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THE EFFECTS OF CONSISTENT AND INCONSISTENT
VERBALIZATIONS AND BEHAVIOR MODELING ON THE
COOPERATIVE AND COMPETITIVE BEHAVIOR OF
SECOND AND FIFTH GRADE CHILDREN

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree of Doctor of Philosophy in the Graduate
School of the Ohio State University

By
Joan Sagotsky, A.B., M.A.

***

The Ohio State University
1977

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I would like to thank Dr. Charles Huelsman for all the assistance and advice that he provided during my first three years of graduate school; and I would like to especially thank Dr. Charles Wenar who graciously offered to be my adviser during the writing of this dissertation - the time when my need for assistance would be greatest.
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Chapter 1 — Introduction

Statement of the Problem

The purpose of this study is to examine the effects of adult verbal messages about cooperation and competition and the effects of adult cooperative and competitive behavior on the cooperative and competitive behavior of children of different ages. This study will examine the process by which children acquire adult values through exposure to verbal instructions and behavior modeling. Children will be exposed to combinations of adult cooperative and competitive behavior modeling and adult cooperative and competitive verbalizations.

A basis for concern about children's imitation of adults can be found in theory and in research. A short review of specific theories of child socialization will provide a background as to the conceptual importance of the imitation of adult acts in child socialization; empirical evidence specific to consistent and inconsistent verbalizations and behavior modeling will be discussed later.

First social learning theory stresses the importance of learning by imitation. It is hypothesized that there are so many behaviors that the child must learn that it is inconceivable that they could all be learned by trial and error. Therefore, while
some behaviors are learned through operant and classical conditioning, others are learned by imitation. Through the process of imitation, both adult verbalizations and behavior modeling are involved in the child's development.

Social learning theorists have offered several explanations of a child's tendency to imitate adults. It has been suggested that the child's tendency to imitate is an acquired secondary drive that can account for much of the identification process described by psychoanalytic theory (Miller & Dollard, 1941). It is believed that the child imitates the mother in order to be nurtured by her. The mother responds favorably to the child's imitation and then satisfies the child's needs. The child's behavior need not be identical to the mother's behavior, as similar behavior, not specific responses, are rewarded (Sears, 1957). As the infant progresses into childhood, the relationship between the behavior and the reward becomes less direct. It is hypothesized that the child's behavior itself does not have to be directly rewarded for imitation to occur; it is sufficient for the child to perceive that the adult's behavior was rewarded in order for him to imitate it (Bandura & Walters, 1963).

Despite differences of opinion on specific processes, social learning theorists agree that children learn by what they see adults do and by what they hear adults say; all agree that adult models are very influential in socialization.

The importance of imitation is also evident within a cognitive model of development as seen in the work of Jean Piaget. The
cognitive process of equilibration, while emphasizing the organism's role, also pays attention to the role of adults in the environment who exhibit novel behavior and provide feedback about the consequences of the behavior. Imitation is intrinsic to the adaptation process composed of accommodation and assimilation; imitation is a process of accommodation, as play is a process of assimilation. As early as twelve-to-eighteen months, imitation plays an important role in development. At that time the infant can deliberately vary his or her action and is able to imitate actions that he or she has never performed before. By eighteen-to-twenty-four months, the infant can imitate the adult after the adult leaves the room. This is called deferred imitation and is part of the beginning of mental representation, the actual process of forming an image and a conceptual schema (Piaget, 1952).

Representative imitation develops spontaneously between the ages of two and seven. The younger, egocentric child is often unaware that he or she is imitating. At about age seven or eight, the nature of imitation changes. At this point imitation becomes deliberate; it is used with discrimination only to fulfill inherent needs. By using imitation to further successful adaptation, the child learns much about the environment. An example of this is clearly evidenced in the effects of adult behavior on moral development as seen in children's games (Piaget, 1932). In this way, adults play an important role in supplying children with information that can be applied in the areas of social functioning.
Regardless of theoretical orientation, the function of imitation is recognized; the adult's words and actions have a profound effect on the child. However, it must be remembered that the constructs modeling and imitation are not interchangeable. Modeling is part of social learning theory and imitation is part of a cognitive model of development. Each is part of a theory of child socialization that has its own set of assumptions. The theories of child socializations have many things in common, but the different models do use different criteria to determine what constitutes proof. It has been said that different world views are irreconcilable; attempts at integrating them only lead to confusion (Kuhn, 1962). It is necessary to choose one theoretical orientation in order to prevent confusion. Since the majority of empirical work in the area of consistency and inconsistency of verbal and behavioral messages has been performed by experimenters using a social learning framework, this study shall use the terminology and assumptions of that theory.

There has been much research dealing with children modeling the social behavior of adults (Flanders, 1968). While these studies have clearly shown the powerful influence of behavior models in specific situations, they neglect to consider the variety of behaviors and the number of models to which any child is exposed. Many discrepancies may exist both within any one model and between various models. Some of the discrepancies are between what is said to the child and what is observed by the child. The adult voices
an opinion as to the way things should be, while engaging in behavior that is contrary to that opinion.

This discrepancy, often referred to as "practice versus preach", is surrounded by common sense maxims. There is a commonly held, but unsubstantiated, belief that children imitate what they see adults do, not what adults tell them to do. The parent who participates in an activity that is denied to the child says: "Do as I say, not as I do." However, when the child engages in the forbidden activity, outsiders are not usually surprised. Then another maxim is called for: "practice what you preach." Much emphasis is given to the necessity of consistency and the dire results of inconsistency. However, there is more than one way to interpret this situation. It can be seen as part of the adult-child relationship; the adult makes the rules and the child must obey the rules. If that is true then the child would perceive the situation as one in which there are two standards and only one, the child's, that he/she need attend to. Another possibility is that the child would perceive the two standards as unfair ("If you can, why can't I?"). In that case one would expect the child to behave differently than what would be expected in the first case.

To get beyond these maxims and speculations, it is necessary to examine research on the effects of adult verbalizations and behavior modeling on childhood social behavior. One important area of social behavior that is involved in many situations is cooperation and competition. Individuals in groups are often involved in
situations similar to those simulated by non-zero sum games; that is, a situation in which there are different total outcomes (i.e., quantifiable rewards) depending upon the choices of all the people involved. An experimental example of this is the Prisoner's Dilemma in which the total number of years served by a pair of prisoners is determined by the number of prisoners, zero, one, or two, who will testify against his/her partner. The number of years is determined by the interaction of the two prisoners' decision, making it possible for them to serve equal or unequal sentences. This possibility of inequity results in a conflict of interest. In the study the term "conflict of interest" refers to a situation in which two people must in some way compete or cooperate for the same reward. This is not the common political usage in which one person has two loyalties; here there are two people each presumably loyal to him/herself.

It has been found that children act irrationally when confronted with a conflict of interest situation. Rather than share what rewards there are, they choose to deprive each other, choosing to go without rather than to share (Nelson & Madsen, 1969). Further, these studies used a random sample of children, and therefore this does not represent exceptional children who might have even greater problems with social interactions.

It is reasonable to assume that verbalizations and behavior modeling would affect cooperative and competitive behavior. However, there is no empirical evidence that verbalizations and behavior
modeling do affect this type of behavior. To look at the effects of verbalizations and behavior modeling on cooperative and competitive behavior, an attempt must be made to integrate areas of research that have previously been considered separately. This attempt will be based on an examination of the areas discussed above:

1) the effects of consistency and inconsistency between behavior modeling and verbalizations both within one model and between several models

2) the variables affecting cooperative and competitive behavior.

Literature Review

The first of the two areas to be reviewed will be the effects of consistent and inconsistent verbalizations and behavior modeling on childhood social behavior. Two messages must be given to at least one experimental group in each study in order for the study to be included in this review.

The studies will be classified in terms of three dimensions:

1) use of one or more models (within model or between model)

2) use of consistent or inconsistent messages

3) use of various combinations of verbal and behavior messages.

Categorization of the studies using these dimensions produces three general groupings of experimental designs. The simplest design to be examined involved the use of one model who presented consistent messages to children, with the message being either verbal, behavioral, or verbal plus behavioral. This design was used in four studies
to assess the separate and additive effects of the messages. The second and most popular design involved using either one or two models with consistent or inconsistent messages; the common characteristic of the nine studies in this grouping was that they all involved the use of two messages given to subjects in the experimental groups. The third groupings of studies involved experimental designs with three messages being delivered to experimental subjects; it will be difficult to interpret the four studies included in this category because of the increased number of variables. The groups differed in the number of verbal and behavioral messages they received that furthered differed in the number that were positive, negative, or neutral. This variety decreases the number of variables that the studies in this category share.

Returning to the simplest design, it is necessary to look at studies that used one model acting consistently in order to compare the independent and additive effects of verbalizations and behavior modeling.

Liebert and Poulous (1971) examined the effects of various types of modeling on altruistic behavior: modeling with no justification, modeling with internal justification, modeling with external justification, and no modeling. This fulfills the conditions of modeling alone and modeling with verbalizations but does not examine verbalizations alone. The effects of the presence of a witness were also examined. The existence of any type of modeling increased donations. There were no differences between types of
modeling, indicating that modeling with verbalizations was not significantly more effective than modeling alone. The presence of a witness also increased altruistic behavior. The effects of a sharing model plus a witness were greater than the effects of either alone.

These investigators then considered the effects of verbalizations alone along with the effects of modeling alone and the effects of modeling combined with verbalizations on the altruistic behavior of second and third grade children. The examiners also added to the design control groups and another variable surveillance, which is extraneous to the purposes of this review. A main effect for verbalizations was found. Verbalizations and modeling combined were not more effective than verbalizations alone. The control group exhibited less altruistic behavior than the group exposed to either verbalizations, behavior modeling, or both. Verbalizations combined with surveillance was significantly more effective than either alone (Poulos & Liebert, 1972).

The effects of persuasion, modeling, persuasion with modeling, and no treatment on the delay of gratification behavior in seventh graders has been investigated. In this study measures of willingness to delay gratification were taken immediately and after a delay. In the immediate post-test, persuasion, modeling, and persuasion with modeling resulted in more delay of gratification than did the control. In the delayed measure, persuasion was more effective than any of the other treatment. Modeling had more of an effect
than did the control. Persuasion with modeling was equal to the control in the delayed post-test measure (Staub, 1972).

Conflicting results were found in another study using behavior modeling, persuasion, modeling with persuasion, and a control to modify the delay of gratification behavior of nine-year olds. Both an immediate and delayed evaluation of the effects were used. Initially, persuasion with modeling was significantly greater than modeling alone and persuasion alone, which in turn were significantly more effective than the control. In the delayed measure, the effects of persuasion combined with modeling was greater than the effects of persuasion alone, which in turn was more effective than the control, but was not significantly different than persuasion combined with modeling or than persuasion alone (Yates, 1974).

These four studies investigating the effects of verbalizations, behavior modeling, and verbalizations combined with behavior modeling arrive at contradictory conclusions. The four studies reach four different conclusions as a brief restatement of findings will show.

1) Verbalizations and behavior modeling together are more effective than verbalizations alone (Yates, 1974).

2) Verbalizations and behavior modeling together are less effective than either alone (Staub, 1972).

3) There is no difference between behavior modeling alone and behavior modeling combined with verbalizations (Liebert & Poulous, 1971; Yates, 1974).
4) Verbalizations alone were significantly effective. Verbalizations and behavior modeling were not more effective than verbalizations alone (Poulous & Liebert, 1972). It is clear that the separate and additive effects of verbalizations and behavior modeling have not yet been determined.

The next group of studies all involve giving two messages to each subject. The two messages were either given by the same model or by different models. First, consistency and inconsistency within one model shall be explored. This shall be followed by studies which examined consistency and inconsistency between two models.

White and Burnam (1975) measured the effects of a verbal message (either high or low intensity) and behavior modeling (presence or absence of a model) on the altruistic behavior of fourth and fifth graders. The high intensity verbalization produced more donations than the low intensity message; the presence of a model produced more donations than were produced in the absence of a model. There were no interaction effects. Age, also, was a significant variable; fifth graders gave more than did fourth graders.

Mischel & Liebert (1966) used a bowling game with fourth graders to study self-reward behavior. Using predetermined bowling scores, either a strict or lenient reward system was administered by the model. In two of the three treatment groups the model enforced one standard for himself/herself and a different standard for the child. In the third group the same strict standard was used for the child and the model. The results showed that only
children in the strict-with-model-strict-with-child groups followed
the strict rule when playing alone. Those in the inconsistent groups
were relatively more strict with themselves, if the model had been
strict-with-child-strict-with-self rather than strict-with-self-
lenient-with-child.

Rosenhan, Frederick, & Burrows (1968) used the same bowling game
with these four groups: consistently strict, consistently lenient,
strict with model-lenient with child (child-indulgent), and lenient
with model-strict with child (model-indulgent). The subject's be-
havior was examined in terms of norm internalization, using either the
strict or lenient norm, and in terms of rule violation, using neither
norm for self-reward. The consistent strict group had the highest
level of strict norm internalization, but also had a high level of
norm violation. Children in the consistently lenient group and the
child-indulgent group internalized the lenient norm and had the least
amount of rule violation. When the model was self-indulgent, the
children were least likely to internalize either norm and were most
likely to violate the rule.

Bryan & Walbek (1970) used verbalizations and behavior modeling
consistently and inconsistently to study third, fourth, and fifth
grade children's altruistic behavior. It was found that the model's
behavior increased the amount of donations. Verbalizations had no
effect on the amount of donations made. The experimenters also
looked at the model's attractiveness and found that the children
rated the model in terms of words and actions, with words having a slightly stronger effect.

Another study involved the use of a model who was generous or stingy, that is, gave a lot or a little. This experiment with first grade children sharing marbles also used model self-praise, experimenter-praise, or no praise. It was found that either type of praise did affect the amount of sharing. Praise following generous sharing increased sharing; and praise following stingy behavior increased stinginess (Presbie & Coiteix, 1971).

Stein & Bryan (1972) used a bowling game with conforming and deviating instructions and conforming and deviating modeling to investigate third and fourth grade children's self-reward behavior. The consistently conforming group was the most conforming. However, both inconsistent groups (conforming behavior - deviant verbalizations and deviant behavior - conforming verbalizations) were more deviant than the consistently deviant group.

Anderson & Perlman (1973) exposed all subjects to an inconsistent pair of verbal messages. Sixth graders were given one of three levels of intensity verbalizations combined with one of three statements of model responsibility for not donating. The level of intensity of the verbalization did affect the amount donated. The statement of model responsibility interacted with another variable making interpretation of that effect difficult.
Examining the previous studies in which one model gave two messages some patterns emerge.

1) In two studies it was found that verbalizations were more effective than behavior modeling (Mischel & Liebert, 1966; Rosenhan, Frederick, & Burrows, 1968). In another study it was found that behavior modeling was more effective than verbalizations (Bryan & Walbek, 1970). (It is possible that these opposite results are the product of the use of two different behaviors as dependent measures. In the first case a rule about self-reward was given. The subjects may have felt obligated to follow the rule and therefore obeyed the verbalizations. The latter case, an altruism study, involved a suggestion to donate. Since a rule was not given, perhaps, the subjects watched behavior to see what the accepted behavior was.)

2) It was found that a high intensity verbal message affected behavior more than a low intensity message (White & Burnam, 1975; Anderson & Perlman, 1973).

3) The messages interacted with each other. One conforming message combined with one deviant message produced more deviance than two deviant messages (Stein & Bryan, 1972). Praising a stingy model for generosity produced more generosity compared to the behavior of groups who saw only the behavior modeling (Presbie & Coiteux, 1971).
There are some concurring and some conflicting conclusions from the examination of studies using one model. Next studies using two models giving two messages will be reviewed.

Stouwie (1971) used two verbal messages, combinations of permissive and prohibitive, to influence the resistance-to-temptation behavior of second and third graders. The group that had been treated consistently permissively engaged in the highest amount of toy-touching (the temptation object). The group that was treated consistently prohibitively engaged in the least amount of toy-touching. The groups treated inconsistently showed some conformity and some deviation as evidenced by a medium amount of toy-touching. There were no order effects for the instructions; and the sex of the experimenter was not significant. The sex of the subject did make a difference; girls in the inconsistent groups were more likely to conform than the boys (Stouwie, 1971).

Wolf & Cheyne (1972) also examined resistance-to-temptation behavior of second and third graders. In a one month follow-up study, the subjects were brought back to the same environment in which they had seen two models, but the subjects were not given additional instructions. It was found that exposure to live behavior models and to televised behavior models were most effective over time; verbal models were the least effective. Also the effects of deviant models were more stable over time than the effects of conforming models.
The results of these two between model studies are not conflicting but they are also not overlapping. One study examined two verbal messages and one studied one verbal and one behavioral message; therefore, the variables examined are different making the conclusions different but not conflicting. The conclusions are as follows.

1) As the number of deviant verbal messages increased, deviant behavior increased (Stouwie, 1971).

2) The effects of deviant models was more stable over time than the effects of conforming models (Wolf & Cheyne, 1972).

3) Behavior models were more effective than verbal models over time (Wolf & Cheyne, 1972).

The final group of studies dealing with consistency and inconsistency involves research in which at least one group of subjects received three messages. McMain & Liebert (1968) used a complicated design to examine the self-reward behavior of fourth graders. All subjects were given a rule using a strict standard of self-reward. Then a model played with the child; half the subjects were treated consistently by the model (strict with child, strict with self) and the other half were treated inconsistently (strict with child, lenient with self). Then a second model was observed by the subjects; this model used either a strict or lenient standard of reward for her/himself. As the number of deviant messages increased, the child's amount of deviant behavior increased. An order effect was also found; a conforming-deviant sequence resulted in more
deviant behavior than did a deviant-conforming sequence.

Hildebrant, Feldman, & Ditrichs (1973) examined the effects of two models on second, third, and fourth grade children's self-reward behavior. A rule was given that was either strict or lenient. Then the subjects saw a model who was either strict or lenient, followed by a second model who was either strict or lenient. Three measurements were taken. After being exposed to only the rule, the strict rule elicited more strict behavior than did the lenient rule. Looking at the behavior following exposure to the first model, there was a main effect for the rule and a main effect for the first model's behavior; both were in the expected direction. There were no interaction effects. After seeing both models, there was a main effect for the rule, a main effect for the second model's behavior, no effect for the first model's behavior, and no interaction effects.

Wolf (1973) used a strict rule, plus conforming, deviant, or no verbal messages plus conforming, deviant, or no behavior models to influence the resistance-to-temptation behavior of first and second grade children. Results showed that those exposed to the deviant behavior model showed more deviance than those not exposed to a behavior model. Those exposed to conforming verbal models showed more conformity than those not exposed to a verbal model. The conforming behavior model group and the deviant verbal model group were not significantly different from their respective control groups. No interaction effects were found. However, in the
inconsistent conditions, the subjects more often forgot the rule, forgot the verbalizations, and forgot the modeled behavior than in the consistent groups.

Midlarsky, Bryan, & Brickman (1973) examined the effects of verbalizations and behavior modeling on children's altruistic behavior. The first study used sixth graders who were all told about charity by the experimenter. Next the model either donated money, kept money, or had no opportunity to donate. Then the model gave a verbal message to all the subjects aimed at soliciting donations. Half the subjects received social approval after donating; the other half did not. All were encouraged throughout playing to donate. There was a main effect for the model's actions and a main effect for social approval. A significant interaction effect of Actions x Approval resulted from the depressed donations among subjects who received approval from a selfish model.

In the second experiment, third graders saw a model who was either charitable, neutral, or selfish. Prior to the game all subjects were encouraged to donate, but during the game they received no verbal messages to donate. Half the subjects received social approval for donation, the other half did not. Measures of altruism were taken twice. For the group receiving social approval these measures coincided with before and after social approval. In both measures, the model's actions were significant in the expected direction. There was a significant interaction; the subjects who saw a neutral model increased donations after approval and the
subjects who saw a selfish model maintained the same level of donation after approval as before.

The findings of the three messages per subject studies are as follows.

1) Different main effects were found for verbalizations and behavior modeling

a) The model's actions significantly increased donations (Midlarsky, Bryan, & Brickman, 1973).

b) Deviant behavior modeling resulted in a significantly greater amount of deviance than no behavior modeling. Conforming verbalizations resulted in a significantly greater amount of conformity than no verbalizations (Wolf, 1973).

c) A main effect for a rule given verbally was found and a main effect for the model's behavior was found (Hildebrand, Feldman, & Ditrichs, 1973).

d) As the number of deviant messages increased, the amount of deviance increased (McMains & Liebert, 1968).

2) There were also interactions effects. Approval by a selfish model decreased altruism. After approval by a neutral model donations increased; whereas after approval by a selfish model the level of donation remained the same (Midlarsky, Bryan, & Brickman, 1973).
3) There were order effects.
   a) A conforming-deviant sequence resulted in more deviance than did a deviant-conforming sequence (McMains & Liebert, 1968).
   b) After one model, that model's behavior was significantly effective. After two models, only the second model's behavior was effective (Hildebrant, Feldman, & Ditrichs, 1973).

4) A memory factor was involved. In inconsistent conditions, the subjects more often forgot the rule, the verbalization, and the modeled behavior than did subjects in the consistent group (Wolf, 1973).

To examine the effects of consistent and inconsistent verbalizations and behavior modeling on cooperative and competitive behavior, it is also necessary to examine the variables that affect cooperation and competition. It is necessary to establish what is meant by the two terms before looking at this area.

"Is cooperation merely one pole of linear continuum with competition at the opposite extreme; is it the absence of competition, a separate behavior independent of competition, or a complex synthesis of all these?" (Cook & Stingle, 1974, p. 198).

While it is possible to define the behaviors in any of the above ways, a definition that relates the two behaviors has been the most useful for empirical analysis. For purposes of this research, a cooperative social situation exists if the goal will be attained by the individual only if all individuals attain the goal, and a
competitive social situation exists if the goal attainment by one or a number of individuals precludes goal attainment by the remainder of the individuals (Cook & Stingle, 1974).

These definitions do not cover all types of social interactions that are goal-directed. Margaret Mead, in her work with primitive people, found these terms did not cover much of the behavior that she observed. For example, Mead added the category of individualistic behavior to describe the actions of an individual who strives toward his goal without reference to others (Mead, 1937). In this case, the individual's goal attainment does not assure others' goal attainment nor does it hinder others' goal attainment. In addition to individualistic behavior, there are other goal-directed behaviors not encompassed in cooperation and competition. However, cooperation and competition do describe distinct behaviors that can be identified and will be the focus of this study.

It is necessary to look at situational variables that influence cooperation and competition. The importance of learning factors appear in several studies. One cannot assume that cooperative strategies are obvious to the children. Wasik, Senn, & Spanchin (1969) found that preschool children had to learn to be cooperative in order to divide marbles that they had earned jointly. Using the number of cooperative responses as a measure, males were more cooperative than females and whites were more cooperative than blacks.
The lack of natural cooperative strategies was also evident in a study by Ware (1970). After playing a game, the first, fourth, and seventh grade students could say what the possible responses were and what the rewards would be in each instance. Some of the possible responses were cooperative and some were competitive. When questioned further, it was found that the children did not understand both strategies equally. All the children knew how to get the most by using a competitive strategy, but only one-half of the children knew "how the two of you together" could get the most. Three-quarters of the children said that they had tried to win, tried to get the most, or tried to get more than the other person. The use of a cooperative strategy was not the choice of most of the children and many were not able to figure out how to be cooperative. An obvious but important variable was found to be significant in influencing cooperation; cooperation increased as the payoffs for cooperative behavior increased.

As American children do not naturally choose cooperative strategies, studies have examined the factors that increase the occurrence of cooperation. Mithaug (1969) found two situational factors that encourage cooperative behavior in five-to-ten year olds. Cooperation is facilitated when rewards resulting from group strategy are greater than rewards resulting from individual strategies and when the task situation permit subjects to learn to discriminate between cooperative and competitive strategies in terms of their relative payoffs.
Melson & Madsen (1969) also found facilitating situational factors using a cooperation board in which two preschoolers manipulated a string across certain areas in order to receive a prize. Two different situations were used; the group reward situation allowed both subjects to win a prize each turn, and the limited reward situation allowed only one subject to win per turn. In the group reward situations the children were cooperative, working together to cross the designated areas. In the limited reward situation, twenty-five per cent of the subjects earned no prizes (never cooperated), while those who did cooperate took longer to do so. A large proportion of the subject pairs established a dominant-submissive pattern in which one member won most of the time. The authors believed that this difference in results was caused by the subjects in the second group being so influenced by the fact that only one person could win per turn that the subjects did not respond to the need to cooperate. There were no differences between Negro and Caucasian children, and there were no differences between Head Start children and private nursery school children.

Nelson (1971) further investigated situational determinants of cooperative and competitive behavior in children ages five and ten. The cooperation conducive conditions were need for mutual assistance and the possibility of equitable outcome; conditions conducive to competitive behavior were conflict of interest and the possibility of inequitable outcome. Children were exposed to various combinations of conditions, including cases in which two
conditions were present but one was more obvious. With both cooperative conditions present, all age children were cooperative, with older children being more efficient at it. Mixed conditions generally were followed by non-cooperative behavior. When either cooperative condition was very obvious, the five year olds were more cooperative. When exposed to need for mutual assistance, but with the possibility of inequitable outcome, the older children were more cooperative than the younger. The potential responsiveness to cues for cooperation and competition increased with age. Both types of conditions were more effective with older children. For older children the conflict of interest dimension was more salient; and the older children were more concerned with the outcome than were the younger children.

Situation-specific factors, as expected, do influence the occurrence of cooperation and competition. General cultural factors can also be expected to be a basis for differences. Although this dissertation will only deal with children in the United States, a short review of a series of cross-cultural studies on child cooperation and competition will give a perspective on American children that is relevant for a general understanding of the area.

Kagan and Madsen (1972) examined differences in cooperative and competitive behavior of Anglo-American and rural Mexican children aging seven to nine and ten to eleven. A series of four studies were performed to look at various aspects of cooperative and competitive behavior. The first experiment examined the
subject's motivation to participate and ability to cooperate. No differences were found between Anglo-American and rural Mexican children. In the second experiment, both groups were found to be strongly motivated to take away a toy from another child when they were allowed to keep the toy. However, Anglo-American children were more motivated than Mexican children to merely take the toy away, even when they were not able to keep it. The third experiment showed that Anglo-American children were more actively responsive to peer rivalry, while the Mexican children were more submissive. The fourth experiment was performed to examine how the two groups would handle conflict situations. It was found that the Mexican children would become completely passive in order to avoid conflict. The Mexican children would offer absolutely no resistance when peers took away their toys. Anglo-American children would struggle to prevent peers from taking away their toys.

The first two experiments had only shown the irrational competitiveness of Anglo-American children and the rational cooperativeness of rural Mexican children. The fourth study showed the irrational behavior of the Mexican group. The Anglo-American children deny each other rewards, even when it does not enhance their own situation. The Mexican children give up at the least sign of conflict. No significant age differences were found.

It is clear that situational and cultural factors influence cooperative and competitive behavior. In some of these studies of situational and cultural factors, different age groups were used.
The studies that used different ages were Mithaug (1969), Kagan & Madsen (1972), Ware (1970), and Nelson (1971). Mithaug and Kagan & Madsen did not find any significant age differences. Ware found a significant age difference. First, fourth, and seventh graders did not differ in their total amount of cooperative responses, but they did differ in their responses to playing with a person or with a machine. First graders behaved the same way in both cases; fourth and seventh graders cooperated more when playing with a person than with a machine. Nelson found significant age differences between five and ten year olds. The older children responded more to both conflict of interest cues and outcome cues. When two cooperative cues were given, all age children were more cooperative, with older children being more efficient at it. When either cooperative cue was very obvious, the five year olds were more cooperative than the ten year olds. When cued as to need for mutual assistance and cued as to the possibility of an inequitable outcome, the older children were more cooperative than the younger group.

The above study used different situational factors with different age groups. The following study exposed various age groups to the same situation. Madsen & Conner (1973) compared normal children of different ages and retarded children of different ages on measures of cooperative behavior. Children aged six to seven and eleven to twelve participated in a marble drop game in which only cooperative responses were effective. The researchers found that the younger children were more cooperative than the older
children and that the retarded groups were more cooperative than the normal groups. Madsen & Conner believe that the younger groups' lower level of moral development, using externally imposed standards, causes them to react cooperatively without considering any other tactic. Further, they believe that the competitive motive becomes so strong as the child grows older that the child's cognitive abilities are overpowered by a need to be competitive even when that is not an adaptive behavior.

There is one more personalistic variable that has been examined with respect to cooperative behavior. Johnson (1975) found a definite relationship between disposition to cooperate and the ability to take the affective perspective of others. In fifth graders there was a relationship between cooperation and understanding the causes for the feelings of others and taking the overall affective perspective of others. Another variable, socio-economic status, was also examined and found to be a significant factor. For working class and upper class children, skill in recognizing the feelings of others was significantly correlated with cooperative behavior; for middle class children the correlation was marginal.

This review of the literature has attempted to look at the factors involved in the effects of consistent and inconsistent verbalizations and behavior modeling on cooperative and competitive behavior. To achieve this two areas were examined. The first area included studies in which at least two messages were given to at least one experimental group. Studies in this area differed in
design by having one or more models, by using consistent or in-
consistent messages or both types, and by having various combinations
of verbalizations and behavior modeling. The studies in the second
area, cooperation and competition, investigated factors that influence
the occurrence of these behaviors. These factors included the
situational and the cultural factors, the age of the subjects and
the subject's ability to take the affective perspective of another.

Goals of the Dissertation

The discussion so far has considered the importance of modeling,
the need for information about the effects of consistent and in-
consistent messages, the reason for interest in cooperation and
competition, and the research findings that are relevant to the
intersection of these areas. It is next necessary to explain the
goal of this dissertation in terms of the advancement of knowledge
concerning the relationship of verbal and behavioral messages to
cooperative and competitive behavior.

Previous research has demonstrated that children in the United
States are irrationally competitive; that is, American children
continue to be competitive even under conditions in which only
cooperative strategies will be rewarded. Surprisingly few studies
have investigated the effects of modeling on cooperative and com-
petitive behavior (Cook & Stingle, 1974). In fact, almost no at-
ttempts have been made to modify the competitive tendencies of
American children.
The primary aim of this dissertation is to see what, if any, effects a modeling intervention will have on the usually competitive method used by American children in dealing with conflict of interest situations. The modeling intervention will consist of a verbalization and behavior modeling. Different age children will be exposed to one of four different behaviors: cooperative verbalization - cooperative behavior modeling, cooperative verbalization - competitive behavior modeling, competitive verbalization - cooperative behavior modeling, and competitive verbalization - competitive behavior modeling. A control group will also be included. The children will then play a non-zero sum game that they previously saw the model play. A related goal is to see what effect consistency and inconsistency play in children's imitation of cooperative and competitive strategies; another related goal is to learn the relative effects of verbalizations and behavior modeling on cooperative and competitive behavior.

It is hypothesized that children will be influenced by adult modeling; in specific, the children exposed to cooperative verbalizations - cooperative behavior modeling will be more cooperative than any other group, and the children in the competitive verbalizations - competitive behavior modeling group will be less cooperative than any other group. It is also hypothesized that the inconsistent messages (cooperative verbalizations - competitive behavior modeling and competitive verbalizations - cooperative behavior modeling) will merely cancel each other, making inconsistent
messages ineffective in influencing behavior.

However, before continuing the use of one term in this area needs to be examined. Whether or not the use of the word "learned" is appropriate remains in question. A distinction must be made between acquisition and performance, that is acquisition through observation of a model's behavior and overt performances of the model's action by the observer. Bandura (1965) found that different experimental groups showed significantly different behavior after exposure to a film showing the same aggressive behavior but with different consequences. These significant differences disappeared when the children were offered rewards to show what behaviors the model had exhibited. The children's willingness to perform the model's actions were initially different, but the children had all equally learned (acquired) the behaviors. It must be remembered that while the word "learned" has been used in this study, it refers to performance of a behavior, not the acquisition.

The secondary aim of this dissertation is to look at the effects of increasing age upon cooperative and competitive behavior. Since age influences so many variables it is not possible to say which variables are responsible for these effects on cooperation and competition. However, the literature suggests that there is a relationship. Little is currently known as to the effects of increasing age on the modification of cooperative and competitive behavior. While cooperation may not be the first strategy that an
American child will pick, this does not mean that he/she cannot learn to use it. Research has shown that with increasing age cooperation decreases; however, this relationship may not hold true in cases where an attempt is made to modify the behavior. Older children may be able to grasp the task more quickly than younger children, thereby reversing the relationship between age and levels of cooperation.
Chapter II — Methods

Subjects

Permission to conduct research was granted by the Board of Education of Springfield City Schools, Springfield, Ohio. Three elementary schools were chosen for their representation of a middle-class population. All the children in the second and fifth grades in these schools were given parent permission forms to take home: ninety percent of the children (one hundred and sixty-six) returned signed parent permission forms. Eighty second graders, ages seven to eight, and eighty fifth graders, ages ten to eleven were included in the study; an equal number of boys and girls were present in the sample.

Measures

The measure used in this study was designed to meet several specifications. First, it was decided to use, as the experimental task, a game in which both distinctive cooperative and competitive responses were available to the adult model and the subjects. Second, the cooperative and competitive strategies had to be equally rewarding. A pilot study which had varied the levels of reinforcement for each strategy resulted in extremely uneven subject strategy choices, both with and without adult modeling of strategies. The equalization of "pay-off" (in behavioral terms) would not only
equalize the attractiveness of the strategies; it would also make
the adult models all equally credible as they verbally and be-
haviorally supported the adoption of one strategy or the other.
Third, it was important to have a game that was easy enough for
seven to eight year olds to play, but not too simplistic for the
ten to eleven year olds. A three-person game was tried with a
pilot group; this proved to be too difficult for the younger children
to comprehend. The game was therefore modified into a two person
game which both age groups could handle appropriately.

In the game finally devised with these requirements in mind,
two players are allowed simultaneously to pick one of two colors
(green or blue). One of three outcomes is possible:

1) If both players pick green, then each player receives a
nickel.
2) If one player picks green and one player picks blue, the
one who picks blue receives a nickel and the one who picks
green receives nothing.
3) If both players pick blue, then each player receives
nothing.

In this framework, a green response is scores as a cooperative
choice, since it is the logical choice for helping all players
to gain the maximum payoff. A blue response is scored as a com-
petitive choice, since it is the logical choice for maximizing the
differences between the payoffs the two players can get. The risk
of not receiving anything exists equally with either choice.
Prior to playing the game, the reward system was presented to each player through an explanation and a chart (see below).

<table>
<thead>
<tr>
<th></th>
<th>green + green</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5¢</td>
<td>5¢</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>green + blue</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0¢</td>
<td>5¢</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>blue + blue</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0¢</td>
<td>0¢</td>
<td></td>
</tr>
</tbody>
</table>

The names of the colors were printed in that color ink, so that the children with reading problems would still be able to understand (e.g. "blue" in blue ink). Subjects made their choices by choosing a card that matched a choice on the chart (e.g. a card with "blue" printed in blue ink). Nickels were pasted on the chart where appropriate to make more concrete the consequences of various strategies.

In the pilot work for this study, some of the younger children made their choices solely on color preference (e.g. "I'll pick blue, that's my favorite color"). For this reason, two charts were used in the study to offset the effect of color preferences. As a result, green was the cooperative choice for half the subjects and the competitive choice for the other half, and the same was true for blue.
The dependent variable in this study was the number of cooperative responses that the subjects in the various experimental conditions made. Each subject was given six turns, so the number of cooperative responses for any child ranged from zero to six. It was an arbitrary decision to count cooperative rather than competitive responses, but all the groups must be scored in the same direction in order to be able to compare them to each other. For this reason all the scores represent the number of cooperative responses made by the subject. This fact must be remembered in interpreting the data. A highly competitive subject might have a score of zero. This does not mean that the subject failed to be competitive; it means that the subject failed to be cooperative. Although all the scores are represented in terms of cooperative behavior, the competitive score can easily be established. The total number of responses (6) minus the cooperative score (0-6) will yield the competitive score. Therefore although the scores represent degree of cooperative behavior, it is equally accurate to describe groups in terms of more or less competitive and more or less cooperative behavior.

Procedures

The study took place during school hours inside school buildings. Each child was seen individually for a period of about ten minutes. Both the experimenter and the adult model used in the study were twenty-five year old female graduate students.
Each subject was initially given instructions for the game by the experimenter, using a chart (described above) that the child would have throughout the session. The chart was explained row by row as follows:

"Two people play a game in which each person picks a color. Look at the chart (pointing to the first row). If both people pick green, then they both win a nickel. See the nickel under each green player. If one person picks green and the other picks blue, then what happens?"

It was explained until the child could look at the chart and answer questions about what would happen in any combination.

Each child was then told that he/she would not know who the other player would be; the subject was told that the other person would be in another room and that they would never see each other. There would in fact be no "other person"; the responses from the other room would be predetermined, thereby standardizing each subject's feedback during the game. If the child questioned this, he/she was told that the experimenter did not want him/her to know who the other person was in order that the child would not know if he/she liked or disliked the other person. The child was told, "It may be your best friend or it may be someone you don't like."

Each of the "other person's" successive choices would be put in an envelope and brought into the experimental room. The subject would have also put each of his/her choices in an envelope during the same time periods. The envelopes would be opened after each turn and the results would be determined.
After the instructions were given, the experimenter left for the other room and the model spoke to the subject. The model gave one of two different speeches. Both speeches started the same way:

"Before you start to play, let me tell you something about this game. I've played this game a lot, and here's what I think you should do. When you play I will be in the other room, so I won't know how you answer. So you can make your own decision."

The cooperative speech continues,

"I think you should pick green. I think it's selfish to pick blue. If you pick green, both of you can win. But if you pick blue, your partner can never win, and that's not fair. If you both pick blue, you'll both lose. Nobody will win with blue. So you should both pick green."

The competitive speech continues,

"I think you ought to pick blue. It's kind of dumb to pick green. If you pick green, the other person might pick blue and you'll lose. With blue you always win as much as anyone else, and you might win more. If you pick green, you can never win more than the other person. So I'd pick blue."

There were two sets of speeches to match the colors on the two charts.

Fourteen school psychologists were asked to rate the two sets of directions. They were asked, "Which of these two statements is more strongly persuasive?" Six stated that the two sets were the same. Four stated that the one set was stronger, and the remaining four stated that the other set was stronger.

After the speech, the model played the game once to show the subject how to play. Half the time she picked the strategy that she had suggested (verbalizations and behavior modeling were consistent); and the other times, she picked the strategy opposite from the one
she had suggested (verbalizations and behavior modeling were inconsistent). This made up the four experimental conditions: cooperative verbalizations with cooperative behavior modeling, cooperative verbalizations with competitive behavior modeling, competitive verbalizations with cooperative behavior modeling, and competitive verbalizations with competitive behavior modeling. Then the experimenter would bring an envelope from the other room to match against the model's choice. The other card was such that the model's behavior was rewarded no matter which decision she made. The model was then rewarded for her behavior by being given a nickel.

The model then left, and the child would take six turns. After the child made his/her choice by placing a card in an envelope, the experimenter would bring the "choices" from the other room to the subject. This order, the subject choosing first, was followed every turn. Each time the envelopes would be opened in front of the subject and the rewards, if any, distributed. Every subject received the same set of fixed responses from the other room. The fixed responses from the "other person" were cooperative, cooperative, competitive, cooperative, cooperative, competitive. The choice of four cooperative and two competitive responses was used to give the child a chance to cooperate and win and a chance to compete and win. Given a cooperative partner, the subject always wins. For this reason the majority (four out of six) responses from the "other room" would be cooperative. Competitive responses would
negatively reinforce the behavior the child chose. Using six cooperative responses was considered in order to never discourage the child from using either cooperative or competitive responses. That idea was discarded because it was not realistic and the more alert children might notice. If the subject were competitive it would be unnatural for the "other person" to continually try to cooperate. The two competitive responses were added for a touch of reality.
Chapter III — Results

The study included four experimental conditions and one control condition: cooperative verbalizations plus cooperative behavior modeling, cooperative verbalizations plus competitive behavior modeling, competitive verbalizations plus cooperative behavior modeling, competitive verbalizations plus competitive behavior modeling, and neutral verbalizations plus no behavior modeling. In each condition, there were eight second grade males, eight second grade females, eight fifth grade males, and eight fifth grade females; as a result, there were one hundred and twenty-eight subjects in the experimental conditions and thirty-two subjects in the control conditions, for a total of one hundred and sixty subjects.

A summary of the subject's responses are shown in Table 1. The number in the cell represents the individual scores summed over each treatment group. This will be examined later to look at tendencies.

Table 2 presents the analysis of variance of the subjects' cooperative responses, based on the effects of verbalizations (A), behavior modeling (B), sex of the subject (C), grade of the subject (D), and their various interactions. Effects of inconsistency will be measured as an interaction of AB (verbalizations
Table 1: Subject responses to treatment conditions summed across treatment groups.

<table>
<thead>
<tr>
<th></th>
<th>2nd grade</th>
<th>5th grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative behavior modeling</td>
<td>M 35 F 35</td>
<td>M 31 F 36</td>
</tr>
<tr>
<td>Competitive behavior modeling</td>
<td>M 28 F 33</td>
<td>M 28 F 31</td>
</tr>
<tr>
<td>Cooperative verbalizations</td>
<td>M 17 F 14</td>
<td>M 24 F 22</td>
</tr>
<tr>
<td>Competitive verbalizations</td>
<td>M 1 F 5</td>
<td>M 17 F 16</td>
</tr>
<tr>
<td>Control groups</td>
<td>M 25 F 26</td>
<td>M 25 F 24</td>
</tr>
</tbody>
</table>

There are eight subjects in each cell, with a score measuring amount of cooperation, ranging from zero to six.
Table 2: ANOVA of number of cooperative responses by verbalizations, behavior modeling, sex, and grade.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Verbalizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>155.3203</td>
<td>155.3203</td>
<td>101.2122***</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>23.6328</td>
<td>23.6328</td>
<td>15.4000***</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>0.9453</td>
<td>0.9453</td>
<td>0.6160</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>10.6953</td>
<td>10.6953</td>
<td>6.9694*</td>
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<tr>
<td>Verbalizations x Behavior</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AB</td>
<td>1</td>
<td>3.4453</td>
<td>3.4453</td>
<td>2.2450</td>
</tr>
<tr>
<td>AC</td>
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<td>1.7578</td>
<td>1.1454</td>
</tr>
<tr>
<td>AD</td>
<td>1</td>
<td>17.2578</td>
<td>17.2578</td>
<td>11.2458**</td>
</tr>
<tr>
<td>Verbalizations x Sex</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BC</td>
<td>1</td>
<td>0.9453</td>
<td>0.9453</td>
<td>0.6160</td>
</tr>
<tr>
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<tr>
<td>Verbalizations x Grade</td>
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<td></td>
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<td>Verbalizations x Behavior x Grade</td>
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<td></td>
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<tr>
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<td>0.3829</td>
<td>0.2495</td>
</tr>
<tr>
<td>Behavior x Grade</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BCD</td>
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</tr>
<tr>
<td>Verbalizations x Behavior x Sex x Grade</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>0.0076</td>
<td>0.0049</td>
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<td>Within Groups</td>
<td>112</td>
<td>171.8750</td>
<td>1.5346</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>390.0547</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P ≤ .01
**P ≤ .005
***P ≤ .001
x behavioral modeling). A review of the table indicates that no sex differences were found at any level; for this reason, subjects were pooled across sex and a second analysis of variance was conducted.

The three-way analysis of variance of the subjects' cooperative responses, based on the effects of verbalizations (A), behavior modeling (B), grade of subject (C), and their various interactions, is presented in Table 3. Three significant main effects (verbalizations, behavior modeling, and grade of subject) and one significant interaction effect (Verbalizations x Grade of subject) are present.

The interaction of Verbalization x Grade of subject (AC) must be analyzed before the main effects of verbalizations and grade of subject can be interpreted. One cannot assume, for instance, that the difference of effectiveness of cooperative verbalizations ($A_1$) as compared to competitive verbalizations ($A_2$) is the same for both levels of grade of subject (C), or that 2nd graders ($C_1$) are significantly less cooperative than 5th graders ($C_2$) across both cooperative and competitive verbalizations (A) (Kennedy, 1974). A preliminary step was to graph "grade of subject" as a function of "verbalizations" and "verbalizations" as a function of "grade of subject". The graphs showed whether the relationship between the two variables were ordinate or disordinate. If a relationship is disordinate, then the main effect of one variable is true for some levels of the second variable but not true for other levels. If a relationship is ordinate, then the main effect of one variable is true for all levels of the second variable.
Table 3: ANOVA of number of cooperative responses by verbalizations, behavior modeling, and grade

<table>
<thead>
<tr>
<th>Source</th>
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<th>F</th>
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<td></td>
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</tr>
<tr>
<td>Verbalizations</td>
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<td>1</td>
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<td>155.3203</td>
</tr>
<tr>
<td>Behavior modeling</td>
<td>B</td>
<td>1</td>
<td>23.6328</td>
<td>23.6328</td>
</tr>
<tr>
<td>Grade of sex</td>
<td>C</td>
<td>1</td>
<td>10.6953</td>
<td>10.6953</td>
</tr>
<tr>
<td>Verbalizations x Behavior modeling</td>
<td>AB</td>
<td>1</td>
<td>3.4453</td>
<td>3.4453</td>
</tr>
<tr>
<td>Verbalizations x Grade</td>
<td>AC</td>
<td>1</td>
<td>17.2578</td>
<td>17.2578</td>
</tr>
<tr>
<td>Behavior modeling x Grade</td>
<td>BC</td>
<td>1</td>
<td>1.3203</td>
<td>1.3203</td>
</tr>
<tr>
<td>Verbalizations x Behavior modeling x Grade</td>
<td>ABC</td>
<td>1</td>
<td>0.9454</td>
<td>0.9454</td>
</tr>
<tr>
<td>Within Groups</td>
<td>120</td>
<td>177.4375</td>
<td></td>
<td>1.4786</td>
</tr>
<tr>
<td>Total</td>
<td>127</td>
<td>390.0547</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p < .01$

** $p < .001$
Figures 1 and 2 show the relationship of the two variables in question, verbalizations and grade of subject. Verbalizations as a function of grade of subject is ordinate; that is, cooperative verbalizations ($A_1$) always result in the subject producing more cooperative responses than do competitive verbalizations ($A_2$), across both levels of grade of subject ($C$). Grade of subject as a function of verbalizations, however, is disordinate; that is, 2nd graders produce more cooperative responses than 5th graders after both have been exposed to cooperative verbalizations, but 5th graders are more cooperative than 2nd graders after both have been exposed to competitive verbalizations. Dunn's multiple comparison test was used to determine where the significant differences lie within the disordinate relationship. It was found that the effect of the competitive verbalizations was significantly different for the 2nd graders ($A_2C_1$) than for the 5th graders ($A_2C_2$). The 5th graders were more cooperative than the 2nd graders when exposed to the competitive verbalizations. There were no significant differences between groups in reaction to the cooperative verbalizations.

The main effects can now be considered. Of the three main effects (verbalizations, behavior modeling, and grade of subject), only behavior modeling is a simple effect. The statement can be made without further qualification that exposure to cooperative behavior modeling resulted in more cooperative behavior than exposure to competitive behavior modeling, and that exposure to competitive behavior modeling resulted in more competitive behavior...
Figure 1: Verbalizations graphed as a function of the grade of subjects

Figure 2: Grade of subjects graphed as a function of verbalizations
than exposure to cooperative behavior modeling.

Although verbalizations and grade of subject interact, verbalizations do produce an effect across levels of grade of subject. Cooperative verbalizations produced more cooperative behavior than did competitive verbalizations, and competitive verbalizations produced more competitive responses than did cooperative verbalizations. It should be remembered, though, that competitive verbalizations produce significantly more competitive behavior in 2nd graders than in 5th graders. The main effect for grade of subject cannot be treated as a simple main effect. The effects of verbalization can be separated by grade (see Tables 4 & 5) showing that cooperative verbalizations produced more cooperative behavior than did competitive verbalizations in both grades. However, effects of grade cannot be separated from effects of verbalizations because of the nature of the interaction.

Four control groups (one for each of the two sexes in each of the two grades) also participated in the experiment. These subjects, children randomly assigned to the groups after being drawn from the same classrooms as the experimental groups, were given neutral verbalizations (the model repeated the instructions) and no behavior modeling. The control groups were pooled across sex to gain additional power, as no sex differences were found in the initial analysis of variance.
Table 4: ANOVA of number of cooperative responses by verbalizations and behavior modeling with second graders.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td></td>
<td>160.1250</td>
<td>138.0625</td>
<td>83.8877**</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>138.0625</td>
<td>138.0625</td>
<td>83.8877**</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>18.0625</td>
<td>18.0625</td>
<td>10.9749*</td>
</tr>
<tr>
<td>AB</td>
<td>1</td>
<td>4.0000</td>
<td>4.0000</td>
<td>2.4304</td>
</tr>
<tr>
<td>Within Groups</td>
<td>60</td>
<td>96.8750</td>
<td>1.6458</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>257.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < .005
**P < .001

Table 5: ANOVA of number of cooperative responses of fifth graders by verbalizations and behavior modeling

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3</td>
<td>41.7969</td>
<td>34.5156</td>
<td>25.7061**</td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>34.5156</td>
<td>34.5156</td>
<td>25.7061**</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>6.8906</td>
<td>6.8906</td>
<td>5.1319*</td>
</tr>
<tr>
<td>AB</td>
<td>1</td>
<td>0.3906</td>
<td>0.3906</td>
<td>0.2909</td>
</tr>
<tr>
<td>Within Groups</td>
<td>60</td>
<td>80.5625</td>
<td>1.3427</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>63</td>
<td>122.3594</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*P < .05
**P < .001
Using Dunnett's test for control groups (see Table 6), the two control groups were compared with the experimental groups matched for grade. As predicted, in both the second and fifth grade the use of cooperative verbalizations plus cooperative behavior modeling and competitive verbalizations plus competitive behavior modeling, (the two consistent message groups), produced significantly different results than were found in the control group. In both the second and fifth grade the use of cooperative verbalizations plus competitive behavior modeling resulted in the messages cancelling each other, as expected. In the fifth grade, the competitive verbalizations plus cooperative behavior modeling messages also cancelled each other as expected. The only condition with results contrary to the predictions was the second grade competitive verbalizations plus cooperative behavior modeling group, in which the inconsistent messages did not negate each other; the competitive verbalizations overpowered the cooperative behavior modeling.
Table 6: Mean number of cooperative responses by treatment group and by grade, for use in Dunnett's test for control groups

<table>
<thead>
<tr>
<th>Grade 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cooperative verbalizations</td>
<td>cooperative behavior modeling</td>
</tr>
<tr>
<td></td>
<td>4.375</td>
</tr>
<tr>
<td>cooperative verbalizations</td>
<td>competitive behavior modeling</td>
</tr>
<tr>
<td></td>
<td>3.8125</td>
</tr>
<tr>
<td>competitive verbalizations</td>
<td>cooperative behavior modeling</td>
</tr>
<tr>
<td></td>
<td>1.9375</td>
</tr>
<tr>
<td>competitive verbalizations</td>
<td>competitive behavior modeling</td>
</tr>
<tr>
<td></td>
<td>0.375</td>
</tr>
<tr>
<td>control</td>
<td>3.1875</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade 5</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>cooperative verbalizations</td>
<td>cooperative behavior modeling</td>
</tr>
<tr>
<td></td>
<td>4.1875</td>
</tr>
<tr>
<td>cooperative verbalizations</td>
<td>competitive behavior modeling</td>
</tr>
<tr>
<td></td>
<td>3.6875</td>
</tr>
<tr>
<td>competitive verbalizations</td>
<td>cooperative behavior modeling</td>
</tr>
<tr>
<td></td>
<td>2.875</td>
</tr>
<tr>
<td>competitive verbalizations</td>
<td>competitive behavior modeling</td>
</tr>
<tr>
<td></td>
<td>2.0625</td>
</tr>
<tr>
<td>control</td>
<td>3.0625</td>
</tr>
</tbody>
</table>
Chapter IV — Discussion

It is necessary first to examine the nature of the task used here before considering the study's relation to the previous ones. One approach is to see how the children responded to the task without an intervention. The task was designed to be equally encouraging to both cooperative and competitive strategies. The control group showed this to be true; their scores, rounded to the nearest digit, averaged three cooperative and three competitive responses each. The children in this sample were not as predisposed to competitive behavior as previous research had indicated that they might be (Kagan & Madsen, 1972; Nelson, 1971).

The statement has been made in the literature that "cooperative strategies must be learned" (Mithaug, 1969), the basis of this statement being that children in the United States are so readily competitive that cooperative strategies must normally be taught before being adopted. It must be remembered that both cooperative and competitive strategies must be learned. The statement was meant to indicate the prevalence of competitive strategies in use among American children. This pointed to the general question, "by what methods can cooperation be learned?" which was further narrowed in the present study to the specific question "Can cooperation be learned through the use of verbalizations and behavior..."
One primary aim of the dissertation was to see what effects, if any, a short instruction period composed of verbalizations and behavior modeling would have on children's cooperative behavior in a situation in which cooperative and competitive strategies are available. The data clearly indicate that short periods of verbalizations and behavior modeling do have an effect on the child's immediate behavior; significant differences were found between the effects of cooperative and competitive verbalizations and between cooperative and competitive behavior modeling. Exposure to cooperative verbalizations resulted in more subject cooperative behavior than did exposure to competitive verbalizations, and exposure to cooperative behavior modeling resulted in more subject cooperative behavior than did exposure to competitive behavior modeling. These two main effects (verbalizations and behavior modeling) combined with the absence of a Verbalization x Behavior modeling interaction support the predictions made earlier. As hypothesized the groups exposed to cooperative verbalizations plus cooperative behavior modeling were the most cooperative and the groups exposed to competitive verbalizations and competitive behavior modeling were the most competitive. Three of the four groups exposed to inconsistency were not significantly different than the control group. The group that did differ from the control did not show an interaction.

A second issue examined in the study was the effects of consistent or inconsistent messages. By and large inconsistency
decreased the effects of both verbal and behavioral messages. In the inconsistent conditions the opposing directions of the two interventions tended to cancel each other. This result was similar to one previous study (Stowie, 1971). It differed greatly from Stein & Bryan (1972) in which an interaction effect occurred. In that study the inconsistent group (one conforming - one deviant message) produced more deviant subject behavior than did subjects in the group receiving two deviant messages.

This dramatic interaction effect could be the result of the subjects being exposed to blatant inconsistencies: the model had one standard for self-reward, while the subject was told to maintain another. This differed in design from Stowie, in which subjects receiving two verbal messages never saw the model act on either message. In addition, the subjects in this study were exposed to inconsistent verbalizations and behavior modeling, but the verbal message was presented as a suggestion not as a rule as was the case in Stein & Bryan.

A third issue considered was the relative effects of practice and preach. The main effects of the two interventions were not quite equal in strength. It is possible to discuss the relative effectiveness of verbalizations and behavior modeling, although this is a statistically difficult comparison to make. Both verbalizations and behavior modeling were significant at the .001 level. Due to a Grade x Verbalization interaction effect, it was necessary to analyze verbalizations and behavior modeling, separating the
groups by grade. For second graders, verbalization was significant at the .001 level and behavior modeling was significant at the .005 level. For fifth graders, verbalization was significant at the .001 level and behavior modeling was significant at the .05 level. The differences between the effects of verbalizations and behavior modeling start to appear. Examination of the raw data (Table 1) reveals that cooperative verbalizations plus competitive behavior modeling resulted in more cooperative behavior than competitive verbalizations plus cooperative behavior modeling. However, this comparison reaches significance among second graders with the competitive verbalizations plus cooperative behavior modeling yielding significantly less cooperative behavior than the control.

The raw data appeared to show a tendency for verbalizations to be stronger than behavior modeling. This is also seen in the differing levels of significance between the two. However, the only significant statistic here is that for second graders competitive verbalizations plus cooperative behavior modeling resulted in more competition than was found in the control group.

This limited finding (verbalization effects are greater than behavior modeling effects in at least one condition) is similar to the research findings by Mischel & Liebert (1966) and Rosenhan, Fredericks, & Burrows (1968). It is the opposite of findings by Bryan & Walbek (1970) in which behavior modeling was more effective than verbalizations. Mischel & Liebert and Rosenhan, Fredericks, & Burrows are both studies of self-reward behavior which used a rule
as part of the verbalizations; Bryan & Walbek studies altruistic behavior using a suggestion to donate, not a rule. Following this line of thought, it would have been reasonable to expect a result opposite from the one that occurred, because this study used a suggestion, not a rule. Other factors must be considered in order to explain these results.

One possible explanation is the artificiality of the construct "practice versus preach". A clear example of this artificiality can be seen in a comparison of the studies by Bryan & Walbek (1970) and Anderson & Perlman (1973). Bryan & Walbek found that the subjects responded to practice, not preach. Anderson & Perlman interpreted this to mean that Bryan & Walbek said that verbalizations do not matter. To dispute this implication, they used different levels of verbalizations; and they found significant differences. Therefore, they said that Bryan & Walbek's study was inaccurate. This is not true. The two studies had different but not mutually exclusive results.

It is easy to see conceptually that levels of verbalizations and behavior modeling could be found experimentally such that they would be equal or such that either one would be stronger than the other, assuming the effects are additive not interactive. This fact removes most of the weight from the question "Which is stronger?"

One other factor should be considered here in comparing the relative effects of practice and preach. The model's role and personality must be considered. This could also influence the
balance between the two interactions. The model in this study was a fourth-year clinical child psychology graduate student who had extensive experience with children. She was very gentle with the subjects but at the same time, her expertise inspired confidence. The children were noticeably impressed when she told them that she had played the game many times. She acted as a friend but as an unusually knowledgeable friend. This attempt was made in structuring the model's role such that the model would be perceived as a knowledgeable adult but not as an authoritarian figure. In addition the model was not there to see the child respond to the task and the model was not involved in distributing rewards. Although attempts were made to keep the model from being perceived as powerful, an adult was used rather than a peer model, in order to study children's imitation of adult behavior.

One possible outcome of using such a non-authoritarian model could have been that the children would do exactly as they wished without reference to the treatment. The analysis of variance showed that that possibility did not occur.

This model may well have been responsible for the strong behavior reactions seen in the subjects and might in part be responsible for the effects of verbalizations being slightly stronger than the effects of behavior modeling. Her trustworthiness might have caused the subjects to ignore her inconsistent behavior modeling and to follow her advice. Perhaps, some of the subjects thought that in the example of behavior modeling the model was
showing them what not to do.

The fourth aim of this dissertation was to see what role the effects of increasing age would play on the effects of verbalizations and behavior modeling on cooperative and competitive behavior. One possible result was that cooperation would decrease with increasing age as found by Madsen & Conner (1973). This did not happen. Another possible result was that older children would be better at learning to cooperate as found by Nelson (1971). It is not clear whether or not this happened. The task was such that both strategies (cooperation and competition) were equally rational; therefore, it is not possible to assess which grade "learned better."

The raw data showed that the second graders were more easily influenced than the fifth graders. The second graders scores were from 4.4/6 to .37/6 in the two extreme groups. The scores of the fifth graders were closer to the controls, ranging from 4.2/6 to 2.0/6. One possible speculation is that the younger children were more impressionable than the older children. The only statistical proof related to this idea is seen in the Grade x Verbalizations interaction effect showing that the younger children were more influenced by the competitive verbalizations than were the older children. Statistically all the other interventions (cooperative verbalizations, cooperative and competitive behavior modeling) produced equally effective results with the two age groups.
Chapter V — Summary

The purpose of this study was to examine the effects of certain types of adult behavior on the cooperative and competitive behavior of different age children. The study examined in part the process by which children acquire adult values through exposure to verbal instructions and behavior modeling. A review of specific child socialization theories showed the conceptual importance of imitation in two major theories of development.

Since most of the research in this area has been done by social learning theorists, the terminology of that theoretical framework was chosen for use in this study. Cooperative and competitive behavior was the area of social behavior chosen to be examined. A secondary concern was the effects of consistent and inconsistent modeling messages. Surprisingly few modeling studies have dealt with cooperation and competition; none of the past research has dealt with the use of more than one message for its effects on cooperative and competitive behavior.

A review of the literature concerning these two areas, the use of more than one modeling message and the variables that effect cooperation and competition in children, was completed. The findings indicated that American children were less cooperative than children raised in other cultures. Further, the children in
the United States were found to be competitive even when confronted with tasks with which only a cooperative strategy would be successful. Also, American children were more influenced by cues for limited rewards than by cues for sharing; that is, if only one child could win in a turn, the children would prevent each other from winning rather than take turns. Cooperative behavior was found to decrease with increasing age. None of these studies attempted to intervene, that is tried to alter the pattern of irrational competitiveness. The modeling studies reviewed compared the various effects of verbalizations and behavior modeling and the effects of consistent and inconsistent messages. The many variations among designs made it impossible to make any general conclusions.

The goal of this project was to investigate the effects of a modeling intervention on the usually competitive strategies used by American children in dealing with a conflict of interest situation. Other factors to be investigated included the effects of behavior modeling and verbalizations, the effects of consistency and inconsistency, the effects of grade of the subject and sex of the subject differences.

Second and fifth grade boys and girls participated in a game in which cooperative and competitive strategies were possible. The game consisted of two color-coded choices. One choice would allow both partners to win and one choice would allow only the chooser to win. The pay-off matrices were such that for each choice there was one way to win and one way to lose. Before playing the game
the subjects saw a model who gave a speech that was either cooperative or competitive and who played the game cooperatively or competitively. Half the subjects were exposed to a consistent pair of messages and the other half to an inconsistent pair. Then the subjects took six turns playing the game. An analysis of variance was conducted to examine the difference in effects of cooperative and competitive verbalizations, cooperative and competitive behavior modeling, grade of the subject and sex of the subject.

There were significant main effects for verbalizations, behavior modeling, and grade of the subject. Grade x Verbalizations produced a significant interaction effect based on the greater competitiveness of second graders exposed to competitive verbalizations as compared to fifth graders exposed to the same treatment. There were no sex differences at any level. Control groups matched for grade of subject and sex of subject also participated. For the second graders, the control group responses differed significantly from the cooperative verbalizations plus cooperative behavior modeling group, the competitive verbalizations plus cooperative behavior modeling group, and the competitive verbalizations plus competitive behavior modeling group. For fifth graders, the control group differed significantly from the two consistent groups, cooperative verbalizations plus cooperative behavior modeling and competitive verbalizations plus competitive behavior modeling.

The average scores of the control group were three cooperative and three competitive responses each. The subjects did not appear
to be as predisposed to competitive strategies as the previous research indicated. The experimental groups responses clearly showed that the verbalizations and behavior modeling did cause the subjects to alter their behavior. The effects of consistency were such that in the consistent groups the most behavior change from the control group was seen - all the consistent groups were significantly different from their respective control groups. The inconsistent messages tended to cancel each other. Both verbalizations and behavior modeling had highly significant results; however, verbalizations had slightly greater results in one treatment group as evidenced in the responses of the second graders in the competitive verbalizations plus cooperative behavior modeling group, in which the results were significantly different from the control in the direction of increased competitiveness. The only difference found between the two grades of subjects was in that condition. The second graders were more competitive than the fifth graders when exposed to competitive verbalizations.


Nelson, L., The development of cooperation and competition in children from ages 5-10 years old: Effects of sex, situational determinants, and prior experiences, Dissertation Abstracts, 1971, 31(7-8), 4368.


