model. If this was the case then the teacher-like model may have been perceived as demanding that the subject share rather than requesting that the subject do so.

Even when a prosocial behavior other than donating resources has been used there was still no effect of nurturance on increased imitation (Staub, 1971). Sixty-four kindergarten children were exposed to either modeling or no modeling of helping in response to cries of distress. The model was either nurturant (a brief 8- to 10-minute interaction during which the model was verbally rewarding, smiling, warm, etc.) or non-nurturant (an 8- to 10-minute period in which the model was neutral and task oriented). In line with the studies cited earlier (Grusec & Skubiski, 1970; Rosenhan & White, 1967) there was no effect of nurturance as far as enhancement of the effect of modeling. However, nurturance did independently increase



the amount of helping for these subjects.

Two studies have found that for prosocial behavior nurturance can have a detrimental effect on imitation. Grusec (1971) investigated the effects of power (control over resources important for the observer) and nurturance (10 minutes of playing with the observer) on the imitation of donating behavior in 7- to 11-year old children. The power manipulation was informing the power group that the model was there to select children who would take a special trip. Those children observing a high-power model gave away more of their resources (marbles) than those in the low-power group. There was a tendency (not statistically significant) for the low nurturance group to give more than the high nurturance group.

Weissbrod (1976) found that for first grade boys with a female model, nurturance (9 to 10 minutes of warm, positive interaction) had a detrimental effect on imitative donations. However, nurturance resulted in more nonimitative rescue behavior (reacting to cries of distress) than non-nurturance.

In contrast to these studies that found no or detrimental effects of nurturance on imitation of prosocial behavior, two studies have found a positive effect of nurturance. In a study discussed earlier, Hartup and Coates (1967) found that children with a history of being reinforced by their peers were more likely to imitate a nurturant altruistic peer than those children without a history of peer reinforcement. Children without a history of peer reinforcement were more likely to imitate a non-nurturant altruistic peer.

Nurturance was found to have a positive effect on the imitation

of prosocial behavior in a study in which the manipulation of nurturance was more like what might be expected to occur in a non-laboratory setting (Yarrow et al., 1973). Subjects were 105 children ages 3.5 to 5.5 years old. After an initial baseline of helping was taken, children were exposed to either a nurturant or non-nurturant model. The nurturant model initiated friendly interactions, offered help and support, was sympathetic and protective, gave praise, and responded to bids for attention. The non-nurturant model was reserved in attitude, responded matter of factly, did not prolong contacts, ignored requests for attention, and gave minimal help. These interactions took place during five, 30-minute sessions across a 2-week period. This is in contrast to the brief (5- to 10-minute) interactions of the previously reviewed research. Subsequent to this manipulation of nurturance, subjects were exposed to either a symbolic modeling experience (model demonstrating help in a fantasy situation using dioramas) or a symbolic and behavioral modeling experience (actual help given to others).

Symbolic modeling resulted only in imitation of behavior in other symbolic situations for non-nurturant subjects. The non-nurturant subjects' behavior did not generalize to live situations. However, the subjects exposed to the nurturant models and the symbolic as well as the behavioral examples imitated the models in both symbolic and live situations. The results were replicated when 23 black subjects from low income backgrounds produced similar results.

How are these discrepant results of the effects of nurturance on imitation of prosocial behavior to be explained? When previous research has found a promotive effect of nurturance on imitation (Bandura & Huston, 1961; Hetherington & Frankie, 1967; Mischel & Grusec, 1966; Mussen & Parker, 1965) why does much of the research on prosocial behavior find a neutral or inhibiting effect for nurturance? There are several possible explanations.

Grusec and Skubiski (1970) suggested that the mixed results obtained for nurturance may be due to the behaviors used as dependent variables. They suggested that behaviors that can be described as aversive (delay of gratification, adoption of high standards for self-reward and altruism) will not be increased as a result of a nurturant relation and may be decreased. Imitation of a nurturant model may be due to gratification of the imitator (generalized secondary reinforcement resulting from the model's behavior having been associated with the nurturance). The lack of imitation of nurturant models who model aversive behaviors may be due to the possibility that imitation would result in self punishment (not keeping resources) and thus offset any reinforcement effect. This explanation would seem to account for the results of most of the studies except Hartup and Coates (1967), which used an "aversive" dependent variable and found for some subjects (those with a history of peer reinforcement) an increase in imitation for nurturant models.

One factor that may account for Hartup and Coates' findings is the degree of familiarity between the peer model and the observer. It seems very likely that those subjects with a history of

reinforcement were more familiar (e.g., played with? identified as friends?) with the nurturant peers who served as models for prosocial behavior. It is also possible that subjects without a history of peer reinforcement were more familiar with (identified as friends? sat with?) the peers who later served as their models. It would seem likely that those who were not frequently receiving reinforcement from peers might congregate and become more familiar with each other. If this were true then the factor of familiarity may have been an important one in determining the model's effectiveness. Each group would have been most affected by the model with whom they were the most familiar.

A second possible explanation for the lack of positive effect of nurturance was offered by Staub (1971). Nurturance may relay the information that the model and/or the situation is not punitive. Nurturance may therefore reduce the fear of punishment for not acting prosocially as portrayed by the model. However, this explanation fails to account for the positive results obtained by Yarrow et al. (1973) and Hartup and Coates (1967).

A third explanation seems to be the most plausible. This explanation was suggested by Mussen and Eisenberg-Berg (1977) who, in discussing why, in several studies, nurturance has not had a positive effect, said that, "more frequent and consistent nurturance, extended over a longer period, may have a more pronounced and unequivocal effect on the model's effectiveness (p. 82)". Indeed nurturance in all of these studies can generally be equated with familiarity. The nurturant model interacts warmly with the subject while the

non-nurturant model generally remains aloof and interacts very little. The nurturant model is thus more familiar to the observer by virtue of more frequent interaction. However, the difference between the familiarity of the nurturant and non-nurturant groups for most of the studies cannot be thought to be very large. The nurturance has generally been very brief (5 to 10 minutes) for those studies that have found no effect or negative effects of nurturance (Grusec, 1971; Grusec & Skubiski, 1970; Rosenhan & White, 1967; Staub, 1971; Weissbrod, 1976). For those studies finding an effect for nurturance, the inducement was substantially longer: two and one-half hours for Yarrow et al. (1973) and possibly several weeks for the peers in the Hartup and Coates (1967) study.

This explanation would seem to fit well with the positive effects of nurturance on behaviors other than prosocial where nurturance is measured by sociometric means (Hetherington & Frankie, 1967; Mussen & Parker, 1965) or studies with a somewhat longer inducement of nurturance, i.e., 30 minutes (Bandura & Huston, 1961) or 20 minutes (Mischel & Grusec, 1966), than for the studies of prosocial imitation. Thus it would seem reasonable to expect that familiarity may be at least partially responsible for the effects of nurturance on increased imitation.

#### Friends/Acquaintances versus Unfamiliar Models

The final variable and the one most directly related to the contention put forth here (i.e., that a familiar person would be a more effective model of prosocial behavior than an unfamiliar person) is whether or not the model is known by the observer. Only a few

studies have used a model of prosocial behavior who was in any way known by the observer. One group of these studies has already been discussed under the heading of nurturance. Generally the variable of nurturance has been manipulated by allowing the model and observer to spend a few minutes together prior to the modeling. Yet as was pointed out above this small amount of time is not likely to have a great deal of effect on familiarity. A second group of studies has used models who were in fact known by the observers prior to the start of the study. Unfortunately none of these have directly compared familiar and unfamiliar models.

Although the study did not deal with modeling effects but rather addressed the role of familiarity in regard to prosocial behavior, Staub and Noerenberg (1981) explored the effect of a prior relation (friendship) between a donor and a recipient. The subjects were 160 third and fourth grade boys. One finding was that children often shared with friends less than with non-friends. The authors suggest that this may be accounted for by the following logic. Friends are one, often important, source of comparison within a social group. The social advantages gained by a friend may "be a potent source of potential and actual distress. This may be particularly true among children who are just in the process of learning about and learning to manage friendships and to deal with the relative claims, rights, and advantages of self and others" (p. 283). Thus, children may be less likely to share with a friend if they perceive that doing so will provide an advantage to the friend.

This logic might account for why a friend serving as model might

result in more imitation than a stranger or non-friend. It might be that not imitating a friend who exhibits a prosocial behavior would put the observer at a social disadvantage to the friend, while not imitating a non-friend would be of little social consequence (in terms of comparison). A friend who behaves prosocially is a potential social reminder that the observer behaved in a less socially appropriate manner than did the model. A stranger does not have the possibility of serving as a source of comparison in the future and a non-friend is less likely to be used as a source of social comparison than is a friend. Consequently the non-friend may not be imitated.

The Thelen and Kirkland (1976) study reviewed above used a peer model and observer who were previously acquainted. The models in the grade above the observers (but not below) were effective in producing imitation of behaviors such as choosing between line lengths. However, because all of the models were previously acquainted the relative effects of this variable can not be ascertained.

A study that manipulated the variable of familiarity of a peer model was conducted by Kindberg (1971). The subjects (19 severely retarded boys) were taught to imitate an adult. They were then exposed to a peer who modeled similar behaviors. Sixteen of the observers imitated the peer on the first trial. The subjects were then divided into two groups. One group had several interactions with the peer model (the peer brought pets to show them on several occasions and went on a field trip on one occasion). The second group had no social interaction with the peer. Twelve weeks after

the first peer modeling a similar modeling opportunity was arranged. At 28 weeks the subjects were shown pictures of the peer models engaging in the modeled behaviors and were asked to imitate the actions depicted. Each subject's imitative responses were rated by three observers. There was no difference between the group with and without a history of social interaction in terms of live imitation at 12 weeks. However, at 28 weeks the social history group had significantly higher ratings for the imitation of pictures than did subjects in the no social history group. The generalization of these results to normal children and to live models at extended periods following social contact is not known.

There have been a few studies that have used familiar models of prosocial behavior. In a study discussed earlier Hartup and Coates (1967) found known peers were more effective than a no-model control condition. It was also found that if subjects had received much reinforcement that a peer who had given them a great deal of reinforcement (thus more familiar?) was a more effective model than a peer who had not given them much reinforcement (not as familiar?). The opposite was found for subjects who had received little reinforcement.

A study that used a "model" who was at least potentially known by the observer was conducted by Eisenberg-Berg and Geisheker (1979). They investigated the power of the model and the content of an exhortation to share on children's sharing. The first two experiments, however, did not deal with the effects of models. In the first experiment none of the subjects (166 third and fourth



graders) saw the models actually donate to the "poor children" but heard the models (either high or low power, i.e., the subject's principal [familiar?] or a strange adult), deliver one of three exhortations (empathic, normative or neutral). Power had no effect on generosity but content of preaching did, with empathic preaching producing the most sharing, and normative and neutral preaching producing equivalent generosity.

In experiment two the same procedure as in experiment one was used with the addition of a condition in which an adult exhorter was introduced as a future teacher (high power). The subjects rated the principal as high, the future teacher as moderate, and the stranger as low in power. The future teacher condition was found to have a greater effect on giving than the control condition groups. Also, as in experiment one, empathic preaching produced the most giving. However, none of the "models" actually modeled donation behavior; they merely talked about donating.

The third experiment was designed to determine the role that competence of a model has on imitation of generous and selfish behavior. The models were powerful only in the sense that they were competent at a "dart game." The subjects were 77 third graders. The video taped model was an adult woman. Three levels of competence (competent, incompetent, and no-competence exhibited) and two levels of generosity (generous, selfish) were used. An additional group (no competence exhibited, no modeling) was also used. After the model played the game she was shown either giving half her winnings to charity, keeping all her winnings or was not shown after the game.

The children who saw a generous model gave more if the model was competent than if the model was incompetent. There was no difference between the competent and the no-competence-shown conditions.

Eisenberg-Berg and Geisheker's (1979) research leaves open the question of a model's power as it affects generosity in children. In the first two studies there was no actual modeling of prosocial behavior and no effect of power of the preacher on prosocial behavior. In the third study (in which donating behavior was modeled) the more powerful model produced more donations. Would the manipulation of power have been effective in the first two studies if actual modeling had taken place?

Additionally and more directly related to the thesis here, the "model's" familiarity (principal, thus probably familiar, versus unfamiliar adult) and power are confounded in the first two studies. It is not clear what, if any, role familiarity played in the results obtained. In the third study the power of the model was not related to familiarity of the model who was not known to the observer in any of the conditions.

A recent study that used known peers as models for prosocial behavior failed to find an effect for modeling. The study (Barton, 1981) raised the question of whether or not modeling per se was an important component of treatment packages designed to enhance sharing in children. Subjects were 15 preschool, low income children (ages 3 years 4 months to 5 years 4 months). They were placed in a contrived situation in which there was one less toy than the number of children. Then, within a multiple baseline design, they were

successively and cumulatively exposed to phases of the treatment package (baseline, instructions, modeling, model praised, behavioral rehearsal, in session prompts, and in session praise). It is important to note that this is one of the few studies of modeling of prosocial behavior that has used a potentially known peer as a model. The models were members of the same class as the subjects and were probably known to the observer; however, this was not reported. The results of the study indicated that modeling failed to increase the frequency of sharing of toys. Behavioral rehearsal did increase the frequency of sharing.

What might account for the lack of effect of modeling in this study when so much of the literature shows that modeling is a powerful determiner of behavior in children? One reason may be the nature of the measure of sharing that Barton (1981) used. It may be that sharing toys in a day care center, where other children may play with the toys later even if a subject does not share, may be viewed by the subjects as different from the situation in other studies where the recipient will do without the resource being shared if the subject fails to share or donate.

Another possible reason for the lack of modeling effect may be the age of the subjects used in the study. If, as is proposed here, familiarity (friendship) is a contributing factor in the effectiveness of a model then children as young as the subjects in the Barton study may not be affected by a model (even acquaintances) because generally the concept of friendship has not fully developed. Up to about nine years of age children generally identify friendship

with momentary interactions. When peers are interacting positively they are friends. When they are not they are not friends (Youniss, 1980). Around nine years of age friendship begins to include real sensitivity to what matters to the friend as well as genuine affection and love (Furman, 1982). Consequently the results of the Barton (1981) study might be accounted for by the possibility that the models may not have been "friends" of the subjects and thus did not imitate them. The degree of familiarity and/or friendship between the observer and model was not measured by Barton (1981) and thus its contribution to the results of the study is not known.

Several authors have concluded that for children the behavior of peers (those with whom the children interact) is an important variable in children's socialization and deserves more attention as subject matter of research. Youniss (1980) suggested that peer relations play a more important role than adult relations in a child's socialization. Similarly it has been suggested, although empirically untested, that "exposure to peer models might be expected to induce strong, generalized, and enduring prosocial dispositions in the same way... [as do] adult prosocial models..." (Mussen & Eisenberg-Berg, 1977, p. 102).

The direct comparison of familiar and unfamiliar models of prosocial behavior has not been the subject of an experimental investigation. Where familiar models have been used the results are not clear. Hartup and Coates (1967) found familiar peers to be effective while Barton (1981) did not. The research to be described will help clarify the role that familiarity plays in the imitation of

donating behavior.

#### Summary: Familiarity

Several variables that have been shown to have a positive effect on imitation and that are likely to be present with a familiar but not with an unfamiliar model have been discussed. If an observer has a history of reinforcement with a model he or she is likely to be more imitative of that model (Hartup & Coates, 1967). Previous imitation and reciprocal aid may contribute to a model producing more imitation (Peterson, 1980; Thelen et al., 1975). A nurturant model may produce more imitation than a non-nurturant model (Hartup & Coates, 1967; Yarrow et al., 1973). However this conclusion is by no means supported unequivocally (Grusec, 1971; Grusec & Skubiski, 1970; Rosenhan & White, 1967; Staub, 1971; Weissbrod, 1976). Finally, when using models who were known to the observer the findings are inconclusive. Hartup and Coates (1967) found that known models produced imitation of prosocial behavior while Barton (1981) did not. Consequently the influence of familiarity of the model to the observer on the effects of prosocial modeling remains unclear. It seems likely that a model who is familiar to the observer would produce more imitation than a model who is unfamiliar to the observer. This is an empirical issue yet to be addressed.

#### Similarity

There have been no studies, with children as subjects, that have looked directly at the model's similarity (or perceived similarity) to the observer as a factor in the effectiveness of modeling donation

behavior. Similarity has, however, been studied within the area of prosocial behavior. The similarity between the donor or helper and the recipient of the donation or help has been addressed. Generally people share more with those who are similar to themselves than with those who are dissimilar (Krebs, 1970; Staub, 1978).

There are any number of dimensions along which similarity between people might be judged. Within the context of imitation of prosocial behavior two areas will be discussed. These are perceived similarity and similar age (age-mate versus adult models for children).

#### Perceived Similarity

It has been argued (Burnstein, Stotland, & Zander, 1961; Stotland, Zander, & Natsoulas, 1961) that if a person has some perceived characteristics in common with another this will often lead to other overt common characteristics. This was demonstrated when subjects (sixth, seventh, and eighth graders) were told that they had a great deal in common with an adult model (such as where he was born, activities he enjoyed as a child, where the model's father had worked, etc.) Subjects who were told they had things in common with the model were more inclined to express preferences that the model had expressed than subjects who observed models described as dissimilar (Burnstein et al., 1961). Other studies have found similar correlations between perceived model-observer similarity and enhanced imitation (Baron, 1970; Hicks, 1965; Kazdin, 1974; Kornhaber & Schroeder, 1975; Rosekrans, 1967; Stotland & Hillmer, 1962; Stotland & Patchen, 1961; Stotland et al., 1961).

The relation between perceived similarity and increased imitation was investigated by Rosekrans (1967). Boy scouts ages 11 to 14 were shown age-mate models who were described as either highly similar or highly dissimilar. Subjects were given a questionnaire prior to the modeling and information from this was used to describe the model. After viewing the model, subjects were given the opportunity to play a war game that the model had demonstrated. Age-mates described as similar were imitated to a higher degree than those described as dissimilar.

Similarity has also been shown to have an effect within a therapeutic modeling situation with children (Kornhaber & Schroeder, 1975). The children were second- and third-grade girls who were afraid of snakes. Similarity was manifested along one of two dimensions: age (adult versus child) and expression of fear. Age-mate models tended to be more effective models than adults ( $p < .07$ ). There was no significant difference between fearful (similar to the observer) and non-fearful models. In a related study using a task of choosing colors and nonsense names, Thelen et al. (1975) demonstrated that adult models who behaved similarly to the child observer were more likely to be imitated than those who behaved dissimilarly.

Not all research has shown that similarity between the model and observer has a facilitative effect on imitation. Gottfried and Katz (1977) manipulated model's sex, race, and attitude (concerning the question of whether there should be school in the summer) and measured the effect on the observers' attitude toward the model, the

observers' "intention" to imitate several incidental behaviors, and their recall (observational learning, not performance) of the incidental behaviors. Similar beliefs led to a significantly more favorable attitude toward the model but did not have an effect on the observer's "intention" to imitate the model. The "intention" to imitate was measured by asking the observer if they would perform, given a chance, any of a list of 12 behaviors. Six of the behaviors on the list had been performed by the model. It is not clear if this same relation would maintain if subjects were given the opportunity to actually perform the behaviors.

There have been no studies that have manipulated model-observer similarity within the context of prosocial behavior. However, perceived model-observer similarity may have played a part in a study already discussed. Hartup and Coates (1967) found that children imitated peer models who were rewarding if the observer had a history of frequent social reinforcement and that they imitated peer models who were not rewarding if the observer had a history of infrequent social reinforcement. These findings were thought to be the result of perceived similarity between the model and observer (Hartup & Coates, 1967).

#### Similar Age

A second aspect of model similarity to the observer that has been studied has been the differential effect of age-mate (similar) versus adult (dissimilar) models. The literature dealing with the effects of age of model on prosocial behavior can be divided into three categories: (a) studies that have found age-mates to be



effective models but have not contained a comparison group of adults, (b) studies that have used age-mate models and have not found positive results for the effects of modeling on imitation, and (c) studies that have compared adult with age-mate models.

Age-mates as effective models. A number of studies have used age-mates as models of prosocial behavior and found them to be effective in producing imitation of prosocial behavior. In a study using an age-mate model, Elliott and Vasta (1970) included four conditions: model sharing, vicarious reinforcement for modeling, vicarious reinforcement plus a stated explanation of why the model was reinforced, and no modeling. The authors also investigated age and sex differences and the generality of the effects of the treatments. There were 12 children (two girls and two boys at each age from five years old to seven years old) in each of four groups. Children were pretested by giving them a bag of 25 candies and telling them they could share with a (fictitious) boy who had no candy. The subjects then saw a 2-minute film depicting a 6-year old sharing his candy in a similar situation under one of the three modeling conditions mentioned above (the control group saw no film). In the posttest the subjects were given an opportunity to share candy, choose one of two toys (one plain, one fancy), and to share pennies.

Elliott and Vasta (1970) found that although the total amount of sharing was the same for both sexes, boys shared candy more than pennies and girls shared pennies more than candies. Overall, modeling always prompted more sharing than the control condition.

However, the reward and explanation condition resulted in the most sharing and the other two modeling conditions were equal. This study demonstrates that age-mates can be effective models of sharing but it does not address the question of the relative effects of age-mates versus familiar peers.

Sanok (1980) pointed out several methodological problems in the generalizability of Elliot and Vasta's (1970) research. First was the fact that donations were public in the pretest and anonymous in the posttest. Because of this the effects that were obtained are somewhat ambiguous and it is not possible to determine if they were due to the experimental conditions or to the effect of being alone to donate in the posttest or to a combined effect. Second, children were tested prior to the independent variable manipulation and thus may have been sensitized. Finally, the subjects were not selected randomly from the school population.

In a study using age-mate models (Morris, Marshall, & Miller, 1973), first and second grade girls were exposed to (a) nonsharing models who were punished by an adult (socializing agent), (b) nonsharing models who had no consequence shown, (c) models who were not shown in the sharing situation but were punished by an adult, or (d) no model at all. After exposure to the filmed models, one half of the children were confronted with the identical socializing agent as seen in the film while the other half were exposed to a different socializing agent. Subsequently, subjects in the two punishment conditions shared significantly more than those in the no consequence condition. The particular socializing agent did not make a

difference.

In a second experiment it was found that noncontingent vicarious punishment resulted not only in increased sharing but also in increases in other areas of prosocial behavior (helping the experimenter) whereas contingent vicarious punishment had an effect specific to the punished behavior. The authors suggest that these results are consistent with the interpretation that noncontingent vicarious punishment conveys the information that the environment is threatening and that previously punished responses (e.g., selfish ones) should be avoided. Additionally it might be concluded from these studies that an age-mate model who is punished for selfish behavior increases prosocial behavior in the observer.

Age-mate models were used in a study by Kipper and Yinon (1978). Second graders were assigned to one of three groups. Subjects in a conflict group saw a 7-minute film in which two age-mate models deliberated about whether to donate their money to poor children or to spend the money on candy. The models donated their money. In a no conflict film the children (models) donated immediately without deliberation. The subjects in the control group saw no film. All subjects were then given the opportunity to donate. The experimenters found that those in the conflict group shared the most, and those in the control the least. The subjects who saw models gave more than those who did not see models. The subjects in the conflict group gave significantly more than those in the control group but not significantly more than those in the no-conflict group.

The authors suggested that the greater amount of donation in the

conflict group may have resulted from increased "identification" due to the conflict and thus an enhanced imitation. If in fact the observers had previously experienced conflicts similar to those displayed by the models it may be plausible that the observers saw the models as similar to themselves and thus they imitated their behavior. Because the no-conflict group did not see models display a conflict there was not the possibility that this display would have caused the observers to consider themselves similar to the model on the basis of having experienced similar conflicts.

In a study dealing with vicarious reinforcement of sharing Devoe and Sherman (1978) undertook to teach sharing to 56 third graders. They compared the effects of a treatment package with a control condition. The treatment package consisted of seeing a video tape (on seven days) of an age-mate model sharing candy with an adult, discussion of the age-mate model's behavior, watching a video tape of the subject's own pretest behavior (no sharing was exhibited by subjects), and discussion of the self-video tape. The control group saw a science film. The subjects were then given a posttest with an unfamiliar adult. Children in the experimental group shared an average of approximately four more candies than those in the control group on both the immediate posttest and the one week posttest. As with all treatment package interventions it is difficult to determine what aspect of the package contributed to the effect. Consequently, what effect the unfamiliar age-mate model had is not certain.

In addition to studies discussed earlier in this review that have shown age-mates to be effective models (Bryan & Walbek, 1970;

Hartup & Coates, 1967), these studies have found that age-mates can be effective models under a variety of conditions with several different dependent measures and independent manipulations (Devoe & Sherman, 1978; Elliot & Vasta, 1970; Kipper & Yinon, 1978; Morris et al., 1973).

Age-mates found not to be effective. Two studies have been reported that have found age-mates not to be effective models for prosocial behavior. Ascione and Bueche (1977) used a combination multiple baseline across subjects and reversal design to study the effects of age-mate models and adult praise. Three 5-year-old girls were the subjects. The variables manipulated were unfamiliar age-mate presence, unfamiliar age-mate modeling of donating, unfamiliar age-mate modeling and adult praise for age-mate donating, and adult praise for subjects donating in the absence of an age-mate. An average of less than 5% of the tokens was donated during baseline and there was no increase in donations under age-mate presence or age-mate modeling conditions. When the condition of adult praise to the model (vicarious reinforcement) was introduced all subjects increased their giving. In the condition where the subject was praised in the absence of an age-mate the increase in giving was maintained for at least seven sessions for all subjects but then became variable. This study, although it included only three female subjects, contains some implications for the ineffectiveness of unfamiliar age-mates as models for prosocial behavior. Would these procedures have been effective if familiar peers had been used as models?

A second study that was discussed in the section on familiarity was conducted by Barton (1981). Using a peer model (a classmate) and a multiple baseline design, peer modeling alone was found to be ineffective as a technique for promoting sharing in preschool children.

Adults versus age-mates. Although not a study of prosocial behavior, Hicks (1965) directly compared the effectiveness of age-mate versus adult models using 3.4- to 6.3-year olds as subjects. The behavior modeled was aggression. The subjects saw an 8-minute film of either a male or female and adult or age-mate models. There was also a control group which saw no film. The subjects were then allowed to play in the room depicted in the film and their behavior was scored as imitative aggression, nonimitative aggression or nonaggression. There was also a 6-month retest in the same experimental room.

It was found that under these conditions models increased imitative aggression, age-mates produced more imitation than adults, and male age-mates produced more imitation than either the adults or the female age-mates. At the 6-month retest only those children who saw adult male models were still imitating at a statistically significant level, drawing into question the long-term effectiveness of age-mate models in the area of aggressive behavior. The long-term effectiveness of adult males as compared to adult females and children as models might be related to the role that adult males have traditionally played as socializing agents. At the time that Hicks conducted his study (circa 1965) it was generally the male in the

family as well as in other social situations who was the authority figure. The subjects may have seen the adult male's behavior as a more powerful directive than that of the other models. The question of age-mate effectiveness remains somewhat unclear because the author did not specify whether the age-mates in this study were unfamiliar or were known to the observer. Consequently the question of similarity is not clearly addressed.

In another study not directly dealing with prosocial behavior Becker and Glidden (1979) investigated the effects of model age (age-mate versus adult) and competency on the imitative behavior of educable mentally retarded boys. They found no effect for age when unfamiliar models were used. There was an effect for high versus low competence regardless of age (with high competence producing more imitation). It may be found that one reason familiar peers are more effective than age-mates is because with peers there has been a history of interaction during which competency can be assessed.

In a series of studies some of which used adult models and some age-mate models, Bryan and Walbek (1970) demonstrated that both types of models can be effective models of prosocial behavior. The main emphasis of their study was to determine what effect exhortations, modeling, and contradictions have on children's donating behavior. In the first study, third and fourth grade children were given three penny gift certificates on each of 10 "win" trials of a miniature bowling game. Subjects had seen a model who either shared or did not share one of three certificates with a charity on win trials. In addition the model (adult of the same sex) made statements that

that exhorted generosity, exhorted selfishness or were neutral. Significantly more subjects donated after seeing a model donate than after seeing a model who did not donate. Exposure to generous vs selfish exhortation did not produce differential results, neither did discrepancy on the part of the model (preaching generosity but practicing selfishness).

In the second experiment age-mate models (fifth graders of the same sex) were used. The design was the same as Experiment I with the addition of a post-questionnaire that was designed to assess attentiveness and attitude toward the model. The general results were similar to those of Experiment I (i.e., a model produced more donating than the control condition). However, the generous model was more effective than the selfish model only for males. No differential modeling effects were found for girls. The post-questionnaire revealed that models were rated as more attractive when they preached generosity than when they made neutral comments or preached selfishness. However, children were told that the model was not liked by many children before they were asked to rate the model's attractiveness. This statement may have biased the children's ratings differentially for different groups, and thus calls these results into question. For example, the subjects who saw selfish models may have been reminded of this when told that others did not like the model.

The third experiment was similar to the second with the inclusion of instructions to the subject that stated that the rules of the game included talking into a microphone several times about



"anything you want--about the game, about winning money, or about giving money away" (p. 342). This was intended as a measure of the "norm of giving" in addition to the questionnaire and donation behavior. The authors hypothesized that the greater effect found for modeling versus the verbal exhortation in the first two studies may have been due to actions having a stronger influence on altruistic behavior than verbal exhortations. They further suggested that this might have been true because actions are stronger reminders of a person's own norms than are words. To further attempt to measure the subjects' own norms of giving they employed the children's own preachings about their actions.

It was found that the proportion of donors contributing after observing a generous model was significantly higher than after observing a selfish model. This difference was due primarily to the male subjects. For female subjects, there was no significant difference between those who saw generous and those who saw selfish models. It was also found that subjects were more likely to preach charity if they were exposed to a model who either preached generosity or greed rather than neutral comments.

This series of studies (Bryan & Walbek, 1970) again confirms that models, whether adults or unfamiliar age-mates, do have an effect on subsequent donations, at least for male observers. Similar results were obtained when age-mates were found to be more effective models than adults for imitation of approach behavior in a study already discussed (Kornhaber & Schroeder, 1975).

In one of the rare studies that compared the effectiveness of

age-mate and adult models of prosocial behavior, Ascione and Sanok (1982) found that age-mate model's effects on prosocial behavior were slight. One hundred and sixty second and third grade children in six experimental groups and one control group were subjects in this study. Those in experimental groups saw either age-mate or adult models who either shared or did not share. A third factor dealt with whether the models received reinforcement for their behavior. (For ethical reasons there was no group that saw a model who did not share but was reinforced.) As mentioned earlier the study found that generally the unfamiliar age-mates had little effect on the facilitation of the observer's prosocial behavior. There was a greater effect of age-mates on the inhibition of prosocial behavior when they modeled antisocial (not sharing) behavior. These findings are in contrast to the many studies that have found that unfamiliar age-mates do have a significant effect on prosocial behavior. It is not clear why these findings are different from others. The authors, however, offer some possible reasons for their disparate results. It may have been that children "imitated negative behavior or may have been inhibited in the performance of prosocial behaviors when they observed age-mates but not adults who were not prosocial and who suffered no adverse consequences for this behavior" (Ascione & Sanok, 1982, p. 255). Additionally not sharing clearly results in more tangible reinforcers for the subject and may have increased the strength of not sharing. This reasoning, as pointed out by the authors, does not account for the differential effectiveness of the adults and age-mates in producing nonsharing. One possible

explanation for the differing results may lie in the regrettable fact that children often have a history of adults who convey the message "do as I say not as I do". This may have resulted in subjects imitating age-mates who engaged in anti-social behavior but not imitating adults who they may have thought expected them to display prosocial behavior even when they (the adults) displayed anti-social behavior. This line of thought is purely speculative.

#### Summary: Similarity

After a review of the literature Rushton (1976) concluded that "relatively brief exposure to highly salient models can produce durable and generalizable behavior changes in observers" (p. 906). Rushton (1976) concluded that modeling has been shown to affect "the amount, direction, durability, and generalizability of altruistic behavior" (p. 910).

With regard to age-mate models it can safely be concluded that age-mate models can both positively and negatively influence prosocial behavior. This conclusion is obvious, not only from informal observation, but also numerous research studies (Bryan & Walbek, 1970; Elliot & Vasta, 1970; Hartup & Coates, 1967; Kipper & Yinon, 1978; Morris et al., 1973). Although there is little empirical evidence, repeated exposure to age-mates modeling prosocial behavior should induce behavior in a manner similar to adult modeling (Mussen & Eisenberg, 1977). However, not every study has shown age-mates to be effective models in producing prosocial behavior (Ascione & Bueche, 1977; Ascione & Sanok, 1982; Barton, 1981). Although most studies of modeling in general have shown age-mates to

be more effective than adults (Hicks, 1965; Kazdin, 1974; Kornhaber & Schroeder, 1975), it is certainly not clear what role, if any, similarity plays in that effectiveness.

The question of the effects of similar versus dissimilar models is not a minor concern. Mussen and Eisenberg-Berg (1977) suggested that an admired (familiar?) peer may be even more influential in the area of prosocial behavior than a parent. There would seem to be a valid concern about the effects of television models (age-mates and adults who are often both dissimilar and unfamiliar to the viewer) on children's behavior. Is a child more likely to be influenced by his or her selfish friends or the sharing (but often dissimilar and unfamiliar) age-mates he or she sees on television? In general terms, can the apparent effect that age-mate models may have on children's donating behavior be attributed to the observer's familiarity with the model, to the model's similarity to the observer, or is an age-mate model no more effective than an adult model?

Answers to these questions have broad potential application for the socialization of children. If it is discovered that as the familiarity of the model to the observer increases so does the model's effectiveness in promoting prosocial behavior, then one might attempt (as a socializing agent) to arrange a child's environment in such a way as to promote prosocial behavior. For a number of years some members of the broadcast community have been attempting to promote prosocial behavior (e.g., Sesame Street and Mr. Rogers Neighborhood). One way they have tried to do this is by modeling

prosocial behavior. The information learned from this research may have some application in producing a more effective modeling procedure.

Parents often have little choice about the prosocial and antisocial models to which their child is exposed. If the child attends public school the other members of the class are not variables the parent can manipulate. However, parents do have some discretion regarding whom their child interacts with in many situations. If familiarity does increase a model's effectiveness then parents may want to attempt to have their children spend more time with friends who generally model prosocial rather than antisocial behavior.

#### Parental Models

Interactions between people in the past will generally affect their future interaction. Further it can be said that the nature of the past interaction or relation between the two people is likely to have an affect on how that relation will color future interactions (Staub & Noerenberg, 1981). It has been said that perhaps the most significant relationship in terms of socialization is between a child and family members, particularly parents (Mussen & Eisenberg-Berg, 1977). If we are to understand prosocial behavior in children these relationships (parent-child) must be better understood. Parents are frequently models of a variety of behaviors, many of which are prosocial. As models, parents bring to a modeling situation a history of interaction, much or most of which could be characterized

as close and usually affectionate (Mussen & Eisenberg-Berg, 1977).

Bryant and Crockenberg (1980) concluded that a variety of parental behaviors may facilitate prosocial behavior. These include nurturance, responsiveness, inductive control, acceptance of feelings, and modeling of prosocial behavior. Thus a parent serving as a model of prosocial behavior is likely to have a different influence on a child's future imitation due to their past relationship than a stranger or acquaintance might have (Staub, 1981). Yando et al. (1978) suggested that this qualitative difference may be due to "the emotional intensity of the relationship between the observer and model [and] is of great importance for imitative behavior..." (p. 64).

Parents are thought to influence prosocial behavior by a total pattern of child rearing that includes nurturance and the modeling of prosocial acts (Mussen and Eisenberg-Berg, 1977; Yarrow et al., 1973). However, the experimental work (as distinct from correlational studies) confirming this is recent (Mussen & Eisenberg, 1977; Zahn-Waxler & Radke-Yarrow, 1982).

In a study that demonstrated the effects of parental models on non-prosocial behavior, Rothbaum (1979) asked children ages 7, 10, and 14 years to rate the ages or attractiveness of sets of four pictures of people. The sets had two stickers that were described as the choice of the subject's mother and father or of a male and female parent of another child in their class. Parents were imitated more than the non-parent adults. Thus it has been demonstrated that when making choices that a model has supposedly made children prefer to

imitate parents. Will the same pattern hold for imitation of donation behavior when the child sees the behavior performed rather than merely the results of the "model's" behavior?

Most of the information available concerning parents' role in children's prosocial behavior is correlational data (Bryant & Crockenberg, 1980; Leahy, 1981; Mullis, Smith & Vollmers, 1983; Rosenhan, 1972; Staub, 1981; Yando et al., 1978; Zahn-Waxler, Radke-Yarrow, & King, 1979). The following section will examine the relation between parental child rearing, nurturance, and children's prosocial behavior.

Child rearing is not unidimensional. A whole host of techniques and practices that parents employ may affect their children's behavior. Parents serve as models, they provide praise and approval, nurturance, material rewards (or withhold the same), explanations, and examples of rules. Parents punish their children and are figures in a child's life who are loved, feared, envied, and hated (Mussen & Eisenberg-Berg, 1977; Yarrow et al., 1973).

It may not be possible to include all of these aspects and more of child rearing in a single study to determine their effects on prosocial behavior. Researchers have chosen selected aspects of child rearing to determine how they influence the quality and quantity of a child's behavior (Eisenberg, 1982a).

Seventh graders were given paper and pencil assessments of their moral development in addition to being rated by parents, teachers, and peers in a study conducted by Hoffman and Saltzstein (1967). Parental discipline were obtained from reports from children and

parents. Positive relations were found between the parental variables of frequent use of inductive discipline (explanation and reasons for parental acts) and the various measures of children's moral behavior.

A similar study was conducted by Hoffman (1975) with some slightly divergent findings for boys and girls. The subjects were 40 male and 40 female fifth graders. Altruistic behavior was measured by use of peer reputation while parental data was measured by interviewing the parents. For girls, altruistic peer ratings were significantly related to the reported attitudes and values of mothers and fathers and to the use of victim-centered (reparation and apology) discipline by fathers. For boys, altruism was related to the values of the father and to affection and the use of victim-centered discipline by mothers.

Recently reports have begun to appear that have used more direct measures of both children's prosocial behavior and parental child rearing variables. Zahn-Waxler et al. (1979) trained mothers as observers of their children's own prosocial behavior. Mothers have often been cited as good examples of bad observers. Zahn-Waxler and Radke-Yarrow (1982) argued that generally mothers have not been given adequate training before being asked to observe and record their child's behavior. Subjects in the Zahn-Waxler et al. (1979) study were 1.5- to 2.5-year old children. In addition to being asked to record (via tape recorder) the events surrounding a natural distressor involving the child, mothers were asked to simulate distress such as pain, discomfort, fatigue, anger, and sorrow.



Recordings were made over a 9-month period. Four major correlations were discovered: (a) Reparation was more likely to be displayed by the children of mothers who frequently verbalized absolute principles about not hurting others than the children of mothers who did not often use this technique; (b) Mothers' affective explanations about a discipline technique were positively related to children's overall altruism; (c) Mothers' suggestions to make amends (but not physical restraint and punishment) were positively related to altruism; and (d) Mothers' prohibitions ("Don't do that.", "Stop that.") without explanations were negatively related to altruism. Similar relations between parental child rearing techniques and children's prosocial behavior have been found by others (Bryant & Crockenberg, 1980; Mullis et al., 1983).

Nurturance, which has been discussed above, has an effect on a model's ability to produce prosocial imitation (Mussen & Eisenberg-Berg, 1977). Parents who are nurturant might be expected to produce more imitation when they serve as models than non-nurturant parents. Indeed Mussen and Eisenberg-Berg (1977) suggest that nurturance may be directly responsible for prosocial behavior in children when the nurturance is part of a child rearing pattern that includes the modeling of prosocial behavior.

Why might nurturance by parents be important in producing prosocial behavior? Staub (1981) suggests two reasons. First nurturance may create an atmosphere in which children are more likely to learn what parents are trying to teach. Secondly, the nurturance may make the child want to be like the adults and imitate their

behavior. In fact it has been suggested that many of the behaviors that are contained in the class of behaviors labeled nurturant or warm are perhaps a type of modeling of prosocial behavior in and of themselves. Parents who are nurturant may in fact be modeling consideration, kindness, and sympathy.

Summary: Parental Models

Studies have related a variety of parental child rearing behaviors to their children's prosocial behavior. However there are no studies that have attempted to use parents as models of donation behavior and compare their effectiveness to other types of models such as strange adults, peers, and age-mates. In light of the fact that parents often serve as models of various types of prosocial behavior it seems important to address the question of the relative effectiveness of parent models.

## STATEMENT OF THE PROBLEM

The operation of several variables that have an effect on donation behavior in children still remains to be clarified. It is clear that models generally have a positive effect on donating, but there are aspects of modeling whose effects are much less certain. Three variables discussed in the review of literature are similarity and familiarity of the model to the subject and parents as models.

It is clear that a great deal of attention is paid to the process of promoting prosocial behavior in children. Television shows have been produced, such as Mr. Rogers, with much of their content aimed at promoting positive behavior. Parents and teachers both purposely and incidentally model prosocial behavior for children. Peers and age-mates also exhibit prosocial behavior that is undoubtedly observed by children. It is also clear that a great deal of antisocial behavior is also demonstrated by these various models. However, children do not always imitate the prosocial behavior they observe. Why are some models of prosocial behavior imitated and others not? The research described here does not aspire to answer fully this question. But it is hoped that the information gleaned from this study will help to clarify past research.

As pointed out earlier, one variable that may be responsible for some of the disparate findings is that of familiarity of the model to the observer. Although most research studies in this area have used unfamiliar models, not all have. In the normal socialization process it would seem that most models are in fact familiar. This is not universally true in that television and books, for example, often

provide unfamiliar models. It would seem that by and large the most common, and perhaps the most potent, models are those with whom a child is familiar. Does the fact that the vast majority of research has used unfamiliar models call into question the generality of such research to the natural environment?

A second aspect that was discussed is the similarity of the model to the observer. Similarity and familiarity are often correlated in the natural environment. Children often choose their friends based on similar interests and activities (Furman & Bierman, 1983). Finally, it can also be inferred that parents, who are undoubtedly familiar, will be very likely to be similar in attitudes to their children.

These three variables of familiarity, similarity, and parental models are likely to be highly related in everyday life. The current research attempts to manipulate these variables individually in an attempt to ferret out the effects of each on imitation of prosocial behavior. If it is found that a peer is more effective as a model of donation behavior than an adult, can it be said that this is due to familiarity, similarity or neither? These and related questions will be addressed. The results of this study will add to our understanding of the results of past research by clarifying why some studies found that age-mate models were effective while others did not.

### Purposes and Hypotheses

This research had the following purposes:

1. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having similar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having similar likes and interests. This contrasts the effects of age (adult versus age-mate) while controlling for similar likes and interests.
2. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having dissimilar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having dissimilar likes and interests. This contrasts the effects of age (adult versus age-mate) while controlling for dissimilar likes and interests of the model and observer.
3. To determine whether donations would be greater by children who observed a sharing model (age-mate or adult) who was represented as having similar likes and interests as contrasted with those children who observed a sharing model (age-mate or adult) who was represented as having dissimilar likes and interests. This contrasts the effects of similar versus dissimilar models regardless of the age of the model.
4. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and a friend contrasted with those children who observed a sharing age-mate model who was not familiar and not a friend. This contrasts the effects of

familiarity of the model while controlling for age.

5. To determine whether donations would be greater in children who observed a sharing adult model who was unfamiliar as contrasted with those children who observed their parent serving as a model of sharing behavior. This contrasts the contributions of familiarity while controlling for the age of the model.

6. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and was liked contrasted with those children who observed a sharing peer model who was familiar and disliked. This contrasts the effects of familiarity versus the component of preference (liked versus disliked).

7. To determine whether donations would be greater in children who observed a sharing peer model who was familiar and liked contrasted with those children who observed a sharing parent model. This contrasts the effects of friends and parents as models.

8. To determine whether donations would be greater by children who observed a sharing familiar model (peer or adult) contrasted with those children who observed a sharing unfamiliar model (age-mate or adult). This contrasts the effects of familiar versus unfamiliar models regardless of the age of the model.

9. To determine whether donations would be greater by children who observed a sharing parent who was preferred contrasted with those children who observed a sharing parent who was less preferred. This contrasts the effects of familiarity versus the component of preference when adults serve as models.

The following is a summary of the major hypothesized relations

with regard to the effectiveness of modeled donating:

Hypothesis 1: Viewing similar age models will result in more imitation of sharing than viewing adult models which will result in more imitative sharing than viewing no models.

Hypothesis 2: The predicted order of donation rates for conditions involving familiarity or similarity is familiar-preferred models greater than unfamiliar models described as similar greater than unfamiliar models with no similarity mentioned greater than familiar models who are less preferred greater than no model greater than unfamiliar models described as dissimilar. This order was hypothesized due to the factors of familiarity and similarity both being present for familiar-preferred models and both being absent in the unfamiliar models described as dissimilar. The order between the two extremes reflects, to some extent, the relative presence of familiarity and similarity.

Hypothesis 3: Parental models will produce more imitative sharing than friend models who will in turn produce more imitative sharing than unfamiliar models who will in turn produce more imitative sharing than no model. A similar rationale was used for this order as was used in Hypothesis 2. Parental models may be perceived as more similar to the observer than friends are and the familiarity dimension will be absent for unfamiliar models.

## METHOD

### Subjects

The proposed research was submitted to the Institutional Review Board of Utah State University and to the appropriate educational administrator in the Kearney, Missouri school district. Approval was obtained from both parties prior to conducting the research.

Subjects were selected from the third, fourth, and fifth grades of the Kearney Elementary School. Children of this age group (9-11 years old) were selected because the development of friendships is common at this age. Until around the age of nine, children describe their friends based on momentary interactions. Friends are those other children who interact positively at a particular point in time. At about age nine chumships develop. These are characterized by genuine affection and love and children's sensitivity to their friends' concerns (Bigelow & LaGaipa, 1975; Furman, 1982; Furman & Biermann, 1983; Youniss, 1980). It was thought that these aspects of friendship would likely have an influence on a model's effectiveness.

A letter (Appendix A) briefly describing the research project and a consent form (Appendix B) were sent home with each child in the third, fourth, and fifth grades. Additionally a note from the principal, indicating that the research had been approved and stressing that participation was entirely voluntary, was also sent home at the same time. A week later a second note was sent home. This was a reminder from the principal asking those who had not returned the forms to please do so.



Kearney School District serves mostly middle class families. The area is a rural community located about 25 miles from Kansas City, Missouri. Many residents commute to the city for employment. There were 307 letters sent home with children. Of that number 258 (84%) were returned to the school by the children. Of the 258 returned 189 (73.3%) granted permission for their child to participate. This left 69 (26.7%) who refused permission. Of the 189 returned granting permission 89 (47.1%) were male and 100 (52.9%) were female. A total of 150 children served as subjects in the study (75 males and 75 females). All of the children who participated in the study were Caucasian with the exception of one Oriental male. Additionally, 11 children participated only to the extent that they were video taped as models of sharing behavior. A total of 161 children participated. The average age of participants was 10.2 years and ranged from 8.3 years to 11.9 years. In addition, 1 male (10.5 years old) and 1 female (10.6 years old) age-mate and 1 male (26 years old) and 1 female (30 years old) adult were recruited and video taped as unfamiliar models. These participants (models) were unknown to any of the subjects in the study. Twenty parents of twenty subjects also participated by being video taped as models. More details of the parent selection procedure and subject assignment to groups are described below.

Each child was, at the time of the study, verbally given the appropriate information concerning the study and asked if they wish to participate. (See the first two paragraphs of the information, on page 70, given to the subjects when they arrived at the experimental

setting.) The wishes of the child were honored. No child refused to participate.

### Experimental Design

The study employed a factorial design. Three independent variables were used, resulting in a design that consisted of the following factors: 2 (male versus female) X 2 (similar age models versus adult models) X 5 (unfamiliar model described as similar (U•S) versus unfamiliar model described as dissimilar (U•D) versus unfamiliar model with similarity of the model not mentioned (U•NSM) versus a familiar peer model who is preferred or the parent who is preferred serving as a model (F•P) versus a familiar peer model who is least preferred or the parent who is less preferred serving as a model (F•LP)). This last factor will be referred to as the treatment factor throughout the remainder of this paper. In addition to these groups a no model control group was included. The design allowed comparison of the effects of similar age models versus adult models, similarity of the model versus dissimilarity, familiar versus unfamiliar models, and the performance of male versus female subjects. Additionally, interaction effects could be determined. A summary of the experimental design and the number of subjects in each group can be found in Table 1. Throughout the rest of this dissertation individual cell groups will often be identified by the letters used in the cells of Table 1. The treatment variables, collapsed across age of model and sex of subject, will be identified by the initials that appear in parentheses to the far left in Table 1.

Table 1

## Experimental Design and Distribution of Number of Subjects

	FEMALE			MALE		
	SIMILAR AGE	ADULT	NO MODEL	SIMILAR AGE	ADULT	NO MODEL
Unfamiliar Model Similar (U•S)	5 (A)	5 (B)		5 (AA)	5 (BB)	
Unfamiliar Model Dissimilar (U•D)	5 (C)	5 (D)		5 (CC)	5 (DD)	
Unfamiliar Model No Similarity Mentioned (U•NSM)	5 (E)	5 (F)	25 (K)	5 (EE)	5 (FF)	25 (KK)
Familiar Model Pre- ferred Peer or Parent (F•P)	5 (G)	5 (H)		5 (GG)	5 (HH)	
Familiar Model Less Preferred Peer or Parent (F•LP)	5 (I)	5 (J)		5 (II)	5 (JJ)	

### Settings, Apparatus and Materials

The study was conducted at two different loctions in two buildings of the Kearney Elementary School. The first location was in the Elementary School Annex that houses the fourth and fifth grades. The room was 4.42 by 4.95 meters and was empty with the exception of the experimental equipment described below. The room was well lighted, and free from outside noise and distractions. The only window was a small one (10.16 cm by 60.96 cm) in the door. From where the children sat during the study they could not see out of the window. All subjects in the fourth and fifth grades who participated in the study did so in this location.

The third grade children were housed in a different building and participated in a room therein. The second location was a room that was 4.05 by 4.57 meters. The room was well lighted, quiet, and free from distractions. One wall of this room was half windows that were covered with venetian blinds that were closed during the sessions.

Equipment for the study included a video cassette player (Philco: Model # V1720) and a 10 inch color television set (GE: model # M213CWD). This equipment was used to present modeling tapes and instructions to the subjects. Additional equipment included a small open canister (15.24 cm tall and 10.16 cm in diameter) for donations with a sign that read "for the poor children" attached to the front of the canister. The canister was empty.

The subjects received 20 certificates, for their "work", which were redeemed at the end of the experimental session for cash. The

certificates were in stacks of four in a small wooden rack located just in front of the T.V.

The work which was performed was a relatively simple motor task involving the sorting of small objects (bolts and washers). There were five small bowls each containing 10 objects (5 bolts and 5 washers). Also there were two larger white bowls into which the pieces in the small bowls were sorted. Each large bowl had either a bolt or a washer affixed to the front of the bowl to indicate which class of object was to be placed in the bowl. Additionally the washers were painted red to make the sorting task even more simple.

The physical arrangements of the rooms were as follows. The furniture consisted of three chairs, one folding card table, and one small student desk. The layout is shown in Figure 1. The video tape player and a small monitor were located outside of the rooms in the hall. The video tape was operated from outside the room at the appropriate time. The small monitor allowed the experimenter to see the same thing the subject was seeing on T.V. in the room. Additionally a microphone was used to give one set of instructions to the subjects via the speaker on the T.V. set.

#### Questionnaires for All Subjects

Prior to the subjects coming to the experimental setting and prior to group assignment, all children in the subject pool were asked to complete the three questionnaires in Appendix C. The purpose of the first two forms was to obtain information about the child's friends. More specifically, it was to identify the child's best friend and least preferred peer.

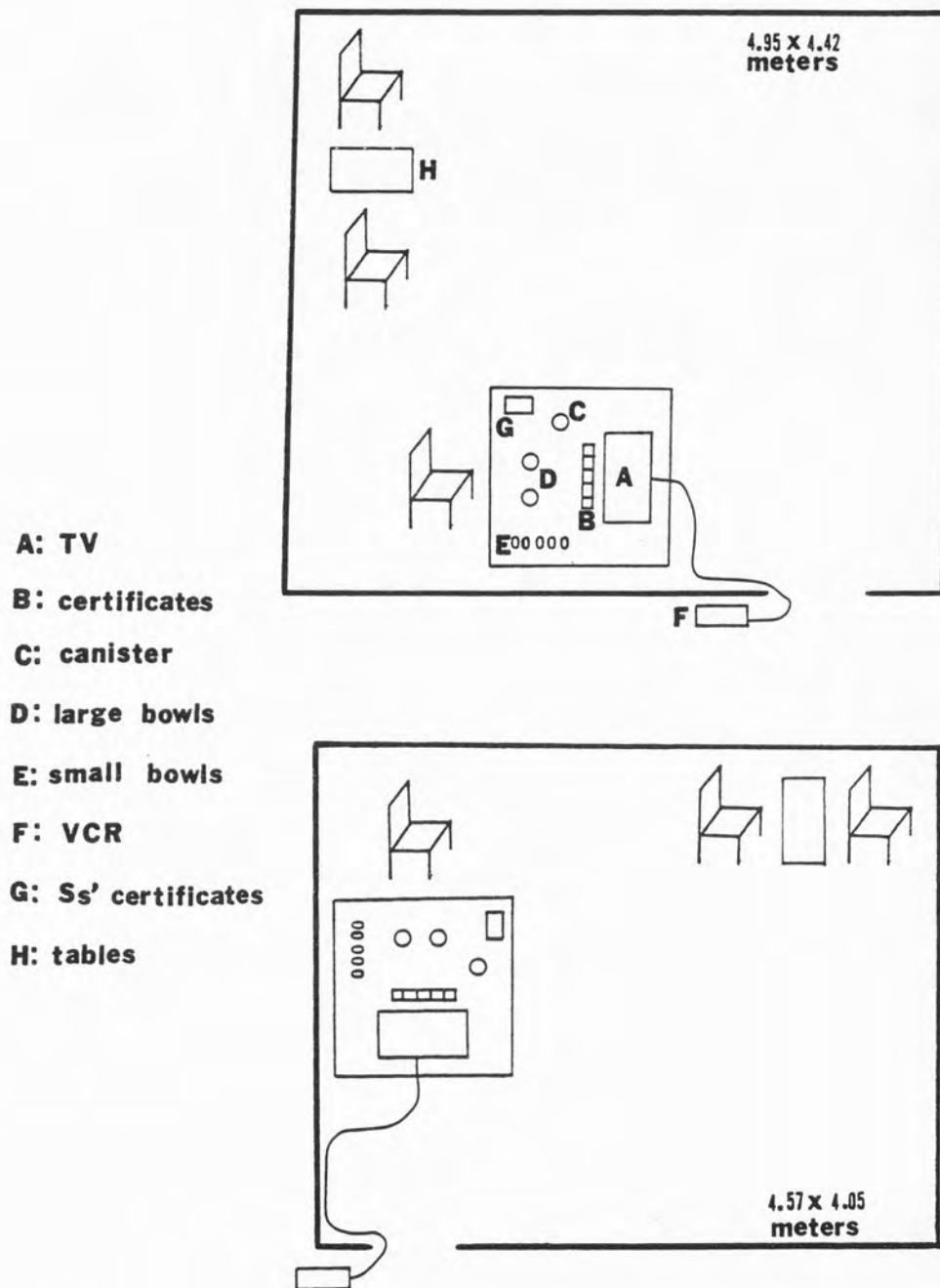


Figure 1. Floor plans of experimental rooms

These questionnaires were completed during a class session. Subjects were asked to write down the names of children of their own sex whom they would most and least like to have as a companion for a variety of activities. The decision to limit choices to same sexed children stemmed from the use of same sexed models in this study. The exception to this was for parents as models where the preferred parent was, in ten cases, the opposite sexed parent.

The sociometric questionnaire was based on the work of Staub and Noerenberg (1981). A subject's most or least preferred peer was defined as both listing a child for four or more of the seven activities and listing them as one of their two choices on Questions 8 and 9 (most or least preferred people).

On the four separate questionnaires, preferred and least preferred for each sex, 315 listed a person for four or more of the seven activities. Of that number 296 (94%) also listed that person as one of their two choices on Questions 8 and 9.

The third questionnaire served the purpose of identifying which parent (if either) the child preferred to interact with for certain activities. The parent questionnaire was similar to the peer questionnaire above and was also based on those used by Staub and Noerenberg (1981). The children were asked to write down whether they would prefer to engage in the activities listed with their mother or father. Preference was simply defined as choosing to engage in an activity with either their mother or father in a situation where they had to choose one or the other parent. There were five activities on the questionnaire and preference for mother

or father was determined when one or the other parent was chosen as preferred for four out of five of the activities.

Questionnaires were administered to the children in their classrooms. Children who had not received permission to participate were either excused from the room or were asked to work on other academic material while the questionnaire was administered. Which of these two options was taken was the decision of the classroom teacher. The procedure for administering the questionnaire was as follows. The experimenter entered the classroom and was introduced to the students. The following information was given to the students.

- a) The information being collected was to be used as part of the project with which they would be helping.
- b) Their answers would be kept confidential and they should not tell anyone what they wrote on their paper.
- c) They were told that occasionally a child would be unable to answer one or more of the questions and that was okay.
- d) They were told to print the first and last names of the children they listed and to spell the names the way they sounded if they did not know how to spell the name correctly.
- e) They were told if they had questions to raise their hand and the experimenter would come to them.

Following the general instructions a list of the children who were in the subject pool was read and those children were asked to raise their hand. They were then given the first form (Preferred



Peer). They were lead through the instructions and the process of filling out the identifying information at the top of the form as a group. They were then asked to complete the form individually. The second and third forms were administered in a similar manner with the exception of the Parent Preference form. On this form the children were asked to answer Question 6 (related to whether both parents were living at home) first. If the answer was "no" they were told not to complete the remainder of the form. When the children were finished they were asked to raise a hand and the forms were picked up individually.

Group assignments. Assignments of individuals to groups was done in three phases. Phase one was the assignment of subjects to groups H, HH, J, and JJ. Subsequent to the questionnaires being given, those children who had demonstrated a strong preference for one of their parent (four out of five questions answered with the same parent) were used to form the subject pool for the Adult Most Preferred and Adult Least Preferred groups. There were 13 males and 14 females who made up this pool. The subjects were then randomly assigned to groups. Parents of the children thus selected were contacted by phone and asked to participate in the study by coming to the school for about 15 minutes to be video taped as a model. The video tape was to be shown to their child. Video taping was done at the convenience of the parent. One parent of a child in group JJ (Male Subject, Least Preferred Parent) refused to participate. One of the remaining 3 subjects from the male pool was assigned as a replacement.

The appropriate parents for 2 male subjects, one in the preferred (group HH) and one in the least preferred (group JJ) groups were unable to participate. However, in both cases, the other parent was willing to participate and consequently the subjects were reassigned to opposite groups. The subjects not selected were returned to the pool for possible inclusion in other groups.

In the second phase of group assignments those subjects who were identified as either a best friend and/or a least liked peer were rank ordered based on the number of times they were mentioned in either category. The top 20 children in this ranking made up a pool of subjects who would potentially serve only as models (video taped). All remaining children who chose one of these top 20 children as a best friend or least liked peer formed subpools from which subjects were randomly selected and assigned to group G, GG, I, and II (see Table 1). The numbers in each of the pools follow:

Group G (Females-Preferred Peers).....	18
Group I (Females-Least Preferred Peers).....	31
Group GG (Males-Preferred Peers).....	10
Group II (Males-Least Preferred Peers).....	23

Only 11 of the 20 children in the model pool actually served as models. This was due to the random selection resulting in several subjects who were chosen who had the same person as their most or least preferred peer. Thus seven of the models served for more than one subject. All children who were not selected as either a model or subject were returned to the overall subject pool. Those who served as models received fifty cents for their participation.

The final phase of subject assignment was random from the remaining pool of 73 females and 61 males. Assignments were made from these pools to groups A, AA, B, BB, C, CC, D, DD, E, EE, K, and KK.

The time between the administration of the questionnaire and participation in the study ranged from 1 week to 4 weeks.

### Modeling and Control Films

All subjects viewed a video tape of approximately the same length (about 2 minutes). Subjects in the modeling conditions saw models doing the complete sorting task, collecting the certificates, and donating to the poor children canister. There were 44 modeling video tapes. When the video tapes were being made the models were instructed as to the actions they were to perform and were provided with cue cards to read the lines they were to say. Models were retaped if mistakes were made in either the actions or the verbal portion of the modeling sequence. All subjects saw a same sexed model with the exception of those in parental modeling groups. Ten of these subjects saw an opposite sexed parent. The models for the video tapes are described below. Each of the first four models served in three video tapes each. The only difference in the content of the 3 video tapes for each model was that the model either wore a blue badge, a green badge, or no badge. The badges were subsequently used to describe the model as similar or dissimilar.

The models are briefly described below:

- a) A 10.6-year-old female served as a model in three video tapes which were seen by subjects in group A, C, or E.

- b) A 10.5-year-old male served as a model in three video tapes which were seen by subjects in group AA, CC, or EE.
- c) A 30-year-old woman served as a model in three video tapes which were seen by subjects in group B, D, or F.
- d) A 26-year-old man served as a model in three video tapes which were seen by subjects in groups BB, DD, or FF.
- e) Classmates serves as models in 11 video tapes which were seen by the 20 subjects in groups G, GG, I, and II. (Some of the video tapes were seen by more than one subject.)
- f) Parents served as models in the 20 video tapes which were seen by the subjects in groups H, HH, J, and JJ.

Subjects in the control condition (no modeling) saw a short animated cartoon. The cartoon was selected such that two independent raters (both were Ph.D. psychologists) agreed that no instances of prosocial, altruistic, or antisocial behavior were exhibited in order not to confound the control group with a film that might influence donations. The rating form used by raters constitutes Appendix D.

Models did not demonstrate the sorting task because the task was so simple that a demonstration was not necessary. All subjects heard instructions from the experimenter concerning how to do the task. As the experimenter gave the instructions he demonstrated the behaviors of sorting and collecting the certificates (see the procedure section below).

### Procedure

Each child was seen individually. The experimenter (the author) went to the classroom and accompanied the first child in a classroom to the experimental setting. If the next child to participate was in the same class, the experimenter asked the previous child to request that the next child come to the experimental setting.

The experimenter introduced himself and asked the child to have a seat at the small student desk (location H in Figure 1). The experimenter then read the following information and questions to every child. Answers to the questions were to provide information that was then used to describe the model as similar to the subjects (Rosekrans, 1967). The actual similarity between model and observer was not addressed. The following questions and the inducement of similarity during the introduction of the models are based on Rosekrans' (1967) study.

Let me tell you what we are doing today. We are trying to find out more about how children learn to do certain things. We hope that what we find out will help parents and teachers teach children better.

You will have an opportunity to see a video tape and then sort some small objects. We think that most children will enjoy the things we ask them to do. In addition you will receive a small amount of money for your help. Do you have any questions?

Would you like to continue? You may stop at any time by just telling me. (Pause for a response.) OK, let's

begin.

Before we get started I would like to ask you a few questions so you can be put in the correct group. Everyone who helps us is either in the Blue group or the Green group. What group you are in is decided by how you answer some questions. There are no right or wrong answers to the questions; it is just whatever you think.

1. What is your full name?
2. What grade are you in?
3. What is your favorite subject in school?
4. What is your favorite TV program?
5. What games or sports do you like to play?

(The experimenter wrote down the answers to the questions.)  
OK, based on your answers you are in the blue group. Here is a badge for you to wear showing you are a part of the blue group. (The child was handed a blue self-adhesive round badge that was 1.25 inches in diameter.) Now that we know you are in the blue group, I want to tell you what some of these things are that are on the table and what you will be doing with them. In a moment you will watch a video taped program on TV.

But before you watch the TV program let me tell you about these things. Your job is to separate these two objects. As you can see, in front of you there are five small bowls each containing pieces that are all mixed up

(points to the five small bowls). There are two large bowls up here where the separate pieces go (points). What we would like you to do is to take each small bowl and separate the pieces into the correct large bowl. As you can see the large bowls have a piece glued to the outside that shows you what goes in that bowl. Watch as I show you how it is done (demonstrates and explains). After you have finished each small bowl you should take 1 stack of 4 certificates from here (points) and put them in your box. They are then yours, because you have earned them. When you are finished your certificates will be traded for money. They are worth 2 cents each.

After you have finished all your work, all five small bowls, then you will have earned 20 certificates. They will be your own because you worked for them.

Let me tell you about what you will see on TV.

### Introduction of Models

To this point all subjects in all groups were presented the same information. At this point in the session the procedure was varied for different groups. All subjects in the modeling conditions (all groups except K and KK) then had the model introduced to them. Within each of the five introductions of models conditions, half of the subjects saw a peer or age-mate model and half saw an adult model.

### Unfamiliar age-mate model described as similar (U•S-age-mate).

The experimenter read the following for group A and AA. The pronouns

were changed as appropriate.

The person you are about to see is named "Mary" ("Tommy"). She will be showing you how to do the sorting task and how to collect the certificates. She is in the blue group just like you are. She lives near here and goes to the same kind of school as you do. It looks as though she is a lot like you are. It says here that she loves

\_\_\_\_\_ and \_\_\_\_\_ [two of the things the subject indicated during the questioning time] just as you do. She gets to be in the blue group and wear the blue group badge because she is so much like you.

Unfamiliar adult model described as similar (U·S-adult). The experimenter read the following for groups B and BB.

The person you are about to see is named "Ms. Jones" ("Mr. Jones"). She will be showing you how to do the sorting task and how to collect the certificates. She is in the blue group just like you are. She lives near here and went to the same kind of school as you do. It looks as though she is a lot like you are. It says here that she loves

\_\_\_\_\_ and \_\_\_\_\_ [two of the things the subject indicated during the questioning time] just as you do. She gets to be in the blue group and wear the blue group badge because she is so much like you.

Unfamiliar age-mate model described as dissimilar (U·D-age-mate).

The experimenter read the following for groups C and CC.



The person you are about to see is named "Mary" ("Tommy"). She will be showing you how to do the sorting task and how to collect the certificates. She is not in the blue group like you are. She is a member of the green group. She does not live in Missouri. She lives in another state far away from here. She does not go to the same kind of school as you do. It looks as though she is not very much like you at all. She doesn't even like to do the things you like to do. It says here she doesn't like

\_\_\_\_\_ and \_\_\_\_\_ [two of the things the subject indicated during the questioning time] and I noticed that those are things that you like to do. She wears the green group badge because she is so much different from you.

Unfamiliar adult model described as dissimilar (U·D-adult). The experimenter read the following for groups D and DD.

The person you are about to see is named "Ms. Jones" ("Mr. Jones"). She will be showing you how to do the sorting task and how to collect the certificates. She is not in the blue group like you are. She is a member of the green group. She does not live in Missouri. She lives in another state far away from here. She did not go to the same kind of school as you do. It looks as though she is not very much like you at all. She doesn't even like to do the things you like to do. It says here she doesn't like \_\_\_\_\_ and \_\_\_\_\_ [two of the

things the subject indicated during the questioning time] and I noticed that those are things that you like to do. She wears the green group badge because she is so much different from you.

Unfamiliar age-mate model no similarity mentioned

(U•NSM-age-mate). The experimenter read the following to groups E and EE.

The person you are about to see is named "Mary" ("Tommy"). She will be showing you how to do the sorting job and how to collect the certificates.

Unfamiliar adult model no similarity mentioned (U•NSM-adult).

The experimenter read the following to groups F and FF.

The person you are about to see is named "Ms. Jones" ("Mr. Jones"). She will be showing you how to do the sorting job and how to collect the certificates.

Familiar peer (F•P). The experimenter read the following to groups G, GG, I, and II. This introduction was used for both the most and least preferred peer groups.

\_\_\_\_\_ (peer's name) will be showing you how to do the sorting task and how to collect the certificates.

Parent model. The experimenter read the following to groups H, HH, J, and JJ. This introduction was used for both the more and less preferred parent groups.

Your mother (father) will be showing you how to do the sorting task and how to collect the certificates.

No model condition. For those subjects in groups K and KK who did not see a model the experimenter read the following.

The video tape you are about to see is a short cartoon.

### The Video Tape

All subjects were then read the following:

Now that you know who you will see on the TV let's watch the video tape. Please do not start the sorting until I tell you to begin.

The experimenter then left the room and turned on the video tape.

Modeling task and sharing. All subjects except those in the no model group saw the appropriate model, as she or he sorted the objects, collected the certificates, and shared with the poor children at the end of the task. After collecting the certificates for the third bowl all models said:

I think I will share some of my certificates with the poor children when I finish. I know I don't have to share but it is good to share.

After the sorting tasks were completed and the model had collected all 20 certificates, the model said:

Now that I am finished I am going to share 10 of my certificates with the poor children. This is for the poor children: one, two, three, four, five, six, seven, eight, nine, ten.

No model. Subjects in the no model group saw a cartoon and did not see a model demonstrate the task and sharing behavior.

### Instructions to Begin the Task

All subjects then heard the following instructions given over the speaker in the TV set.

It is now time to begin work on the sorting task. Remember that as you finish each small bowl to collect your 4 certificates. When you are finished with everything knock on the door and I will come back in.

### Post Session

After the child knocked on the door, the experimenter came in and commented on the donations to the poor children, if any were made, with a statement such as "Thanks for sharing with the poor children, that will make them very happy." The experimenter then gave each child two cents for each certificate and then answered any questions the subject had.

Additionally, the subjects, who were in one of the groups in which similarity was induced, were asked to rate how much like the person in the video tape they thought they were. This was done with a paper and pencil questionnaire consisting of a five point scale from "not at all alike" to "very much alike". The data were used to infer the induction of similarity.

The subjects who saw a peer or parent were asked to complete a second peer preference or parent preference form to determine if any changes had taken place since the first forms were completed.

Each subject was also asked to promise not to discuss anything that happened in the study with any of their peers. All of the children promised not to tell. A non-systematic sample of subjects

were asked if they had known what was going to happen before they came to the experimental room. Of approximately 70 children asked, no one admitted knowing more than the fact that they were going to see something on TV.

#### Response Measure

The dependent measure in the study was the number of certificates that the subjects donated to the "poor children" while the experimenter was out of the room. The possible range of donations was from 0 to 20 certificates.

## RESULTS

The data from the study are discussed as they relate to the stated hypotheses and purposes of the research.

At the end of the session as the certificates were about to be traded for cash, the certificates kept by each child were counted out loud by the child and silently by the experimenter. The certificates kept were then recounted by the experimenter and the number donated (20 minus the number kept) was recorded on individual data sheets. In a few cases the child's count and the experimenter's count were not equal. In these cases both parties recounted. This recounting always resulted in agreement with the number the experimenter had originally obtained. This procedure resulted in an agreement factor of 100%. This high agreement is to be expected with a measure as objective as the one used.

An additional confirming count was taken by the experimenter who counted the number of certificates in the "poor children" canister after the subject had left the room. In all cases the count confirmed the previous procedure.

It should be noted that in four cases the subjects did not donate certificates but rather after receiving money for the certificates they placed cash in the poor children canister. The data for these subjects were recorded as zero certificates donated because a strict interpretation of the dependent variable was the number of certificates shared while the experimenter was out of the room. In these four cases no certificates were donated during this time. Appendix E presents a comparison of the data analysis with the

data from these four cases recorded as zero and when recorded as if they had donated an equivalent number of certificates. There were a few differences in terms of the statistical significance levels of effects. The groups the subjects were in and the amount of cash donated were: group CC-15 cents, E-25 cents, H-40 cents, and K-40 cents.

Several subjects failed to collect some or all of the certificates prior to knocking on the door to indicate they were finished. Seven subjects in the no model group failed to collect any of the certificates. One other in the no model group collected only the first stack of four certificates. Three subjects, one in each of groups EE, F, and II failed to collect the last stack of four certificates. When this happened the subjects were reminded to collect the certificates and the experimenter excused himself from the room for about 30 seconds as the subject collected the certificates.

Several subjects were replaced with others from the subject pool during the study. One subject in group F was replaced when she reported the video equipment had not functioned properly and she saw no picture on the TV screen. Three subjects (groups BB, C, and K) were replaced due to protracted illnesses resulting in absences. One child was replaced due to being absent on the days the pre-experimental questionnaires were administered. All of these subjects were replaced with children from the same grade who had not been chosen in the original selection process.

### Sharing

A total of 20 certificates was earned by each child during the session. Figure 2 shows the mean number of certificates placed in the poor children canister for the major independent factors. No certificates were shared by any subject in the no model control group (recall that no mention of the poor children's canister was made for children in this group). The highest level of sharing occurred in the Unfamiliar Model Described as Similar (U•S) group and the Unfamiliar Model with No Similarity Mentioned (U•NSM) group. The lowest level of sharing was in the Unfamiliar Model Described as Dissimilar (U•D). The former groups shared 3.6 times as many as did the latter. The Familiar Preferred (F•P) and Familiar Less Preferred (F•LP) groups shared at a level intermediate to the U•S/U•NSM and the U•D groups. Subjects in the Less Preferred group shared almost twice as many as did the Preferred group.

The data from individual subjects can be found in Appendix F for males and Appendix G for females. The range of sharing was from 0 to 20 certificates. The only groups of subjects in which no individual demonstrated any sharing were the control groups (male and female), the male subjects who saw a less preferred parent model, and the female subjects who saw a preferred peer model. All other groups had at least one individual who shared.

In reference to the factor of the model's age those subjects seeing a similar age model shared 1.6 times as many certificates as did those seeing adult models. Females shared 1.4 times as many certificates as did the male subjects.



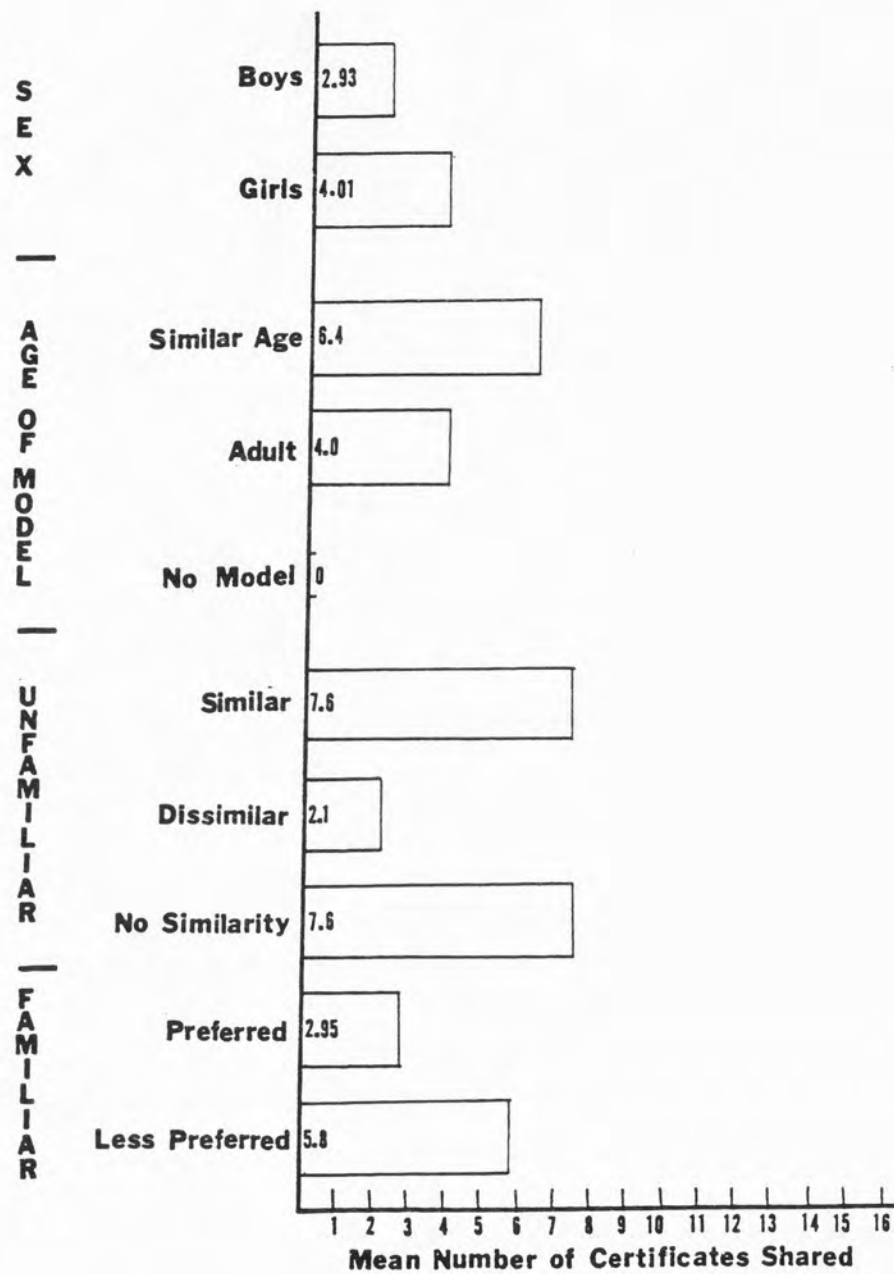


Figure 2. Mean number of certificates shared for the major independent variables

The alpha level for all tests of statistical significance was .05. The exception to this was when a posteriori contrasts were made or a large number of a priori contrasts on a given factor of an ANOVA were made. When this occurred the .10 alpha level was used to determine the  $F'$  for the Scheffe' test (Ferguson, 1976). All references to differences between groups or effects of groups will refer to statistically significant differences at the .05 alpha level (except for the two cases mentioned above).

All contrasts following the ANOVA were calculated using the Scheffe' test with the exception of the contrasts involving the control group which used the Dunnett  $t$  as recommended by Winer (1962).

A 5 (treatment) X 2 (age of model) X 2 (sex of subject) factorial design with a single control group analysis of variance was calculated on the number of certificates shared (Winer, 1962). Table 2 contains the  $F$  values and statistical significance levels. The difference between the control group and all other groups combined was significant. The main effects of treatment, age of model, the interaction between treatment and sex, and the interaction between treatment, age of model, and sex were all significant. In addition the interaction of treatment and age of model approached significance. The  $F$  value of this interaction fell .02 units short of meeting the critical value of  $F$  at the .05 alpha level. The independent variables accounted for 37.5% of the variation in the data.

#### Dichotomous Data

In addition to considering the data in terms of how much a child

Table 2  
Summary of Analysis of Variance for Sharing of Certificates

5 (treatment) X 2 (age of model) X 2 (sex of subject) with a single control group

SOURCE OF VARIATION	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F-VALUE</u>	SIGNIFICANCE LEVEL
Control vs All Other	129.26	1	129.26	5.84	$\underline{p} < .05$
Treatment	531.04	4	132.76	6.0	$\underline{p} < .001$
Age of Model	146.41	1	146.41	6.62	$\underline{p} < .025$
Sex of Subject	65.61	1	65.61	2.96	NS; $\underline{p} < .10$
Treatment X Age of Model	214.64	4	53.66	2.42	NS; $\underline{p} < .10$
Treatment X Sex	396.44	4	99.11	4.48	$\underline{p} < .005$
Sex X Age of Model	.81	1	.81	.04	NS; $\underline{p} > .25$
Treatment X Age of Model X Sex	234.84	4	58.71	2.65	$\underline{p} < .05$
Within Cell	2854.8	129	22.13		

shares the data can also be considered in terms of whether or not the child shared. When the data are considered in this way some slightly different results are found.

All subjects who shared one or more certificates were coded as a 1 and those who did not share were coded as a 0. Figure 3 shows percentage of subjects who shared for the major independent factors. None of the subjects in the no model control group shared any certificates. An examination of the graph shows little difference between the percentage of male and female sharers. There is little difference between the percentage of sharers among those seeing peer models and those seeing adult models. However there appear to be substantial differences among subjects in the various treatment groups. Groups U•S and U•NSM both had 65% sharers. This is 2.6 times as many as in group U•D and F•P who had 25% sharers each. Group F•LP had 45% sharers.

A 5 X 2 X 2 ANOVA with a single control group was used to analyze the dichotomous data. The results of the ANOVA are contained in Table 3. The difference between the control group and all other groups combined was significant. The main effects of treatment and the interactions between treatment and age and between treatment and sex of subject were all significant. The results of the dichotomous data analysis and the continuous data analysis differed in that age of model and the 3-way interaction were significant for the continuous data and not significant for the dichotomous data analysis. The treatment X age of model interaction was significant for the dichotomous data and not significant for the continuous data.

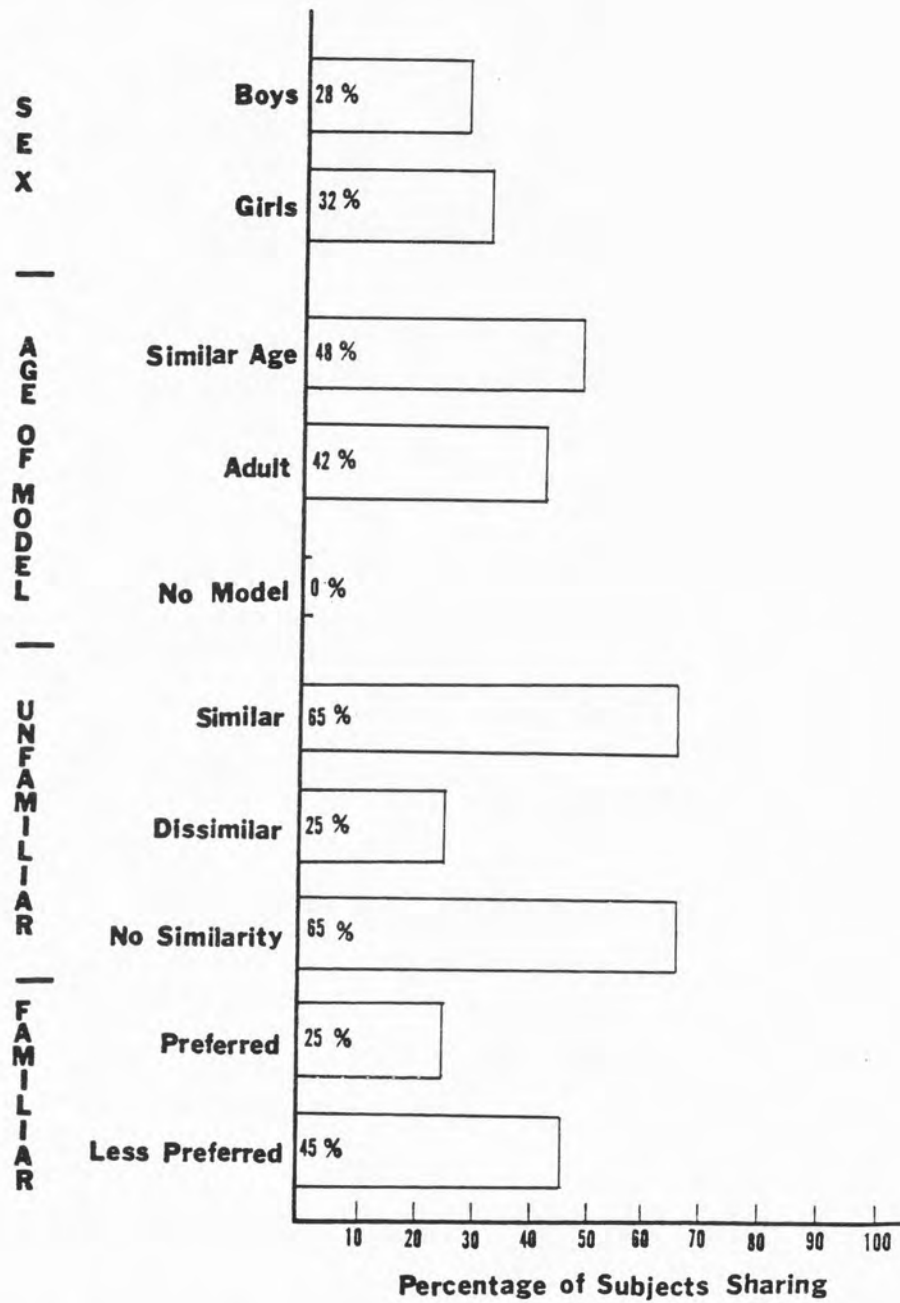


Figure 3. Percentage of subjects sharing for the major independent variables

Table 3

Summary of Analysis of Variance for Dichotomous Data (Sharing versus Not Sharing)

5 (treatment) X 2 (age of model) X 2 (sex of subject) with a single control group

SOURCE OF VARIATION	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F-VALUE</u>	SIGNIFICANCE LEVEL
Control vs all others	.964	1	.964	7.77	$p < .025$
Treatment	3.2	4	.8	6.45	$p < .005$
Age of Model	.09	1	.09	.72	NS; $p > .25$
Sex of Subject	.09	1	.09	.72	NS; $p > .25$
Treatment X Age of Model	1.76	4	.44	3.55	$p < .025$
Treatment X Sex	2.56	4	.64	5.16	$p < .005$
Sex X Age of Model	.01	1	.01	.08	NS; $p > .25$
Treatment X Age of Model X Sex	1.04	4	.26	2.10	NS; $p < .10$
Within cell	16.0	129	.124		

The following discussion of the results of this study will focus on the continuous data. When the findings from the dichotomous data agree with those from the continuous data this fact will be noted. Where the dichotomous data analysis disagrees with the continuous data analysis a more complete accounting of the dichotomous data will be given. Appendix H contains information related to the results of this study using the dichotomous data (sharing versus not sharing) when the results are similar to the continuous data results. Further discussion of the results will center around the hypotheses and purposes stated earlier in this dissertation.

#### Hypothesis One

The first hypothesis of this study stated that viewing similar age models would result in more imitation of sharing than viewing adult models which would result in more sharing than viewing no model. The 5 X 2 X 2 ANOVA (see Table 2) yielded a significant effect of age of model which supports the hypothesis that similar age models produce more sharing than adult models. Figure 2 shows the means of these three groups. The 5 X 2 X 2 ANOVA with 1 control group yielded a difference between the control group and all other groups combined. An additional test using the  $t$  statistic (Winer, 1962, p. 264) was used to test the significance of the difference between (a) similar age model and control group and (b) adult model and control group. The results were that similar age,  $t(129; k=21) = 4.25$ , and adult,  $t(129; k=21) = 6.8$ , models each differed from the control group. The probability of finding this pattern of results by chance is less than .005.

The hypothesis that similar age models ( $\underline{M}=6.4$ ) would produce more imitative sharing than adult models ( $\underline{M}=4.0$ ) which would produce more sharing than the no model group ( $\underline{M}=0$ ) is given substantial support.

Analysis of the dichotomous data (Table 3) did not support these results. Figure 3 shows the percentage of sharers for these three groups. The hypothesis that similar age models (total number of sharers = 24; 48%) would produce more imitative sharing than adult models (total number of sharers = 21; 42%) is not supported by the dichotomous data. The results were that similar age models,  $\underline{t}(129; k=21) = 5.96$ , and adult models,  $\underline{t}(129; k=21) = 6.82$ , each differed from the control group. The probability of finding this pattern of results by chance is less than .005.

### Hypothesis Two

The second hypothesis stated that familiar-preferred models (F•P) will produce more imitative sharing than unfamiliar models described as similar (U•S) who will in turn produce more imitative sharing than unfamiliar models with no similarity mentioned (U•NSM) who will in turn produce more imitative sharing than familiar models who are least preferred (F•LP) who will in turn produce more imitative sharing than no model (NM) who will in turn produce more imitative sharing than unfamiliar models described as dissimilar (U•D).

The 5 X 2 X 2 ANOVA (Table 2) resulted in a significant effect of this treatment factor. The means of these groups are found in Figure 2. Groups U•S [ $\underline{t}(129; k=21) = 6.106$ ], U•NSM [ $\underline{t}(129; k=21) =$



6.106], and F•LP [ $\underline{t}(120;k=21) = 4.66$ ] were all different from the no model control group. No differences between the control group and groups U•D [ $\underline{t}(129;k=21) = 1.687$ ] and F•P [ $\underline{t}(129;k=21) = 2.37$ ] were found. This pattern of results has a  $p$  value of less than .05.

Groups U•S,  $F(4,80) = 13.67$ ,  $p < .05$ , and U•NSM,  $F(4,80) = 13.67$ ,  $p < .05$ , were different from group U•D. Groups U•S,  $F(4,80) = 9.77$ ,  $p < .10$ , and U•NSM  $F(4,80) = 9.77$ ,  $p < .10$  were different from group F•P. There were no other differences between pairs of means.

Table 4 gives a summary of hypothesized order of effects of treatment and the obtained results for the continuous data.

Analysis of the dichotomous data yielded similar results. The only differences were that all groups were each different from the control group for the dichotomous data: U•S [ $\underline{t}(129;k=21) = 6.99$ ], U•D [ $\underline{t}(129;k=21) = 2.6$ ], U•NSM [ $\underline{t}(129;k=21) = 6.99$ ], F•P [ $\underline{t}(129;k=21) = 2.6$ ], and F•LP [ $\underline{t}(129;k=21) = 4.84$ ]. This pattern of results has a  $p$  value of less than .05. The percentage of sharers for the groups can be seen in Figure 3.

### Hypothesis Three

The third hypothesis stated that parental models will produce more imitative sharing than friend models who will in turn produce more imitative sharing than unfamiliar models who will in turn produce more imitative sharing than no model.

The ANOVA (Table 2) yielded a difference between the no model group and all other groups combined. The  $\underline{t}$  statistic (Winer, 1962) was used to contrast the no model group with each of the following combinations of cell means:

Table 4

Hypothesized Order of Means and Obtained Results for Hypothesis Two

Hypothesized Order	Groups that are Different	Means
1. F•P	U•S > NM	U•S = 7.6
2. U•S	U•NSM > NM	U•NSM = 7.6
3. U•NSM	F•LP > NM	F•LP = 5.8
4. F•LP	U•S > U•D	F•P = 2.95
5. NM	U•NSM > U•D	U•D = 2.1
6. U•D	U•S > F•P	NM = 0.0
	U•NSM > F•P	

1) parents (groups H, HH, J, and JJ)

2) familiar peers (groups G, GG, I, and II)

3) unfamiliar no similarity mentioned (groups E, EE, F, and FF)

This resulted in a difference between familiar peers and the no model group,  $t(129; k=21) = 4.86$ , between unfamiliar models-no similarity mentioned and the no model group,  $t(129; k=21) = 6.10$ , but there was no difference between the parent models and a no model group,  $t(129; k=21) = 2.169$ . The probability of finding this pattern of significant and non significant results by chance is less than .005.

The amount of sharing in the U•NSM ( $M=7.6$ ) group was different from that in the parent model ( $M=2.7$ ) group,  $F(1,80) = 10.85$ ,  $p < .005$ , but not from the peer model ( $M=6.05$ ) group,  $F(1,80) = 1.09$ ,  $p < .25$ . Parent models were different from the peer models,  $F(1,80) = 5.07$ ,  $p < .05$ .

The dichotomous data yielded a difference between the familiar peers and the no model group,  $t(129; k=21) = 4.84$ , and between the U•NSM group and the no model group,  $t(129; k=21) = 6.99$ . There was no difference between the parent models and the no model group,  $t(129; k=21) = 2.65$ . The probability of finding this pattern of significant and non-significant results by chance is less than .005. Both the dichotomous data and continuous data yielded differences between the parent model group and group U•NSM,  $F(1,80) = 12.9$ ,  $p < .001$ . The continuous data but not the dichotomous data yielded a significant difference between parent and peer models,  $F(1,80) = 3.23$ ,  $p < .10$ . The percentage of sharers is depicted in Figure 4.

A summary of the hypothesized order of effects and obtained results is found in Table 5. A graphic representation of the group means is found in Figure 5. The results of these analyses support part of Hypothesis 3 but the order of effects is different from that hypothesized.

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Table 5

Hypothesized Order of Means and Obtained Results for Hypothesis Three (Continuous Data)

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Hypothesized Order	Groups that are Different	Means
1. Parent	U•NSM > parents	U•NSM = 7.6
2. Peers	Peers > parents	Peers = 6.05
3. U•NSM	U•NSM > NM	Parents = 2.7
4. No Model	Peers > NM	No Model = 0.0

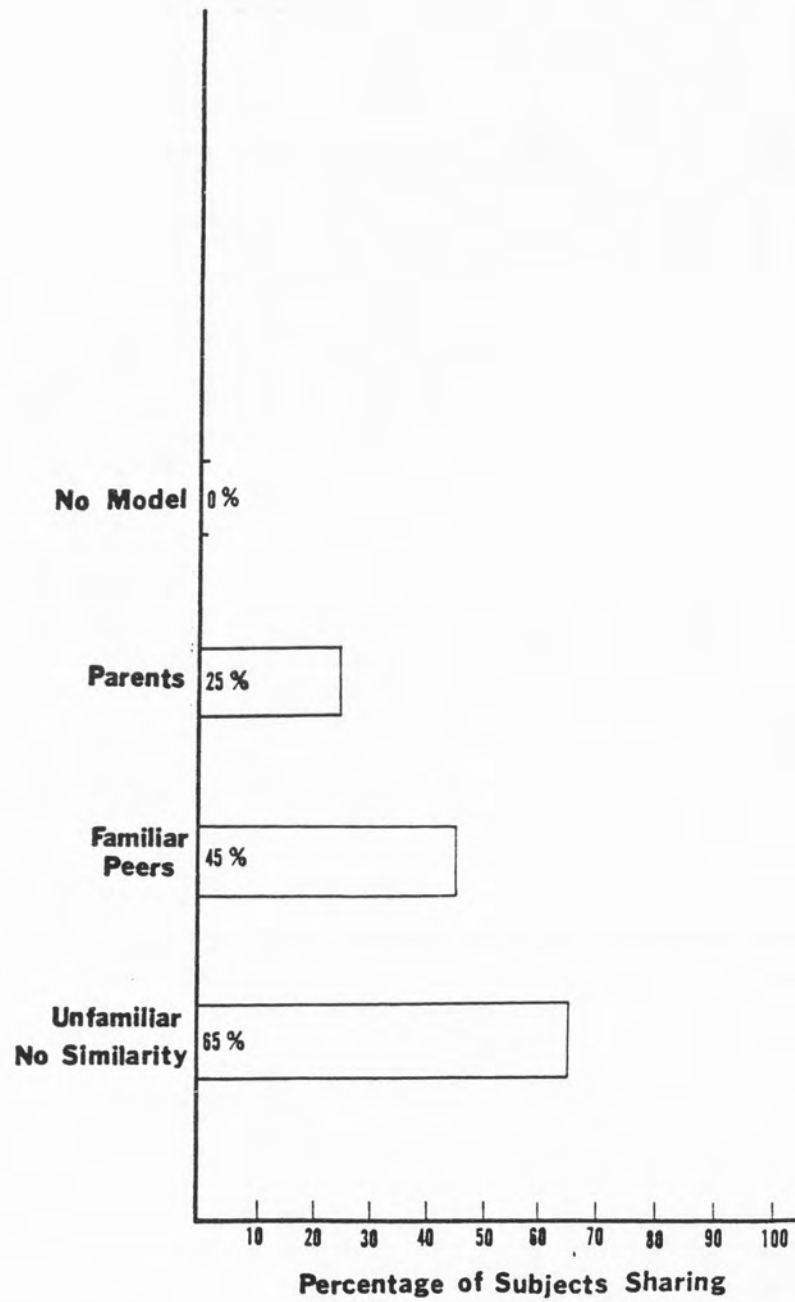


Figure 4. Percentage of sharers: Hypothesis Three - U•NSM, familiar peers, parents, no model

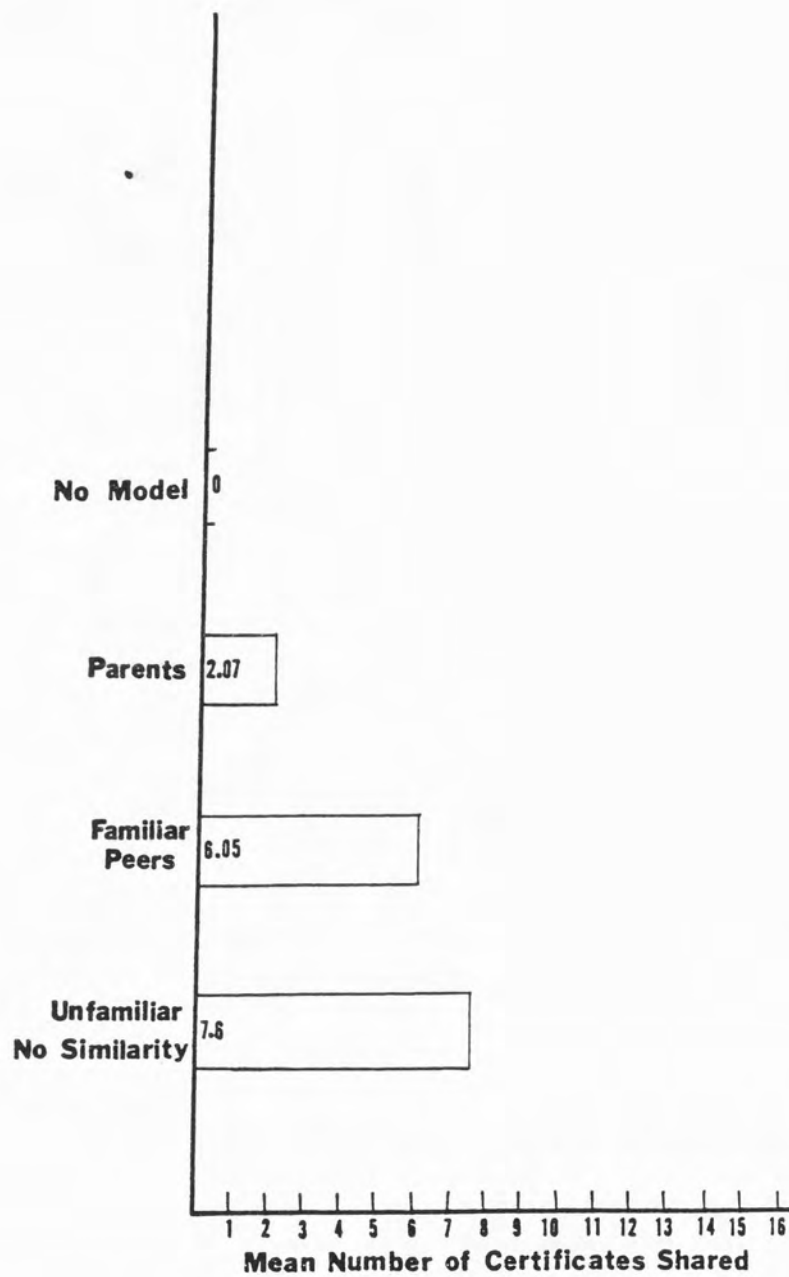


Figure 5. Mean number of certificates shared: Hypothesis Three:

U•NSM, familiar peers, parents, no model

### Purposes

Nine purposes of this research were listed earlier in this dissertation. Each of these will be addressed in turn.

Purpose 1. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having similar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having similar likes and interests (groups A and AA versus B and BB, Table 1).

Figure 6 shows the mean number of certificates shared for these groups. There was no difference between the subjects who saw an age-mate model who was unfamiliar-described as similar and the subjects who saw an adult model who was unfamiliar-described as similar,  $F(1,80) = .14, p > .25$ .

Because of the significant interaction between sex of subject and treatment, the means for male and female subjects are also presented in Figure 6 (top four bars). The figure shows little obvious difference between age-mate and adult models when the sex of the subject is disregarded. When sex is considered, it is found that females share 3 times as many certificates ( $M=12$ ) as do males ( $M=4$ ) when an unfamiliar age-mate described as similar is the model.

There was no difference, using this a posteriori contrast, between female and male subjects who saw an unfamiliar age-mate described as similar,  $F'(19,80) = 7.23, p > .25$ .

The analogous results from the dichotomous data are similar. The implied hypothesis of Purpose 1 is not supported.

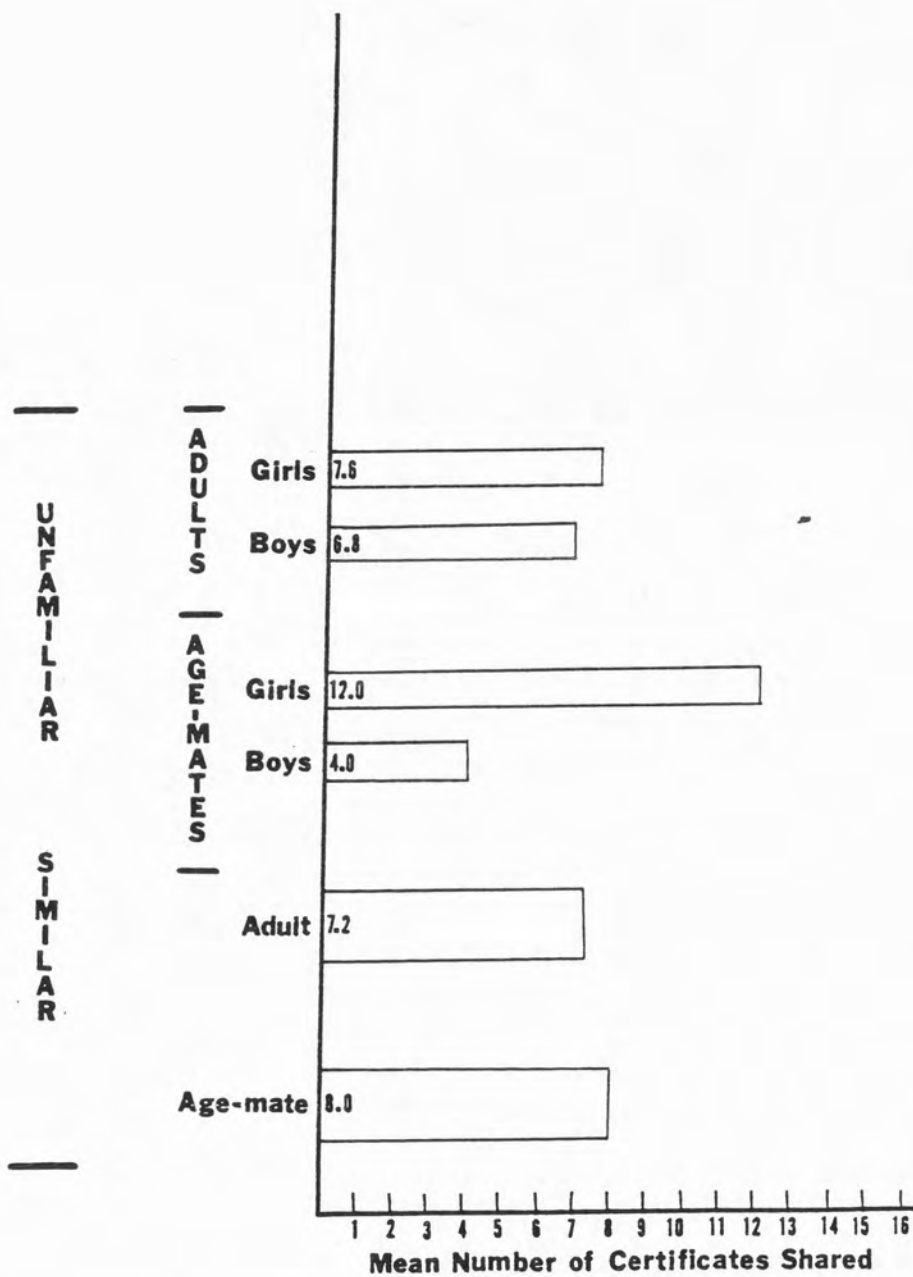


Figure 6. Mean number of certificates shared: Purpose 1 - U•S-peer, U•S-adult

Purpose 2. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having dissimilar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having dissimilar likes and interests (groups C and CC versus D and DD, Table 1).

Figure 7 shows the mean number of certificates shared for these groups. The means for male and female subjects (top four bars) are also presented. There was no difference in the sharing of subjects who saw age-mate models and those who saw adult models in group U•D,  $F(1,80) = .33, p > .25$ .

The a posteriori contrasts of male and female subjects within the age-mate,  $F(19,80) = 4.9, p > .25$ , and adult model,  $F(19,80) = 1.25, p > .25$ , described as dissimilar groups yielded no differences.

The analysis of the dichotomous data yielded similar results. The implied hypothesis in purpose 2 is not supported.

Purpose 3. To determine whether donations would be greater by children who observed a sharing model (age-mate or adult) who was represented as having similar likes and interests as contrasted with those children who observed a sharing model (age-mate or adult) who was represented as having dissimilar likes and interests.

This issue was subsumed in Hypothesis 2 discussed above and the data analysis indicates that the hypothesis implied here is given considerable support.

Purpose 4. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and a



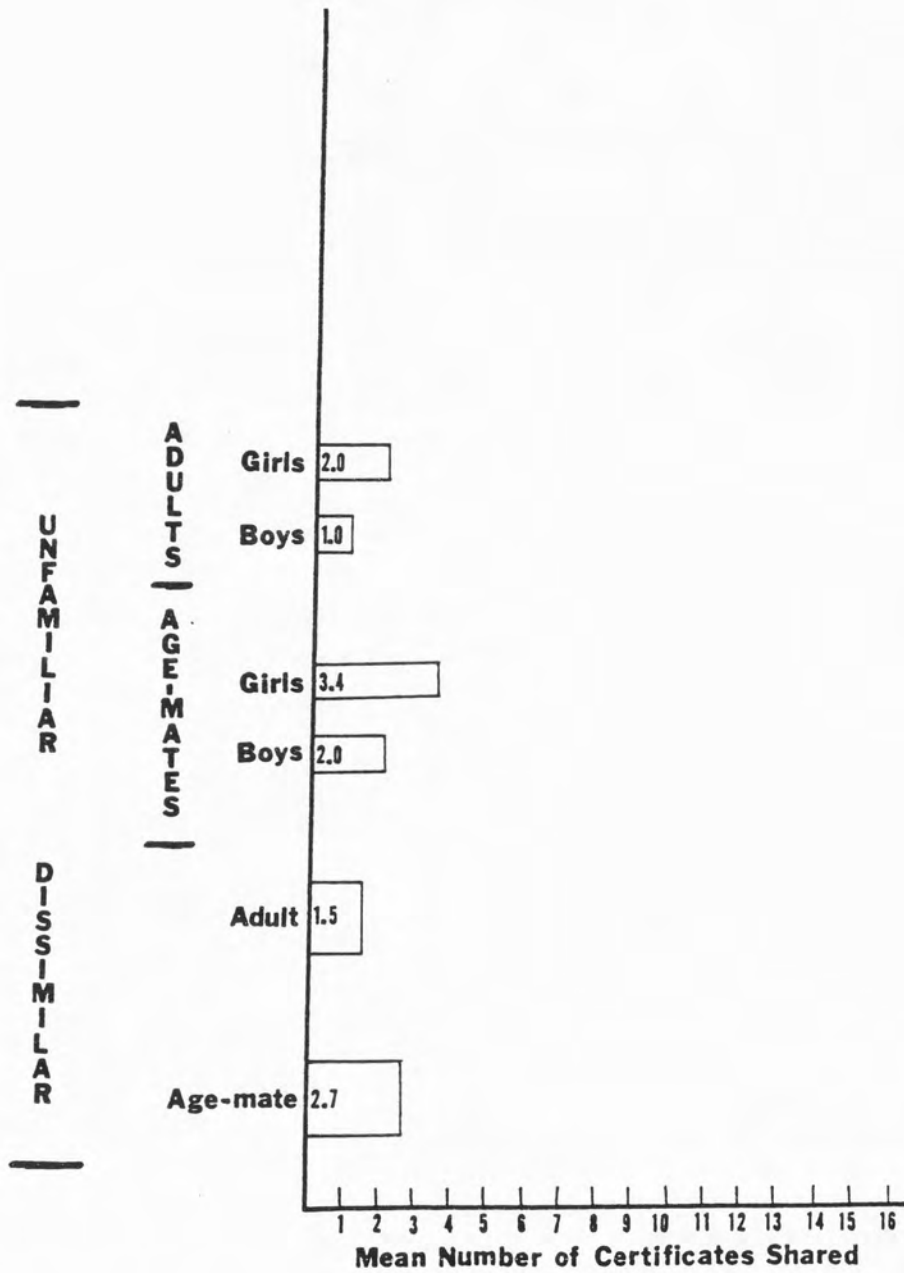


Figure 7. Mean number of certificates shared: Purpose 2

U·D-age-mate, U·D-adult

friend contrasted with those children who observed a sharing age-mate model who was not familiar and not a friend.

Figure 8 depicts the mean number of certificates shared for these groups. The groups who saw an unfamiliar age-mate model (U·S, U·D, and U·NSM) are shown both combined and separated. Separate data for male and female subjects are also presented.

There are two possible ways of addressing this issue. The familiar preferred peer group (F·P-peer) ( $\underline{M}=2.5$ ) could be compared to all subjects who saw an unfamiliar age-mate model (U·S-age-mate, U·D-age-mate, U·NSM-age-mate) ( $\underline{M}=6.7$ ) or group F·P-peer could be compared to the group who saw an unfamiliar age-mate model with no similarity mentioned (U·NSM-age-mate) ( $\underline{M}=9.3$ ). Both of these contrasts were made and both were significant (in the former contrast,  $\underline{F}(1,80) = 5.9$ ,  $p < .025$  and in the latter,  $\underline{F}(1,80) = 10.45$ ,  $p < .005$ ). None of the post hoc contrasts dealing with sex of subject was significant.

The analysis of the dichotomous data yielded similar results. The implied hypothesis in purpose 4 is not supported. In fact the data support an opposite conclusion from that suggested in purpose 4, i.e., donations were greater by children observing an unfamiliar age-mate model than by children observing a familiar and preferred friend.

Purpose 5. To determine whether donations would be greater in children who observed a sharing adult model who was unfamiliar as

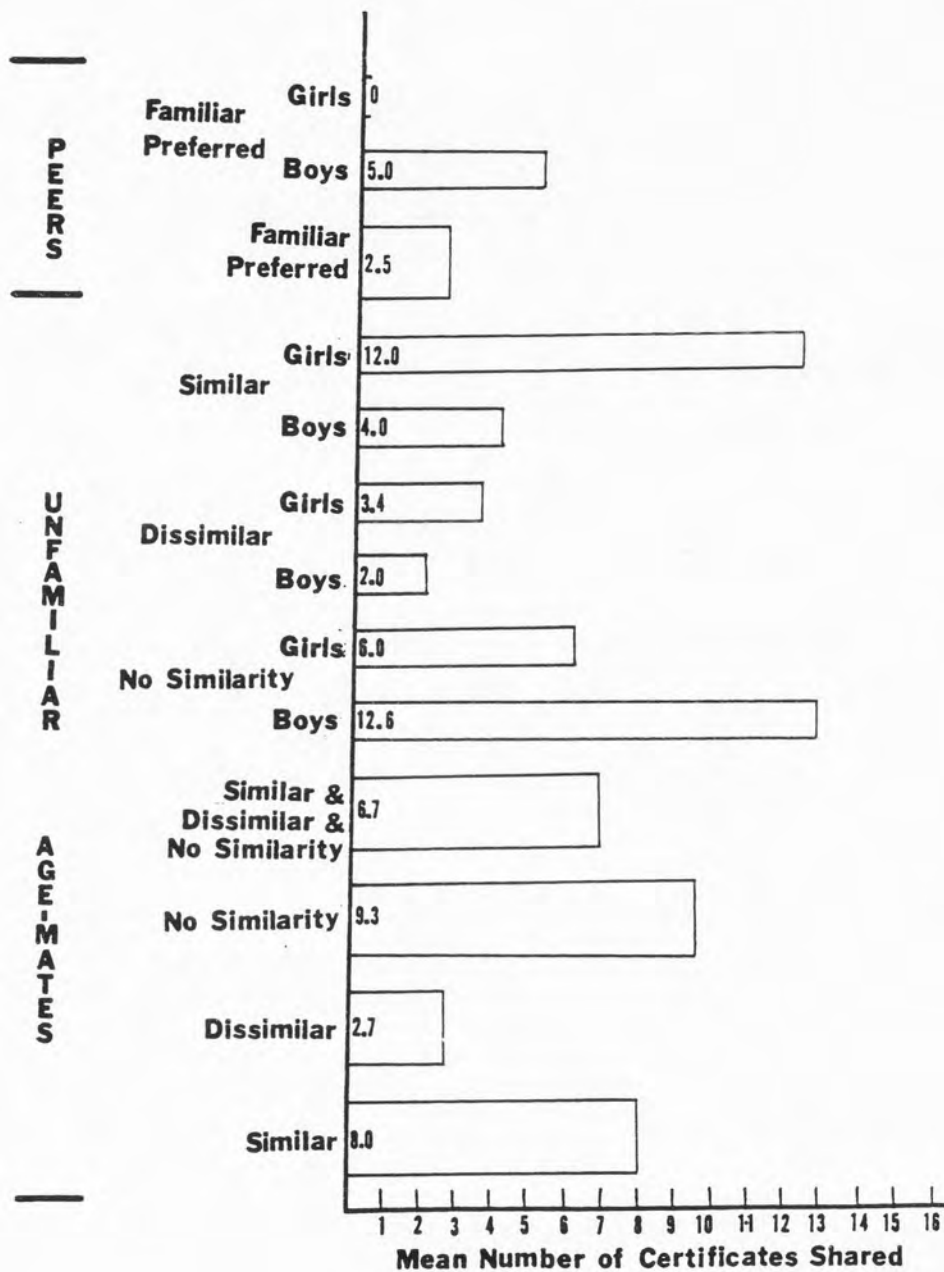


Figure 8. Mean number of certificates shared: Purpose 4 - F•P-peer versus unfamiliar age-mates

contrasted with those children who observed their parent serving as a model of sharing behavior.

Figure 9 shows the mean number of certificates shared for these groups. The unfamiliar adult groups are shown combined and separated as are the preferred and less preferred parent groups. Male and female subject data are presented.

There are two possible ways of addressing the substance of this purpose. The subjects who saw a parent as a model (F•P-adult and F•LP-adult) ( $\underline{M}=2.7$ ) can be compared to all unfamiliar adult models ( $\underline{M}=4.9$ ) or to the unfamiliar adult no similarity mentioned group ( $\underline{M}=5.9$ ). There was no difference for either of these contrasts,  $F(1,80) = 2.55, p>.10$ ;  $F(1,80) = 3.08, p<.10$ .

Figure 10 shows the percentage of sharers for these groups. In contrast to the continuous data, when the dichotomous data are analyzed the difference between those who saw a parent model (25%) and those subjects who saw the combined unfamiliar adult models group (53%) is significant,  $F(1,80) = 7.77, p<.01$ . When subjects who saw parents as models are compared to the subjects in the U•NSM-adult group (60%) there is also a difference  $F(1,80) = 6.59, p<.05$ .

The implied hypothesis of purpose 5 is not supported with the results of the continuous data but is supported with the results of the dichotomous data.

Purpose 6. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and was liked contrasted with those children who observed a sharing peer model who was familiar and disliked.

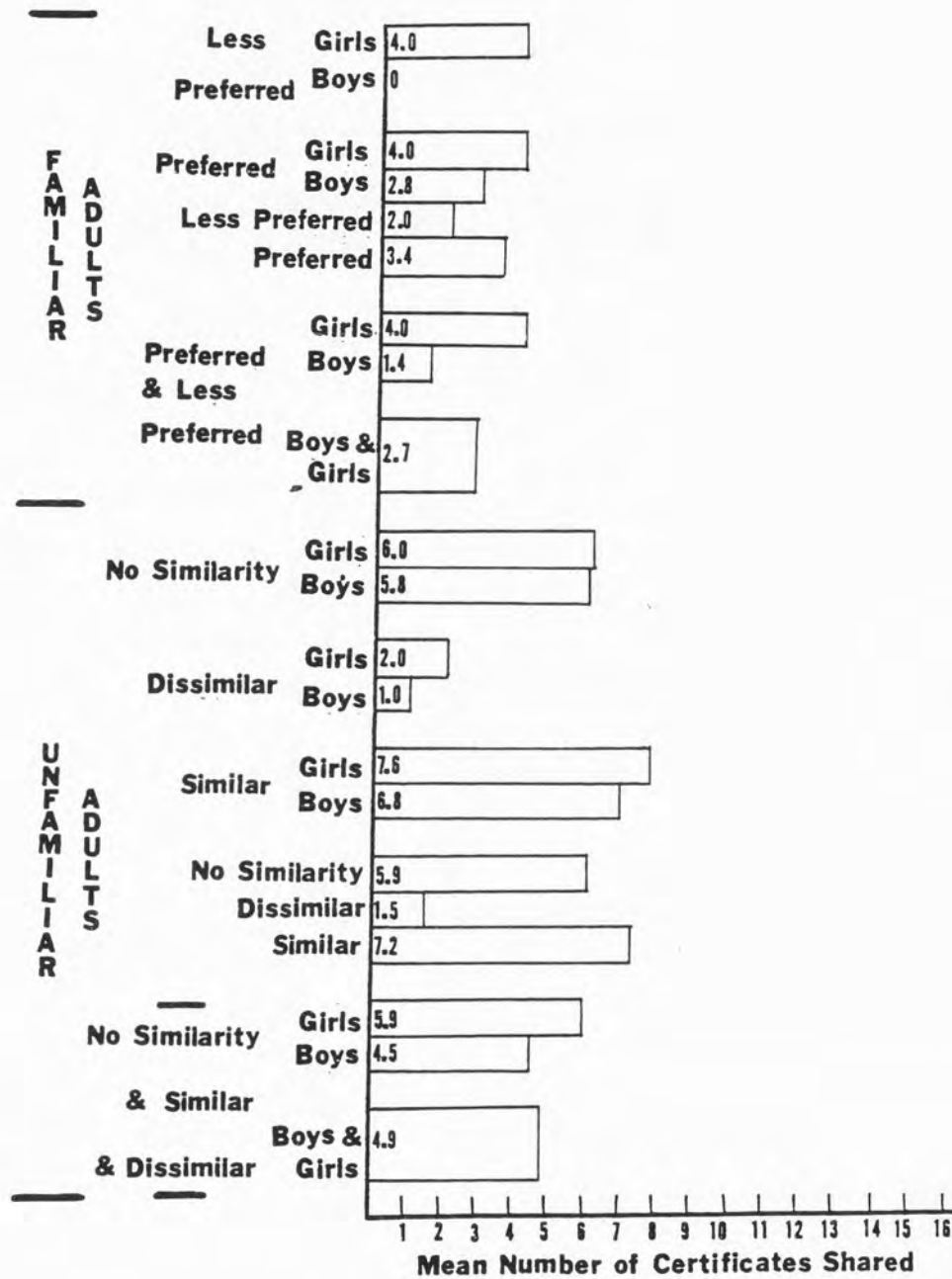


Figure 9. Mean number of certificates shared: Purpose 5 - unfamiliar adults versus parents

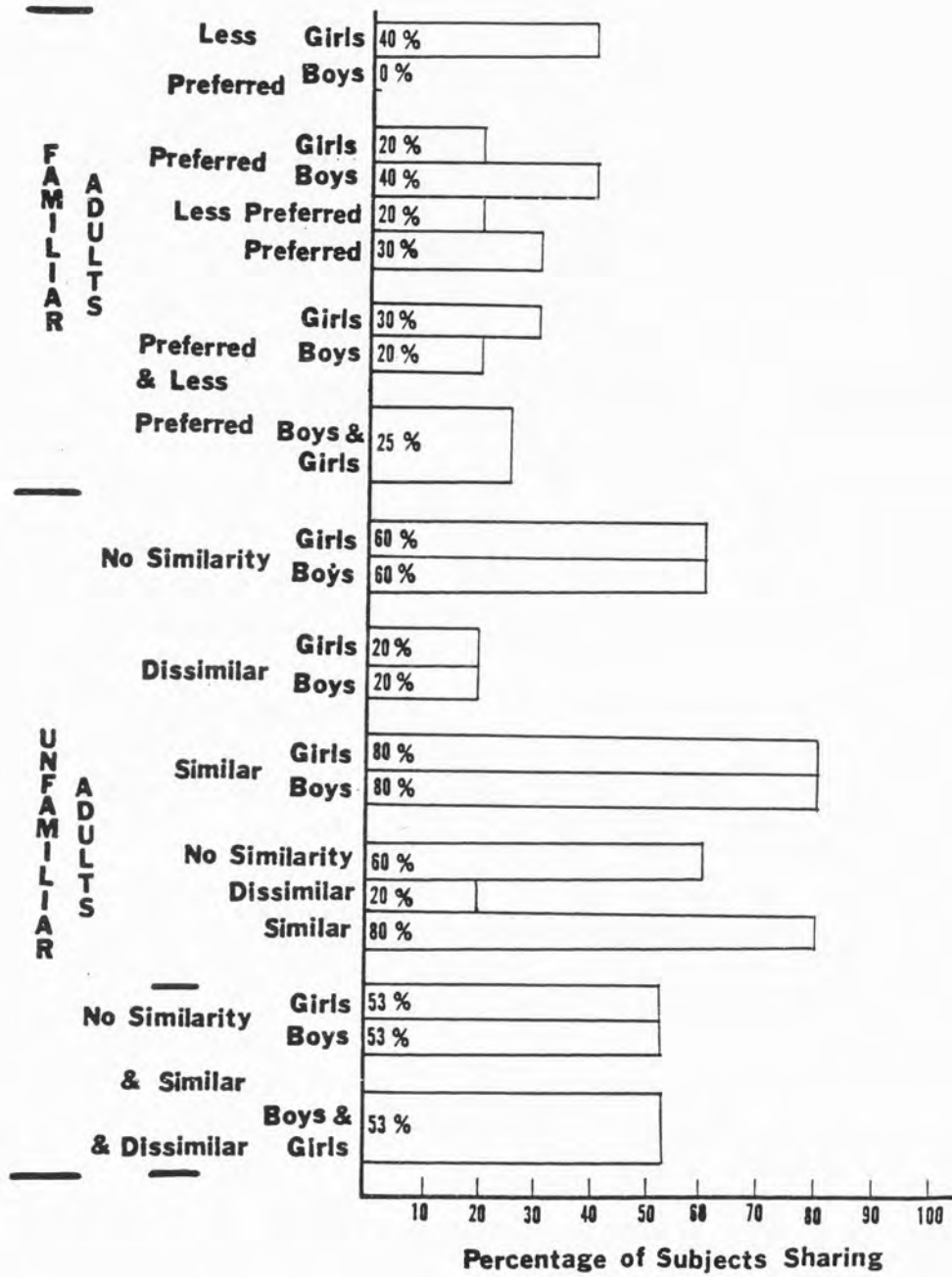


Figure 10. Percentage of sharers: Purpose 5 - unfamiliar adults versus parents

Figure 11 shows the mean number of certificates shared for these groups. Data for the male and female subjects within each of these two groups are also shown.

There was a strong difference between the groups who saw preferred ( $M=2.5$ ) and least preferred ( $M=9.6$ ) peers,  $F(1,80) = 11.39$ ,  $p < .005$ . This difference was due entirely to the difference between the female subjects who saw a preferred and those who saw a least preferred peer model (Figure 11). Because of this we can logically conclude that the difference between the females who saw preferred peers and those who saw least preferred peers is also significant.

The analysis of the dichotomous data yielded similar results. The implied hypothesis of purpose 6 is not supported. In fact the data support an opposite conclusion, i.e., that children (at least female children) who see preferred peers share less than those who see least preferred peers.

Purpose 7. To determine whether donations would be greater in children who observed a sharing peer model who was familiar and liked contrasted with those children who observed a sharing parent model.

Figure 12 shows the mean number of certificates shared for these groups. The male and female subjects within these groups are also shown. There was no difference found between these two groups (parents versus preferred peers),  $F(1,80) = .012$ ,  $p > .25$ .

The analysis of the dichotomous data yielded similar results. The implied hypothesis of purpose 7 is not supported by the results of these analyses.

Purpose 8. To determine whether donations would be greater by

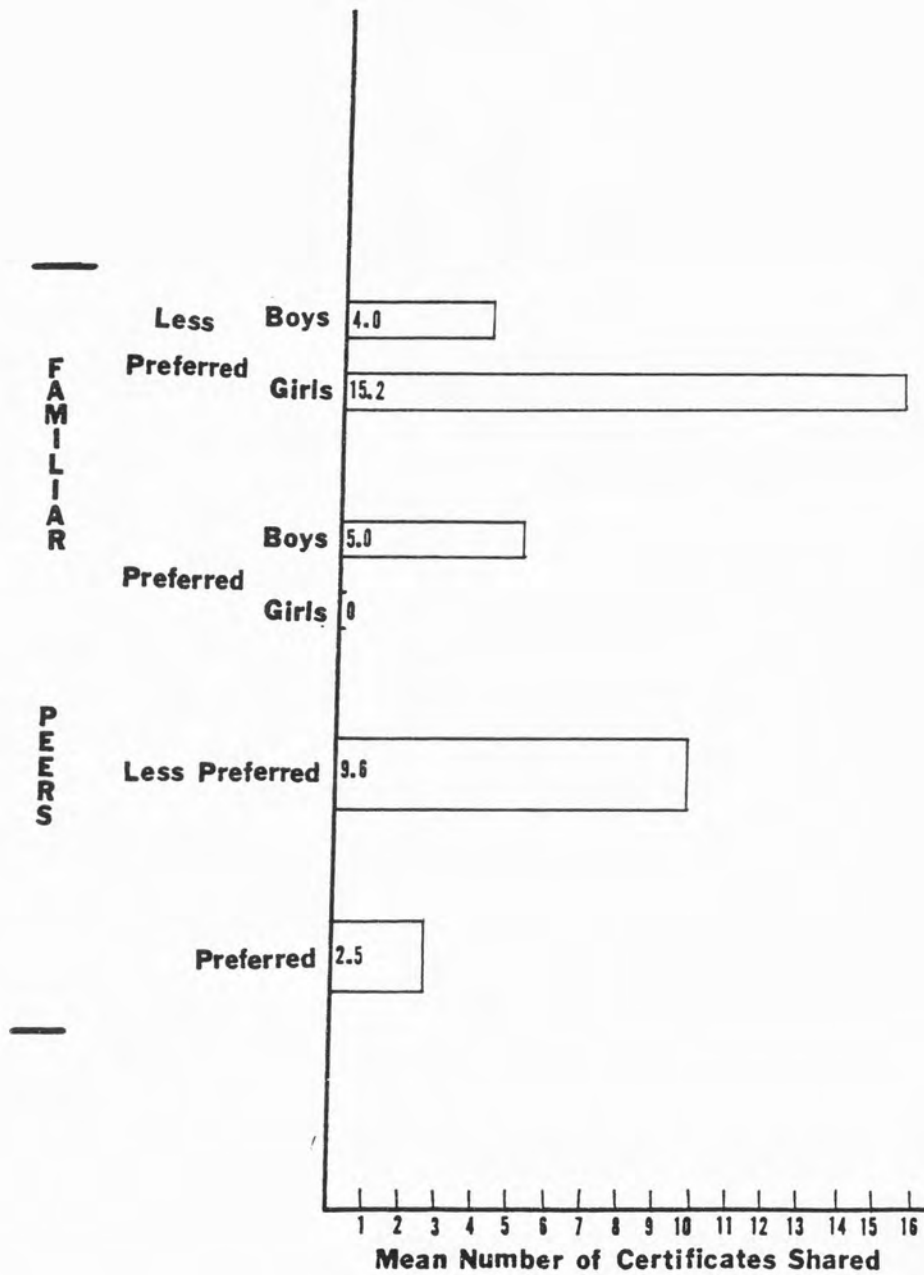


Figure 11. Mean number of certificates shared: Purpose 6 - preferred peers versus less preferred peers



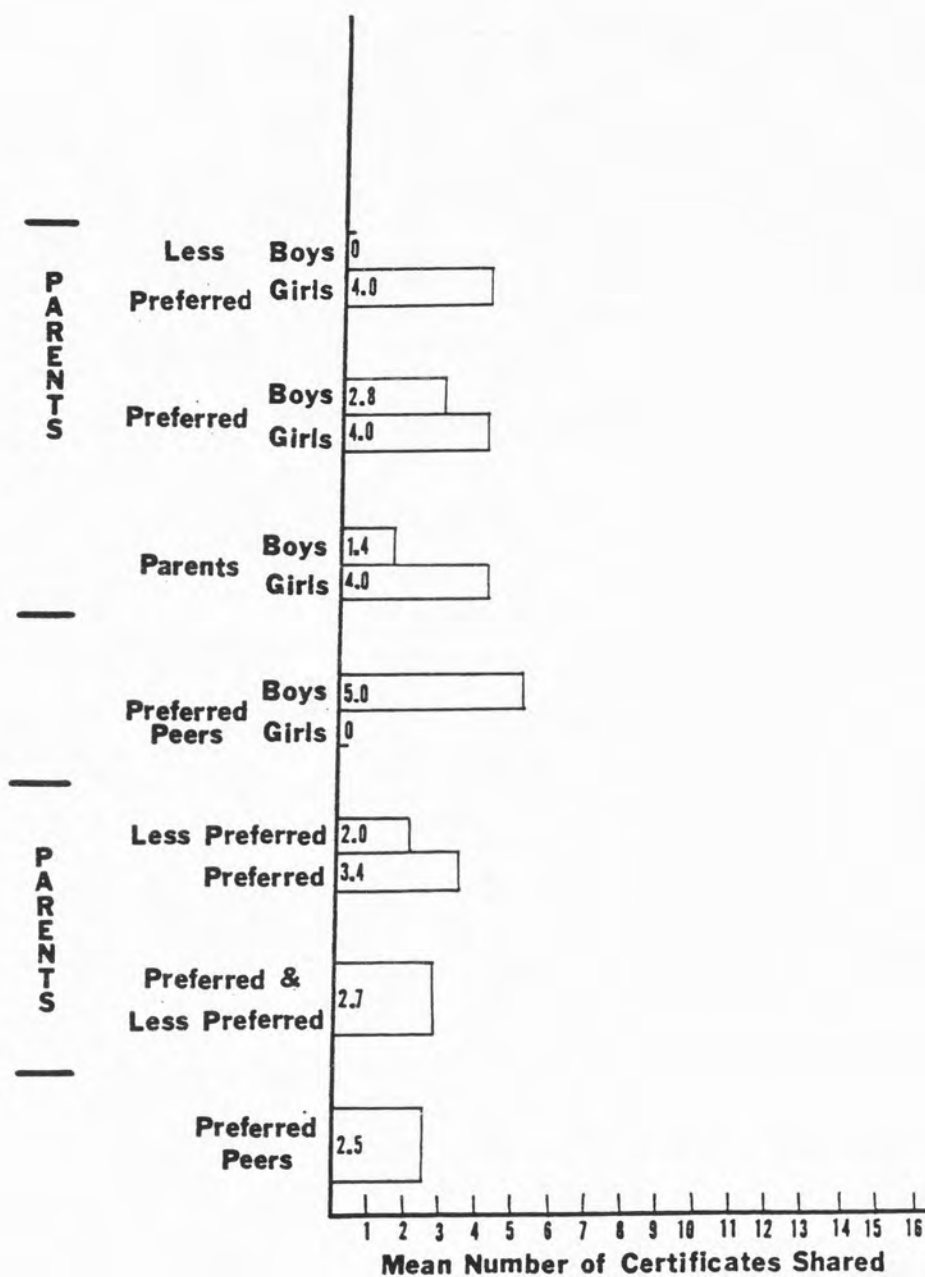


Figure 12. Mean number of certificates shared: Purpose 7 - preferred peers versus parents

children who observed a sharing familiar model (peer or adult) contrasted with those children who observed a sharing unfamiliar model (age-mate or adult).

Figure 13 depicts the combined groups that constitute the groups that saw the unfamiliar models (age-mate and adult) and the familiar models (peer and adult). The means of the individual groups (treatments) are seen in Figure 2. The means of the groups shown by sex of the subject are in Figure 13.

There was no difference between those subjects who saw familiar ( $\underline{M}=4.38$ ) and those who saw unfamiliar ( $\underline{M}=5.77$ ) models,  $\underline{F}(1,80) = 2.1$ ,  $\underline{p}<.25$ .

Figure 14 depicts the percentage of sharers in the combined groups that saw the unfamiliar models (age-mate and adult) and the familiar models (peer and adult). The percentages of sharers in the individual treatment groups are located in Figure 3. Unlike the continuous data the dichotomous data yielded a strong difference between those who saw familiar models (35%) and those who saw unfamiliar models (52%),  $\underline{F}(1,80) = 16.45$ ,  $\underline{p}<.001$ .

The hypothesis implied in purpose 8 is not supported by the continuous data or the dichotomous data. However, the dichotomous data support an opposite conclusion. More of the children who saw an unfamiliar model shared than those who saw a familiar model.

Purpose 9. To determine whether donations would be greater by children who observed a sharing parent who was preferred contrasted with those children who observed a sharing parent who was less preferred.

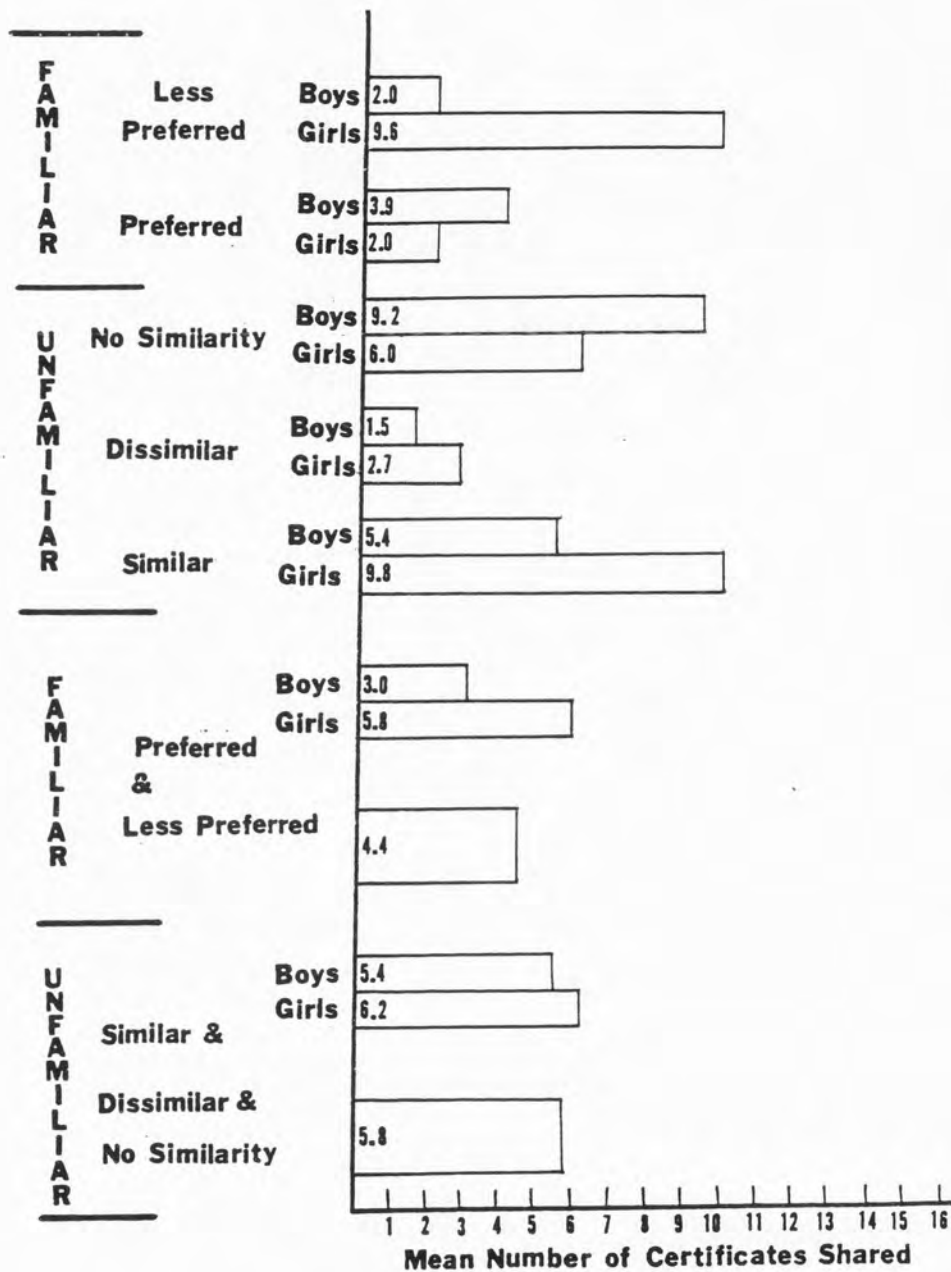


Figure 13. Mean number of certificates shared: Purpose 8 - familiar model versus unfamiliar model

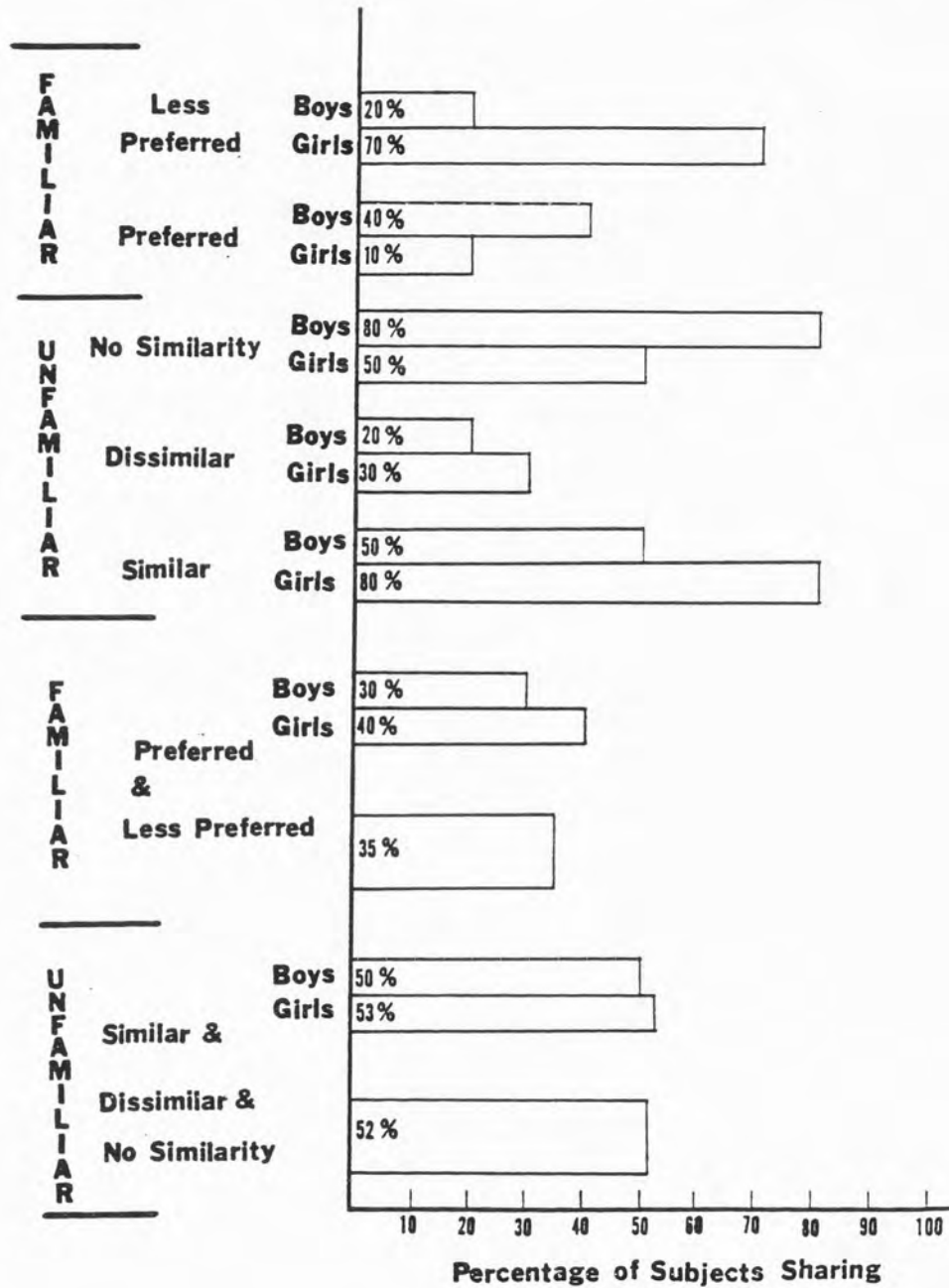


Figure 14. Percentage of sharers: Purpose 8 - familiar model versus unfamiliar model

Figure 15 shows the means of these two groups as well as the contributions by sex of subject to these groups. There was no difference between those subjects who saw preferred parents ( $\underline{M}=3.4$ ) and those who saw less preferred parents ( $\underline{M}=2.0$ ),  $\underline{F}(1,80) = .443$ ,  $p>.25$ . The analysis of the dichotomous data yielded similar results. The implied hypothesis of Purpose 9 is not supported by the data.

#### Evaluation of Inducement of Similarity

During the post session all subjects who were in treatment groups U•S, U•D or U•NSM were asked to respond to a one item form which read, "How much alike are you and the person you saw on TV?" The child responded by circling one of the following responses: 1-very much different, 2-a little different, 3-I don't know, 4-a little alike, 5-very much alike.

The purpose of this form was to evaluate the effects of the similarity manipulation. As reported above there was a difference between the amount of sharing by subjects in group U•S or U•NSM as compared to subjects in group U•D. The question addressed here is did the subjects in these groups respond differentially to the question of how similar they were to the model.

A 3 (U•S, U•D, U•NSM) X 2 (age-mate, adult) X 2 (male, female) ANOVA was calculated with the perceived similarity scores as the dependent variable. Table 6 contains the  $\underline{F}$  values and statistical significance levels for this analysis. The main effect of treatment was significant as was the interaction between treatment and sex of subject.

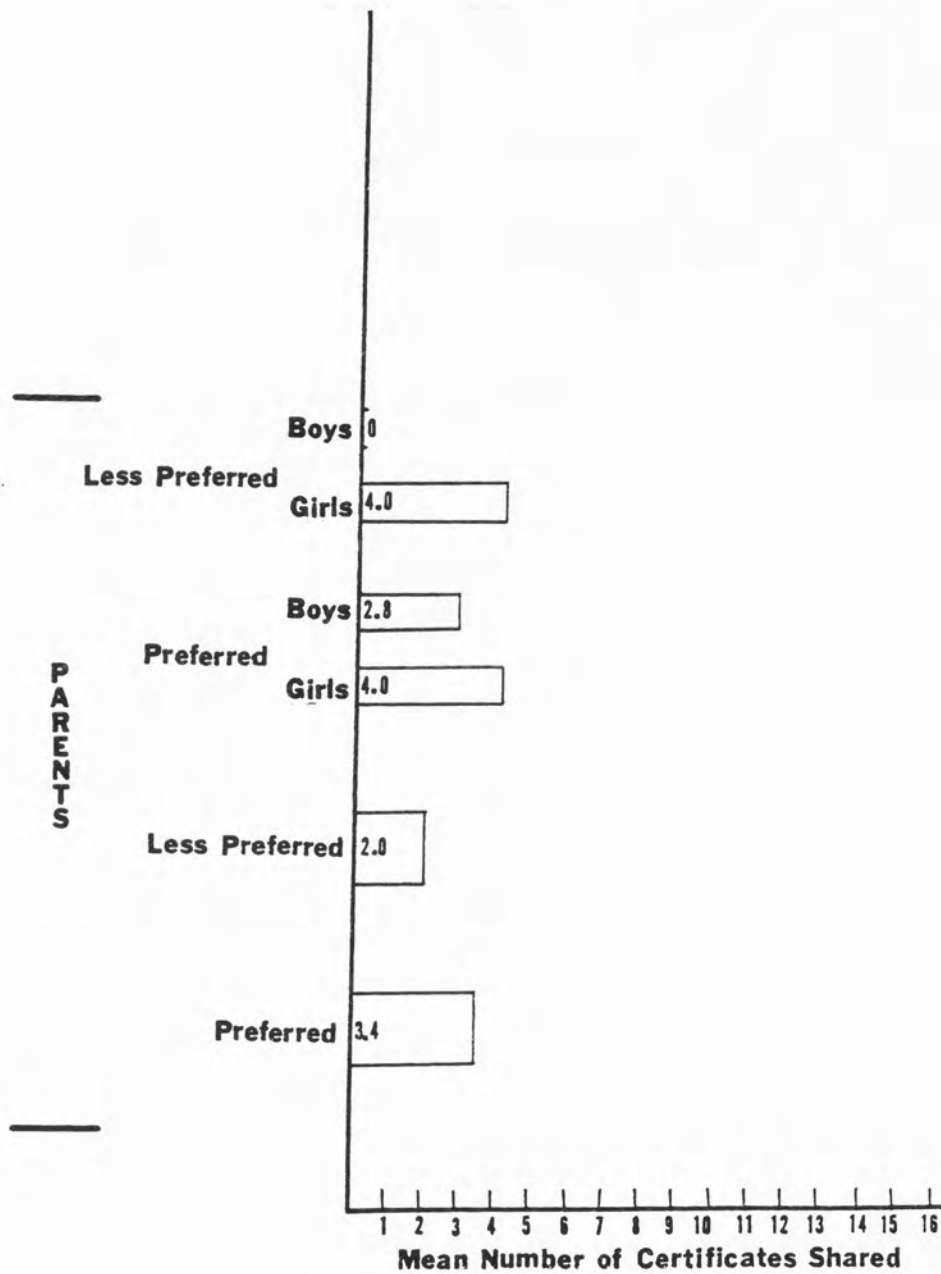


Figure 15. Mean number of certificates shared: Purpose 9 - familiar model versus unfamiliar model

The mean similarity scores for groups U•S and U•NSM were equal ( $\bar{M}=3.75$ ) while the mean similarity score for group U•D was significantly lower ( $\bar{M}=2.4$ ).

A significant interaction between the treatment factor and the sex of the subject can be seen from the graph of the interaction

Table 6

Summary of Analysis of Variance for Perceived Similarity Scores  
3 (treatment) X 2 (age of model) X 2 (sex of subject)

Source of Variation	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F-value</u>	Significance Level
Treatment	24.30	2	12.15	11.57	$p < .001$
Age of Model	1.06	1	1.06	1.01	NS, $p > .25$
Sex of Subject	.07	1	.07	.07	NS, $p > .25$
Treatment X Age of Model	4.44	2	2.22	2.11	NS, $p < .25$
Treatment X Sex of Subject	7.43	2	3.72	3.54	$p < .05$
Sex X Age of Model	.004	1	.004	.004	NS, $p > .25$
Treatment X Age of Model X sex	4.90	2	2.45	2.33	NS, $p < .25$
Within cell	50.4	48	1.05		

(Figure 16). When the model was described as dissimilar the females rated the model as less similar to themselves than did the male subjects. The average perceived similarity for females in group U•D was 1.9 and for males it was 2.9. The individual data for similarity scores are presented in Appendix F and G.

#### Correlation Between Similarity Scores and Sharing

In addition to the analysis of variance discussed above product-moment correlations were computed between the similarity scores and sharing. Table 7 indicates that there was an association between similarity scores and the amount of sharing for all of the subjects who saw unfamiliar models. This relation was due almost entirely to the female subjects who alone showed a strong association between similarity scores and sharing.

Table 7

Correlation Between Similarity Scores and Number of Certificates Shared

Variable X	Variable Y	Mean X	Mean Y	DF	Correlation	Significance Level
Similarity (all Ss U•S, U•D, U•NSM)	Sharing	3.30	5.76	58	.288	$p < .05$
Similarity (Female Ss U•S, U•D U•NSM)	Sharing	3.27	6.17	28	.488	$p < .01$
Similarity (male Ss U•S, U•D U•NSM)	Sharing	3.33	5.37	28	.063	NS, $p > .10$



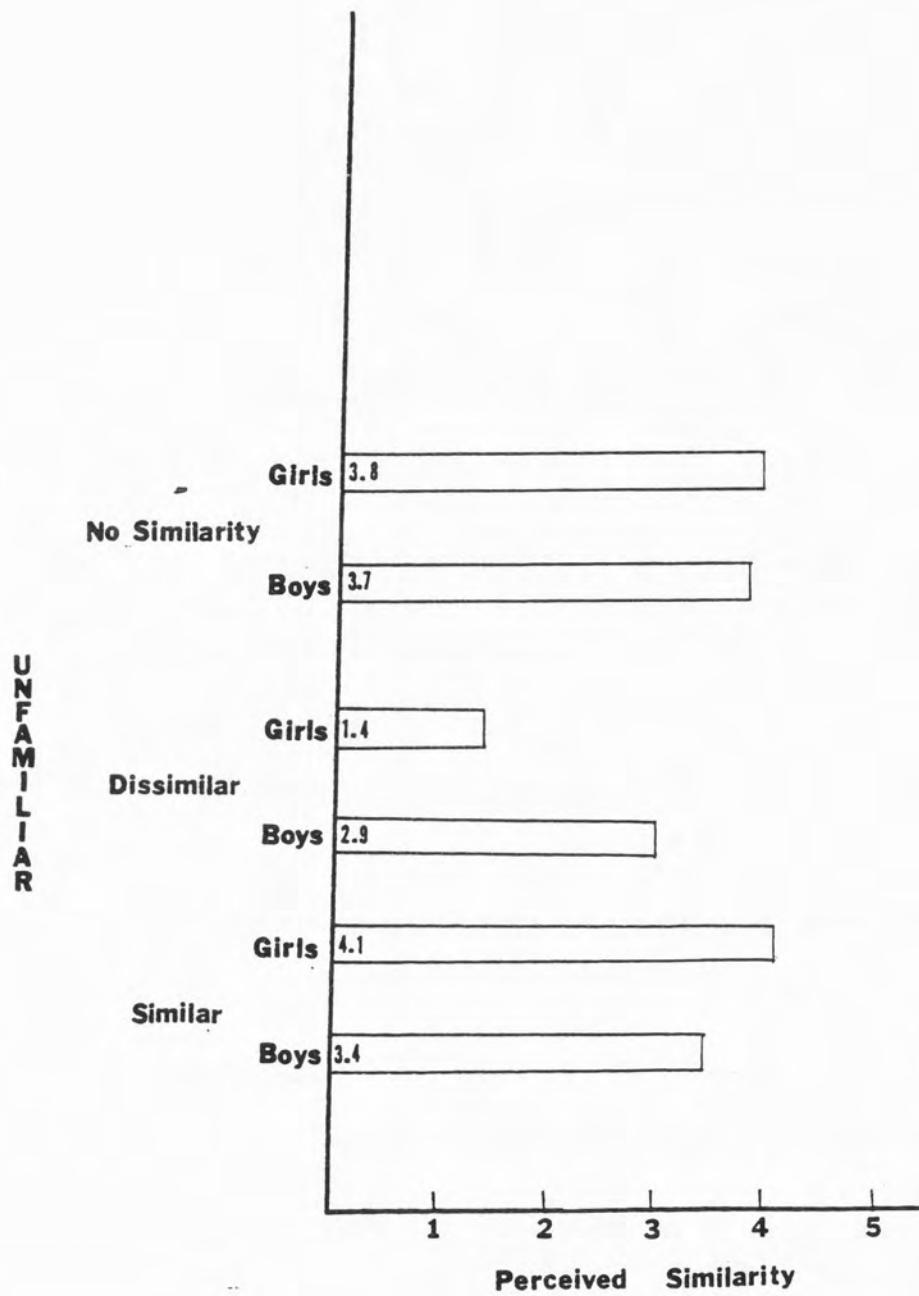


Figure 16. Interaction plot: Perceived similarity (treatment X sex of subject)

Pre- and Post-Preference Scores

Subjects were assigned to groups that saw familiar models (F•P and F•LP) based partly on their responses to questionnaires (Appendix C). Subjects in these groups were given a second identical questionnaire after the experimental session. Thus, these subjects had pre- and post-scores for the preference questionnaire. These scores consisted of the percentage of the 7 (peer questionnaire) or 5 (parent questionnaire) activities that listed the same individual.

These pre- and post-scores were analyzed by groups to determine whether or not there was a significant change from the first to the second score. The Wilcoxon matched-pairs signed ranks test, a nonparametric statistic, was used for this purpose. Table 8 gives the  $W+$  (sum of ranks) values and significance levels for the various groups involved. Information is given for male and female subjects separately and combined. Also listed are the means of the pre- and post-scores.

It should be noted that the higher the percentage for groups F•P-peer and F•P-parents the stronger the preference for a particular person. For groups F•LP-peer and F•LP-parents the higher the percentage the less preferred the person is. So it can be seen that the data for both of the F•LP groups indicate that the bias against the model was less severe at the second assessment. This is not necessarily the same as saying they preferred the person more.

The individual pre- and post-preference scores are presented in Appendix I. For groups F•P-peer the preference either stayed the same or increased for 7 out of 10 subjects. Six out of 9 subjects

maintained or increased preference in group F•P-parents. For group F•LP-peer the person chosen as least preferred was chosen less frequently on the post-questionnaire by 9 out of 10 subjects. For group F•LP-parents the analogous figure is 5 out of 8.

Table 8

Pre- and Post-Preference Scores for Subjects who Saw a Familiar Model (Wilcoxon Matched-Pairs Signed Ranks Tests)

Group	Mean Pre-	Mean Post-	Number of Differences	$\bar{W}+$	Significance Level
F•P-Peers	80.0%	74.3%	4	7	NS, $\underline{p} > .10$
Female	82.2%	71.4%	1	1	NS, $\underline{p} > .10$
Male	77.2%	77.2%	3	3	NS, $\underline{p} > .10$
F•P-Parents	84.4%	77.8%	5	12	NS, $\underline{p} > .10$
Female	84.0%	84.0%	2	1.5	NS, $\underline{p} > .10$
Male	84.0%	70.0%	3	6	NS, $\underline{p} > .10$
F•LP-Peers	91.5%	24.2%	9	42	$\underline{p} < .0039$
Female	97.2%	42.8%	4	10	NS, $\underline{p} > .05$
Male	85.8%	5.6%	5	15	$\underline{p} = .0313$
F•LP-Parents	87.5%	62.5%	5	15	$\underline{p} = .0313$
Female	86.7%	66.7%	3	6	NS, $\underline{p} > .10$
Male	88.0%	60.0%	2	3	NS, $\underline{p} > .10$

## DISCUSSION

For each of the hypotheses and purposes of this research a summary of the results, a discussion of the possible reasons for negative or unpredicted results, and theoretical implications of the results will be provided. Following this, potential research will be addressed.

### Hypotheses

#### Hypothesis One

The first hypothesis stated: viewing similar age models would result in more imitation of sharing than viewing adult models which would result in more imitative sharing than viewing no models.

Children in this study were found to engage in more imitative donation if they had observed a peer or age-mate than if they had observed an adult. Both similar age children and adults were more effective models than was a no model control condition.

The findings of this research confirm the results of some previous research. Hicks (1965) found age-mates more effective than adults as models of antisocial behavior during a test shortly after the intervention but not at a six month retest. Bryan and Walbek (1970) found both age-mate and adult models effective in producing donating behavior.

Two studies have found evidence in opposition to the findings of this dissertation. Becker and Glidden (1979) found no evidence for age-mates being more effective than adults when unfamiliar models

were used with a non-prosocial behavior. The subjects for the Becker and Glidden (1979) study were educable mentally retarded boys. The different subject population and the use of non-prosocial behavior may be sufficient to account for the divergent results.

More directly relevant is the Ascione and Sanok (1982) study which, using a similar population and modeling donation behavior, found that age-mates were no more effective than adults at producing imitative sharing behavior but were more effective in producing imitative antisocial behavior.

In addition to the possible reasons for these results discussed in the review section, there was the possibility of a ceiling effect. In the Ascione and Sanok study all subjects heard permissive instructions indicating that they could share but were not required to share. These instructions alone produced (in the control group) a mean of 31.2 tokens donated. For all of the groups (except the non-sharing, no reinforcement, age-mate model group) the mean number of tokens shared ranged from 29.8 to 36.8 and the mean for these groups was 32.75. It is likely that this amount of sharing, which constitutes over half of the 60 tokens each subject earned may have been about the limit that children would share under the circumstances of the study. Further, this amount of sharing can be produced by the instructions alone (control group).

The only exception was when age-mate models demonstrated not sharing. When this occurred children imitated the non-sharing behavior of age-mates more than if the same behavior was modeled by adults. It may be concluded that Ascione and Sanok demonstrated that

permissive instructions in conjunction with modeling which confirms the instructions is no more effective than permissive instructions alone for either adult or age-mate models. However, if the modeling is somewhat opposite the instructions then age-mates are more effective than adult models. The instructions stated that the subject could share but did not have to share. For many children such an instruction from an adult may be interpreted as "you should share".

Three studies that are directly related to this issue dealt with the effects of instructions given to the subjects on their subsequent imitation of donation behavior. Israel and Raskin (1979) manipulated the type of instructions, directive (would have to give) versus permissive (might want to but didn't have to give). Half of their subjects saw an adult model who shared 50% of the eight certificates they had received. The other half saw no model but still heard the instructions. They found that the modeling produced more donations than the no modeling group. They also found that the directive instructions produced more donations than did the permissive instructions for girls but not for boys.

A similar study (Israel & Brown, 1979) found that surveillance also influenced imitative donations compared to no surveillance. Additionally the findings of the superior effectiveness of directive instructions on imitative donations were replicated.

Another study that showed that modeling and instructions affect imitative donations was conducted by Grusec, Kucynski, Rushton, and Simutis (1978). In the context of a miniature bowling game they

found that children who saw a model without direct, but with permissive, instructions were influenced by attributions as to why they shared. In particular if children in this group were told they had shared because of self motivation they shared more than if they were told they had shared because the experimenter expected them to share. There was no difference due to attribution if there was no modeling or in a modeling plus direct instructions condition. Again it is not clear what effect modeling alone has compared to the instructions (permissive or directive).

It can be seen that the directiveness of the instructions to donate does influence imitations. However for these studies (Grusec et al., 1978. Israel & Brown, 1979, Israel & Raskin, 1979) there is no comparison group to determine what effect the modeling alone, without the instructions, would have on imitative donation. The present study demonstrated that modeling in the absence of instructions is a powerful influence on imitative donations. Future research will need to directly compare the effects of modeling with and without various levels of instructions.

### Hypothesis Two

The second hypothesis stated: The predicted order of donation rates for conditions involving familiarity or similarity is familiar-preferred models greater than unfamiliar models described as similar greater than unfamiliar models with no similarity mentioned greater than familiar models who are less preferred greater than no model greater than unfamiliar models described as dissimilar.

Groups U•S and U•NSM had equal means and were greater than the

means for all other groups except familiar less preferred.

Group F•LP made more donations than did the no model group.

It was predicted for the main treatment variables that the familiar preferred models would produce the greatest amount of sharing. This was not the case. Indeed there was no difference between group F•P and the no model group in which no certificates were shared. Why did the familiar models produce so little imitative sharing?

It was argued earlier that the Staub and Noerenberg (1981) results, which found that third and fourth grade boys shared less with friends than non-friends, could be used to predict that children would imitate friends more than non-friends. The original argument stated that children shared less with friends in order not to provide a social advantage to that friend (e.g., the friend would have more resources). It was argued that not imitating a friend who exhibits prosocial behavior would put the observer at a social disadvantage to the friend because the observer may judge his behavior to be less socially appropriate. Not imitating a non-friend would be of little social consequence since the non-friend is probably not a source of social comparison. This obviously did not happen. Children imitated strangers more than friends.

It is possible that by not sharing they considered themselves at a social advantage because they retained more of the certificates. No possibility existed for future comparison with the stranger and thus this social motivation may not have played a part in their behavior. It would be of interest to know if there would be a



different result in this area if live peer models rather than video taped models were used.

The Kindberg (1971) study found that for 19 severely retarded boys those who were familiar with the model imitated more at a 28-week test than those who were not familiar. Familiarity was produced by "several" interactions such as bringing a pet to the school and a field trip with the subject. Why were these familiar models more effective than the unfamiliar models while in this study the opposite was true?

There are several possible reasons. First the Kindberg study used a different population and a different type of behavior to be imitated. Prosocial behavior may be substantially different from simple motor behavior. Also the imitation at 28 weeks was not live or video taped modeling but rather pictures of the models were shown to the subjects and the subjects were asked to imitate the behavior depicted in the photograph. Perhaps more relevant is the type of familiarity used. For the Kindberg study the only interactions the subjects had were positive in nature. In the real world friends almost always will have a history of both positive and negative social interactions. This may have been a factor in producing the different results.

The Hartup and Coates (1967) study found known peers to be more effective than a no model control group. That general conclusion is given some support from the present study. When all subjects in the familiar model condition ( $\bar{M}=4.375$ ) are compared to the no model group ( $\bar{M}=0$ ) then it can be seen that the Hartup and Coates

(1967) finding is supported.

What about familiar models versus unfamiliar models? The Hartup and Coates study used only familiar models (all were classmates) so direct comparisons are not possible and there were several major differences in the two studies. The age of subjects in the Hartup and Coates study was lower, the modeling was live and the objects shared were small trinkets rather than cash certificates. These differences warrant further investigation.

In the discussion of the Barton (1981) study in the review of literature section several reasons were given to explain why the familiar models used in that study were ineffective and to predict why in the present study the familiar peers would be effective models. In retrospect it can be seen that the results of this dissertation support the Barton (1981) study. Familiar peers were relatively ineffective models in the Barton study as well as in this study which found that familiar and preferred friends were not effective when compared to the no model control. However familiar and least preferred peers were more effective models than the no model control group.

As pointed out, however, the degree of familiarity and/or friendship between observer and model was not measured by Barton and thus its contribution to the effect is unknown. This dissertation would indicate that familiarity is perhaps less important than preference for producing imitative prosocial behavior. The stronger preference was a deterrent to imitation in this study.

### Hypothesis Three

The third hypothesis stated: Parental models will produce more imitative sharing than friend models who will in turn produce more imitative sharing than unfamiliar models who will in turn produce more imitative sharing than no model.

Those children who saw unfamiliar models with no similarity mentioned donated more certificates than did those who saw parent models but not more than those who saw familiar peer models. Familiar peers were more effective than the parental models. There was no difference between the parent models and the no model condition in producing imitative sharing.

Why were parent models so ineffective? Until this study no research had occurred using parental models of donating behavior as contrasted with other types of models.

Rothbaum (1979) compared parents of the subject to the parents of classmates as effective "models" of a behavior of rating the ages or attractiveness of a set of four pictures. For this non-prosocial behavior parents were more effective than non parents. However in addition to being a non-prosocial behavior there was no actual modeling.

One possible reason for parents being less effective than strangers is the sense of family the subjects may have had. This may have lowered perceived responsibility to help the poor children. It may be that a child who sees their parent share with poor children will judge that their family (parent) and thus they themselves had already donated and therefore did not need to share further.

Recently a study which lends some support to this possibility was conducted by Maruyama, Fraser, and Miller (1982). Within the context of prosocial behavior they found that the deindividuation model proposed by Zimbardo (1970) is supported. Deindividuation is the process whereby a person is released from individual responsibility in a situation in which cues provide or facilitate a social norm (such as helping or sharing). In the Maruyama et al. study deindividuation was manipulated by identifying either one child, no child or all children in a group as responsible for sharing halloween candy with children in a hospital. This manipulation was significant with a mean of 5 candies being donated when each child was made responsible and 3.3 when one child was responsible and 2.2 when no child was made responsible.

Another possible reason may have been due to the selection procedure for parents in this study. Several possible reasons for a biased sample existed in this study. First, all subjects who saw parent models came from two-parent families, while for other subjects this was not necessarily true. In addition all subjects who saw parent models chose one of their parents as strongly preferred. Does this possibly mean that their relationship with their family is different from those who did not demonstrate a strong preference? This of course is an empirical question.

### Purposes

#### Purpose 1

This purpose was to determine whether donations would be greater

by children who observed a sharing age-mate model who was represented as having similar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having similar likes and interests.

This study found no difference between the amount of sharing or the number of sharers for subjects who saw an age-mate versus an adult model who was unfamiliar and described as similar. Both of these groups combined were more effective than the no model and were the most effective treatment factor (U•S,  $M=7.6$ ). It was thought that the age-mates, being more similar to the observer, would be more effective models. This was not the case. The mean for age-mate models in the U•S group was 8 and for adults in the U•S group it was 7.2.

Overall it may be that the similarity factor may have masked any potential effect favoring age-mates over adults for unfamiliar models. This may be an analogous ceiling effect to that discussed in connection with the Ascione and Sanok (1982) study which found age-mates and adults to be almost equally effective as models of prosocial behavior.

### Purpose 2

This purpose was to determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having dissimilar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having dissimilar likes and interests.

As was found for Purpose One there were no differences between

the amount of sharing or the number of sharers for subjects who saw an age-mate or adult model who was unfamiliar and described as dissimilar. Both of these groups combined were not different from the no model control group. As before (Purpose One) there was no difference between age-mates ( $\underline{M}=2.7$ ) and adults ( $\underline{M}=1.5$ ).

As noted earlier, there may have been a masking effect by the dissimilarity factor of the potential effect favoring age-mates creating a possible floor effect. Subjects in this group may have had their imitative behavior depressed by the dissimilarity procedure such that no difference existed between age-mates and adults.

This reasoning is given support when the no similarity mentioned group data are examined. Subjects who saw age-mate models within this group shared a mean of 9.3 certificates while those observing adult models shared 5.9 certificates. Age-mates are more effective models of donation behavior when the model is unfamiliar and no similarity is mentioned. When the unfamiliar model is described as either similar or dissimilar then the difference between age-mate and adult models disappears.

### Purpose 3

This purpose was to determine whether donations would be greater by children who observed a sharing model (age-mate or adult) who was represented as having similar likes and interests as contrasted with those children who observed a sharing model (age-mate or adult) who was represented as having dissimilar likes and interests.

This implied hypothesis received substantial support. The mean number of certificates shared in the U•S group was 7.6 and for the

U·D group the mean was 2.1. These results for donation behavior agree with the findings of other researchers examining non-prosocial behavior (Baron, 1970; Burnstein et al., 1961; Hicks, 1965; Kazdin, 1974; Kornhaber & Schroeder, 1975; Rosekrans, 1967; Stotland & Hillmer, 1962; Stotland & Patchen, 1961; Stotland et al., 1961).

#### Purpose 4

This purpose was to determine whether donations would be greater by children who observed a sharing peer model who was familiar and a friend contrasted with those children who observed a sharing age-mate model who was not familiar and not a friend.

For the subjects who saw similar aged models those who saw familiar preferred models shared less than those who saw unfamiliar models with no similarity mentioned and less than the combined groups of U·S, U·D, and U·NSM.

The present study is the first that has directly compared familiar peer models with unfamiliar age-mate models for donating behavior. There have been studies that indirectly addressed this topic. Several factors were discussed in the review section that led to the prediction of familiar models being more effective than unfamiliar models.

One factor was history of reinforcement. Hartup and Coates (1967) found that subjects with a history of frequent reinforcement imitated rewarding peers more than a non-rewarding peer. The opposite was found for subjects with a history of infrequent reinforcement. It is not clear in the present study whether or not the subjects had a history of frequent or infrequent reinforcement so

this aspect is not readily interpretable.

The present findings do not coincide with the findings of Peterson (1980) who found that children helped those who might reciprocate their help as compared to children who could not reciprocate their help. Similarly, previous imitation of the observer by the model was found to influence future imitation of the model (Thelen et al., 1975; Thelen & Kirkland, 1976).

It was suggested that familiar models would, based on these findings, be more effective models than unfamiliar models. It is not clear in this study whether or not the subjects who saw familiar models had a history of imitation by the model or not, although for group F•P-peer a history of imitation is highly likely. It is less likely for the F•LP-peer group. However the different findings are perhaps accounted for by the fact that in the Peterson (1980) study no modeling occurred and for the Thelen studies (Thelen et al., 1975; Thelen & Kirkland, 1976) the behaviors imitated were not prosocial (choosing colors and nonsense names).

Another factor that was used to suggest that familiar models would be more effective than unfamiliar models was nurturance. Rosenhan and White (1967) found no difference for the effects of positive, negative, or no prior interactions for sharing behavior for children in the fourth and fifth grades. Similar negative results for nurturance on imitation of sharing were found by Grusec and Skubiski (1970) and Staub (1971).

There was however an interesting finding in the Rosenhan and White (1967) research that is substantiated by the present study.



They found that for females who observed a male model, those who had a prior relationship with the model (familiar) shared less than those who observed an unfamiliar model. This was true only if the sharing was done in the absence of the model. Although the present study found no differences, there were some differences in group means that might justify further investigation in this area. The present research found that females shared a mean of 15.2 certificates when they observed a familiar least preferred peer model, 6.0 certificates when they observed an unfamiliar age-mate model with no similarity mentioned, and 0 certificates when they observed a familiar preferred peer model. For males who saw an unfamiliar age-mate model with no similarity mentioned, the mean was 12.6 certificates shared compared to 5 for a familiar preferred peer model and 4 for a familiar least preferred model.

Two other studies have found that nurturance can have a detrimental effect on the imitation of prosocial behavior (Grusec, 1971; Weissbrod, 1976). The Weissbrod study found a negative effect of nurturance on imitative donations but a positive effect for rescue behavior.

Yarrow et al. (1973) found that a long period of nurturance was effective in producing symbolic and live imitation of helping behavior. It can be seen that nurturance seems to have had a negative effect for imitative donations (Weissbrod, 1976) and an opposite effect for imitative helping behavior (Weissbrod, 1976; Yarrow et al., 1973).

Given the results of the present research it seems likely that

the explanation offered by Staub (1971) is most plausible. Nurturance may convey the information that the model or the situation is not punitive. Nurturance may therefore reduce the fear of punishment for not acting prosocially as conveyed by the model. For unfamiliar models this information is not likely to be conveyed. The difference between imitative donations and imitative helping may be accounted for in terms of the cost to the observer. Donations necessarily cost the person physical resources. Nurturance may convey the information that the situation is not punitive and thus not sharing will not be punished and will be rewarded in the sense of retaining resources.

On the other hand helping behavior does not cost the person physical resources but rather time and effort are involved. A nurturant encounter may convey the information that the observer will not be punished for not helping but there is little to be gained from not helping (relative to keeping resources) and there may be the effect of a potential social reward for helping. The results of the present study appear to substantiate some of the previous research regarding known peers and prosocial behavior.

As discussed with regard to a different matter above, Staub and Noerenberg (1981) found that children shared less with a friend than with a non-friend. The present study extends this finding to the imitation of donation behavior. Also relevant here is the Barton (1981) study which found that modeling by a classmate failed to increase the frequency of sharing of toys.

### Purpose 5

This purpose was to determine whether donations would be greater in children who observed a sharing adult model who was unfamiliar as contrasted with those children who observed their parent serving as a model of sharing behavior.

No difference in these two groups was found in terms of the number of certificates shared. However unfamiliar adult models produced more sharers than did parental models. Similarly there were more sharers in the U•NSM group than in the parent model groups.

These findings for the dichotomous data confirm those discussed above that showed that unfamiliar models were more effective than familiar models. One possible explanation was presented earlier. A sense of family could have caused children to act as if they were thinking, "Mom gave to the poor children. Our family has contributed already so I can keep my certificates." This of course is speculation. See the suggestions for future research that address this issue.

### Purpose 6

This purpose was to determine whether donations would be greater by children who observed a sharing peer model who was familiar and was liked contrasted with those children who observed a sharing peer model who was familiar and disliked.

In the present study preferred peers produced less sharing than did least preferred peers. This finding supports the Staub and Noerenberg (1981) study discussed above as well as the Barton (1981) study.

It is interesting to note that this difference was due to the female subjects. Females shared a mean of 15.2 certificates when observing a least preferred peer and 0 certificates when observing a best friend. For males the figures were 4.0 for least preferred and 5.0 for best friend.

Speculatively, it could be argued that friends are likely to compete for social and material rewards while a least preferred peer may try to gain the favor of others by being compliant and rewarding. Bandura, Ross, and Ross (1963) found that nursery school children more frequently imitated models from whom they received social and material rewards than models with whom they competed for such rewards. These findings may help explain why least preferred peers are more effective models than best friends if it is found that the least preferred peers are dispensers of rewards and friends are competitors for rewards.

One possible explanation for the results of the present study is based on a social comparison hypothesis. Staub and Noerenberg (1981) suggested a social comparison explanation for their finding that children share less with a friend than a non-friend. Sharing with a friend could give the friend a social advantage (more resources) which could be distressful to the sharer. For those females in the present study who observed a best friend there could have been little motivation to behave similarly. This could have been due to the continual social comparison that occurs during a friendship. Frequent comparison within a friendship could provide the person with a sense of acceptance. In addition, females who did not share could

have felt an advantage in terms of resources.

Berndt (1981b) investigated prosocial "behavioral intentions" (p. 636) of children who were either close friends or were acquaintances. When children were asked how they intended to behave toward their partner (close friend or acquaintance) in a situation where they could share or help, girls verbalized that they would share with or help a friend more than an acquaintance. Boys indicated no difference in their intentions to help or share with a friend or acquaintance.

The pairs of children were placed in a circumstance where sharing or helping the partner (close friend or acquaintance) on two tasks would result in fewer rewards for the person sharing or helping. There were no sex differences for helping but it was found that boys shared less with friends than with acquaintances. No difference was found for girls. The author suggests that in the situation in which sharing would mean fewer resources for the person behaving prosocially that boys were especially disturbed by getting less than a friend.

A similar study used only pairs of close friends (Berndt, 1981a). Additionally, the behavioral situation was such that the children could either receive more resources than their friend by helping and sharing or if they chose they could receive the same amount of resources as did their friend (a win or tie situation as opposed to a win or lose situation). In the win or tie situation the results were that friends shared more with increasing age (first and fourth grade students were used). The author suggests that boys are

motivated to not lose in a competition with a friend. However both boys and girls tend to choose a tie more frequently with increasing age rather than choosing winning.

An additional finding from both of the Berndt studies was that the correlations between children's "intentions to share and their perceptions of the friend's expectations were nonsignificant at all ages" (Berndt, 1981a, p. 414). The author suggests two possible interpretations of this finding of nonsignificance. Children may have "decided how much to share and help without considering what their friend thought they should do" (p. 414). Alternately, children may choose to "regard their actions as freely chosen... demands" (p. 414). Consequently, they may deny they were influenced by their friends' expectations even when they were. Also when a friend makes extreme demands (such as sharing half of their resources with poor children as in the present study?) a child may ignore the demand or even behave in an opposite manner.

The difference between the findings of the present study and those of Berndt (1981a, 1981b) are of interest. Is the fact that one study involves imitation of sharing while the other involves actual sharing with a friend sufficient to account for the differences in results? Does the involvement of least preferred peers rather than acquaintances have an impact on the divergent results? These issues are in need of further investigation.

A study discussed earlier could have some relevance here as well. Maruyama et al. (1982) found that children who were in a large group shared less than those in a small group. Their theory was that

the sense of responsibility is more diffuse in a large group than in a small one.

This theory could apply to this study in the following manner: A child who sees a friend share, by virtue of their friendship, may judge that they are a part of a larger group that shared. Whereas a child observing a least preferred peer may not feel as if he or she is part of a larger sharing group. According to Zimbardo's (1970) terminology the latter are "individualized" and would perhaps share more because of greater perceived responsibility.

Another possible reason that preferred models are less effective than less preferred models is based upon the work by Staub (1971). He found that nurturant models are less effective than non-nurturant models for imitative donation behavior. As mentioned for Purpose Four the nurturant model could provide the information that the situation is not punitive and that relatively selfish behavior would not be punished. For the issue at hand it can be argued that a friend is likely to be nurturant while a least preferred peer is likely to be less nurturant.

Additionally it could be that the least preferred peer is one who is punished more than other children. The children who served as least preferred models were all chosen frequently by the other children as least preferred peers. Although not demonstrated here it could be that these children are punished more frequently and this, if it were true, could have conveyed the information to the observer to engage in behavior which the observer knew to be the socially appropriate thing to do.

Another possible reason why least preferred peers are more effective than preferred peers deals with social status. It is likely that seeing peers on television in a role that is fairly powerful (demonstrating how to earn certificates) is likely to increase the peers' social status and thereby make them more effective models (Rushton, 1980). However what could be operative here is the model's status prior to the model appearing on television. A friend is likely to have a high social status in the opinion of the observer and appearing on television could not raise that status substantially. On the other hand a least preferred peer is likely to have a low status and appearing on television could substantially raise that status. The model's effectiveness could be related to the increase in social status when the model is a familiar peer. This is, of course, an issue subject to resolution.

It is interesting to note that this line of thought is given some support from the fact that the subjects in the present study who were in the least preferred groups were less consistent in listing the models at the post-questionnaire than they were at the pre-questionnaire. This was not true for those subjects in the preferred groups.

#### Purpose 7

This purpose was to determine whether donations would be greater by children who observed a sharing peer model who was familiar and liked contrasted with those children who observed a sharing parent model.

Parents as models did not produce more sharing than preferred



peer models. Indeed, neither of these groups were substantially different from the control group. As stated before the parents used in this study came from two-parent homes and thus may be more or less effective models than parents in general.

This research predicted that familiar liked peers would be more effective than parents. In fact this was not found. These groups were not different. Overall it can be said that in this study peers were more effective models of sharing behavior than were parents. However, because of the possible bias in terms of the particular parents used in this study further research in this area is needed.

#### Purpose 8

This purpose was to determine whether donations would be greater by children who observed a sharing familiar model (peer or adult) contrasted with those children who observed a sharing unfamiliar model (age-mate or adult).

There was no difference between those subjects who saw familiar and those who saw unfamiliar models in terms of number of certificates shared. However there was a greater number of subjects in the unfamiliar model group who shared. See the discussion of familiar versus unfamiliar models under Hypothesis Two above for a theoretical discussion of these results.

#### Purpose 9

This purpose was to determine whether donations would be greater by children who observed a sharing parent who was preferred contrasted with those children who observed a sharing parent who was

less preferred.

There was no differential effect of preferred and less preferred parental models in either the number of certificates shared or the number of sharers.

Since there are no studies of donation behavior that have compared these two types of models it is difficult to understand why the current results were obtained. The possible reasons why parents were relatively ineffective as compared to unfamiliar adults were discussed above.

There are a few possible reasons why preferred and less preferred parents produced similar results in the present study. One reason is the obvious one that there may be no real difference. However it may be that the method of determining preference was not very effective. The children were asked to choose between their parents for a variety of activities. Given that this was a forced choice, it could reflect something other than preference. For example the subject may have chosen one parent consistently by chance, by reason of the time the parent normally had available, by reason of trying to be fair to a parent who does not often get to spend time with the child, etc.

Due to the school principal's objection the subjects were not asked to choose their favorite parent directly. Thus it is not clear whether the preference for parents is an actual one or not. Future research for this variable could substantiate preference by measuring actual choices the child makes rather than drawing inferences from items on a paper and pencil survey.

### Potential Research

Because this research manipulated several variables for the first time within the context of imitation of donation behavior in children, many areas for future research are suggested by the results of this study. Several of these will be discussed below.

One area is simply replication. Systematic replications with different subject populations and perhaps other prosocial behaviors would bolster the evidence from this study that was somewhat in conflict with the predictions made by the author.

It would also seem prudent to address these independent variables (similarity, familiarity, preference) with other types of imitative behavior such as antisocial behavior (e.g., not sharing).

The present results suggest that preference (friend versus non-friend) has a great deal to do with a model's effectiveness. Subject age for this study was based on the age at which true friendships begin to form. It would be of interest to determine if similar results obtain with younger children for whom friendship is a less stable phenomenon.

The parental model variable needs to be further investigated. As mentioned, the effects of parents as models are not readily generalized from this research due to the way parents were selected. Future research could select parents at random and then measure the child's preference for the parent in order to determine the relation between preference for the parent and the parent's effectiveness as a model.

A similar investigation of friendship may be useful. A sociometric measure of friendship for a large sample of peers could be used to determine if the stronger the friendship between a model and observer the less likely the observer is to imitate the model.

Because of the large differences between the level of donation in the no model control group in this study and that in the control group of the studies such as Ascione and Sanok (1982) it is fairly clear that instructions have a large effect on sharing by children. Future research could determine what role if any instructions to subjects played in producing the finding that vicarious reinforcement was ineffective in facilitating modeling of prosocial behavior (Ascione & Sanok, 1982). Was this finding due to a ceiling effect produced by the instructions? It is clear that modeling is effective compared to a control group when neither condition is confounded with instructions. Given this it will be of interest to replicate the Ascione and Sanok study without using the instructions. Will the vicarious reinforcement procedures have a greater effect when they are not masked by the effect of the instructions?

Another major difference between the instructions in most previous studies in this area and the ones in this study is the content. Most past studies that have described to the subject the sharing procedure have had an adult say something like "you may share if you like but you do not have to share." This may have been interpreted as "you should share." In the present study the model said, "I am going to share. I know I don't have to share but it is good to share." This difference may be large in terms of its effect

on sharing with and without the additional effect of modeling the actual behavior. This is an empirical issue.

It was suggested that the sense of family may be the reason why parents in this study were relatively ineffective compared to the control group and to peer models. The reasoning was that the observer might act as if they were thinking "Our family already gave so I don't need to give." This might be investigated by contrasting one group that saw parent models as in the present study and another that saw parent models but were told that the parent was just showing them how to do the task and that their donations were not real and would not be given to poor children.

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APPENDIXES

Appendix A

Parental Permission Letter

Dear Parent:

Please let me introduce myself. My name is Ray Owens. I am a Doctor of Philosophy candidate in Psychology from Utah State University. I currently live and work in Liberty. In order to complete my degree I am conducting a project for my dissertation which is described briefly below. The project is being conducted with the cooperation and approval of the Kearney elementary school principal. The project is designed to more fully understand the development of positive social behavior in children. The information that this project will yield will very likely have future use in aiding parents, educators, and others in enhancing positive social behavior in children.

Parents of third, fourth, and fifth graders in the Kearney school are being contacted and asked to give permission for their children to participate. You have been selected as a part of this group.

If you give permission, your child will participate in the study which will take a total of approximately 15 to 20 minutes. The study will take place in the school building. During the study your child will view a video taped program which may or may not be designed to increase positive social behavior. Measures will then be taken of your child's behavior which will determine what effect, if any, the film had on your child's behavior. The procedures we will use are not designed to have a long term effect on your child's behavior. But, if they do have a long term effect this effect is expected to be

positive. Your child will earn a small amount of money (about 40 cents) for his/her participation. The results of your child's participation will remain anonymous and confidential. You will be sent a description of the general results of the project at the study's completion if you desire one.

Additionally, a small number of parents (20) will be asked to participate by serving as a video taped model. This participation will entail about 1 hour or less of time and will be voluntary. You may give permission for your child to participate even if you are unable to participate as a parent.

The enclosed form is available for you to grant or refuse permission for your child's participation. It is believed that children will find the experience a positive and enjoyable one. Whatever your decision, we would appreciate you completing the attached permission form and returning it to school with your child tomorrow.

To insure the success of the project, we ask you to not discuss the nature of the research or the content of this letter with your child. Thank you in advance for your cooperation. Please feel free to call and I will attempt to answer any questions you may have.

Sincerely,

Ray Owens

781-3806 ext 348

Appendix B

Parental Consent Form

Consent Form

To Respond YES Complete The Following:

I hereby give permission for my child to participate in the research project described in Mr. Owens' letter. I understand that my child may withdraw at any time for any reason and I understand the general nature and content of the project.

.....  
(Date)

.....  
(Parent's Signature)

To Respond NO Complete The Following:

I hereby refuse permission for my child to participate in the research project described in Mr. Owens' letter.

.....  
(Date)

.....  
(Parent's Signature)

\*\* If you responded YES please complete the following. PLEASE PRINT

Child's Name.....

Mother's Name.....

Father's Name.....

Address.....

.....

Telephone Number.....

Appendix C

Questionnaire for Children



FORM: M-P

PLEASE PRINT

WHAT IS YOUR NAME?.....

WHAT IS YOUR TEACHER'S NAME?.....

WHAT IS TODAY'S DATE?..... WHAT GRADE ARE YOU IN?.....

ARE YOU A BOY OR A GIRL?.....HOW OLD ARE YOU?.....

WHAT IS YOUR BIRTHDAY (MONTH, DAY, YEAR)?.....

PLEASE WRITE THE FIRST AND LAST NAME OF 2 BOYS IN THIS CLASS THAT YOU WOULD LIKE TO HAVE DO THE FOLLOWING THINGS. YOU MAY USE MANY DIFFERENT NAMES OR YOU MAY USE ONLY A FEW NAMES.

1. WHICH 2 BOYS WOULD YOU LIKE TO SIT NEXT TO YOU IN SCHOOL?

.....

2. WHICH 2 BOYS WOULD YOU LIKE TO COME PLAY WITH YOU ON SATURDAY?

.....

3. WHICH 2 BOYS WOULD YOU LIKE TO GO WITH YOUR FAMILY ON A SPECIAL TRIP?

.....

4. WHICH 2 BOYS WOULD YOU LIKE TO COME TO YOUR PARTY?

.....

5. WHICH 2 BOYS WOULD YOU LIKE TO PLAY WITH AT RECESS?

.....

6. WHICH 2 BOYS WOULD YOU LIKE TO EAT WITH AT LUNCH?

.....

7. WHICH 2 BOYS WOULD YOU LIKE TO PLAY A GAME WITH?

.....

8. WHICH 1 BOY IS YOUR BEST FRIEND?

.....

9. WHICH 1 BOY IS YOUR NEXT BEST FRIEND?

.....

FORM: M-LP

PLEASE PRINT

WHAT IS YOUR NAME?.....

WHAT IS YOUR TEACHER'S NAME?.....

WHAT IS TODAY'S DATE?..... WHAT GRADE ARE YOU IN?.....

ARE YOU A BOY OR A GIRL?.....HOW OLD ARE YOU?.....

WHAT IS YOUR BIRTHDAY (MONTH, DAY, YEAR)?.....

PLEASE WRITE THE FIRST AND LAST NAME OF 2 BOYS IN THIS CLASS THAT YOU WOULD NOT LIKE TO HAVE DO THE FOLLOWING THINGS. YOU MAY USE MANY DIFFERENT NAMES OR YOU MAY USE ONLY A FEW NAMES.

1. WHICH 2 BOYS WOULD YOU NOT LIKE TO SIT NEXT TO YOU IN SCHOOL?

.....

2. WHICH 2 BOYS WOULD YOU NOT LIKE TO COME PLAY WITH YOU ON SATURDAY?

.....

3. WHICH 2 BOYS WOULD YOU NOT LIKE TO GO WITH YOUR FAMILY ON A SPECIAL TRIP?

.....

4. WHICH 2 BOYS WOULD YOU NOT LIKE TO COME TO YOUR PARTY?

.....

5. WHICH 2 BOYS WOULD YOU NOT LIKE TO PLAY WITH AT RECESS?

.....

6. WHICH 2 BOYS WOULD YOU NOT LIKE TO EAT WITH AT LUNCH?

.....

7. WHICH 2 BOYS WOULD YOU NOT LIKE TO PLAY A GAME WITH?

.....

8. WHICH 1 BOY DO YOU LIKE THE LEAST?

.....

9. WHICH 1 BOY DO YOU LIKE NEXT TO THE LEAST?

.....

FORM: F-P

PLEASE PRINT

WHAT IS YOUR NAME?.....

WHAT IS YOUR TEACHER'S NAME?.....

WHAT IS TODAY'S DATE?..... WHAT GRADE ARE YOU IN?.....

ARE YOU A BOY OR A GIRL?.....HOW OLD ARE YOU?.....

WHAT IS YOUR BIRTHDAY (MONTH, DAY, YEAR)?.....

PLEASE WRITE THE FIRST AND LAST NAME OF 2 GIRLS IN THIS CLASS THAT YOU WOULD LIKE TO HAVE DO THE FOLLOWING THINGS. YOU MAY USE MANY DIFFERENT NAMES OR YOU MAY USE ONLY A FEW NAMES.

1. WHICH 2 GIRLS WOULD YOU LIKE TO SIT NEXT TO YOU IN SCHOOL?

.....  
2. WHICH 2 GIRLS WOULD YOU LIKE TO COME PLAY WITH YOU ON SATURDAY?

.....  
3. WHICH 2 GIRLS WOULD YOU LIKE TO GO WITH YOUR FAMILY ON A SPECIAL TRIP?

.....  
4. WHICH 2 GIRLS WOULD YOU LIKE TO COME TO YOUR PARTY?

.....  
5. WHICH 2 GIRLS WOULD YOU LIKE TO PLAY WITH AT RECESS?

.....  
6. WHICH 2 GIRLS WOULD YOU LIKE TO EAT WITH AT LUNCH?

.....  
7. WHICH 2 GIRLS WOULD YOU LIKE TO PLAY A GAME WITH?

.....  
8. WHICH 1 GIRL IS YOUR BEST FRIEND?

.....  
9. WHICH 1 GIRL IS YOUR NEXT BEST FRIEND?

.....

FORM: F-LP

PLEASE PRINT

WHAT IS YOUR NAME?.....

WHAT IS YOUR TEACHER'S NAME?.....

WHAT IS TODAY'S DATE?..... WHAT GRADE ARE YOU IN?.....

ARE YOU A BOY OR A GIRL?.....HOW OLD ARE YOU?.....

WHAT IS YOUR BIRTHDAY (MONTH, DAY, YEAR)?.....

PLEASE WRITE THE FIRST AND LAST NAME OF 2 GIRLS IN THIS CLASS THAT YOU WOULD LIKE TO HAVE DO THE FOLLOWING THINGS. YOU MAY USE MANY DIFFERENT NAMES OR YOU MAY USE ONLY A FEW NAMES.

1. WHICH 2 GIRLS WOULD YOU NOT LIKE TO SIT NEXT TO YOU IN SCHOOL?

.....  
2. WHICH 2 GIRLS WOULD YOU NOT LIKE TO COME PLAY WITH YOU ON SATURDAY?

.....  
3. WHICH 2 GIRLS WOULD YOU NOT LIKE TO GO WITH YOUR FAMILY ON A SPECIAL TRIP?

.....  
4. WHICH 2 GIRLS WOULD YOU NOT LIKE TO COME TO YOUR PARTY?

.....  
5. WHICH 2 GIRLS WOULD YOU NOT LIKE TO PLAY WITH AT RECESS?

.....  
6. WHICH 2 GIRLS WOULD YOU NOT LIKE TO EAT WITH AT LUNCH?

.....  
7. WHICH 2 GIRLS WOULD YOU NOT LIKE TO PLAY A GAME WITH?

.....  
8. WHICH 1 GIRL DO YOU LIKE THE LEAST?

.....  
9. WHICH 1 GIRL DO YOU LIKE NEXT TO THE LEAST?

.....

FORM: P-PREF

PLEASE PRINT

WHAT IS YOUR NAME?.....

WHAT IS YOUR TEACHER'S NAME?.....

WHAT IS TODAY'S DATE?..... WHAT GRADE ARE YOU IN?.....

ARE YOU A BOY OR A GIRL?.....HOW OLD ARE YOU?.....

WHAT IS YOUR BIRTHDAY (MONTH, DAY, YEAR)?.....

1. WOULD YOU RATHER HAVE YOUR MOTHER OR FATHER PLAY A GAME WITH YOU

.....

2. WOULD YOU RATHER HAVE YOUR MOTHER OR FATHER SIT BESIDE YOU AT HOME?

.....

3. WOULD YOU RATHER HAVE YOUR MOTHER OR FATHER TAKE YOU ON A SPECIAL ALL DAY TRIP?

.....

4. WOULD YOU RATHER HAVE YOUR MOTHER OR FATHER WATCH T.V. WITH YOU?

.....

5. WOULD YOU RATHER HAVE YOUR MOTHER OR FATHER SIT AND TALK TO YOU ABOUT ANYTHING YOU WANTED TO?

.....

6. DO YOUR MOTHER AND FATHER BOTH LIVE WITH YOU IN YOUR HOUSE YES OR NO

.....

Appendix D

Control Film Rating Form

NAME.....TITLE.....DATE.....

THE FOLLOWING DEFINITIONS ARE TO BE USED FOR RATING THE VIDEO TAPE. PLEASE READ THE DEFINITIONS AND BE FAMILIAR WITH THEM. YOU ARE BEING ASKED TO DECIDE IF THE VIDEO TAPE HAS ANY BEHAVIOR IN IT THAT COULD BE DESCRIBED AS "ALTRUISTIC", "PROSOCIAL", OR "ANTISOCIAL".

ALTRUISM: behavior such as helping or sharing that promotes the welfare of others without conscious concern for one's own self-interest.

PROSOCIAL BEHAVIOR: helping, sharing, and other seemingly intentional and voluntary positive social behaviors for which the motive is unspecified, unknown or not altruistic.

ANTISOCIAL BEHAVIOR: social behavior that is intrusive, assertive, and domineering. In its more extreme forms, it also involves physical damage to people or objects.

DOES THE VIDEO TAPE CONTAIN ANY ALTRUISTIC BEHAVIOR?

YES..... NO..... UNSURE.....

DOES THE VIDEO TAPE CONTAIN ANY PROSOCIAL BEHAVIOR?

YES..... NO ..... UNSURE.....

DOES THE VIDEO TAPE CONTAIN ANY ANTISOCIAL BEHAVIOR?

YES..... NO..... UNSURE.....

Appendix ESummary of Analysis of Variance for Sharing of Certificates:Comparison of Cash Donations Counted as Zeroand as Equivalent Numbers of Certificates



Table E-1

Summary of Analysis of Variance for  
Sharing of Certificates

Comparison of cash donations counted as zero and as  
equivalent numbers of certificates

5 (treatment) X 2 (age of model) X 2 (sex of subject)  
with a single control group

\*\*\* cash donation figures are in parentheses \*\*\*

SOURCE OF VARIATION	<u>SS</u>	<u>DF</u>	<u>MS</u>	<u>F-VALUE</u>	SIGNIFICANCE LEVEL
Control vs All Other	129.26 (129.26)	1	129.26 (129.26)	5.84 (4.91)	$p < .05$ ( $p < .05$ )
Treatment	531.04 (468.37)	4	132.76 (117.09)	6.0 (4.45)	$p < .001$ ( $p < .005$ )
Age of Model	146.41 (146.41)	1	146.41 (146.41)	6.62 (5.56)	$p < .025$ ( $p < .025$ )
Sex of Subject	65.61 (112.36)	1	65.61 (112.36)	2.96 (4.27)	NS; $p < .10$ ( $p < .05$ )
Treatment X Age of Model	214.64 (314.77)	4	53.66 (78.69)	2.42 (2.95)	NS; $p < .10$ ( $p < .025$ )
Treatment X Sex	396.44 (293.32)	4	99.11 (73.33)	4.48 (2.79)	$p < .005$ ( $p < .05$ )
Sex X Age of Model	.81 (.36)	1	.81 (.36)	.04 (.01)	NS; $p > .25$ (NS; $p > .25$ )
Treatment X Age of Model X Sex	234.84 (283.92)	4	58.71 (70.98)	2.65 (2.70)	$p < .05$ ( $p < .05$ )
Within Cell	2854.8 (3396.8)	129	22.13 (26.33)		

Appendix FIndividual Data for Sharing and Similarity Scores:MALE

Table F-1

Individual Data for Number of Certificates  
Shared (Shar) and Similarity Scores (Sim)  
MALE

Subject	Unfamiliar Similar		Unfamiliar Dissimilar		Unfamiliar No Similarity		Familiar Preferred	Familiar Less Preferred
	Shar	Sim	Shar	Sim	Shar	Sim	Shar	Shar
P 1.	0	(5)	0	(4)	20	(4)	0	10
E 2.	0	(4)	10	(4)	20	(5)	0	10
E 3.	0	(4)	0	(4)	12	(1)	13	0
R 4.	20	(3)	0	(1)	4	(4)	0	0
5.	0	(3)	0	(4)	7	(2)	12	0
A 1.	10	(4)	5	(1)	0	(4)	4	0
D 2.	10	(3)	0	(4)	9	(4)	10	0
U 3.	10	(2)	0	(2)	10	(5)	0	0
L 4.	0	(4)	0	(3)	0	(4)	0	0
T 5.	4	(2)	0	(2)	10	(4)	0	0

Note: None of the subjects in the no model control group shared any certificates.

Appendix G

Individual Data for Sharing and Similarity Scores:

FEMALE

Table G-1

Individual Data for Number of Certificates  
Shared (Shar) and Similarity Scores (Sim)  
FEMALE

Subject	Unfamiliar Similar		Unfamiliar Dissimilar		Unfamiliar No Similarity		Familiar Preferred	Familiar Less Preferred
	Shar	Sim	Shar	Sim	Shar	Sim	Shar	Shar
P 1.	10	(4)	10	(4)	0	(3)	0	20
E 2.	20	(2)	0	(2)	0	(3)	0	6
E 3.	10	(4)	0	(3)	10	(5)	0	10
R 4.	20	(5)	0	(2)	0	(4)	0	20
5.	0	(4)	7	(1)	20	(5)	0	20
A 1.	5	(5)	10	(2)	10	(4)	20	10
D 2.	10	(5)	0	(2)	10	(4)	0	0
U 3.	8	(5)	0	(1)	10	(4)	0	0
L 4.	15	(4)	0	(1)	0	(3)	0	0
T 5.	0	(3)	0	(1)	0	(3)	0	10

Note: None of the subjects in the no model control group shared any certificates.

Appendix HPresentation of Results for Dichotomous Data which areSimilar to the Results from the Continuous Data

A 5 X 2 X 2 ANOVA with a single control group was used to analyze the dichotomous data. There is some controversy in the literature concerning the appropriate test of significance to use for categorical (in this case dichotomous) data. It has been argued by some that the ANOVA is not appropriate for categorical data. However there have been statisticians who have argued for the use of the ANOVA for this type of data (Cochran, 1950; Lunney, 1970; Seeger & Gabrielson, 1968). There are several reasons that favor the use of the ANOVA over Chi-square for dichotomous data.

The first is that the null hypothesis is not the same for an F test and a Chi-square test with more complex designs. The F test is concerned with differences between means but a significant chi-square can occur even when sample means are equal. Chi-square is sensitive to the variance even when the means are equal. In the case at hand the results of these analyses are to be compared with the results of the first analysis, consequently a similar null hypothesis is desirable.

A second argument in favor of the ANOVA is that it can more adequately handle complex designs. Generalizing the chi-square to complex higher-order designs often causes problems in interpreting interactions, while the ANOVA handles these designs (such as the one used here) quite adequately even with categorical data (Lunney, 1970).

A third point has been raised concerning repeated measures designs. Chi-square is not appropriate when data are non-independent. ANOVA can be used with this type of data (Seeger &

Gabrielson, 1968).

The fourth point is that the ability to analyze data from a study containing both categorical and continuous data is handled well by ANOVA but not by Chi-square. In order to use Chi-square the continuous data must be categorized which is often not very meaningful. (The categories of "young" and "old" do not convey as much information as does the specific chronological age.)

The results of the ANOVA for the dichotomous data are contained in Table 3 in the body of the text. The dichotomous data will be presented below for the hypothesis and purposes where the continuous and dichotomous data yielded similar results. Where there were discrepant results the dichotomous data were presented in the body of the text.

#### Hypothesis One

The first hypothesis of this study stated: Viewing similar age models would result in more imitation of sharing than viewing adult models which would result in more imitative sharing than viewing no models.

This hypothesis was discussed in the body of the text because of discrepancies between the dichotomous and continuous data.

#### Hypothesis Two

The second hypothesis stated: The predicted order of donation rates for conditions involving familiarity and similarity is familiar-preferred models greater than unfamiliar models described as similar greater than unfamiliar models with no similarity mentioned



greater than familiar models who are less preferred greater than no model greater than unfamiliar models described as dissimilar.

The results of the analysis of the dichotomous data yielded findings similar to the continuous data. The percentage of sharers for the groups can be seen in Figure 3 (page 86). The hypothesized order of effects and the obtained results for the various groups are contained in Table H-1.

### Hypothesis Three

The third hypothesis stated: Parental models will produce more imitative sharing than friend models who will in turn produce more imitative sharing than unfamiliar models who will in turn produce more imitative sharing than no model.

The results of this hypothesis are discussed in the body of the text because of discrepancies between the continuous and dichotomous data.

Purpose 1. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having similar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having similar likes and interests (groups A and AA versus B and BB, Table 1).

Figure H-1 shows the percentage of sharers for these groups. There was no difference between U•S-age-mate and U•S-adult,  $F(1,80) = 3.63$ ,  $p < .10$ . The difference between the male and female subjects who were in group U•S-age-mate was not significant,  $F'(19,80) = 7.26$ ,  $p > .25$ .

Table H-1

Hypothesized Order of Means and Obtained Results for Hypothesis Two  
(Dichotomous Data)

Hypothesized Order	Groups that are different	Percentage
1. F•P	U•S > NM	U•S = 65%
2. U•S	U•NSM > NM	U•NSM = 65%
3. U•NSM	F•LP > NM	F•LP = 45%
4. F•LP	F•P > NM	F•P = 25%
5. NM	U•D > NM	U•D = 25%
6. U•D	U•S > U•D	NM = 0%
	U•S > F•P	
	U•NSM > U•D	
	U•NSM > F•P	

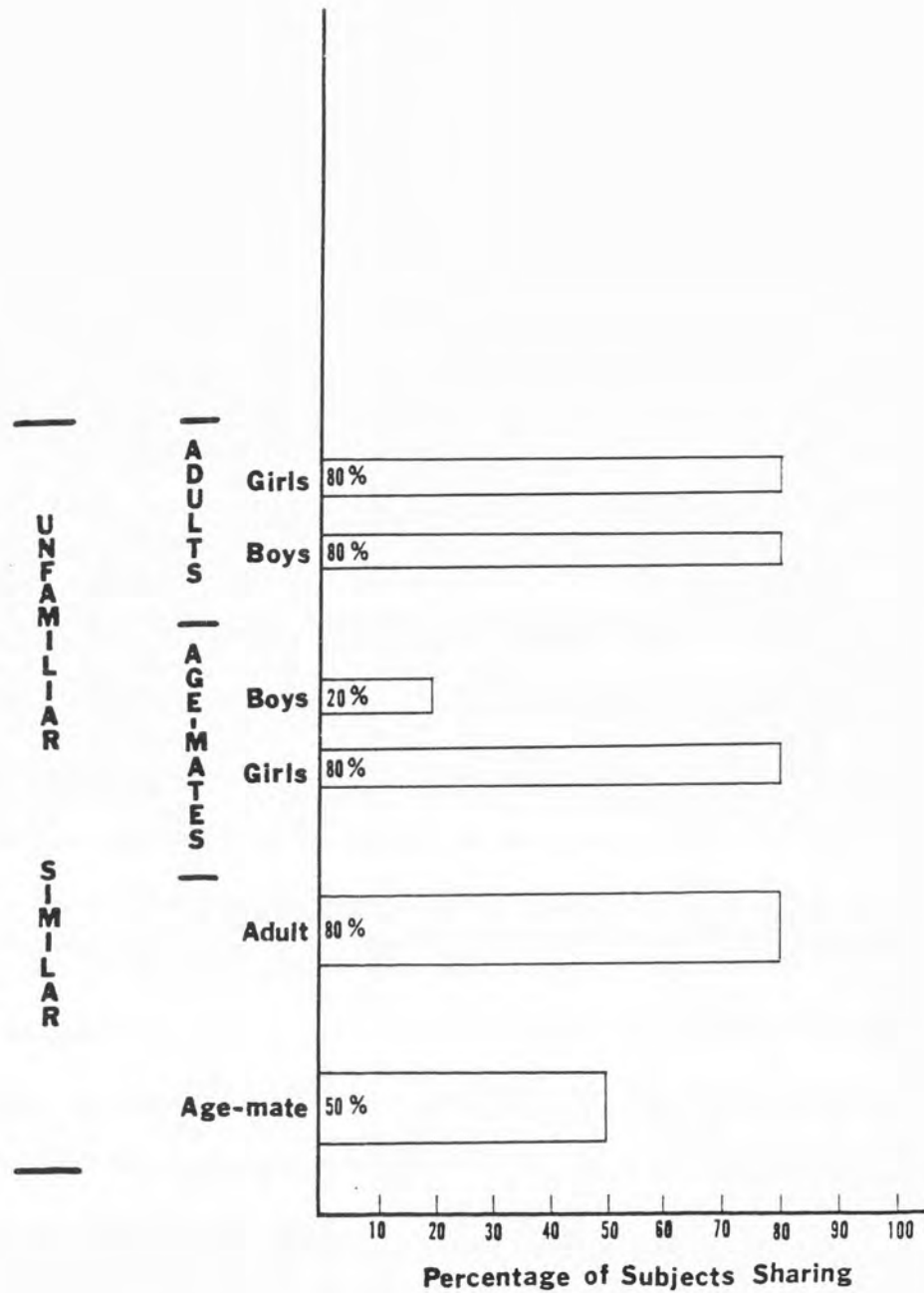


Figure H-1. Percentage of sharers: Purpose 1 - U·NSM-age-mates, U·NSM-adults

Purpose 2. To determine whether donations would be greater by children who observed a sharing age-mate model who was represented as having dissimilar likes and interests as contrasted with those children who observed a sharing adult model who was represented as having dissimilar likes and interests (groups C and CC versus D and DD, Table 1).

Figure H-2 shows the percentage of sharers for these groups. Those subjects seeing adult and age-mate models in group U•D were not different,  $F(1,80) = .40$ ,  $p > .25$ . For the dichotomous data  $F(1,80) = .806$ ,  $p > .25$  for male versus female with age-mate models (U•D) and  $F(1,80) = 0$ ,  $p > .25$  for male versus female with adult models (U•D).

Purpose 3. To determine whether donations would be greater by children who observed a sharing model (age-mate or adult) who was represented as having similar likes and interests as contrasted with those children who observed a sharing model (age-mate or adult) who was represented as having dissimilar likes and interests.

This issue was subsumed in Hypothesis 2 discussed above and the data analysis indicates that the hypothesis implied here is given considerable support.

Purpose 4. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and a friend contrasted with those children who observed a sharing age-mate model who was not familiar and not a friend.

Figure H-3 depicts the percentage of sharers for these groups. The dichotomous data analysis had outcomes similar to the continuous data. When the subjects in group F•P-peer are contrasted with those

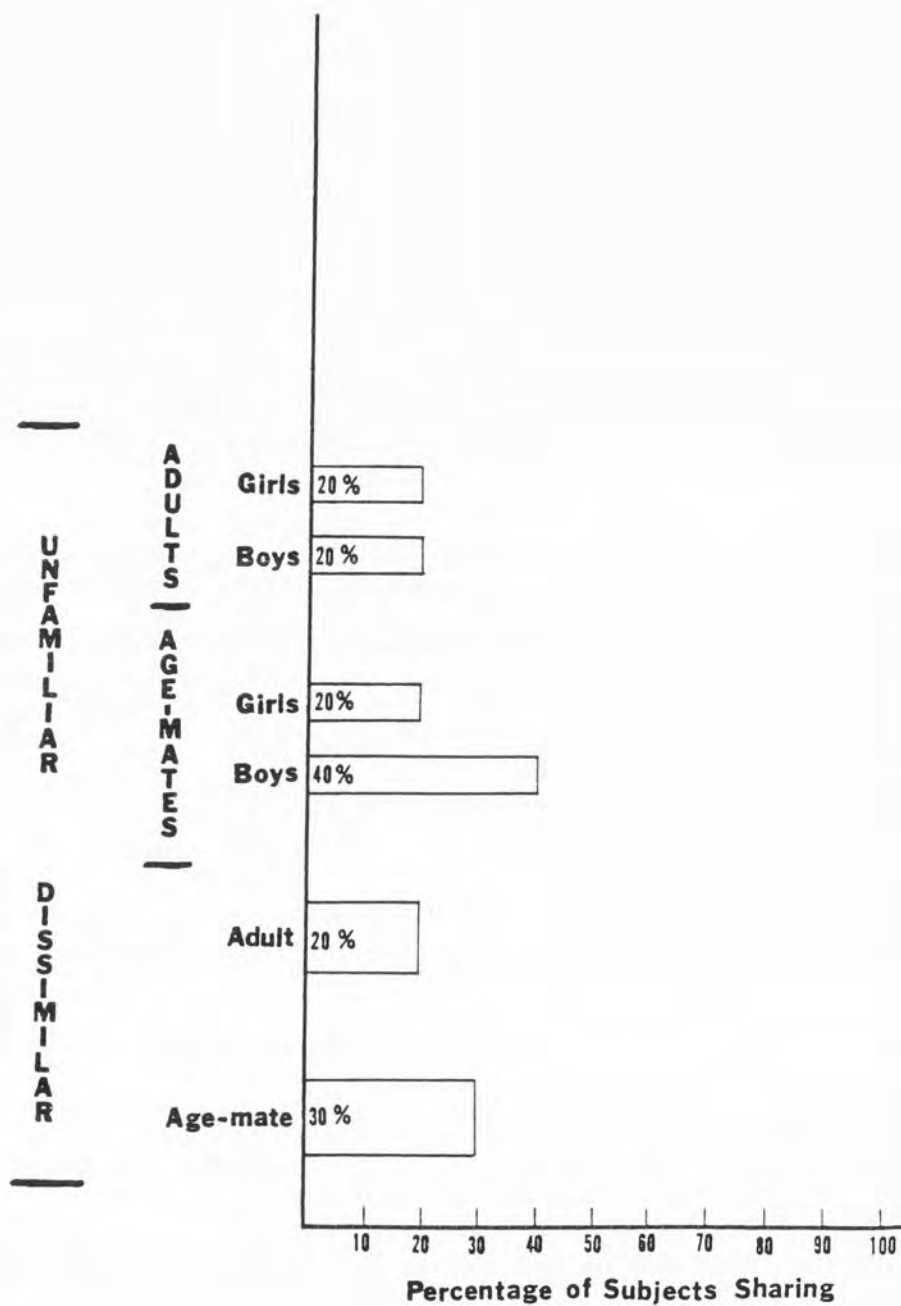


Figure H-2. Percentage of sharers: Purpose 2 - U·D-age-mates versus U·D-adult

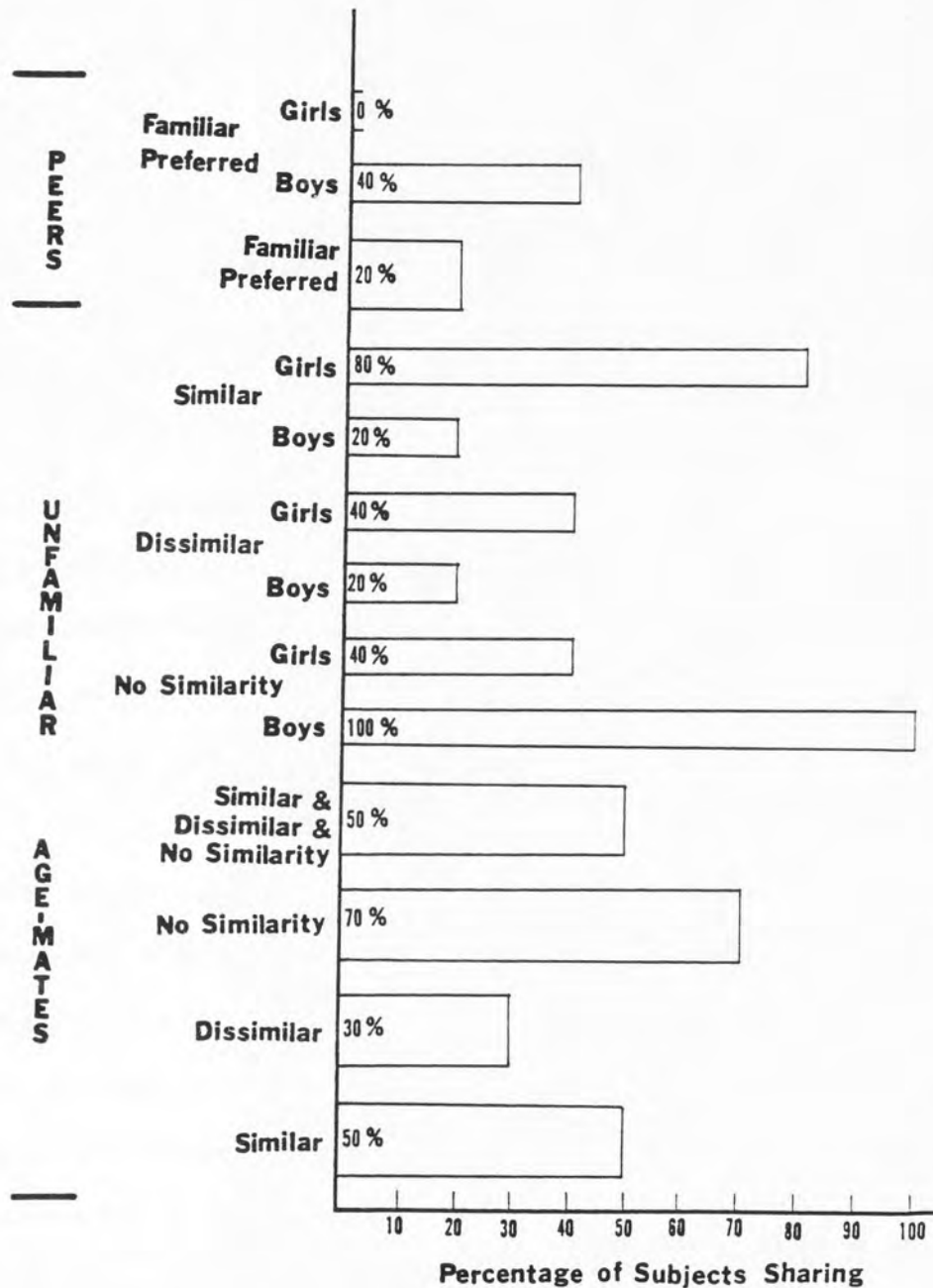


Figure H-3. Percentage of sharers: Purpose 4 - unfamiliar age-mates versus familiar preferred peers.

in the combined group of subjects from groups U·S-age-mate, U·D-age-mate, and U·NSM-age-mate the analysis resulted in an  $F(1,80) = 5.44$ ,  $p < .025$ . When group F·P-peer is compared to group U·NSM-age-mate an  $F(1,80) = 10.08$ ,  $p < .005$  is found.

Purpose 5. To determine whether donations would be greater in children who observed a sharing adult model who was unfamiliar as contrasted with those children who observed their parent serving as a model of sharing behavior.

The results of the analysis of the dichotomous data for this purpose are discussed in the body of the text.

Purpose 6. To determine whether donations would be greater by children who observed a sharing peer model who was familiar and was liked contrasted with those children who observed a sharing peer model who was familiar and disliked.

Figure H-4 shows the percentage of sharers for these groups. The results of the data analysis of the dichotomous data yielded results similar to the continuous data. Group F·LP-peer was different from group F·P-peer  $F(1,80) = 10.08$ ,  $p < .005$ . The difference was due to the female subjects who all shared in the F·LP-peer group and none of whom shared in the F·P-peer group.

Purpose 7. To determine whether donations would be greater in children who observed a sharing peer model who was familiar and liked contrasted with those children who observed a sharing parent model.

Figure H-5 shows the percentage of sharers for these groups. There was no difference between parent and preferred peer models,  $F(1,80) = .134$ ,  $p > .25$ .

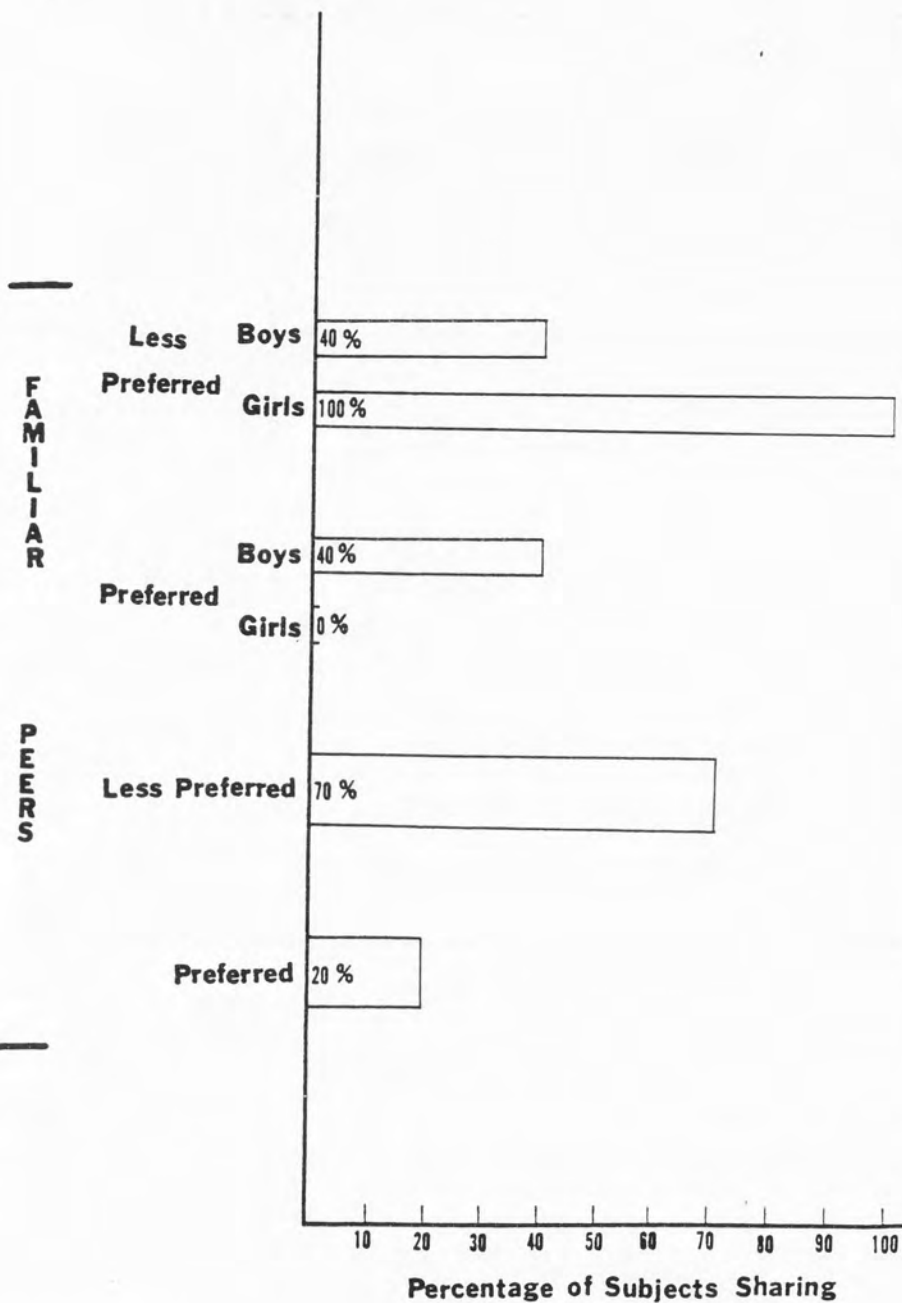


Figure H-4. Percentage of sharers: Purpose 6 - Preferred peers versus less preferred peers



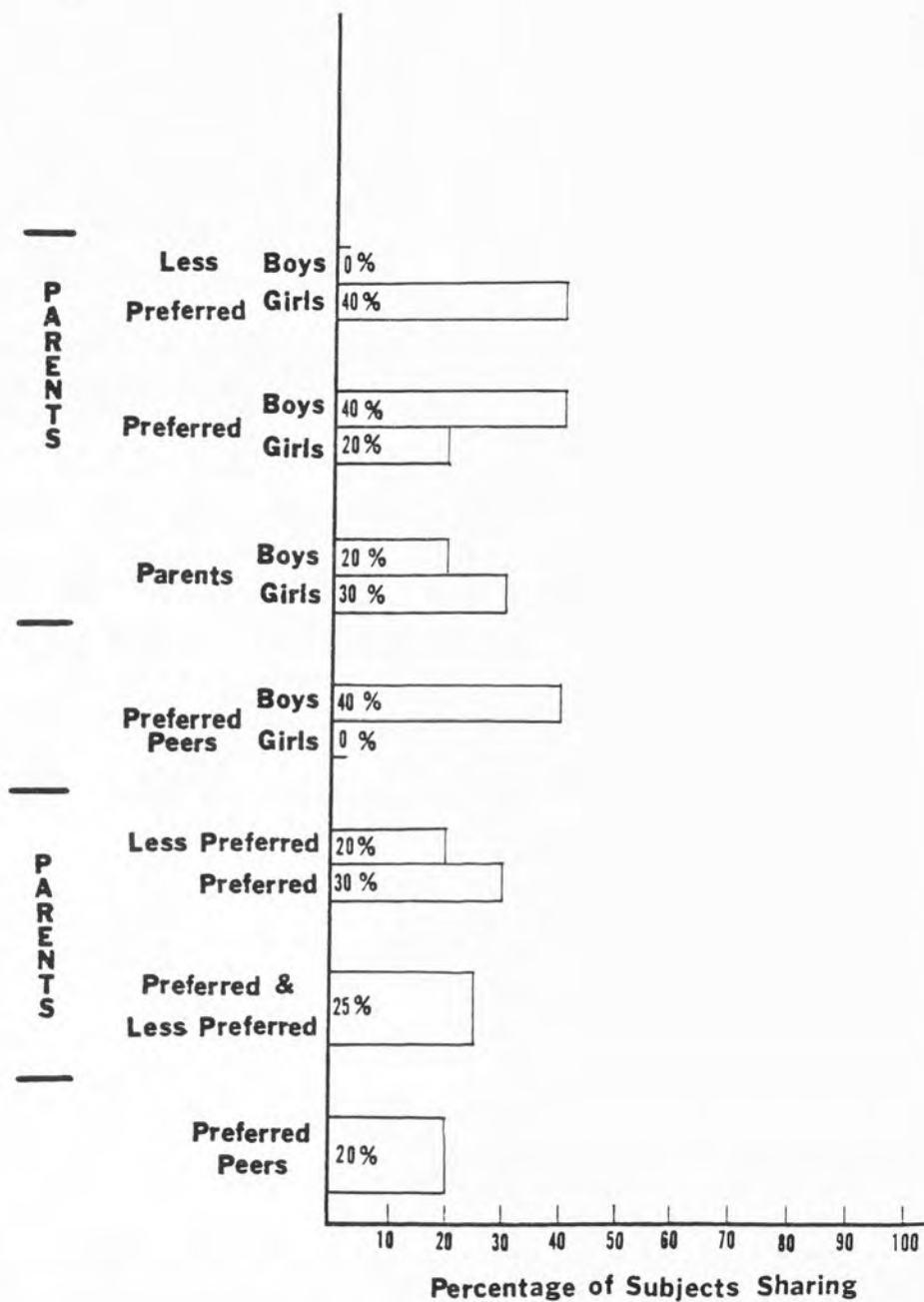


Figure H-5. Percentage of sharers: Purpose 7 - preferred peers versus parents

Purpose 8. To determine whether donations would be greater by children who observed a sharing familiar model (peer or adult) contrasted with those children who observed a sharing unfamiliar model (age-mate or adult).

The results of the analysis of this purpose are presented in the body of the text.

Purpose 9. To determine whether donations would be greater by children who observed a sharing parent who was preferred contrasted with those children who observed a sharing parent who was less preferred.

Figure H-6 shows the percentage of sharers in these two groups. There was no difference between those subjects who saw preferred parents and those who saw less preferred parents,  $F(1,80) = .40$ ,  $p > .25$ .

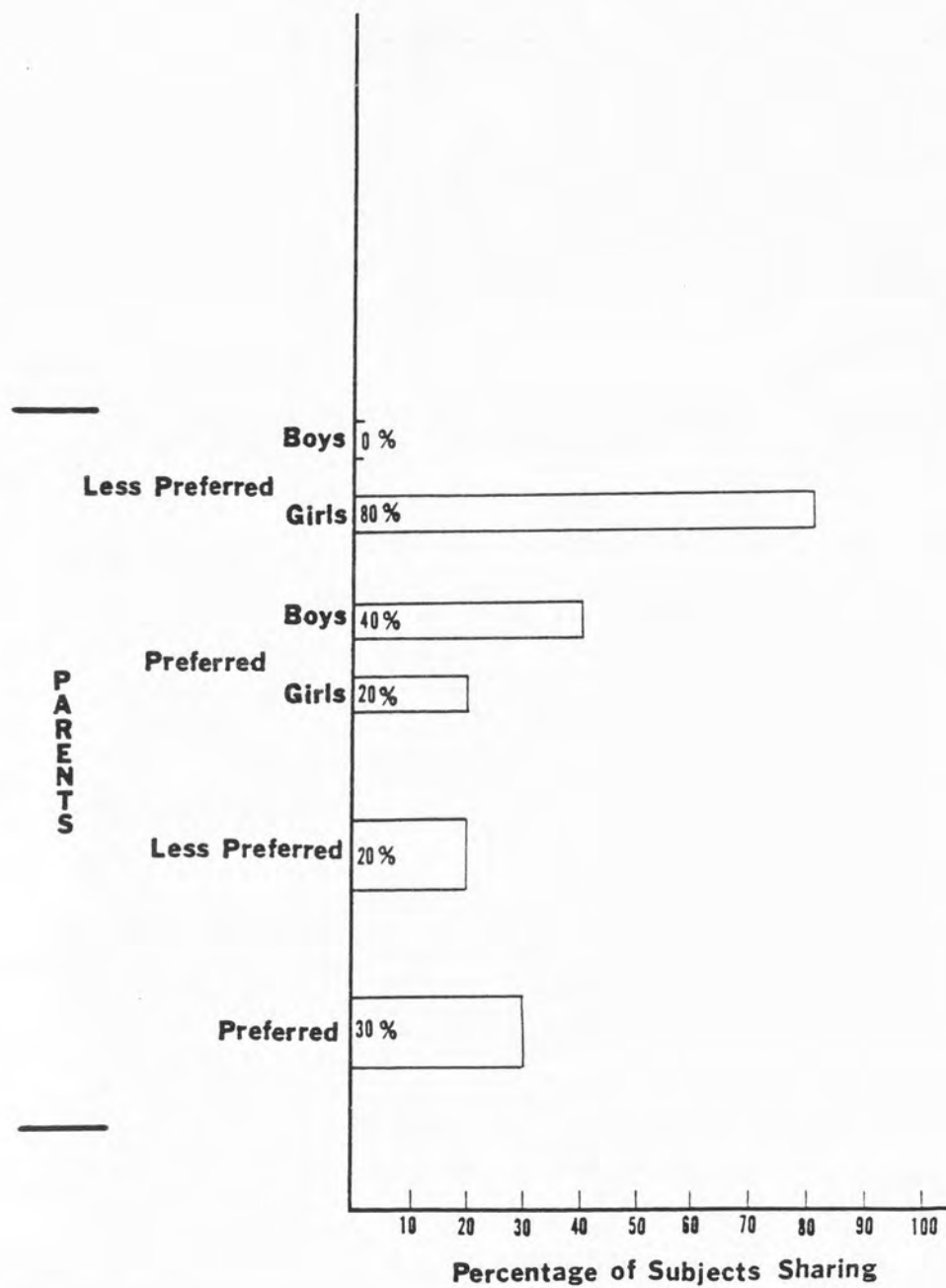


Figure H-6. Percentage of sharers: Purpose 9 - preferred parent versus less preferred parent

Appendix IIndividual Pre- and Post-Preference Scores for  
Subjects in Groups F•P and F•LP

Table I-1  
Individual Pre- and Post-Preference Scores

SUBJECTS	FAMILIAR-PREFERRED PEERS		PARENTS	
	PRE	POST	PRE	POST
G 1.	7/7 (100%)	3/7 (43%)	4/5 (80%)	3/5 (60%)
I 2.	4/7 (57%)	4/7 (57%)	4/5 (80%)	5/5 (100%)
R 3.	4/7 (57%)	4/7 (57%)	4/5 (80%)	4/5 (80%)
L 4.	7/7 (100%)	7/7 (100%)	4/5 (80%)	4/5 (80%)
S 5.	7/7 (100%)	7/7 (100%)	5/5 (100%)	5/5 (100%)
B 6.	7/7 (100%)	7/7 (100%)	4/5 (80%)	3/5 (60%)
O 7.	4/7 (57%)	2/7 (29%)	4/5 (80%)	4/5 (80%)
Y 8.	4/7 (57%)	5/7 (71%)	4/5 (80%)	3/5 (60%)
S 9.	6/7 (86%)	6/7 (86%)	5/5 (100%)	4/5 (80%)
10.	6/7 (86%)	7/7 (100%)	4/5 (80%)	#
SUBJECTS	FAMILIAR-LESS-PREFERRED PEERS		PARENTS	
	PRE	POST	PRE	POST
G 1.	7/7 (100%)	0/7 (0%)	4/5 (80%)	##
I 2.	6/7 (86%)	0/7 (0%)	4/5 (80%)	3/5 (60%)
R 3.	7/7 (100%)	3/7 (43%)	4/5 (80%)	2/5 (40%)
L 4.	7/7 (100%)	7/7 (100%)	5/5 (100%)	5/5 (100%)
S 5.	7/7 (100%)	5/7 (71%)	4/5 (80%)	#
B 6.	7/7 (100%)	0/7 (0%)	5/5 (100%)	2/5 (40%)
O 7.	4/7 (57%)	1/7 (14%)	5/5 (100%)	3/5 (60%)
Y 8.	6/7 (86%)	1/7 (14%)	4/5 (80%)	4/5 (80%)
S 9.	7/7 (100%)	0/7 (0%)	4/5 (80%)	4/5 (80%)
10.	6/7 (86%)	0/7 (0%)	4/5 (80%)	2/5 (40%)

# No post score due to experimenter error.

## No post score due to parental objection to instrument.

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## EDUCATION

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 Utah State University, Logan, Utah  
 Emphasis: Analysis of Behavior and Developmental Psychology
- MASTER OF ARTS IN PSYCHOLOGY 1977  
 University of Houston at Clear Lake City, Texas  
 Emphasis: Behavioral Sciences
- BACHELOR OF SCIENCE IN PSYCHOLOGY AND  
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 Houston Baptist University, Houston, Texas  
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PROFESSIONAL  
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- 1983-Present INSTRUCTOR, Psychology Department  
 William Jewell College, Liberty Missouri  
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- 1982-1983 PSYCHOLOGICAL ASSISTANT, Ruston State  
 School, Ruston, Louisiana (Supervisor: Richard  
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- 1981-1982 RESEARCH ASSISTANT, Psychology Department,  
 Utah State University - Prosocial behavior in  
 kindergarten children. (Supervisor: Frank R. Ascione,  
 Ph.D.)
- 1981 EDUCATIONAL TEST FIELD ADMINISTRATION,  
 Psychological Corporation-Initial field assessment.
- 1980-1981 INSTRUCTOR, Psychology Department, Utah  
 State University, Developmental Child Psychology.  
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- 1980 PSYCHOLOGIST, Navajo Indian Reservation, Educational Assessment. (Supervisor: Marvin G. Fifield, Ed.D.)
- 1979-1980 PSYCHOLOGIST/PROGRAM EVALUATOR, Exemplary Service Project, Exceptional Child Center, Utah State University (Professional, full-time status). (Supervisor: Sebastian Striefel, Ph.D.)
- 1977-1979 RESEARCH ASSISTANT/PSYCHOLOGIST, Exemplary Service Project, Utah State University. Project served severely and profoundly handicapped children. (Supervisors: Alan M. Hofmeister, Ph.D. and Sebastian Striefel, Ph.D.)
- 1977 CLINICAL INTERNSHIP, University of Houston at Clear Lake City - Internship was at John Sealy Hospital Galveston, Texas and at the Houston Police Department. (Supervisor: Patrick Doyle, Ph.D.)
- 1977 PROGRAM DIRECTOR OF THE PEARLAND GROUP HOME FOR RETARDED ADULTS, Gulf Coast MH-MR, Galveston, Texas.
- 1976-1977 CLIENT PROGRAM COORDINATOR OF THE PEARLAND GROUP HOME FOR RETARDED ADULTS, Gulf Coast MH-MR, Galveston, Texas.
- 1975 COMPUTER OPERATOR, Geophysical Data Processing Center, Inc., Houston, Texas
- 1974-1975 YOUTH DIRECTOR, Genoa Baptist Church, Genoa, Texas.

AREAS OF  
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General Psychology	Human Development
Child Psychology	Analysis of Behavior
Behavior Modification	Biofeedback
Individual Assessment	History and Systems
Personality	Personal Adjustment

RELATED  
EXPERIENCE

- Served on the College of Education Curriculum Committee, Utah State University (1 year 1980-1981)
- Conducted biofeedback therapy under supervision (1980)

- Coordinator, workshop for teaching the severely and profoundly handicapped, Myton School District, Utah (2 day workshop; 1980)
- Guest Reviewer for the journal Behavior Research of Severe Developmental Disabilities (May, 1980)
- Guest Lecturer, Utah State University "Test Anxiety" (February 1980)
- Program Coordinator, Utah State University, 5 day workshop - Language and Intelligence in Apes and Man; conducted by David Premack, Ph.D. (August, 1979)
- Student Representative to the Faculty, Psychology Department, Utah State University (1978-1979)
- Psychologist, Division of Family Services, Utah. Training project for workers with preschool handicapped (5 day training on the Navajo Reservation, September 1978)
- Evaluator, Rural Clinics, Nevada. Workshop on the severely and profoundly handicapped (3 day workshop, February 1978)

PRESENTATIONS  
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- DATA COLLECTION, Myton School District, 1980
- BEHAVIOR MODIFICATION WITH THE HANDICAPPED  
Myton School District, 1980
- INTERPRETING PSYCHOLOGICAL ASSESSMENTS, Workshop for parents of the handicapped, Utah State University, 1980
- DEALING WITH STRESS AS A GROUP HOME PARENT, Workshop for group home parents serving delinquent juveniles, Utah State University, 1979
- BEHAVIOR MANAGEMENT IN THE CLASSROOM, ONEO Training Workshop, 1979
- DATA COLLECTION AND ANALYSIS, Salt Lake City School District, 1978
- TASK ANALYSIS: AN OVERVIEW, Salt Lake City School District, 1978; Headstart Workshop, 1978; Utah Division of Family Services Workshop on Handicapped Preschoolers, 1978; Nevada Rural Clinics Workshops on Severely and Profoundly Retarded, 1978



PUBLICATIONS  
AND PAPERS

•Striefel, S., and Owens, C. R. (1980). Transfer of stimulus control procedures: Applications to language acquisition training with the developmentally handicapped. Gedrag, 8, 34-56.

•Striefel, S., and Owens, C. R. (1980). Transfer of stimulus control procedures: Applications to language acquisition training with the developmentally handicapped. Behavior Research of Severe Developmental Disabilities, 1, 307-331. (This is a republication of the above article)

•Owens, C. R. (1979) Evaluating and Documenting Efforts made to Achieve IEP Goals and Objectives. Paper presented at the Second Western Regional Conference for the Education and Training of the Severely and Profoundly Handicapped Person, Pocatello, Idaho, August.

REFERENCES  
AND  
TRANSCRIPTS

Transcripts sent on request

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