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Machiavellianism, Perspective Taking, and Partner's Response as Predictors of Interpersonal Behavior Measured by a Modified Prisoner's Dilemma Game

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MACHIAVELLIANISM, PERSPECTIVE TAKING, AND PARTNER'S RESPONSE AS PREDICTORS OF INTERPERSONAL BEHAVIOR MEASURED BY A MODIFIED PRISONER'S DILEMMA GAME

by

William P. Bryant

A Dissertation Submitted to the Faculty of the Graduate School of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

December 1977
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VITA

The author, William P. Bryant, was born September 26, 1940, in Buffalo, New York.

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CHAPTER I

PURPOSE AND REVIEW OF THE LITERATURE

Purpose

An interest in the components of interpersonal competence, prerequisites\(^1\) for effective social interaction, dates back at least to the work of Thorndike (1920), Piaget (1926), and Mead (1934); however, studies with this focus have burgeoned to such an extent in the last decade that several review articles have been written in an attempt to define and synthesize this complicated, amorphous field: see, for example, books and reviews by Christie and Geis (1970), Deutsch and Madle (1975), Hoffman (1977), Shantz (1975), and Walker and Foley (1974). Although much of this work has focused on social cognition, including role taking and empathy, other concepts, such as Machiavellianism, have received attention. Indeed, high role-taking or empathetic ability and a Machiavellian orientation to interpersonal relations have been considered two of the components of interpersonal competence by Anderson and Messick (1974), O'Malley (1977), and Smith (1968).

In an article coinciding with the upsurge of interest in interpersonal competence, Weinstein (1969) suggested relation-\(^1\)

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\(^1\)With the exception of partner, the independent variables in the present study are subject variables. Therefore, the relationships are correlational, not causal. At certain points in the study, it has been useful to use terminology which might seem to imply causality. That is not the intention.
ships between role taking or empathy and Machiavellianism, on the one hand, and the interaction process, on the other. Weinstein wrote, "Interpersonal competence boils down to the ability to manipulate other's responses. As such the concept is value free . . . Competence is relative to the actor's purpose" (p. 755).

Since Weinstein's article, interest in the relationship between interpersonal competence and the interaction process has been sporadic. Shantz (1975) has written, "In fact, the relationship between social cognition and interpersonal behavior may be one of the largest unexplored areas in developmental psychology today" (p. 303).

The present study was designed to explore the relationships among the constructs of Machiavellianism, role taking and empathy; and to investigate those constructs as predictors of interpersonal behavior. The interpersonal behaviors studied were tendencies to behave in an altruistic or aggressive, a cooperative or competitive manner. Altruistic and cooperative behavior were considered prosocial, aggressive and competitive behavior, antisocial or asocial. These behaviors were studied using the Prisoner's Dilemma game modified by introducing the option of making altruistic or aggressive moves. Cooperative and competitive alternatives are, of course, part of the traditional Prisoner's Dilemma Game. The preprogrammed moves
of the partner were varied so that some subjects played against an altruistic partner, some against an aggressive partner, and some against a neutral partner. In one condition, there was no option introduced. The characteristics of the partner were varied because the behavior of individuals varies in interpersonal situations partly as a function of interpersonal cues.

**Review of the Literature**

**Social cognition and perspective taking.** Social cognition has become the umbrella term for a host of interconnected and overlapping concepts in social and developmental psychology (e.g., person perception, empathy, social intelligence, role taking, and perspective taking). It refers to how people "conceptualize other people and how they come to understand the thoughts, emotions, intentions, and viewpoints of others" (Shantz, 1975, p. 258).

As pointed out earlier, numerous reviews have been written in an attempt to synthesize findings in this area. In one of those reviews, Shantz (1975) classified studies of social cognition, for heuristic purposes (neither factor-analytic nor other construct-validation studies have consistently supported any of the proposed typologies of social-cognitive abilities), into five sets according to which of five questions each is designed to answer: What is the other seeing? What is the other feeling? What is the other thinking? What is the other intending? What is the other like?
A major distinction has been drawn between the first four questions and related studies and the fifth. Only the first four sets of studies are relevant here. They have in common a concern with inferring another's immediate response to the world as it impinges on him, and have been called studies of perspective taking. (The fifth set of studies concerns the subject's ability to judge relatively enduring properties of the other and has been called studies of person perception.)

Hoffman (1975) has used the term spatial role taking to refer to the studies answering the question about what the other is seeing and cognitive role taking for the studies answering the question about what the other is thinking. Hoffman has used two terms, affective role taking and empathy, to designate studies concerning what the other is feeling: affective role taking concerns the ability to understand the other's feelings, empathy concerns the ability to feel sympathetically, as well as understand, the other's feelings.

In the present study, the term empathy is used to designate the ability to understand the other's feelings. Role taking is used to designate the ability to understand what the other is thinking. Perspective taking will be used as the generic term to refer to the ability to adopt the other's point of view, whether perceptually, cognitively, or affectively.

The study of role taking, as used in the present study, began in 1959 when Feffer's classic article appeared describing the Role Taking Task, a storytelling task designed to extend
the study of Piaget's notion of balanced decentering from the nonsocial to the social world. (The Role Taking Task was used in the present study as a measure of role taking.) In this test, the subject tells a story in response to a TAT-like picture and then retells the same story taking the points of view of each story character in turn. Schnall and Feffer (Note 1) have summarized the rationale underlying the Role Taking Task:

Piaget has suggested that lack of constancy is due to the inordinate influence of one part of the situation upon the estimate of the whole. That is to say, focusing only upon the increased height leads to an overestimate of quantity, while focusing upon the decreased circumference leads to an underestimate. Piaget, accordingly, attributes the younger child's fluctuations and extremes to the act of sequentially focusing upon one aspect of the situation at a time. In contrast, the older child achieves constancy of quantity by virtue of a dominance of thought, whereby changes in both height and circumference are simultaneously considered in relation to each other such that the distortion engendered by one centering or perspective is balanced by the other. Greater stability and veridicality of functioning is thus afforded by the modulating influence of different, simultaneously experienced, centerings of perspectives.

The concept of decentering as proposed by Piaget has stemmed primarily from his investigations of the child's cognitive structuring of the physical, inanimate world. The concept can be extended, however, to the cognitive structuring of interpersonal content, an extension which is embodied in the structure and scoring criteria of the RTT.

The concept of decentering which underlies the RTT suggests that an actor, as an item of social content, may be described from more than one point of view. The different roles represent different points of view, and the actor is the object upon which refocusing takes place from these points of view. Thus, the RTT is evaluated in terms of the degree to which the subject is able to shift from his initial orientation in refocusing upon his actors from different roles, while
at the same time maintaining continuity between his various versions of his initial story. (pp. 9-10)

Several techniques, besides the Role Taking Task, have been used to investigate role taking. One popular method is a communication task in which the subject's task is to describe nonsense figures so that a subject who has the figures before him can pick out the one that the subject is describing (Glucksberg & Krauss, 1967). Another technique (DeVries, 1970) involves the subject guessing the strategy another is using in hiding a penny. Still others (Flavell, Botkin, Fry, Wright, & Jarvis, 1968) have had children explain games learned nonverbally to sighted and blindfolded subjects or had subjects tell stories in response to a seven-card cartoon sequence and then retell it with some of the cards missing. Generally, correlations among measures of role taking have been low or moderate, though this has varied (see Shantz, 1975).

Correlations between the Role Taking Task and measures of intelligence have been reported in several studies. Feffer and Gourevitch (1960) found that children's scores on the Role Taking Task show a low positive correlation with verbal intelligence. Sullivan and Hunt (1967) found a moderate correlation between intelligence and the Role Taking Task among 11-year-old children but not among 7- and 9-year-old children. Rubin (1974), however, reported moderate to high correlations with intelligence. Kurdek (Note 2) has reviewed studies which correlate the Role Taking Task and measures of intelligence.
He has reported enormous variability in the correlations. Only half of the correlations reached statistical significance, and the significant correlations ranged from low to high.

A number of studies have investigated the relationship between role taking and social behavior. Feffer and Suchotliff (1966) found positive correlations between the Role Taking Task and observer ratings of interpersonal effectiveness. Chaplin and Keller (1974) found the same with peer ratings of interpersonal effectiveness. Rubin and Schneider (1973) found positive correlations between communicative role taking and both donating and helping behavior ($r = .29$ and $.64$, respectively) among 7-year-olds. Staub (1971) trained kindergarten children in role playing of helping and being helped; those who received training were more likely to help a child in distress than those who did not. Zahn-Waxler, Radke-Yarrow, and Brady-Smith (1977) reported positive correlations between batteries of role-taking tasks and helping and sharing behavior. On the other hand, Ianotti (Note 3) found no relationship between role taking and sharing behavior. Rushton and Wiener (1974) found no relationship between various measures of role taking and altruism.

There is some evidence of a negative relationship between role taking and asocial behavior. Chandler (1973) found that delinquent boys had poorer role-taking skills than comparable groups of nondelinquent boys. He also found that delinquent boys who received training in role-taking skills
had fewer arrests in subsequent months than those who did not.

In sum, Feffer's Role Taking Task is the first of several role-taking tasks devised to explore the development of balanced decentering in the human world. These tasks tend to correlate moderately among themselves and with measures of verbal intelligence. Though the results are mixed, measures of role taking tend to correlate positively with prosocial behavior and negatively with antisocial behavior.

Deutsch and Madle (1975) have traced the history of the concept of empathy to psychologists writing in the first quarter of this century when empathy was thought of as postural imitation. As time passed, researchers accepted the view that empathy was based on self-other differentiation and that empathy involved understanding the other's affective state, either alone or in relation to situational cues. (Some studies have required the subject to judge the other's emotion based on cues exclusively from the other. Some have included information about the situation.) At this time (cf. Shantz, Note 4), empathy sometimes refers to a sympathetic emotional response on the part of the subject and sometimes refers to the subject's understanding of another's emotions.

As with role taking, in recent years a number of measures of empathy have been developed. Of particular interest as prototypes for the present study are the works of Flapan (1968) and Rothenberg (1970). To study children's understanding of social interaction, including empathy, Flapan (1968) showed
children brief episodes from movies and asked them to retell these episodes. The retellings were scored for a variety of responses, including feelings. Rothenberg (1970) played audio-recordings of brief interchanges between adults, and the children were asked how the adults were feeling at various points. Empathy was measured in the present study by the Empathy Questionnaire (see Feczko, Note 5). Episodes from popular television programs were videotaped and shown to the subjects. The videotape was stopped at critical moments, and the subjects were asked how one of the protagonists was feeling. The subjects were provided with four alternative responses to choose from.

Regarding the relationship between empathy and intelligence, Rothenberg (1970) reported correlations of .24 between empathy and verbal intelligence and .28 between empathy and nonverbal intelligence. Moir (1974) reported a moderate correlation between empathy and intelligence ($r = .51$). These findings suggest that empathy, like role taking, shows a low positive correlation with intelligence. Feczko (Note 6) reported a low positive correlation ($r = .39$) between an earlier version of the Empathy Questionnaire and intelligence. Feczko (Note 5) reported a low positive correlation ($r = .27$) between the Empathy Questionnaire, as used in the present study, and intelligence.

Rothenberg (1970) found that empathy scores correlated positively with peer ratings of generosity, friendliness, and leadership. Johnson (1975) found a positive correlation
between empathy and cooperativeness. Fry (1976) found a positive correlation between empathy and altruism and a negative correlation with self-gratification. On the other hand, Levine and Hoffman (1975) did not find a correlation between empathy and cooperativeness, among 4-year-olds, though age may be a factor here. Evidence regarding the relationship between empathy and anti-social behavior is mixed. Feshbach and Feshbach (1969) found positive correlations between empathy and aggression in 4- and 5-year-old boys, negative correlations in 6- and 7-year-old boys, and no correlation among girls. Green (1977), using film clips depicting emotions, asked kindergarten children to identify the emotion and state the cause. Green found a significant positive correlation between causal attribution and disposition to help others for girls but not for boys.

The evidence regarding the relationship between measures of role taking and empathy is by no means consistent. Kurdek and Rodgon (1975) studied correlations among various measures or perspective taking, including measures of empathy and role taking, in children from kindergarten through grade 6. Empathy and role taking tended to be uncorrelated; however, the two correlated positively \( r = .51 \) in fourth-grade females, but they correlated negatively for third-grade males \( r = -.73 \) and fifth-grade females \( r = -.55 \). Moir (1974) found a .49 correlation between one measure of role taking and empathy but no significant relationship between another measure of
role taking and empathy.

In sum, a picture emerges from the study of empathy similar to the one which emerged with role taking. Measures of empathy correlate moderately with intelligence and moderately with measures of role taking. Some studies show a positive relation to prosocial behaviors, some show no relation, and no consistent picture emerges about a relation between empathy and antisocial behavior.

In the present study, then, role taking was measured using the Role Taking Task, empathy using the Empathy Questionnaire. It is appropriate to consider their characteristics as measures in relation to the constructs they measure, role taking and empathy. Both the Role Taking Task and the Empathy Questionnaire require the subject to assess another's immediate response to the environment or definition of the situation. In the first, the other's understanding or cognition of the situation is the focus, in the second the other's feelings or affect towards the situation. Both require the subject to assess the situation as it impinges on the other, but the Empathy Questionnaire, as many of the empathy measures, requires the subject to assess verbal and nonverbal cues from the other, as well as situational cues, to determine what the other is feeling. The Role Taking Task requires the subject to make up stories about characters in situations in response to stimuli cards. The subject must retell the facts of the story consistently while adjusting to the shift in perspective from one character's point of view.
to another's. The Role Taking Task thus depends on memory to a greater extent than the Empathy Questionnaire. Since an accurate understanding of emotions, as well as thoughts and intentions, contributes to the score of the Role Taking Task under certain circumstances, the measures are not as distinct conceptually as one might wish. The Empathy Questionnaire measures the subject's ability quickly to assess another's feeling response to an immediate situation, while the Role Taking Task measures the subject's ability to shift from one character's point of view to another's, while holding the facts of the story in his memory.

Measures of perspective taking have been criticized, including Borke's early works (cf. reviews by Chandler and Greenspan, 1972, and Shantz, Note 4), because what appears to be perspective taking may be projection. Subjects are notably more successful at taking the perspective of others of like age, sex, and race. Both measures used in the present study involve precautions against projection. The Empathy Questionnaire requires the subject to understand the emotions of adults in most instances, while the Role Taking Task allows the child, within limits, to make up characters and situations he feels comfortable with.

Machiavellianism. According to Christie (1970d), discussions centering on Machiavellianism as a psychological construct began informally during the years 1954-1955. Several psychologists speculated that there were four primary characteristics
of the operator or manipulator: (a) lack of affect in interpersonal relationships, (b) lack of concern with conventional morality, (c) lack of gross psychopathology, and (d) low ideological commitment. Shortly thereafter, Christie (1970b) constructed a scale to assess Machiavellianism with Machiavelli's *The Prince* and *The Discourses* being the source for statements, which distinguish responses of high and low Machs. Ultimately, two versions of the Mach scales were devised: Mach IV, a Likert-type scale, and Mach V, a forced-choice scale designed to control for social desirability. By the mid '60s, articles had begun to appear in the literature using the Mach scales, and in 1970 Christie and Geis' *Studies in Machiavellianism* appeared summarizing previous work and formulating the notions of high and low Mach. Since then, scattered articles have appeared in the literature.

Weinstein was among the early researchers (see, for example, Weinstein, Beckhouse, Blumstein, & Stein, 1968), and his article on social competence, antedating *Studies in Machiavellianism*, was less than comprehensive in its treatment of Machiavellianism. According to Weinstein (1969), the high Mach uses "any line of action if it appears to promote profitable outcomes for him" (p. 770). And Weinstein wrote, "The empirical evidence seems to suggest that persons high on Machiavellianism are more interpersonally competent...A touch of psychopathy, then, may be helpful if success in controlling others is the object" (p. 770). The low Mach, in contract, is characterized
by rigidity and rule-boundedness. Rigid individuals have been taught that there is safety in conforming to role behavior. They also tend to become ego-involved to their own detriment while, for the high Mach, "No line of action has cost value due to loss of self-esteem" (p. 770). In other words, in his early formulation, Weinstein has related Machiavellianism at a theoretical level to ego structure and to role performance.

Perhaps with an eye to understanding Machiavellianism in relation to ongoing social interaction, Geis and Christie (1970) have distinguished high and low Machs according to what might be called their interpersonal stance. They have summarized the traits of the high Machs as "the cool syndrome," which involves (a) resistance to social influence, (b) orientation to cognitions, and (3) initiating structure and controlling it. Low Machs, in contrast, were characterized as "the soft touch," involving (a) susceptibility to social influence, (b) oriented to persons, and (c) accepting and following of structure. Interpersonally, high Machs spend their time manipulating, while low Machs encounter. "Encountering is a process by which we change through direct contact with one another. Encountering happens when we open up to one another" (Geis & Christie, 1970, p. 260). In contrast to Weinstein (1969) who said that high Machs are more competent interpersonally than low Machs, Geis and Christie (1970) indicated that high and low Machs operate differently in an interpersonal context, the implication being each excels interpersonally,
but in different ways. Indeed, high Machs do not outmanipulate low Machs in all situations. High Machs excel in situations where there is face-to-face interaction, latitude for improvisation, and the development of task-irrelevant affect.

The relationship between Machiavellianism and a number of other personality measures has been studied, and some of the results are relevant to the present study. Christie (1970a) has summarized these findings. Correlations between intelligence and Machiavellianism have been consistently low and nonsignificant, suggesting strongly that Machiavellianism and intelligence are, in fact, unrelated. This is compatible with Weinstein's (1969) distinction between empathy and Machiavellianism in which he views them as separate, and by implication uncorrelated, and views intelligence as one aspect of empathy or role taking. Not surprisingly, Machiavellians take a dim view of human nature. Christie (1970c) reported correlations between Machiavellianism and Wrightsman's philosophies of human nature (Wrightsman, 1964). There was a correlation of -.67 with the view that others are trustworthy, -.54 with the view that others are altruistic, -.47 with the view that others are independent, and -.38 with the view that others have pronounced strength of will. A number of findings have suggested that high Machs tend to be more hostile and suspicious than low Machs; however, there was no correlation between Machiavellianism and the MMPI scales, including psychopathy. Thus, it seems that, although high Machs may tend to be hostile and suspicious,
it may be inappropriate to label them sociopathic.

Recently, Delia and O'Keefe (1976) studied the relationship between Machiavellianism and complexity of interpersonal constructs. Complexity was measured by the number of constructs used in written descriptions of peers, one liked and one disliked. The authors found correlations of -.54 and -.49, respectively. These results are compatible with the view that low Machs are more oriented to people than high Machs.

Numerous studies have compared the performance of high and low Machs in experimental situations. In a study, which could be classified as an empathy study or a study of person perception, Geis and Levy (1970) required subjects to choose from the members of a group which had been playing a structured coalition game, the person they felt they could "size up" mosse accurately. The subjects then filled out the Mach IV scale as they believed the other person would. It was found that high Machs' judgments tended to be closer to the actual group mean than low Machs's judgments, but low Machs were more accurate in judging others' positions relative to themselves. High Machs overestimated the scores of low Machs and underestimated the scores of high Machs, thereby achieving a relatively accurate estimate of the mean but not of the separate groups. Low Machs underestimated the scores of both, slightly in the case of low Machs and greatly in the case of high Machs, thereby judging the position of others accurately relative to themselves but misjudging the group mean. The implication of this study
is that high Machs render accurate judgments about people in
general, but are not accurate in their estimation of the posi­
tion of others relative to themselves, the reverse being true
of low Machs.

Christie and Geis (1970) reviewed an unpublished study by
Geis and Leventhal in which subjects defended positions, as in
a formal debate. Sometimes the subjects defended positions
they privately endorsed, sometimes positions they did not
endorse privately. The same subjects also acted as judges
whose task it was to judge whether the debaters were defending
positions they privately endorsed or did not endorse. Low
Machs were better than high Machs at judging whether subjects
were telling the truth or lying. They were better judges of
both low and high Mach subjects. High Machs were not better
deceivers than low Machs; however, they were better truth
tellers: judges believed they were telling the truth when they
were telling the truth more often than they believed low Machs.
These results support the notion that low Machs are better
judges of people than high Machs.

High Machs seem to be better able to persuade others to
believe them or to do things against their will than low Machs.
In one experiment (Geis, Christie, & Nelson, 1970) in which
subjects were given the role of experimenter in a psychological
experiment, high Machs were more effective and innovative
deceivers. Braginsky (1970) assigned children to persuade
other children to eat crackers which had been soaked in a
solution of quinine. High-Mach children were more successful than low-Mach children in gaining compliance.

The behavior of high and low Machs has been compared using a variety of competitive games. The general finding has been that high Machs win more than low Machs on all but the Prisoner's Dilemma game. This has contributed to the theory that high Machs excel under conditions of face-to-face interaction with latitude for improvisation and arousal of irrelevant affect.

At least half a dozen studies involving Machiavellianism have used the Prisoner's Dilemma paradigm. Wrightsman (1966) studied differences in Mach scores as a function of trusting or distrusting in the Prisoner's Dilemma game. Subjects were classified trusting if their first move was cooperative and if they gave as their reason that they expected the other to reciprocate. Subjects were classified as mistrustful if their first move was competitive and said they expected their partner to reciprocate. High and low Machs did not differ significantly in their trustfulness as measured in this situation.

Christie, Gergen, and Marlowe (1970) reported a study in which cooperativeness of partner and type of reward were varied. It made no difference in the subjects' play whether the partner played 20%, 50%, or 80% cooperatively, nor did it make any difference whether the subject was high Mach or low Mach. The only significant finding was that high Machs became more competitive over time. To vary type of incentive, the
authors started off with an initial 10 trials for points and then shifted to dollars or pennies. Payment was made after each trial. High Machs became more cooperative in the dollar condition and won less than low Machs. Another finding was that high Machs were more retaliatory, responding heavily with competitive moves after the partner made a competitive move. These results suggest that high Machs may attempt a prosocial strategy, but if this fails, they tend to retaliate. High Machs seem to be particularly responsive to monetary rewards.

Christie et al. (1970) also reviewed an unpublished study by Wahlin in which he studied responses to a vindictive other. When the subject played competitively the programmed other played a series of competitive moves. Low Machs did not retaliate and won a significant number of points in contrast to high Machs who retaliated and lost a significant number of points. This is further evidence that high Machs are retaliatory.

Lake's unpublished study was summarized by Wrightsman, O'Conner, and Baker (1972):

Lake compared subjects who scored high on Machiavelianism with those scoring low when both groups were given information as to whether the other player was cooperative or competitive. Forming an impression that the other was cooperative led low and high Machs to increase their own cooperativeness, but much more so for lows than for highs. Anticipating a competitive other led low Machs to be defensive and high Machs to be aggressive. (p. 242)

Uejio and Wrightsman (1972) reported negative correlations
between Machiavellianism and cooperativeness in a game where the partner played 76% cooperatively. Finally, Swan (1973) found that high Machs were more cooperative than low Machs against a cooperative other and just as cooperative against a competitive other.

In sum, the results on cooperativeness and competitiveness of high and low Machs in the Prisoner's Dilemma game are not consistent; however, it does appear that high Machs are more retaliatory than low Machs. It is not clear how the payoff matrix influences the behavior of high and low Machs. Perhaps different consequences in different payoff matrices might explain differences in cooperativeness and competitiveness. In fact, Christie et al. (1970) have suggested that it would be useful to vary the payoff matrix to see whether high Machs adapt their play to differences in payoff matrices more rationally than low Machs.

Behavior of high and low Machs has been compared on several other types of experimental games. Durkin (1970), for example, described a game in which pairs of subjects held handles of a large plexiglass spiral. The whole apparatus resembled a large spiral wedding cake with handles sticking out of the sides at the bottom. The objective was to move a ball up to the top by tilting the spiral. High Machs were not more effective than low Machs; however, the scores of high-Mach pairs were predictable from individual scores. Scores of low-Mach pairs depended more on the combination of individuals. Durkin
concluded that this supports the idea that low Machs become more personally involved than high Machs in situations of face-to-face interaction. It was a simple task with little opportunity for improvisation or manipulation.

In most experimental games, especially negotiation or coalition games, high Machs have a definite advantage. In the "legislature game" (Geis, Weinheimer, & Berger, 1970), subjects were to persuade fellow "congressmen" to vote certain ways on certain issues. High and Low Machs did not differ in their persuasiveness on noncontroversial issues; however, high Machs were much more effective than low Machs when dealing with controversial ones. Presumably low Machs were distracted by and became involved in the controversial issues while high Machs did not. Geis (1970) found that high Machs were much more effective than low Machs in forming coalitions to their own advantage in a standard coalition game where subjects play parchesi with the option of forming coalitions to their mutual advantage.

In sum, regarding Machiavellianism, it appears that (a) Machiavellianism is uncorrelated with intelligence; (b) high Machiavellians have a negative or pessimistic view of people; (c) Machiavellianism is positively correlated with a hostile attitude towards people in general and a tendency towards retaliation, though this should not be termed psychopathy; (d) low Machs are better at understanding individuals and individual differences, though high Machs may have a more
accurate general understanding of people; (e) low Machs become more involved with others than high Machs, and their task performance is more heavily influenced by the person they are cooperating with; (f) high Machs tend to be more persuasive than low Machs; (g) in the Prisoner's Dilemma game, high Machs do not win more, and they may even win less if they become involved in retaliatory behavior; (h) in the Prisoner's Dilemma game, high Machs are sometimes more cooperative than low Machs and sometimes less, but they seem to become more competitive over time; and (i) high Machs are definitely more effective at negotiation and coalition games than low Machs.

The Prisoner's Dilemma game and interpersonal behavior styles. The Prisoner's Dilemma game is a two-person matrix game which has been used extensively by psychologists to study cooperative and competitive behavior. Nemeth (1972) has retold the anecdote which explains the rationale underlying the Prisoner's Dilemma game:

The original anecdote of the Prisoner's Dilemma concerns two individuals accused of a crime but who are interviewed separately by the police without being able to communicate with one another. Each prisoner is faced with two alternatives: either to confess to the crime or not to confess to it. If both individuals do not confess, both will be acquitted. On the other hand, if one prisoner confesses and the other does not, the individual who confesses will not only go free but will also receive a reward for turning state's evidence, while his partner who did not confess will be given a more severe sentence than if he had confessed. However, if both prisoners confess, both will be convicted (p. 206).

In the game, move X, the cooperative move, corresponds to not confessing, while move Y, the competitive move, corresponds to
confessing. In the classical Prisoner's Delemma game, the values in the payoff matrix are arranged so that player who plays Y (confesses) while his opponent plays X (does not confess) wins the most points while his opponent wins the least points. If neither confesses (XX), each receives the second highest number of points. If both confess (YY), each receives the third highest number of points. The payoff matrix described above (XX = 4, 4; XY = 0, 5; YY = 1, 1) is an example of scoring in a classical Prisoner's Dilemma game.

In the Prisoner's Dilemma game, each player, independently of the other, makes one of two moves on each trial, a cooperative move (X in the present study, C in conventional notation) or a competitive move (Y in the present study, D in conventional notation). The number of points that a player wins on any given trial depends on the combination of his move and his opponent's move (XX, XY, YX, or YY). The points won for the different combinations are specified in the payoff matrix. In one game condition in the present study, for example, both players won 4 points for the XX combination, the Y-player won 5 points and the X-player 0 points in the XY combination, and both players won 1 point in the YY combination. At the end of the game, scores, number of Xs, and number of Ys were summed. (As the number of Xs plus the number of Ys was a constant, this was redundant.)

In the present study, subjects in three of the partner conditions (B, C, D) were given an option (cf. Anchor & Cross,
1974; Berger & Tedeschi, 1969) to make an altruistic move ("help"), an aggressive move ("zap"), or no move. Using the help option, the subject gave his opponent points at a cost to himself. Using the zap option, the subject took points away at a cost to himself.

In most studies, the opponent's moves in the Prisoner's Dilemma game are programmed so that the subject's responses to a predetermined other can be studied. In the present study, the partner played randomly 50 percent Xs and 50 percent Ys. Partner conditions were varied so Partner B was altruistic (made mostly altruistic moves during the option period), Partner C was aggressive (played mostly aggressive moves during the option period), and Partner D was neutral (made no moves during the option period). The game has been varied in countless ways. The length of the game has been varied, as have the percentage of X and Y moves and the values in the payoff matrix.

In sum, then, the Prisoner's Dilemma game is an elegantly simple device for studying cooperative and competitive behavior in an experimental situation which can be modified to include the study of aggressive and altruistic behavior. It has been criticized as an oversimplification of the bargaining situation (cf. Nemeth, 1972), but it continues to be used to study cooperative and competitive behavior.

Altruism and cooperation, aggression and competition have, of course been legitimate topics for study in psychology for many years; however, the prosocial behaviors, altruism and
cooperation, have received increased attention in recent years (see Harris & Siebel, 1975; Hoffman, 1975; Rushton, 1976; Rushton & Wiener, 1975). Generally, prosocial and asocial behavior have been studied separately, but recently MacCrimmon and Messick (1976) defined the four terms in relation to each other in a way which lends itself to the matrix-game situation. Altruism and aggression concern only payoffs or consequences for the opponent. Altruistic behavior maximizes payoffs, while aggressive behavior minimizes payoffs. Cooperation and competition, on the other hand, take into account payoffs to both self and other. Cooperation increases the sum of payoffs to self and other, while competition increases the difference between payoffs to self and other.

These represent purely behavioral definitions of altruism and cooperation, aggression and competition; that is, they do not take into account subjective factors, such as intention, motivation, or perception, which have been considered important aspects of those behaviors by many experts. Thus, Feshbach (1970) indicated that aggressive behavior may be defined as behavior which harms others or behavior which is intended to harm others. McCauley and Berkowitz (1970) and Hoffman (1977) have pointed to a similar distinction regarding altruism: some definitions concern only consequences, some intentions as well as consequences. Generally, these issues have not been raised regarding cooperation and competition. Generally, the focus here has been the nature of the interdependence (cf. Deutsch, 1962), whether increasing
the payoffs for one increases the payoffs for the other or whether it lessens the payoffs for the other.

With regard to aggression, there is commonly a distinction between instrumental aggression, in which the subject has nonaggressive goals served by the aggressive behavior, and hostile aggression, in which the intention is simply to harm the other (cf. Feshbach, 1969). A similar distinction might be made regarding altruism. In the present study, with the behavioral definition of the various behaviors, it is impossible to say why the subject aggressed or helped; in other words, the distinction has not been made.

A number of generalizations have been made regarding the effects of partners and payoff matrices which apply here. Berkowitz (1974) has reviewed a series of studies done primarily by him concerning the effect of others on impulsive aggression: this review leads him to conclude, "an external object or event is capable of evoking impulsive aggressive reactions to the extent that it has aggressive meaning; i.e., is associated with aggression" (p. 153). This observation would lead one to expect greater aggressiveness on the part of subjects playing against an aggressive other. It has sometimes been found that subjects playing against a cooperative partner are more cooperative than subjects playing against a competitive partner (Christie et al., 1970; Wrightsman, Davis, Lucker, Bruininks, Evans, Wilde, Paulson, & Clark, 1972). This finding suggests that subjects tend to respond in kind towards their partners. (It should be
noted that with the Prisoner's Dilemma game this has not
always been found; cf. Nemeth, 1972.)

Finally, it should be noted that subjects playing in a
game with a payoff matrix which rewards cooperation tend to
cooperate more than those playing in a game which rewards
competition (Wrightsman et al., 1972).

Hypotheses

Machiavellianism, role taking, and empathy.

1. There is no significant correlation between scores in the
   Role Taking Task and Empathy Questionnaire.

2. High Machs score significantly higher on the Role Taking
   Task than low Machs.

3. Low Machs score significantly higher on the Empathy Questionnaire
   than high Machs.

4. Subjects scoring high on the Role Taking Task are significantly more cooperative (score higher on SumX) than those
   scoring low.

5. Subjects scoring high on the Empathy Questionnaire are significantly more cooperative (score higher on SumX)
   than those scoring low.

6. Subjects scoring high on the Role Taking Task are significantly more altruistic (score higher on Altruism) than
   those scoring low.

7. Subjects scoring high on the Empathy Questionnaire are significantly more altruistic (score lower on Altruism)
   than those scoring low.
Machiavellianism, partner, and Prisoner's Dilemma game.

8. High Machs win significantly more points (score higher on Total Score) than low Machs.

9. High Machs play significantly more rationally (score higher on Judgment) than low Machs.

10. High Machs become significantly more competitive (score lower on Change in the second half) in the course of the game.

11. High Machs play significantly more aggressively (score lower on Altruism) than low Machs.

12. Subjects playing against an aggressive partner (Partner C) are significantly more aggressive (score lower on Altruism) than those playing against other partner (Partners B and D).
CHAPTER II

METHOD

Subjects

Subjects were 80 10- and 11-year-old children, 40 boys and 40 girls, recruited from two parochial schools in Chicago. Both schools were in middle-class neighborhoods. Initially, principals were talked to by telephone, and the first two who agreed to large-scale testing of fifth- and sixth-grade children were used. Parents were sent consent forms describing the project (see Appendix A), and most of the children whose parents consented participated in at least the first session. Thirty-eight of the 118 children who participated in the first session were not included in the final sample. Five were eliminated because their verbal IQ scores fell below 95 on the Peabody Picture Vocabulary Test (Dunn, 1970) or the Cognitive Abilities Test (Thorndike, Hogan, & Lorge, 1968), which were used as screening instruments. Twenty-five were eliminated because they did not return for one or more of the subsequent session. Seven were eliminated because they duplicated subjects already tested in one of the categories defined by sex, Machiavellianism, and type of partner. Finally, one was eliminated because he was judged to have insufficient command of English to handle the verbal tasks.
Subjects were assigned to the different levels of the independent variables in the original design in such a manner as to insure 5 subjects in each of the 16 cells. The 16 cells were a product of crossing sex (male, female), Machiavellianism (high Mach, low Mach), and partner (Partner A, Partner B, Partner C, and Partner D). In the subsequent analysis, the measures of role taking and empathy were included as factors. This resulted in a 4 (partner) x 2 (sex) x 2 (Machiavellianism) x 2 (role taking) x 2 (empathy) analysis of variance for unequal n.

Means and standard deviations for age and social class as a function of the three primary independent variables are presented in Table 1. Social-class standing was computed using the Two Factor Index of Social Position (Hollingshead, Note 7). The social-class score based on this index is derived from the occupation of the head of household and the education of head of household. Scores for each vary from 1 to 7, 1 referring to the highest occupational or educational category, 7 to the lowest. Occupation is given a weight of 7, education a weight of 4. Thus a family in the highest occupational and educational category receives a score of 11 ((1 x 7) + (1 x 4) = 11), while a family in the lowest occupational and educational category receives a 77 ((7 x 7) + (7 x 4) = 77). To determine whether the differences between the groups for social-class were larger than might be expected by chance, a t test was done on the greatest differences between the means. The only significant difference was between high and low Machs.
Table 1
Means and Standard Deviations for Age and Social Class of Subjects for Sex, Partner, and Machiavellianism

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Age</th>
<th>Social Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
<td>M</td>
<td>11.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.65</td>
</tr>
<tr>
<td>Female</td>
<td>40</td>
<td>M</td>
<td>11.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.62</td>
</tr>
<tr>
<td>Partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>20</td>
<td>M</td>
<td>11.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.67</td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>M</td>
<td>10.96</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.66</td>
</tr>
<tr>
<td>C</td>
<td>20</td>
<td>M</td>
<td>10.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.57</td>
</tr>
<tr>
<td>D</td>
<td>20</td>
<td>M</td>
<td>11.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.66</td>
</tr>
<tr>
<td>Mach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>40</td>
<td>M</td>
<td>10.99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.68</td>
</tr>
<tr>
<td>Low</td>
<td>40</td>
<td>M</td>
<td>11.07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.58</td>
</tr>
<tr>
<td>Grand Total</td>
<td>80</td>
<td>M</td>
<td>11.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>.63</td>
</tr>
</tbody>
</table>
High Machs were significantly higher in social status (mean = 28.27) than low Machs (mean = 36.65). This was significant, \( t(78) = 2.77, p < .01 \). This is consistent with the frequently reported negative correlation between a social class and Machiavellianism (Christie, 1970c).

Materials

Kiddie Mach test. The Kiddie Mach test (Christie, 1970d), a 20-item, Likert-type scale, is basically a revision of the Mach IV in which items were simplified to make them more readily comprehensible to sixth graders. Half the items are positively keyed; for example, in item 20, "It hurts more to lose money than to lose a friend," agreement indicates a pro-Machiavellian attitude. Half the items are negatively keyed; for example, in item 2, "Most people are good and kind," agreement indicates an anti-Machiavellian attitude.

In the present study, subjects were required to indicate their responses to particular questions (see Appendix A for the Kiddie Mach as used in the present study) by circling agree a lot, agree a little, no opinion, disagree a little, or disagree a lot. The extreme pro-Machiavellian response was given a score of 5, the extreme anti-Machiavellian response a score of 1. Thus, scores ranged, theoretically, from a low of 20 to a high of 100. The scores actually ranged from a low of 31 to a high of 71 with a mean of 50.94. Subjects were divided into high and low Machs using a score close to the median. In the initial assignment of subjects, boys and girls
were assigned separately to conditions of high and low Mach, the cut off for boys being 51.5 and the cut off for girls 50.5. In subsequent analyses, the cut off for the entire sample was 51.5, which resulted in a distribution with 38 high Machs and 42 low Machs.

**Perspective-taking measures.** The perspective-taking tasks administered in the present study were Feffer's Role Taking Task (Feffer, 1959) and the Empathy Questionnaire (Feczko, Note 5). In the Role Taking Task, the subject is presented with a picture or photograph, usually an action picture involving two or more characters, and asked to tell a story about the characters in the picture. After he has told his initial story, the story having been tape recorded or transcribed, the story is repeated to check for accuracy and to refresh the subject's memory. The subject is then asked to retell the story as if he were one of the characters in his own story; i.e., he is asked to take the role of that character. The subject is then asked to take the role of each of the characters in the story in succession. The subject's role-taking score is a function of his ability to shift his point of view consistently from one character to another in the story he himself has made up.

Scores are assigned in relation to four categories which are ordered according to the number of aspects of the situation which are coordinated simultaneously. The four levels are (a) simple refocusing--a shift to the point of view of a particular
character in the retelling, (b) character elaboration—in addition, the subject portrays the other characters consistently with the point of view of the character whose point of view he is adopting, (c) perspective elaboration—in addition, there must be a clear inner-outer orientation: the subject must reveal something about the inner state of the character whose role he is taking, while he must see the same character exclusively from the outside when he appears in the story as told from the point of view of another character, and (d) change of perspective—in addition, "the subject must have two perspective elaborations involving the same two actors" (Schnall & Feffer, Note 1, p.30).

There are three levels of simple refocusing (scores 1-3), three levels of character elaboration (scores 4-6), five levels of perspective elaboration (scores 7-11), and eight levels of change of perspective (scores 14-22). The discontinuity in scores between perspective elaboration and change of perspective occurs because change of perspective is a combination of two perspective elaborations which may vary from 7-11. To arrive at an appropriate score, the scorer compares statements about the same character as they appear in different versions of the same story. Thus, for example, to receive a score within "perspective elaboration," the subject, when taking the point of view of a given character, must give information about the inner state of that character, but limit himself to information about externals when that same character appears in other versions
of the same story. Each story is scored separately for each character.

In the present study, the Role Taking Task consisted of responses to two different pictures. The first was a picture of a teacher with two little girls, one painting and the other having just spilled some paint. The second was a picture of several boys playing on a slide in a playground. A small boy was sliding down towards a bigger boy who had run up from the bottom. Several other boys were crowding up the ladder, and one in particular was holding out his fist towards the boy climbing up. In administering this second picture, the tester specifically pointed out the boy shaking his fist, the boy in the middle of the slide, and the boy at the bottom of the slide as the characters to be focused on in telling a story. A fairly common response to the first picture involved a teacher who had come over to watch one of her students paint. A second student became jealous and spilled the paint to get the teacher's attention. A fairly common response to the second picture involved a bully running up the slide while the little boy was sliding down. The boys yelled at the bully, telling him to let them slide down.

With few exceptions, each story had three characters and, hence, three scores. Scores from the two stories were summed to make the total score, the one used in the present study. In the few cases where the subject used two characters, the mean was added to the total, yielding a more accurate estimate of the
subject's role-taking ability. The present author and another graduate student first scored 10 protocols blindly, compared their scores to make sure the scoring criteria were clear, and then scored 10 more records blindly to establish interrater reliability. The results were correlated, yielding an interrater reliability of .93. The correlation was computed using the Pearson product-moment correlation coefficient. This author then scored the bulk of the protocols. The scores ranged from 36 to 57 with a mean of 47.57. When role-taking ability was considered an independent variable, high role taking and low role taking were defined by a cut off point near the median. The cut off point was 47.5. This resulted in 43 high role takers and 37 low role takers.

The Empathy Questionnaire, developed by Feczko (Note 5), measures the child's ability to identify correctly the feelings of others as inferred from their words and actions as well as the situation. The measure is based on particularly dramatic videotape vignettes taken from the popular television programs Kojak, Delvecchio, Serpico, The Brady Bunch, The Andy Griffith Show, and The Bob Newhart Show. Vignettes are of approximately 3 minutes duration, long enough to enable the child to grasp the situation but short enough to hold his attention. At specified moments during the vignettes, the videotape is stopped, and the subjects are asked how one of the main characters is feeling. The subject then circles the response which he feels best reflects the character's feelings (see Appendix A for the actual questions and choices of answers).
The programs and vignettes were chosen to include both prosocial and antisocial behavior and to display emotions of varying degrees of subtlety. In all cases, children were asked to identify the emotions of adults. This approach was used in order to minimize the likelihood of this being a measure of similarity projection rather than a measure of personality stereotyping or individuation (cf. Rothenberg, 1970; Weinstein, 1969).

For each of the 20 questions, the four possible answers are ordered for scoring purposes according to how accurately they reflect the feelings the character is experiencing, the best answer receiving a score of 4, the worst a score of 1 (see Appendix A). To assign ratings or scores to the choices, eight advanced graduate students in clinical psychology were asked to rate the choices. Thus, scores range from a theoretical high of 80 to a low of 20. The actual scores ranged from a high of 77 to a low of 50 with a mean of 62.32. When empathy was considered as an independent variable in the present study, those high on empathy were distinguished from those low on empathy by a median split, using 62.5 as the median. This cutoff divided the distribution into 37 lows and 43 highs.

Prisoner's Dilemma game. As explained previously, the Prisoner's Dilemma game can be understood as an analog of the predicament two suspects find themselves in when both are accused of having committed a crime and are interrogated separately by police. Each has a choice of confessing (move
Y in the present game, the competitive move) or not confessing (move X in the present game, the cooperative move). Each knows that if neither he nor his partner confesses, they will both go free. Each knows that if both confess, both will be convicted. Each also knows that if one confesses, while the partner does not, the one who confesses will go free and receive a reward for turning state's evidence, while the partner will receive a more severe penalty than as if both had confessed. Each is simultaneously motivated to confess and not to confess. The consequences to each of confessing or not confessing are dependent upon whether the partner confesses or does not confess, and neither knows what the other will do (Nemeth, 1972).

In the classical Prisoner's Dilemma game, points are given for each of the four possible combinations of moves (confess - not confess or Y - X; not confess - not confess or X - X; confess - confess or Y - Y; and not confess - confess or X - Y) so that the Y-player in the first wins most; the X-players in the next win less; the Y-players in the next win still less; and the X-player in the last wins the least. Game 2, in the present study, is an example of a classic Prisoner's Dilemma game:

<table>
<thead>
<tr>
<th>Your move</th>
<th>Partner's move</th>
<th>Your points</th>
<th>Partner's points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>X</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>X</td>
<td>Y</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>
Playing against a partner who plays randomly 50% Xs and 50% Ys, it is to the subject's advantage to play Ys.

Game 1 is a modification of the Prisoner's Dilemma game in which it is to the subject's advantage to play Xs against a partner who plays randomly 50% Xs and 50% Ys:

<table>
<thead>
<tr>
<th>Your move</th>
<th>Partner's move</th>
<th>Your points</th>
<th>Partner's points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>X</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>X</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>X</td>
<td>Y</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

Game 1 is not a classical Prisoner's Dilemma game because the highest payoff is for the X - X-players, not for the Y-player in the Y - X combination. The player who plays Xs consistently in Game 1 wins on the average 3 points a game, while the player who plays Ys consistently wins 2 points a game on the average. The consequences of playing Xs and Ys are reversed in Game 2. The more logical players would be expected to adapt their play to these differences.

Procedure

Subject recruitment was begun by telephone calls to principals of local parochial grammar schools. The researcher, after identifying himself as a graduate student in psychology, explained the nature of the study and its requirements in terms of time. It was stressed that participation would be entirely voluntary on the part of the children and their parents, that the project had been approved by the university ethics committee and the researcher's dissertation committee.
Three of the first six or seven principals contacted agreed, and two of those were selected.

Parental consent forms were sent home (see Appendix A) and children whose parents consented were given the initial set of tests. Testing was done in the school itself, during school hours at one school and after school at the other. The first session included the Kiddie Mach test and other tests used in a study by another graduate student (see Feczko, Note 5), whose research overlapped the present work. The instructions to the Kiddie Mach were read aloud (see Appendix A), and the tester answered questions. The tester then read each of the 20 questions aloud and paused at the end of each to allow the children to circle their answers. In cases where children asked about the individual items, the tester explained them as simply as possible. When the testing was over, the tester collected the papers and thanked the children.

The Role Taking Task and the Empathy Questionnaire were administered in a second session. Although there was some variation in the testing format, most of the children were tested in groups of eight, four taking the Empathy Questionnaire with Ms. Feczko and four taking the Role Taking Task with this researcher and three assistants (a graduate student and two undergraduate students) who had been selected, trained, and supervised by Feczko and this researcher.

In the present study, each subject had 40 moves, two sets of 10 in Game 1 and two sets of 10 in Game 2. The sequence of
games was either 1, 2, 1, 2, or 2, 1, 2, 1. To counterbalance for order-of-presentation effects, half the subjects began with Game 1 and half with Game 2. (See Appendix A for the actual form the subjects received.) In the Prisoner's Dilemma game, which is most often played against a mechanical device programmed to play a set sequence of Xs and Ys, the subject believes he is playing against an actual partner who is moving (playing Xs and Ys) simultaneously with him and who is receiving his moves just as he believes he is receiving his partner's moves. As previously mentioned partner, in the present study, a confederate of the investigator, played randomly 50% Xs and 50% Ys. Against such a partner, a consistent X-player would win an average of 3 points a move in Game 1 and 2 points a move in Game 2, while a consistent Y-player would win an average of 2 points a move in Game 1 and 3 points a move in Game 2. The rational player who understands the differences between Matrix 1 and Matrix 2 and the partner's style of play will play mostly Xs in Game 1 and mostly Ys in Game 2. (This perhaps oversimplified approach does not take into account the subject's attempts to influence his partner's game behavior.) This describes the "X-Y Game," as the children called it, as it was played by children in the Partner-A (no option) condition.

Berger and Tedischi (1969) have described a "zap" option in the Prisoner's Dilemma Game. Every seven moves, the subject has the option of "zapping" his partner; i.e., taking points away from the partner at a cost to himself. The present study also included
a "help" option, in which the subject could give his partner points at a cost to himself. Every five moves in the Partner-B, Partner-C, and Partner-D conditions, the subject had the option of zapping his partner (taking 10 points away at a cost of two points), helping him (giving him 10 points at a cost of two points), or doing nothing. In the 40 moves, then, there were eight options. In the Partner-B condition, the partner helped six times and did nothing twice. In the Partner-C condition, the partner zapped six times and did nothing twice. In the Partner-D condition, the partner did nothing all eight times.

The three option conditions were more complex than the no-option condition (Partner A); the subject had a larger arsenal of behavior at his disposal, and he had more information about his partner. Partner B was fundamentally altruistic, Partner C hostile or aggressive, and Partner D neutral.

Six scores were derived from the Prisoner's Dilemma game: Total Score, Judgment, SumX, Altruism, Change, and Difference. Total Score, Judgment, SumX, and Change had to do with patterns of Xs and Ys and applied to subjects in all partner conditions. Altruism and Difference had to do with the subject's tendency to use the help or zap option and applied only to subjects in Partner conditions B, C, and D.

Total Score was the sum total of points a subject won in a game, excluding the effects of the options: it referred to the total points each subject won as a result of the combination of Xs and Ys. It was a measure of general effectiveness in the game.
Judgment was the sum of Xs played in Game 1 minus the sum of Xs played in Game 2. Since it was advantageous to play Xs in Game 1 and Ys in Game 2, due to differences in the payoff matrices, Judgment reflected the subject's understanding of the matrices and his ability to adapt to the differences. (This, of course, assumed that the subject focused on the payoff matrices per se. It is theoretically possible that the subject might have understood the differences in the payoff matrices but because of his particular strategy did not respond to the difference.)

Sum X was the sum of the Xs the subject played and was considered a measure of cooperativeness. Since there were 40 moves in all and the alternative to X was Y, Sum X was directly related to the proportion of X moves.

Altruism was the sum of option scores and so applied only to subjects in Partners B, C, and D conditions. A positive score indicated a tendency towards altruism, a negative score a tendency towards aggression. Corresponding to the points the subject gave or took away from the opponent during the option move, a zap counted -1, a help +1, and no move counted 0. The structure of the game and the Altruism score rest on the assumption that altruism and aggression are mutually exclusive and represent polar opposites. These are by no means self-evident.

Change was the number of Xs in the second two games minus the number of Xs in the first two games. A positive score
indicated increased cooperativeness in the course of the game.

Difference was the change score for the option and was arrived at by subtracting the option points of the first two games from the option points of the second two games. A positive score indicated a change to a more positive or less negative play.

To take the Role Taking Task, the child was seated opposite the tester facing him. The picture was placed next to the tester where he could point to the characters in question, and where the child would have a clear view of the picture. The tester began by saying, "I want to see what a good storyteller you are. Can you tell a story about the people in this picture?" (The tester pointed to the teacher, the two little girls in one picture, the boy at the bottom of the slide, the boy in the middle, and the boy gesturing at the top of the slide.) "Tell what's going on, what happened before, and how it all turns out. You can tell what the people are thinking and feeling." The tester wrote down the story as the child told it. If the story was extremely meager, two or three short sentences, the subject was encouraged to tell how it all turned out or how the people were thinking and feeling. When the subject had finished his initial story, the tester read it back to make sure it was correct and to refresh the subject's memory.

After any corrections were made and the child indicated that the tester had the story right, the tester said, "Now, tell the same story again. Only this time make believe you
(The tester pointed to one of the characters, naming him.) "Tell your story like you are ______." Again, the tester transcribed the story as it was told, slowing the subject down when necessary by repeating the words of the story. (In fact, most of the children watched the examiner write down the story and paced their story accordingly.) After retelling the story three times, once from the point of view of each of the three characters, the subject went to another tester and repeated the whole process for the second picture. After telling stories to both pictures, the subject was thanked and went to take the Empathy Questionnaire, returned to the classroom, or went home.

Later, the stories were transcribed onto standard forms for scoring (see Appendix A).

Though this too varied, the Empathy Questionnaire was most often given to children in groups of four. The children were seated in front of the television monitor, and the tester said:

We are interested in finding out what children see when watching TV programs. I have some programs of people doing different things. Please watch closely. I will be asking you some questions as we watch. I'll want you to circle on your papers how certain people are feeling. I'll read the choices out loud to you. This is not a test. There are no right or wrong answers. I only want to know what you think the people in TV are feeling, and what you think may be different from what the boy or girl sitting next to you thinks the character is feeling. Some of these will be harder to figure out than others. Do you understand?

The tester answered any questions, and the testing began. The videotape was turned on, and as each crucial moment in the tape approached, the tester said, "Now watch ______," naming
the character about whom the question was going to be asked. The videotape was stopped when the crucial moment was reached, and the tester read the question and the four choices. After pausing to let the children circle the answers of their choice, the tester went on. When the testing was over, the tester thanked the children, and they went to take the Role Taking Task, back to the classroom, or home.

For the Prisoner's Dilemma game, chairs were arranged in a circle facing outward from the center. Balloons, candy, and gum were laid out on a table in plain view with signs underneath indicating how many points each item was worth. Most children were tested in groups of six to eight. The children were seated and told to read the instructions while the tester finished his preparations. The tester and his assistants were each assigned two or three subjects. Their job was to explain the game or answer questions during the practice and to write down the partner's moves on their children's forms. They were also to pretend to write down their subjects' moves and flash them by means of secret hand signals to one of the other "messengers" who would write down the subject's moves.

When everything was arranged, the testers took their places behind their subjects, on the inside of the circle, and one of the testers read the instructions from the form (see Appendix A), adding after the end of the second paragraph, "You know what cooperative means. When you cooperate with someone, you work together to help each other get as much as
possible. And you know what competitive means. When you compete, like in sports, you try to win more than your partner. You try to beat him." And at the beginning of the fourth paragraph, the tester said, "______, and ______, and I (naming the testers) will be messengers. We will write down your moves and then flash them to your partner's messenger who will give them to your partner. We will get your partner's move from his messenger and write them down on your paper." This was apparently credible, for when testing was over and the subjects were debriefed, none of them indicated they suspected that they had not been playing with an actual partner.

The group then went through the practice trials, with the tester explaining the moves and the options as well as the scoring to those children who seemed to have trouble understanding them.

When all the testers were satisfied that their subjects understood, the testing began. When it was over, each subject added up his points and chose a combination of gum, candy and balloons, the "cost" of which equalled his total points. Balloons were 10 points, miniature Hershey bars 30 points, gum 40 points, and bags of M & Ms 50 points. Most subjects won in the neighborhood of 100 points. Subjects whose partners had been hostile or neutral were given extra points, called a bonus, and this was justified on the grounds that they had had a mean partner.

After all the testing was completed, the researcher
returned to the school to explain to the children and interested parents more about the study and to answer questions. At that time he explained that the Prisoner's Dilemma game had been "rigged" to the extent that the partner's moves had been planned and there had been no actual partner. It was explained that this was done in order to find out how children play against different types of partners. None of the children appeared to be upset. After answering the children's questions, he invited them and their parents to call him should there be further questions. He also promised to send to the school a brief summary of the results when the data were analyzed.
CHAPTER III

RESULTS AND DISCUSSION

The results in the present study were analyzed both to test hypotheses and to explore for relationships not specifically posited in the hypotheses. Hypotheses 1 through 3 concerned the relationships among Machiavellianism, role taking and empathy, as measured by the Kiddie Mach test, the Role Taking Task, and the Empathy Questionnaire, respectively. For purposes of the initial analysis, which explored the differences in the Prisoner's Dilemma game variables as a function of partner, Machiavellianism, and sex, separate divisions close to the median were used to distinguish high and low Mach boys (51.5) and girls (50.5). As the difference between the sexes was slight, in the subsequent analyses, where the individual cells had unequal frequencies, a single cutoff of 51.5 was used. When differences in other variables were explored as function of role taking and empathy, cutoffs of 47.5 and 62.5 were used, respectively, to distinguish subjects high and low on the Role Taking Task and Empathy Questionnaire.

Hypotheses 4 through 7 concerned the relationships between role taking and empathy and the dependent variables of the Prisoner's Dilemma game. Those dependent variables were Total Score (total points won), Judgment (moves appropriate to the matrices minus those not appropriate), SumX (cooperative moves
minus competitive moves), Altruism (sum of scores on option moves), Change (cooperative moves in the first vs. the second half of the game), and Difference (Altruism score in the first vs. the second half of the game).

Hypotheses 8 through 12 concerned the relationships between Machiavellianism, partner, and the dependent variables of the Prisoner's Dilemma game. The variable partner represented the different moves which the confederate made during the option. In Partner A, there was no option condition at all. In Partner B, the confederate made the "help" move six times and no move twice (the subject was therefore playing against an altruistic partner). In Partner C, the confederate made the "zap" move six times and no move twice (the subject was therefore playing against a hostile partner). In Partner D, the confederate made no moves (the subject was playing against a neutral partner).

Machiavellianism, Role Taking, and Empathy

Null Hypothesis 1, that there was no significant correlation between role taking and empathy, was tested by correlating the Role Taking Task and Empathy Questionnaire scores (see Table 2), using the Pearson product-moment correlation coefficient. This resulted in a low positive correlation, \( r_{(78)} = .22, p \leq .05 \). Thus, Null Hypothesis 1 was formally rejected; however, this low correlation accounts for less than 5 percent of the variance, and the Role Taking
Table 2

Correlations among Measures of Interpersonal Competence and Variables of the Prisoner's Dilemma Game

<table>
<thead>
<tr>
<th></th>
<th>Role Taking</th>
<th>Empathy</th>
<th>Total Judgment Score</th>
<th>SumX Altruism</th>
<th>Change Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machiavellianism</td>
<td>0.08</td>
<td>-0.26**</td>
<td>0.04</td>
<td>0.07</td>
<td>-0.13</td>
</tr>
<tr>
<td>Role Taking</td>
<td>-0.22*</td>
<td>0.25*</td>
<td>0.16</td>
<td>-0.14</td>
<td>0.18</td>
</tr>
<tr>
<td>Empathy</td>
<td>0.13</td>
<td>-0.06</td>
<td>-0.15</td>
<td>-0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>Total Score</td>
<td></td>
<td></td>
<td></td>
<td>0.67**</td>
<td>-0.15</td>
</tr>
<tr>
<td>Judgment</td>
<td>0.00</td>
<td>-0.29*</td>
<td></td>
<td>0.02</td>
<td>0.09</td>
</tr>
<tr>
<td>SumX</td>
<td></td>
<td></td>
<td></td>
<td>0.16</td>
<td>0.17</td>
</tr>
<tr>
<td>Altruism</td>
<td></td>
<td></td>
<td></td>
<td>0.19</td>
<td></td>
</tr>
<tr>
<td>Change</td>
<td></td>
<td></td>
<td></td>
<td>-0.22</td>
<td></td>
</tr>
</tbody>
</table>

Note: Since n for Altruism and Difference was 60, excluding Partner A, and the n for the other variables was 80, the critical values required to establish statistical significance were different for different correlations.

*p ≤ .05 (two-tailed)

**p ≤ .01 (two-tailed)
Task and Empathy Questionnaire can be interpreted, for practical purposes, as unrelated. This result and interpretation is compatible with the findings of Kurdek and Rodgon (1975) and Moir (1974) which showed measures of role taking and empathy to be uncorrelated more often than they were correlated in different samples and with different measures of the constructs.

To test Hypothesis 2, that high Machs score higher on the Role Taking Task than low Machs, high and low Machs were compared with regard to their performance on the Role Taking Task. The differences, as shown in Table 4, were not statistically significant, $F(1, 76) = .25$. The finding of a nonsignificant correlation is compatible with this result as indicated by Table 2. (See Table 3 for the relevant means.)

The reasoning underlying Hypothesis 2 was not based on experimental findings. As high Machs are cognitively oriented (Geis & Christie, 1970) and are said to be more competent socially (Weinstein, 1969), they might be expected to be superior to low Machs at role taking, which is the ability to understand what the other knows. The failure to find confirmation for Hypothesis 2 might be accounted for on two grounds: First, high Machs do not excel in cognitive ability (high and low Machs do not differ in intelligence, for example) but rather in their ability to stay focused on the task at hand in the presence of distractions, which low Machs tend to involve themselves in emotionally (Geis et al. 1970). Second, performance
### Table 3

Means and Standard Deviations for the Role Taking Task in Relation to Different Levels of Machiavellianism and Empathy

<table>
<thead>
<tr>
<th>Empathy</th>
<th>High</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>16</td>
<td>27</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>48.25</td>
<td>48.63</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>5.37</td>
<td>4.32</td>
</tr>
<tr>
<td>Low</td>
<td>22</td>
<td>15</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>47.14</td>
<td>45.60</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.66</td>
<td>3.81</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>42</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>47.61</td>
<td>47.55</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.93</td>
<td>4.31</td>
</tr>
</tbody>
</table>
Table 4

Analysis of Variance for the Role Taking Task in Relation to Different Levels of Machiavellianism and Empathy

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machiavellianism (M)</td>
<td>1</td>
<td>5.16</td>
<td>17.35</td>
</tr>
<tr>
<td>Empathy (E)</td>
<td>1</td>
<td>82.65</td>
<td>3.98*</td>
</tr>
<tr>
<td>M X E</td>
<td>1</td>
<td>17.35</td>
<td>1.61</td>
</tr>
<tr>
<td>Error</td>
<td>76</td>
<td>20.78</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
on the Role Taking Task involves an understanding of the other's feelings as one aspect of achieving a high score; it is not exclusively a measure of understanding another's cognitions.

To test Hypothesis 3, that low Machs score higher on Empathy than high Machs, high and low Machs were compared with regard to their performance on the Empathy Questionnaire. The hypothesis was supported: Low Machs scored higher on the Empathy Questionnaire (M = 63.60) than high Machs (M = 60.92). (See Table 5). As table 6 indicates, this difference was statistically significant, $F(1, 76) = 6.37, p < .05$. The low, but significant correlation between Machiavellianism and empathy (Table 2) was consistent with this, $r(78) = -.26, p < .05$.

The evidence that low Machs were better at understanding the emotions of others might be understood in relation to findings that low Machs have a more elaborate system of concepts for understanding others than high Machs (Delia & O'Keefe, 1976). Subjects with a more differentiated conceptual structure for dealing with a given subject area might be expected to discriminate more effectively within that area. Further, low Machs, who are more likely to become involved with people and are oriented to emotions (Geis & Christie, 1970), have a more highly developed awareness of emotional experiences of others.

In sum, the low correlation between role taking and empathy in the present study is consistent with the view that they may be considered distinct abilities. The results of the
Table 5

Means and Standard Deviations for the Empathy Questionnaire in Relation to Different Levels of Machiavellianism and Role Taking

<table>
<thead>
<tr>
<th>Machiavellianism</th>
<th>Role Taking</th>
<th>High</th>
<th>Low</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>21</td>
<td>22</td>
<td>43</td>
</tr>
<tr>
<td>High</td>
<td>M</td>
<td>61.38</td>
<td>64.27</td>
<td>62.86</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.15</td>
<td>4.33</td>
<td>4.44</td>
</tr>
<tr>
<td>Low</td>
<td>n</td>
<td>17</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>60.35</td>
<td>62.85</td>
<td>61.70</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>5.58</td>
<td>5.18</td>
<td>5.44</td>
</tr>
<tr>
<td>Total</td>
<td>n</td>
<td>38</td>
<td>42</td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>60.92</td>
<td>63.60</td>
<td>62.32</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>4.80</td>
<td>4.75</td>
<td>4.93</td>
</tr>
</tbody>
</table>
Table 6
Analysis of Variance for Empathy Questionnaire in Relation to Different Levels of Machiavellianism and Role Taking

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machiavellianism (M)</td>
<td>1</td>
<td>146.37</td>
<td>6.37*</td>
</tr>
<tr>
<td>Role Taking (RT)</td>
<td>1</td>
<td>30.36</td>
<td>1.32</td>
</tr>
<tr>
<td>M x RT</td>
<td>1</td>
<td>.77</td>
<td>&lt; 1.00</td>
</tr>
<tr>
<td>Error</td>
<td>76</td>
<td>23.00</td>
<td></td>
</tr>
</tbody>
</table>

*p < .05
present study support the notion that low Machs have a better understanding of the emotions of others than high Machs; however, they seem not to differ in their ability to understand the cognitions of others. High Machs have generally been seen as more effective operators or manipulators. The inference was drawn that they were more competent interpersonally (Weinstein, 1969). The results of the present study are compatible with the view of Geis and Christie (1970) that high and low Machs have different interpersonal abilities, not that one is superior.

Role Taking, Empathy, and the Prisoner's Dilemma Game

Hypotheses 4 through 7 investigated differences in the variables of the Prisoner's Dilemma game in relation to levels of role taking and empathy. These hypotheses dealt with questions which concerned role taking and empathy as predictors of performance in the highly structured, highly simplified interpersonal situation of the Prisoner's Dilemma game. The analysis used to evaluate the statistical significance of results bearing on these hypotheses was a 4 (partner) x 2 (sex) x 2 (Machiavellianism) x 2 (role taking) x 2 (empathy) analysis of variance for unequal n.

Hypothesis 4, that subjects scoring high on the Role Taking Task are more cooperative (score higher on SumX) than those scoring low, was evaluated by comparing the performances of high and low role takers on SumX (see Table 7). As reported in Table 8, the difference between high role takers and low role takers did not reach statistical significance, \( F(1, 28) = 1.18. \)
<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Total Score</th>
<th>Judgment</th>
<th>SumX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partner A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Taking Hi</td>
<td>11 M</td>
<td>103.09</td>
<td>2.91</td>
<td>13.27</td>
</tr>
<tr>
<td>SD</td>
<td>4.59</td>
<td>2.55</td>
<td>5.83</td>
<td></td>
</tr>
<tr>
<td>Lo 9 M</td>
<td>98.33</td>
<td>.44</td>
<td>19.11</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>5.87</td>
<td>3.50</td>
<td>4.54</td>
<td></td>
</tr>
<tr>
<td>Partner B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Taking Hi</td>
<td>8 M</td>
<td>100.75</td>
<td>1.50</td>
<td>18.50</td>
</tr>
<tr>
<td>SD</td>
<td>6.16</td>
<td>3.85</td>
<td>5.01</td>
<td></td>
</tr>
<tr>
<td>Lo 12 M</td>
<td>96.75</td>
<td>.42</td>
<td>17.42</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>7.39</td>
<td>2.57</td>
<td>4.89</td>
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<tr>
<td>Partner C</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Taking Hi</td>
<td>11 M</td>
<td>101.18</td>
<td>2.18</td>
<td>13.64</td>
</tr>
<tr>
<td>SD</td>
<td>6.76</td>
<td>4.56</td>
<td>6.47</td>
<td></td>
</tr>
<tr>
<td>Lo 9 M</td>
<td>98.56</td>
<td>2.22</td>
<td>11.33</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>4.25</td>
<td>2.91</td>
<td>4.90</td>
<td></td>
</tr>
<tr>
<td>Partner D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Taking Hi</td>
<td>13 M</td>
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<td>5.46</td>
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Table 7 (continued)

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<td>19.56</td>
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<td>Lo 10</td>
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<td>Lo 10</td>
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<td>15.10</td>
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<tr>
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Table 8

Analysis of Variance for Unequal N: Total Score, Judgment, and SumX for Prisoner's Dilemma in Relation to Role Taking, Empathy, and Interactions

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<tr>
<th>Source</th>
<th>Total Score</th>
<th>Judgment</th>
<th>SumX</th>
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</thead>
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<td>MS</td>
<td>F</td>
</tr>
<tr>
<td>Role Taking (R)</td>
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<td>1.99</td>
<td>.70</td>
</tr>
<tr>
<td>Empathy (E)</td>
<td>1</td>
<td>21.72</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>Partner (P) x R</td>
<td>3</td>
<td>10.47</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>P X E</td>
<td>3</td>
<td>21.94</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>Sex (S) x R</td>
<td>1</td>
<td>0.1</td>
<td>/ 1.00</td>
</tr>
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<td>S X E</td>
<td>1</td>
<td>104.07</td>
<td>4.17</td>
</tr>
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<td>M X E</td>
<td>1</td>
<td>23.19</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>R X E</td>
<td>1</td>
<td>2.09</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>P X S X R</td>
<td>3</td>
<td>28.87</td>
<td>1.16</td>
</tr>
<tr>
<td>P X S X E</td>
<td>3</td>
<td>11.44</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>P X M X R</td>
<td>3</td>
<td>25.58</td>
<td>1.03</td>
</tr>
<tr>
<td>P X M X E</td>
<td>3</td>
<td>10.84</td>
<td>/ 1.00</td>
</tr>
<tr>
<td>P X R X E</td>
<td>3</td>
<td>114.66</td>
<td>4.59**</td>
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<td>29.99</td>
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<td>S X M X E</td>
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<td>2.90</td>
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<td>M X R X E</td>
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<td>49.94</td>
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<tr>
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<td>6.01**</td>
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<td>2.64</td>
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<tr>
<td>P X S X R X E</td>
<td>1</td>
<td>23.57</td>
<td>/ 1.00</td>
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</tbody>
</table>

Error                       | 28    | 24.96 | 28.08 | 13.60 |

*p / .05
**p / .01
Hypothesis 5, that subjects scoring high on the Empathy Questionnaire are more cooperative (score higher on SumX) than those scoring low, was evaluated by comparing the performances of those high and low on the Empathy Questionnaire on SumX (see Table 7). As with the Role Taking Task, the difference did not reach statistical significance, $F(1, 28) = 3.65$ (see Table 8).

In other words, the results suggest that high scores on the Role Taking Task and the Empathy Questionnaire are not associated with cooperativeness, as measured by the Prisoner's Dilemma game.

The present findings are not incompatible with those of Ceresnie (1974), Ianotti (1974), and Rushton and Weiner (1974) which showed no significant relationship between role taking and cooperative behavior.

This area is further complicated in the present study by a statistically significant interaction between level of the Role Taking Task, level of Empathy Questionnaire, and SumX, $F(1, 28) = 5.26, p < .05$ (see Table 8). As shown in Table 7, the greatest difference was between high scorers on the Empathy Questionnaire ($M = 13.31$) and low scorers ($M = 17.94$) among subjects scoring high on role taking. Those scoring low on the Role Taking Task were intermediate; the mean for those high on the Empathy Questionnaire was 16.53, the mean for those low on the Empathy Questionnaire 15.65. In sum, the relationship between measures of social competence and cooperation is unclear. Some investigations have found a positive relationship; some have
found no relationship. The results of the present study are consistent with studies which have found no main effect of role taking or empathy on cooperativeness; however, there may be a significant statistical interaction between role taking, empathy, and cooperation. It is impossible to decide at this point whether the differences in results are a product of sampling error, differences in the measures, or complex relationship between social competence and cooperativeness.

Hypothesis 6, that subjects scoring high on the Role Taking Task are more altruistic (score higher on Altruism) than those scoring low, was tested by comparing the Altruism scores of subjects scoring high on the Role Taking Task with those of subjects scoring low. This difference was not statistically significant, \( F(1, 20) = 1.78 \), (see Tables 9 and 10).

Hypothesis 7, that subjects scoring high on the Empathy Questionnaire are more altruistic (score higher on Altruism) than those scoring low was tested in an analogous fashion. As indicated in Table 10, this difference was also not significant, \( F(1, 20) = 1.65 \).

A single finding in the literature (Feshbach & Feshbach, 1969) has reported a positive correlation between aggressiveness and empathy. However, the bulk of the evidence is consistent with a positive correlation between role taking, empathy, and altruism.

The results of the present study, if they can be said to support any relationship between the Role Taking Task, the Empathy Questionnaire, and prosocial behavior measured by the
Table 9

Means and Standard Deviations of Altruism for Role Taking, Empathy, and Partner

<table>
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</tr>
<tr>
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<td>12</td>
<td>- .33</td>
<td>4.16</td>
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</tr>
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<td>Role Taking</td>
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<tr>
<td>Lo</td>
<td>9</td>
<td>-4.67</td>
<td>4.39</td>
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<td>4.68</td>
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### Table 10

Analysis of Variance for Unequal N: Altruism as a Function of Role Taking, Empathy, and Interactions

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</tr>
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</tr>
<tr>
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<td>4.72</td>
<td>_ 1.00</td>
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<td>_ 1.00</td>
</tr>
<tr>
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<td>_ 1.00</td>
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<td>_ 1.00</td>
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<tr>
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<td>_ 1.00</td>
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<td>_ 1.00</td>
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<td>Error</td>
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</table>
Prisoner's Dilemma game, suggest that subjects scoring higher on measures of social competence tend to be slightly less altruistic and more aggressive than those scoring low on measures of social competence.

One finding of possible importance which was not hypothesized was that subjects high on role taking score significantly higher on Total Score and Judgment ($M = 103.12$ and $3.23$, respectively) than subjects low on role taking ($M = 98.30$ and $1.14$, respectively) (see Table 7). The difference between means of Total Score was highly significant, $F(1, 28) = 12.70$, $p < .01$, while the difference between the means of Judgment was barely significant, $F(1, 28) = 4.58$, $p < .05$, (see Table 8). The same differences did not appear in relation to empathy. An inference might be made that, at least in the context of the Prisoner's Dilemma game, subjects high on role taking are more effective and grasp the logical structures of the game better than subjects low on role taking.

Machiavellianism, Partner, and the Prisoner's Dilemma game

Hypotheses concerning Machiavellianism and partner were considered together because one hypothesis involved both variables. The analysis used to evaluate the statistical significance of results bearing on Hypotheses 8, 9, 10, and 12 was a $4 \times 2 \times 2$ (partner) x (sex) x (Machiavellianism) analysis of variance for equal $n$. The analysis used to evaluate the statistical significance of results bearing on Hypotheses 10 was a $4 \times 2 \times 2$ (partner) x (sex) x (Machiavellianism) analysis of
variance for repeated measures.

Hypothesis 8, that high Machs win more points (score higher on Total Score) than low Machs, was tested by comparing scores of high and low Machs on Total Score. This difference was not statistically significant, $F(1, 64) = .19$, as shown in Table 12. (See Table 11 for the means.)

Hypothesis 9, that high Machs play more rationally (score higher on Judgment) was tested by comparing high and low Machs on Judgment. As with Total Score, this result was not statistically significant, $F(1, 28) = .05$ (see Table 12).

The results clearly support previous findings (Geis & Christie, 1970) that high Machs are not more effective than low Machs in situations which are not face-to-face and do not permit manipulation. One of the reasons for including the option was to encourage low Machs to become distracted or involved in the game in ways which the traditional Prisoner's Dilemma game did not. Under these circumstance, it was reasoned, low Mach subjects would not focus on differences in the payoff matrix and consequently high Machs would win, since they tend to remain objective. Evidently, the modifications of the Prisoner's Dilemma game used in the present study did not alter it significantly from that point of view.

Hypothesis 10, high Machs become more competitive (score lower on Change in the second half) in the course of the game, was tested by examining the Change scores of high Machs (see Table 13). This difference was not statistically significant, $F(1, 16) = .38$. 
Table 11
Means and Standard Deviations for Total Score, Judgment, and SumX in Relation to Partner and Mach

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>Total Score</th>
<th>Judgment</th>
<th>SumX</th>
</tr>
</thead>
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<td></td>
<td></td>
</tr>
<tr>
<td>Partner A</td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>102.75</td>
<td>3.25</td>
<td>15.50</td>
</tr>
<tr>
<td></td>
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<td>5.01</td>
<td>3.45</td>
<td>7.07</td>
</tr>
<tr>
<td>Lo</td>
<td>8</td>
<td>99.75</td>
<td>1.80</td>
<td>16.17</td>
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<td>15.90</td>
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<tr>
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<td>3.19</td>
<td>5.96</td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Mach Hi</td>
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<td>98.30</td>
<td>.80</td>
<td>18.60</td>
</tr>
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Table 12
Analysis of Variance for Equal N: Total Score, Judgment, and SumX in relation to Partner, Sex and Machiavellianism

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Total   3  123.58  3.46*  139.78  3.00*  94.91  3.07*

1  49.61  1.38  25.31  1.90  9.11 / 1.00

1  6.61 / 1.00  .61 / 1.00  .61 / 1.00

3  64.05  1.79  10.85 / 1.00  19.98 / 1.00

3  20.65 / 1.00  3.61 / 1.00  8.95 / 1.00

1  2.81 / 1.00  .61 / 1.00  21.01 / 1.00

3  40.71  1.14  12.08 / 1.00  80.49  2.60

Error  64  35.72  13.28  30.84

*p / .05
**p / .01
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<tr>
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<tr>
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<td>2.99</td>
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(see Table 14). This does not support the finding of Christie et al. (1970) that in the Prisoner's Dilemma game, high Machs become significantly more competitive over time. This may be due to the fact that, in the present study, the game was run for relatively few trials.

Hypothesis 11, high Machs play more aggressively (score lower on Altruism) than low Machs, was tested by comparing the Altruism scores of high and low Machs. This difference did not reach statistical significance, $F(1, 48) = 1.92$, as indicated in Table 16. The study of Wahlin reviewed in Christie et al. (1970), thus, was not supported.

Hypothesis 12, that subjects playing against an aggressive partner (Partner C) are more aggressive (score lower on Altruism) than those playing against other partners (Partners B and D), was tested by examining the effects of Partner on Altruism. Subjects playing against Partner C did score lower ($M = -5.25$) than those playing against Partner B ($M = -1.45$) or Partner D ($M = -3.95$) (see Table 15). The main effect of Partner was highly significant, $F(2, 48) = 5.45, p < .01$ (see Table 16). The individual means were compared using the Newman-Keuls procedure and those values were evaluated against Duncan's critical values. The difference between the Partner C condition and the Partner B condition (the altruistic partner) was statistically significant. The difference between Partner C and Partner D (the neutral partner) was not (see Table 17). These results lend partial support to Berkowitz' (1974) finding.
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<td>1.83</td>
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Table 15

Means and Standard Deviations for Altruism in Relation to Partner, Sex and Machiavellianism

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</tr>
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<td>C</td>
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<td>D</td>
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<td>3.96</td>
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Table 16

Analysis of Variance for Equal N: Altruism in Relation to Partner, Sex, and Machiavellianism

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</tr>
<tr>
<td>Mach (M)</td>
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<td>1.92</td>
</tr>
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<td>1.00</td>
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*P ≤ .05  
**P ≤ .01
Table 17

Individual Comparisons among Means for Different Levels of Partner Using the Newman-Keuls Procedure Evaluated Against Duncan's Critical Values

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<td>64</td>
<td>4.42**</td>
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<td>C - D</td>
<td>3</td>
<td>64</td>
<td>3.18*</td>
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<tr>
<td></td>
<td>B - A</td>
<td>3</td>
<td>64</td>
<td>1.95</td>
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<td>Judgment</td>
<td>D - B</td>
<td>4</td>
<td>64</td>
<td>4.12**</td>
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<tr>
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<td>A - D</td>
<td>4</td>
<td>64</td>
<td>2.95</td>
</tr>
<tr>
<td>SumX</td>
<td>B - C</td>
<td>4</td>
<td>64</td>
<td>4.23**</td>
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<td>48</td>
<td>4.60**</td>
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<td></td>
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<td></td>
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<td>2</td>
<td>48</td>
<td>2.06</td>
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</tbody>
</table>

*p / .05  **p / .01
that aggressiveness in others leads to aggressiveness.

The difference between the Partner B and Partner D conditions was also significant, as indicated in Table 17. This suggests an extension of Berkowitz' notions: subjects tend to respond in kind to other people regarding altruistic and aggressive behavior.

Partner was the most consistently significant variable in the present study. In addition to Altruism, Total Score, Judgment, and SumX were significantly affected by Partner. (see Tables 11 and 12). Specifically, for Total Score, \( F(3, 64) = 3.46, p \leq .05 \), for Judgment, \( F(3, 64) = 3.00, p \leq .05 \), and for SumX, \( F(3, 64) = 3.07, p \leq .05 \). As indicated by the Neuman Keuls test, reported in Table 17, Total Score subjects in the Partner D condition scored significantly higher (\( M = 104.25 \)) than those in the Partner B condition (\( M = 98.35 \)), and they scored significantly higher than those in the Partner C condition (\( M = 100.00 \)), but Partner A (\( M = 100.95 \)) did not differ significantly from Partner B. For Judgment, Partner D (\( M = 4.20 \)) was significantly higher than Partner B (\( M = .85 \)), but not significantly higher than Partner A (\( M = 1.80 \)). The points accumulated or lost as a result of the option moves was not considered in Total Score, Judgment, or SumX. One interpretation of these findings is that playing against either a benevolent or antagonistic partner tends to distract the subject from performing with maximum effectiveness on the task at hand.
while playing against a neutral partner in a game with an option enhances effectiveness. It may be that having a benevolent partner is a further deterrent to effective play perhaps because the subject is not moved to play actively.

Not surprisingly, subjects playing against an altruistic partner were most cooperative ($M = 17.85$) and those playing against hostile partner ($M = 12.60$) were least cooperative. This difference was significant, as indicated in Table 17. The absence of a significant correlation between cooperativeness and altruism, as indicated in Table 2, suggests that those behaviors are not related empirically and that "prosocial" is not an appropriate category to subsume them under.

Finally, it should be mentioned that sex was not significant as an independent variable with regard to any of the other variables and that no significant differences were found in Change and Difference.

The results of the present study can be summarized as follows: the treatment variable partner was the most consistently significant of the independent variables, having a significant effect on all but the change variables in the Prisoner's Dilemma game. With regard to affecting prosocial and asocial responses, the partner's behavior style elicited similar responses in the subjects. With regard to effectiveness, the neutral partner elicited with the most effective performance and the benign partner elicited the least effective performance. Machiavellianism was related to empathy but not role taking.
High Machs scored lower on the Empathy Questionnaire than low Machs. The Role Taking Task and Empathy Questionnaire showed a low positive correlation. Role Taking was the only one of the subject variables which was significantly related, as a main effect, to any of the Prisoner's Dilemma game variables. Subjects high on the Role Taking Task were more effective players, as indicated by Total Score.
CHAPTER IV

CONCLUDING COMMENTS

To predict a subject's performance in the present study, it was more important to know how his partner played than to know his scores on measures of social competence. Indeed, the only inference which could be drawn legitimately from a subject's scores on measures of social competence was that if he scored high on the Role Taking Task, he was likely to win more points and understand the payoff matrix better than if he scored low. In contrast, if a subject played a neutral partner, he was likely to win more points and understand the payoff matrix better than if he played an altruistic or an aggressive partner; and if a subject played an altruistic partner, he was likely to play more altruistically and more cooperatively than if he played an aggressive partner. It is, of course, an empirical question whether these results generalize to other samples, populations, measures of interpersonal competence, and interpersonal situations.

The Kiddie Mach test, the Role Taking Task, and the Empathy Questionnaire, which measured the subconstructs of interpersonal competence in the present study, showed low correlations. The Kiddie Mach test and the Empathy Questionnaire had a low negative correlation; the Role Taking Task and the Empathy Questionnaire had a low positive correlation; and the Role Taking Task and
the Kiddie Mach test had a nonsignificant correlation. These findings are consonant with results of previous studies: if the construct "social competence", or "social intelligence", is valid, then the tests purporting to measure that construct do not measure it accurately. The patterns of correlations among those tests and tests of related constructs, such as "abstract intelligence", show neither appropriate convergent nor discriminant validity for the construct.

A major limitation of the present study was that interpersonal behavior was studied in a minimal interpersonal situation, the Prisoner's Dilemma game in which there were either two or five possible responses to the same responses of an unknown and unseen partner. Further, prosocial and asocial behavior were operationalized so they were mutually exclusive. In the present study, hostile aggression was not distinguished from instrumental aggression; nor was the analogous distinction made with regard to altruism, cooperation, and competition. In other words, further studies might profitably use measures of interpersonal behavior and interpersonal situations which bear a closer resemblance to actual social situations than did the measures in the present study.

One possible explanation for the finding that measures of social competence have little to do with interpersonal behavior is that these measures actually have little predictive value relative to actual behavior. Another is that the measures used in the present study are not appropriate. Empathy is
not required in the Prisoner's Dilemma game, and there is little room for an interpersonal manipulator to operate. Perhaps the Role Taking Task is related to performance on the Prisoner's Dilemma game because it involves maintaining logical consistency among a number of story elements, and the game also involves an understanding of the relationships among a limited number of elements. Perhaps intelligence and level of motivation would be predictive of performance in this game because the subject had to understand the game and attend despite its repetitiveness. A third explanation might be that a division approximating a median split was used to distinguish subjects high and low on measures of social competence while the different partners' response patterns were quite distinct. Perhaps three or four levels on each variable would reveal differences between the extremes which related to the Prisoner's Dilemma game.

In conclusion, the overlapping concepts and complicated measures in the area of social competence have produced more confusion than clarity. It is to be hoped that further studies will be designed to gather information on a variety of measures of social competence so that multitrait-multimethod validation procedures may be used to tease out meaningful constructs in that area.

Thorndike, in his definition of social intelligence (1920), included both an understanding of an appropriate behavior in social relationships. Walker and Foley (1973) have emphasized
that an understanding of social relationships, as measured by
tests of social cognition or social intelligence, has not been
shown empirically to be related to appropriate social behavior.
The present study, which has included a measure of Machiavel-
lianism among measures of social competence, tend to underline
the suspicion that the two may not be closely related.
A Machiavellian orientation to interpersonal relations and perspective-taking ability are frequently mentioned as prerequisites for effective social interaction. The present study investigated the relationship between those personality variables, partner's response, and the interpersonal behaviors of altruism, aggression, cooperation, and competition. In the present study, Machiavellianism was measured by the Kiddie Mach test and perspective-taking ability by the Role Taking Task and the Empathy Questionnaire. The interpersonal behaviors were measured by a modified Prisoner's Dilemma game. The game was modified by (a) introducing an option in some conditions which permitted the subject to make an aggressive or an altruistic move, and (b) changing the payoff matrix in half the games so that it was to the subject's advantage to play cooperatively, given that his partner played cooperatively 50 percent of the time. Scores reflected the total points won, understanding of the game matrix, cooperativeness (vs. competitiveness), altruism (vs. aggression), and change in altruism or cooperativeness. Some subjects played against an altruistic partner, some against an aggressive partner, and some against a neutral partner.

Subjects were 80 10- and 11-year-old boys and girls.

It was hypothesized that (a) the Role Taking Task and the Empathy Questionnaire are not significantly correlated, (b)
high Machs score significantly higher on the Role Taking Task than low Machs, and (c) low Machs score significantly higher on the Empathy Questionnaire than high Machs. The Role Taking Task and the Empathy Questionnaire showed a significant positive correlation; high Machs did not score significantly higher on the Role Taking Task than low Machs, however, low Machs scored significantly higher on the Empathy Questionnaire than high Machs. Further, it was hypothesized that (d) subjects scoring high on the Role Taking Task or the Empathy Questionnaire are significantly more cooperative than those scoring low, and (e) subjects scoring high on the Role Taking Task or the Empathy Questionnaire are significantly more altruistic than those scoring low. Neither hypothesis was supported. Finally, it was hypothesized that (f) high Machs win significantly more points and play significantly more rationally than low Machs, (g) high Machs become significantly more competitive in the course of the game, (h) high Machs play significantly more aggressively than low Machs, and (i) subject playing against an aggressive partner play more aggressively than those playing against other partners. Only the last hypothesis received even partial support: subjects playing against an aggressive partner were significantly more aggressive than those playing against an altruistic partner, but they were not significantly more aggressive than playing against a neutral partner.

There were two significant findings which had not been
hypothesized: (a) subjects scoring high on the Role Taking Task won significantly more points and showed significantly a better understanding of the payoff matrix than those scoring low, and (b) subjects won significantly more points when playing against a neutral partner than when playing against either an altruistic or an aggressive partner.
REFERENCE NOTES


7. Hollingshead, A. B. Two factor index of social position. This can be obtained by writing to August B. Hollingshead, 1965 Yale Station, New Haven, Connecticut.
REFERENCES


APPENDIX A
I. PARENTAL CONSENT FORM

The following letter was somewhat modified because this researcher's study overlapped that of a fellow graduate student and a form was devised to include both studies. Also, specific times and dates were included, depending on the school.

Dear Parents:

I am a Ph.D. candidate in psychology at Loyola University of Chicago. My dissertation research concerns the relationship between children's interpersonal orientations and their behavior in a game situation. It would be most helpful if you would allow your son/daughter to participate in the study.

First, your child will fill out a short questionnaire concerning his interpersonal orientation. He will then perform tasks measuring his role-taking and empathetic skills. Finally, he will play the game. In the game, he will have two possible moves, and the number of points he wins will depend both on the moves he makes and the move his partner makes. At certain points in the game, he may have the option of giving his partner points or taking them away from his. His partner will have the same option. At the end of the game, children will be able to buy candy and gum with their points.

I expect your child to enjoy the tasks, but if at any time he decides not to continue, he will be free to do so. You yourself are welcome to ask questions and see the testing materials before, during, or after the testing. Please call me at home at 274-4192. Evenings are best. After the testing is completed, I will come to the school to explain the tests and the study to the children and interested parents.

Besides being enjoyable, I believe this study will provide a useful experience for your child in contrast to so many testing experiences. In this one he will be able to relax, enjoy the tasks, and talk to the tester when testing is over.

The results of the tests are entirely confidential. Your child will be assigned a number, and the results of his tests will be analyzed statistically, along with those of the other children.

If your child is to participate, I will need a little background information. Please give the occupation of the head of the household (job title and job description) and years of education of the head of the household.

Respectfully,
Please sign and return the following to school.

I give my permission for my child ________________ to participate in Mr. Bryant's study.

Signed ________________

Occupation of head of household ________________

Years of education of head of household ________________
II. Empathy Questionnaire.

The Brady Bunch: Mr. & Mrs. Brady switch jobs for a day.
1) How does Mrs. Brady feel after her second fall?
   a) upset  b) sore  c) discouraged  d) frustrated
2) How does Mr. Brady feel after he has fallen?
   a) sorry  b) embarrassed  c) funny  d) hassled
3) How does Marcia feel when she says "Smarty"?
   a) sad  b) angry  c) insulted  d) "stuck-up"

The Andy Griffith Show: Helen Krump, Andy's girlfriend is the director of a school play.
4) How does Andy feel when Helen says, "Who else would pitch in without being asked?"
   a) tricked  b) angry  c) surprised  d) helpful
5) How does Andy feel after Goober's imitation of Cary Grant?
   a) tired  b) angry  c) uninterested  d) bored
6) How does Helen feel when she says, "We did want it to be a surprise"?
   a) worried  b) shocked  c) pleased  d) "on the spot"

Serpico: Serpico, an undercover policeman, pretends to be an M-16 rifle salesman selling guns to black gangsters.
7) How is the black man feeling when he tells Serpico to "put his whole life into his story"?
   a) angry  b) worried  c) menacing  d) hateful
8) How does Serpico feel when he is told that he got off at the wrong stop on the subway?
   a) scared   b) upset   c) overpowered   d) sad

9) How does Serpico feel when the black boss tells his men to "Let him go"?
   a) happy   b) satisfied   c) brave   d) relieved

10) How does the black boss feel at the end as his assistant smiles?
     a) clever   b) good   c) pleased   d) worried

The Bob Newhart Show: Bob and Emily are visited by Bob's mother.

11) How is Emily feeling when she says, "Could you help?"
    a) unhappy   b) tired   c) aggravated   d) disgusted

12) How is Emily feeling when she asks, "Does the place look all right?"
    a) nervous   b) scared   c) calm   d) worried

13) How does Bob feel when he says, "My mother and father are separated."
    a) shocked   b) insulted   c) confused   d) unhappy

Kojak: Joseph Arrow, a young Indian living in New York has a hot temper.

14) How does the old man feel when he says to Joseph, "Who the hell are you?"
    a) angry   b) scared   c) curious   d) shocked
15) How is Joseph feeling when he says, "It was really ridiculous."?  
a) desperate  b) insulted  c) unhappy  d) angry

16) How is Joseph feeling when he says, "I just came for my job back."?  
a) stupid  b) scared  c) sorry  d) misunderstood

17) What is Ben feeling when he says to Joseph, "Say it, Say it!"?  
a) impatient  b) upset  c) furious  d) important

18) What is Joseph feeling when Ben tells him to, "Go sell your feathers."?  
a) unhappy  b) insulted  c) misunderstood  d) rage

Delvecchio: Police officers, Delvecchio (tall and thin) and Chauncy (short and chubby) are on a case. Billy is their suspect.

19) How is Billy feeling when Delvecchio says, "Police Officers, Billy."?  
a) scared  b) trapped  c) excited  d) upset

20) How is Chauncy feeling when he says to Billy, "What's the matter with you?"  
a) angry  b) worried  c) "at the end of his rope"  
d) impatient
### III. Scoring Guide, Empathy Questionnaire

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<td>&quot;at the end of his rope&quot;</td>
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IV. Kiddie Mach Test.

Name: ____________________________

Age: ____________________________

Birthday: _________________________

(Below are twenty statements. They are matters of opinion, and I am interested in your opinion on each statement. You may agree or disagree. You may agree or disagree a little or a lot.) I will read each statement aloud while you read it to yourself. To tell me your opinion, circle one of the five phrases after the statement: agree a lot, agree a little, no opinion, disagree a little, disagree a lot. Any questions?

Because I have to have your honest opinion, I won't tell anyone how you filled it in. (You will agree with some statements and disagree with others. Just give your first reaction. You will have some opinion about practically every statement.)

1. Never tell anyone why you did something unless it will help you.

agree a lot agree a little no opinion disagree a little disagree a lot

2. Most people are good and kind.

agree a lot agree a little no opinion disagree a little disagree a lot

3. The best way to get along with people is to tell them things that will make them happy.

agree a lot agree a little no opinion disagree a little disagree a lot

4. You should do something only when you are sure it is right.

agree a lot agree a little no opinion disagree a little disagree a lot

5. It is smartest to believe that all people will be mean if they have a chance.

agree a lot agree a little no opinion disagree a little disagree a lot
6. You should always be honest, no matter what.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

7. Sometimes you have to hurt other people to get what you want.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

8. Most people won't work hard unless you make them do it.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

9. It is better to be ordinary and honest than famous and dishonest.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

10. It's better to tell someone why you want him to help you than to make up a good story to get him to do it.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

11. Successful people are mostly honest and good.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

12. Anyone who completely trusts anyone else is asking for trouble.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

13. A criminal is just like other people except that he is stupid enough to get caught.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot

14. Most people are brave.

agree a lot  agree a little  no opinion  disagree a little  
 disagrees a lot
15. It is smart to be nice to important people even if you don't really like them.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot

16. It is possible to be good in every way.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot

17. Most people can not be easily fooled.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot

18. Sometimes you have to cheat a little to get what you want.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot

19. It is never right to tell a lie.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot

20. It hurts more to lose money than to lose a friend.

agree a lot  agree a little  no opinion  disagree a little  disagree a lot
V. The X-Y Game (Prisoner's Delemma Game).

The form without the option (Partner-A condition) was essentially the same, except that instructions for the option, as well as spaces for the option moves, were omitted.

THE POINTS GAME--PRACTICE

The idea of the points game is for you to win as many points as possible. At the end of the game you will be able to buy things with your points. No matter what happens, you will win points.

You have two moves in this game, X and Y. Your partner also has two moves, X and Y. How many points you win depends on how you play and how your partner plays. X is the cooperative move. Y is the competitive move.

Every five plays, I will say "option." When I say "option," you can do one of three things. 1) You can help your partner (give him 10 points, but it will cost you 2 points). 2) You can zap your partner (take 10 points away from your partner, but it will cost you 2 points). 3) Do nothing. Remember, your partner will have the same option.

You will not know who your partner is. All you will know about him is how he makes his moves. All he will know about you is how you make your moves. You will be getting to know him by the way he makes his moves. He will be getting to know you in the same way. We will not tell you who your partner is.

Game 1--points

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<th>Partner's move</th>
<th>Your points</th>
<th>Partner's points</th>
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<td>6</td>
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<tr>
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<tr>
<td>Y (competitive)</td>
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<td>0</td>
</tr>
<tr>
<td>Y (competitive)</td>
<td>X (competitive)</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Option--it costs you two points to help your partner (give him 10) or to zap him (take 10 away). It doesn't cost you anything to do nothing.
You make your move by writing X or Y in the space under "your move." Someone will record your move and write it on your partner's sheet. They will also record your partner's move and write it on your sheet.

<table>
<thead>
<tr>
<th>Your move</th>
<th>Partner's move</th>
<th>Your points</th>
<th>Partner's points</th>
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<td>4. _______</td>
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<td>Option</td>
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Game 2--points

<table>
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<th>Your points</th>
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<tbody>
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<td>Option</td>
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## Game 1--points

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<th>Your points</th>
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**Option:** Help (H) gives your partner 10, costs you 2.  
Zap (Z) takes away 10 from your partner, costs you 2.  
Nothing

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<th>Your move</th>
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<tr>
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<td>2.</td>
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**Option**

| 6.        |                |             |                  |
| 7.        |                |             |                  |
| 8.        |                |             |                  |
| 9.        |                |             |                  |
| 10.       |                |             |                  |

**Option**
### Game 2---points

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Option: Help (H) gives your partner 10, costs you 2.  
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Option

| 6. _______ | _______        | _______     | _______          |
| 7. _______ | _______        | _______     | _______          |
| 8. _______ | _______        | _______     | _______          |
| 9. _______ | _______        | _______     | _______          |
| 10. ______ | _______        | _______     | _______          |

Option

Name _______________________________
Game 1--points

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<td>6</td>
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<td>X</td>
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APPROVAL SHEET

The dissertation submitted by William A. Bryant has been read and approved by the following committee:

Dr. Jeanne M. Foley  
Professor, Psychology, Loyola

Dr. James E. Johnson  
Associate Professor, Psychology, Loyola

Dr. Thomas P. Petzel  
Associate Professor, Psychology, Loyola

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December 5, 1977  
Director's Signature