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Gender comparisons of young children's social interaction in cooperative play activity

Ausch, Lea, Ph.D.

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U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

GENDER COMPARISONS OF YOUNG CHILDREN'S SOCIAL INTERACTION IN COOPERATIVE PLAY ACTIVITY

by

LEA AUSCH

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Executive Officer

David J. Bearison

Carol Kehr Tittle

Susan Zalk

Supervisory Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

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by

LEA AUSCH

Advisor: Professor David J. Bearison

The subject of this dissertation is young children's social interaction in cooperative play activity. The problems addressed by the research were: Is there a difference between the way preschool boys interact and the way that preschool girls interact during a cooperative play activity? Are their interaction strategies affected by the composition of the dyad? Is their interaction influenced by their level of interest in the activity?

The research was conducted in a private school which served predominantly white, middle-class children. The population for this study was comprised of 5 and 6 year old children who attended preschool Monday through Friday.

Eighty children (40 boys and 40 girls) were randomly assigned to either same gender or mixed gender dyads. Two activities were employed. One activity was of high interest

to girls and low interest to boys, and the other activity was of high interest to boys and low interest to girls. Same gender and mixed gender dyads were all presented with both activities.

Subjects interaction strategies and linguistic styles during both activities were coded, and data were analyzed to assess the role of gender, level of activity interest, and gender composition of the dyad on characteristics of the interaction.

Results showed a main effect for both group composition and level of interest on the proportion of aggravated behavior scores; interaction effects of gender by level of interest, and gender by group by level of interest on the proportion of aggravated behavior scores; and various interaction effects for the proportion of aggravated behavior for all individual behavior strategies, in all of which level of interest was one of the interaction factors. The findings support the central hypothesis of the study, that differences in the use of aggravated behavior in interaction style by boys and girls is strongly influenced by their level of interest in the activity being performed.

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Most important, I wish to express my most special recognition and appreciation to my husband, Martin; my son, Robert; and my daughter, Debbie, for their encouragement, support, and love.

Finally, I should like to dedicate this dissertation to the memory of my father, Herman Hirsch.

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CHAPTER I

Introduction

Research on gender and interaction strategies during the decade of the 1980's showed increased attention to evidence that the behavior of boys and girls during interaction did not conform to classic gender-stereotypical patterns (Sgan & Pickert, 1980; Miller, 1986; Leaper, 1987; Sacks, 1987).

Until the early 1970's the prevailing theory in the psychological literature was that during social interactions in task-oriented group situations men are "instrumental" or "agentically oriented", while women are "expressive" or "communally oriented" (Eagly, 1983). "Communal qualities are manifested by selflessness [and] concern with others" (Bakan, 1966), while "agentic qualities are manifested by self-assertion, self-expansion, and the urge to master" (Eagly, 1983, p.32).

Increasing interest in the research on gender in the 1970's led to wide dispute as to the accuracy of this interpretation. Review of the literature of that period suggests that "the popular 1970's verdict [is] that gender differences are typically small or non-existent" (Eagly, 1983, p. 39). For example, Maccoby and Jacklin's (1974) review of the literature concluded that boys are not more

achievement-motivated, nor are girls more affiliative or sensitive to social cues. Although the review concluded that there were no general gender differences, many inconsistencies and unanswered questions remained.

Even though earlier studies pointed to small or non-existent gender differences, as Eagly notes, "overall numerous social behaviors are to some degree gender-typed along stereotypic lines" (1983, p. 41). For example (Eagly, 1987) the popular assumption about social behavior in task-oriented groups is that male behavior is more "task-oriented" and female behavior is more "social". These behaviors are important in people's stereotypes about males and females. Although gender stereotypes encompass information pertaining to other domains as well, "such personal qualities or traits are by far the most prevalent form of gender stereotype belief" (Eagly, 1983, p. 17) Deaux and Major (1987) captured the conflicting results of many of those findings, noting

> **Those who argue that there are no stable sex differences on the one hand have had difficulties explaining widespread male-female differences in the culture at large ...Those who predict stable sex differences**

> **have had trouble accounting for the often limited ability of sex to predict behavior ...These contrasting patterns of variability and stability have presented a persistent challenge for theories of gender (Deaux & Major, 1987, p. 369).**

Interest in gender differences and social interaction has acquired considerable momentum in recent years. Although much of the research suggests the existence of gender differences, there is little agreement as to the situations which would encourage confidence in predicting generalizations in gender patterns. The research reveals a complexity of social interaction in gender research and suggests the variability of social interaction as a function of a multiplicity of variables such as gender of subject, gender composition of the group, activity, and the like.

Research examining gender differences in mixed-gender task oriented interactions among school-age children found that males who sought help were more likely to receive it than females, whose requests were more likely to be ignored; and both males and females directed more of their comments to males, with males tending to be more active generally (Wilkinson, 1982; Webb, 1984; Lockheed, 1985; Lockheed & Hall, 1976). These findings on children's

interactions are consistent with findings on adult mixed-gender interactions (Lockheed, 1985), which found that women were usually dominated by men in such interactions.

Sociologists such as Mead (1934) recognized the importance of social context in the development of social and cognitive functioning. Indeed the claim that cognitive growth arises out of social interaction can be traced back to the closing years of the last century in the writings of John Mark Baldwin (1897). Contemporary theories that explain cognitive growth in terms of social interaction (e.g., Piaget, 1955, 1985; Vygotsky, 1962, 1968) have found a wide following.

Piaget identified cooperation as "...the first of a series of forms of behavior which are important for the constitution and development of logic" (Piaget, 1950, p. 162). The further corrollary, that "social interaction does indeed exercise a causal effect on cognitive development", addressed by Doise, Mugny, and Perret-Clermont (1975), had earlier been supported by both Mead (1934) and Vygotsky (1962). Both Mead and Vygotsky asserted the primacy of language as the mediator of the social origins of thought, whereas Piaget maintained that the coordination of actions is what gives rise to thought (Piaget, 1950). According to Vygotsky, the development of knowledge first appears between persons on the inter-psychological plane and then

within the child on an intra-psychological plane. In other words, "what the child can do in cooperation today, he can do alone tomorrow" (Vygotsky, 1962, p. 104). For Vygotsky "the true direction of the development of thinking is not from the individual to the socialized, but from the social to the individual" (p. 20). For these theorists cognitive development has its roots in social interaction.

Several studies support the notion that there are gender differences in strategies used in social interaction (Lever, 1976; Miller, Danaber, & Forbes, 1986; Bearison, Magzamen, & Filardo, 1986; Sgan & Pickert, 1982). The most frequently reported finding is that males engage in more conflict behavior than females. The importance of this finding looms all the larger if further research supports the finding that conflict behavior is associated with cognitive gain scores (Bearison et al., 1986).

If peer conflict is an important component of the process leading to cognitive growth, and males engage in this behavior significantly more often than females, one might predict that males would demonstrate consistently more advanced development on cognitive tasks. Yet research clearly indicates that this is not the case (Webb, 1984; Charlesworth & Dzur, 1987).

Researchy on children's social interaction and gender is a promising area for advancing knowledge about the

process of cognitive growth, as well as gender socialization. Research investigating gender patterns in children's social interactions, however, has not yet produced a body of knowledge that can serve as a stable foundation upon which further research can build. The failure to replicate outcomes, conflicting findings, and qualified findings suggest that social interaction gender patterns are not stable behavioral modes, but vary as a function of the context within which it occurs. A review of the literature suggests several variables that may strongly influence these patterns, as well as possible biases in studies that have failed to consider them.

The purpose of the present research was to investigate boys' and girls' linguistic styles and interaction strategies when engaged in play in dyads, and how these may vary as a function of the level of interest in the activity and gender composition of the dyad.

Eighty children (forty boys and forty girls) of five and six years were randomly assigned either to same gender or mixed gender dyads. Two activities were employed, one of high interest for girls and low interest for boys, and the other of high interest for boys and low interest for girls. Same gender and mixed gender dyads were presented with both activities. Subjects' interaction strategies and linguistic styles of interaction during both activities were coded

and data were analyzed to assess the role of gender, level of interest, and gender composition of the dyad on characteristics of the interaction.

The present study was designed to clarify critical and previously unaddressed issues generated by the frequently reported finding that males engage in more conflict behavior than females (Omark & Edelman, 1973; Lever, 1976; Phinney & Rotheram, 1986; Bearison et al., 1986). Specifically, the present study raised questions as to possible gender bias in research methodologies in these and other studies relating to this topic, and examined the effect of gender differences in task interest level and gender composition of the dyad on interaction strategies and linguistic styie.

CHAPTER II

REVIEW OF THE LITERATURE

Overview

Within the past two decades psychologists have produced an impressive body of research relating to gender. Few areas of psychological research or theory have ignored the relevance of gender in the study of human behavior. Research on gender patterns in social interactions have studied families, friends, schools, workplaces, social gatherings, and experimentally derived settings. This work constitutes a large and growing body of knowledge.

The present research is concerned specifically with gender patterns in children's linguistic social interactions and variables that may influence these patterns.

Although the present study addresses factors that influence social interaction styles, research clearly demonstrates that style of interaction influences subsequent outcomes. Because the present study is concerned with questions raised by the literature suggesting that social interaction influences cognitive development, and the research findings reporting gender differences in patterns of social

interaction, theoretical perspectives and pertinent research on social interaction and cognitive development will be addressed in order to suggest research directions for contributing knowledge about cognitive development, gender interaction styles, and the implications for educational approaches.

Research Findings

The present study investigated the following: (a) the dyad as the vehicle of social interaction; (b) gender-related interaction strategies and linguistic styles of subjects with same-gender and opposite-gender partners; and (c) the impact of task interest upon characteristics of social interaction. Studies on gender and social interaction have typically addressed but one or two questions within a single study and have generally failed to consider the interrelationship of these factors in combination within a single study. The present study can be seen as a logical product of the recognized deficiencies in these areas of research, most notably the failure to examine the interrelationship of all these variables in a single context.

Social Conflict, Social Cooperation: Mechanisms of Cognitive Change

For Piaget (1932), the occurrence of some kind of

"conflict" as a result of interpersonal contact was essential for the development of decentration in the interpersonal realm.

Cognitive conflict, which is one of the most controversial features of Piaget's theory, can be the result of the individual's lone confrontation with experience, or encounter with the perspective of another that is different from one's own. For "cognitive development... rests on intra-individual as well as inter-individual coordinations..." (Bearison, 1982, p. 202). Yet it is clear that it is *inter*-individual coordinations which are seen as providing the greatest cognitive growth, precisely because they are the most capable of stimulating the greater amount of cognitive conflict.

From the writings of Piaget and his followers, one might expect that peer interactions which pose "conflicts" and "disagreements" for children would be most effective in facilitating change (Bearison et al., 1986). Although cognitive conflict has not as yet been exactly defined, those who use the notion in a social sense generally mean some perceived contradiction between the perspective of the subject and that of another. This was apparently the interpretation in the reported finding in Bearison et al. (1986), that verbal disagreements with explanation promote cognitive development on a spatial-relations task.

Although some support the view that "conflict" promotes

cognitive change (Bearison et al., 1986), others espouse the position that "cooperation" promotes cognitive growth (Damon & Killen, 1982). Damon and Killen found that positive collaboration, rather than conflictual collaboration, led to the most progress on a distributive justice task. Such collaboration is accomplished through an exchange of suggestions and an attempt at continuing conflicting positions and arguments.

In a recent study involving peer collaboration on mathematics and spatial-relations tasks, Damon and Phelps (1987) found a sharing of ideas to be positively related to cognitive change. Their findings suggest that cooperation may be viewed as a source of new mental functions, leading the authors to comment that "the strength of peer collaboration lies in its potential for mutual constructive discourse" (p. 34). Ames and Murray (1982) noted some years earlier that "although peer conflict and interaction have been shown to promote congitive development...it has never been clear what aspects of the conflict situation produce growth" (p. 894). In their examination of the interaction process Berkowitz and Gibbs (1983) concluded that in order to be effective for purposes of development, the interaction should be "transactive" in character, and evidence reasoning that operates on the reasoning of another, rather than consist of a mere succession of ideas

and statements. Conflict is thus to be understood as a process comprehending diverse behaviors, rather than as a discrete behavior in itself.

Review of research reveals that investigators traditionally have distinguished between conflictual, aggressive behavior on the one hand, and cooperative behavior on the other hand. As a consequence the two forms have been looked upon as different and even opposite means of achieving goals. This traditional approach is problematic in the light of recent evidence that instead of being opposites, the two may been seen as complementary within a single process (Charlesworth & Dzur, 1987).

Studies in Dyadic Interaction and Cognitive Development

The ability to engage in coordinated group activities with peers is generally regarded as a milestone in the social development of pre-schoolers. For Piaget (1950), the contributions of others (and more specifically, peers) to the development of the child's logical *schemata* resides in the mechanism of "group conservation", that is, the information of others is available together with the child's own information, and the child groups all the information to the extent that the child can utilize it.

At variance with a strict Piagetian view, recent

investigators (e.g., Doise et al., 1975; Perret-Clermont, 1980; Bearison et al., 1986) have found that there may be a directional relationship between the group's activities and the individual's cognitive activities. Dyadic problem-solving experiences seem to benefit children; the exchange of ideas promotes new understanding, which in turn promotes cognitive restructuring.

Researchers have favored the dyad as the preferred social interaction vehicle (Bearison et al., 1986; Damon & Killen, 1982; Berkowitz & Gibbs, 1983). It promotes "transactive behavior" (Berkowitz & Gibbs, 1983) within a framework that does not become too unwieldy for participants to deal with. Interaction is most productive when it is characterized by "transactive behavior" (Berkowitz & Gibbs, 1983), i.e., "reasoning which operates on the reasoning of another" (Damon & Killen, 1982).

Doise and his associates (1975) have shown the significance of dyadic interaction on cognitive growth with the finding that children working together in dyads on a cognitive task were able to perform on a higher developmental level than children working individually. The crucial aspect of the experiment was the confrontation of the subjects by their partners. This confrontation and the accompanying defense by the subject of his/her argument is what seems to have led to restructuring and the attainment

of conservation of liquids by subjects who had previously been non-conservers.

> **The interaction obliges the individual to coordinate his actions and bring in a new centration that encounters all points of view, which can only be assimilated if cognitive restructuring takes place (Perret-Clermont, 1980, p. 148).**

Bearison et al. (1986) examined dyadic interactions in order to distinguish dyads that benefit from social interaction from those that do not. Their task required subjects to re-create a village scene depicted on a model panel onto a copy panel rotated at a ninety-degree angle to the model panel, working either in dyads or individually. Although results showed that subjects working on the task with a partner did not achieve higher scores than those working alone, this finding was irrelevant to the primary focus of the study, which was to identify aspects of the social interaction that distinguished dyads making significant cognitive gains from those that did not.

> [It] appears that sociocognitive conflict requires more than the expression of task-relevant contradictions. **Disconfirming statements must be justified during interaction if they are to facilitate some effective type of cognitive reorganization (Bearison et al., 1986, p. 69).**

Dyadic peer interaction can foster cognitive development by allowing children to acquire new skills and to integrate them through the medium of discussion into a reorganized cognitive structure. But how this is accomplished--or if it is accomplished at all--depends upon the characteristics of the interaction process. Were it otherwise, there would be no accounting for differences in the achievement levels of subjects for whom all other variables have been held constant (Bearison et al., 1986).

Studies on Gender Differences in Social Interaction

Much of the current research focuses upon the relationship between peer interaction and cognitive development (Bearison et al., 1986; Damon & Phelps, 1987). Although each of these provides occasions for social interaction and cognitive exchange, peer collaboration may more closely resemble much of everyday peer interaction, in that the responsibilities of peers at the outset are symmetrical. However, any one of several social arrangements may result, leading to different learning opportunities for different participants.

One approach to understanding the learning opportunities available as peers interact is to examine the influence of characteristics of the participants on the process of joint problem-solving. Characteristics that children bring

to the interaction, such as level of interest in the activity, or the social history of the dyad, or personal characteristics of the participants--gender in particular--may significantly direct the process of interaction during the activity.

There is some evidence that the gender of the participants may shape the process of interaction, which may in turn influence the quality of cognitive exchange that occurs (Miller et al., 1986; Goodwin, 1980; Bearison et al., 1986). Results from other studies suggest that differential results along gender lines may be traceable to gender-related social experience or to gender-related differential interest levels with respect to the activity (Phelps & Damon, 1989).

Gender as a Social-role Variable

Gender of the participants is an important variable in studies of peer interaction. Several stereotypes exist with respect to gender differences in children. Wilkinson et al. (1985) examined interaction in small mixed-gender groups in the classroom and found that boys made more requests for action and information to other boys than to girls, whereas girls directed an equal number of such requests to girls and boys alike. In the former cases, the answers given by boys prevailed to a significantly greater extent than those given by girls. A plausible explanation for these findings could

be found in the acknowledged superiority of the boys in mathematics, the study material about which the interactions took place. The authors rejected such an explanation, however, citing the fact that boys and girls in the study were virtually identical with respect to their scores in mathematics, with the girls showing a slightly (though not significantly) higher average mathematics score than the boys.

In another study of classroom mixed gender small group interactions, Webb (1984) observed high school students working on mathematics problems, with subjects assigned to either male-majority, female-majority, or equal-gender groups. Results showed marked inequalities in the female-majority groups. For example, in terms of who sought aid from whom, in groups composed of three females and one male, the females directed most of their requests for information to the one male. Additionally, females tended to be more responsive to requests for aid than males. For their part, males responded more to other males than to females, whom they often completely ignored. The tendency on the part of both males and females to seek help from males in Webb's (1984) study is consistent with Lockheed and Hall's (1976) description of gender as a status characteristic. In Webb's characterization, males are expected to be more competent than females and consequently

more likely to hold positions of power and influence in the group. This study did not obtain direct evidence of male and female perceptions of each other's competence; however, comments made during group interactions indicated that some of the females clearly ascribed superior ability to males. All this would suggest that children's peer groups play an important role in the transmission of cultural knowledge. The longer the gender-segregated pattern of interaction continues, the fewer the opportunities for boys or girls to "acquire new information or display alternative abilities, interests, or beliefs" (Webb, 1984, p. 329).

Eagly addressed the question of the role of status inequality. Both men and women, and girls and boys, are believed to differ in how influential and easily influenced they are. Men are considered to be more influential, women to be more easily influenced (Webb, 1984; Lockheed & Hall, 1976). According to Eagly these differences are explained by formal status inequalities, according to which men are usually accorded higher status roles than women. Studies reviewed here suggest how gender inequalities might be played out in the context of a school setting. With respect to the present study, they shed some understanding on the value of examining the extent to which aspects of school experience treat traditional gender relations as non-problematic, as taken-for-granted aspects of the world.

Studies on Gender and Social Interaction During Free Activity

The rules and organization of children's play have been found to be quite different for boys and girls . According to Lever (1974), "...through their games boys are exposed to a richer variety of social contexts" (p. 173). Girls' play activity was "dyadic parallel play...girls felt most comfortable in pairs, while boys played in larger groups" (p. 247). Her study of 181 elementary school children (Lever, 1976) uncovered play patterns which she saw as calculated to equip boys with the social skills needed for occupational careers, while equipping girls with the social skills suited for family careers.

> Traditional girls' games like jump-rope and turn-taking games [are such] where the nature of the competition is indirect...Given the structure of girls' games, disputes are not likely to occur (p. 99).

Lever (1978) collected diary entries from children on their daily activities and observed children's play. She found that boys were involved mainly in games with debatable rules that provided many opportunities for negotiation and conflict resolution. Girls, on the other hand, engaged more

often in turn-taking games, in which there was little conflict. When conflict did arise, girls tended to withdraw from the situation rather than deal with the conflict. Boys' games lasted longer because they engaged in disputes which made it more interesting for them. "During the course of the study boys were observed quarrelling all the time, but not once was a game terminated because of a quarrel" (p. 482). In contrast, arguments among girls tended to end the game. Lever concluded thatr girls learn to deal with disagreements with behavior that avoids them, while boys learn to deal with disagreements in a direct manner.

Goodwin's (1980) study of children's play went a step further and examined what the girls may have been doing while they played to prevent conflicts and thus avoid termination of the game. She examined certain speech patterns that tended to either aggravate, mitigate, or avoid conflict.

Pitcher and Shultz (1983) in observing young children's play found a significant gender difference, with boy dyads marked by more negative contacts; the mode of contact for girls, in contrast, was most often indirect and non-confrontive. They labeled the period of ages three and four as the period of "domestication" of girls. Boys fought out dominance issues with one another, and their same-gender contacts were more aggressive.

DiPietro (1981) examined children's rough-and-tumble play, using a playroom of wheels designed to maximize the amount of rough-and-tumble play in same-gender triads. Results indicated a significant difference in the behavior of boys and girls. Boys' play was characterized by physical aggression, whereas girls' interactions were characterized by more verbal interactions, suggestions, and play centering around novel interactions with the toys.

Shantz (1980) studied gender differences in children's conflict during free play, coding the behavior of four all-boy and four all-girl groups in ten hours of free play. "Conflict was defined as any sequence in which Child A tried to influence Child B's behavior, B resisted it, and A persisted" (p. 6). Results showed that boys in general engaged in more conflicts than girls. There was a strong tendency for boys to aggress physically. Girls tended to use more verbal aggressions.

Fagot and Hagan (1985) also observed children in free play, recording the assertive acts of each child and the response of peers and teachers according to a list of thirty-four child behaviors. Assertive behaviors included hits, pushes, kicks, grabbing for objects, and verbal assaults. Results revealed that the most common type of

assertion for both genders was the grabbing or taking of objects. The behavior of boys, however, produced more assertive acts than that of girls, while girls responded more equally to the assertive acts of another, whether boys or girls. The higher response rate to the acts of boys on the part of both boys and girls more often led to reactions from others, whereas the lack of reaction to the assertive acts of girls by boys and girls taken together gave girls considerably less reason to continue such acts.

Block (1984) has suggested that differences in early play styles lead to differences in intellectual and emotional development. Girls develop competence in seeking help from others in the environment and show more willingness to do so than boys, who are actively discouraged from seeking assistance and instead encouraged to be as independent as possible.

Studies on Gender Differences in Strategy Use

Numerous studies support the notion that there are gender differences in strategies used in social interaction (Miller, Danaber & Forbes, 1986; Bearison et al., 1986; Nisan, 1976). Miller et al. studied three strategies of behavior during free play in children of five and seven years: heavy-handed behavior (conflictual), conflict-

mitigating behavior, and moderate-persuasion behavior. The reslts were in agreement with Lever's (1978) findings that boys were significantly more likely than girls to be in conflict situations in which heavy-handed persuasions were used. They were significantly *less* likely than girls to be in conflict situations in which conflict mitigation tactics were used (i.e., clarification of the feelings of others). When conflict occurred in girl dyads, girls were more likely to engage in behavior having as its object to defuse the conflict (i.e., conflict-mitigating behavior of an affiliative nature).

Miller et al. (1986) reasoned that "conflict situations present children with two different challenges: one challenge is to resolve the conflict through active negotiations, and the second challenge is to mitigate a conflict without disrupting social harmony between the interactors" (p. 543). These findings indicate that boys and girls will react differently and will use different strategies in social interaction. Boys will tend to stay with the dispute and work it out, while girls will tend to seek to cut it off, either by terminating the interaction or by deferring to the opinion of the other as a means of ending the conflict state.

Bearison et al. (1986) studied six and seven year olds on a spatial-relations task similar to that in Mugny and

Doise (1978). A major purpose of this study was to identify interactional patterns that promote cognitive development. Five kinds of interactions were coded: verbal disagreements with explanation, verbal disagreements without explanation, enactive disagreements, verbal disagreements with explanation plus enactive, and verbal disagreements without explanation plus enactive. One of the important findings of this study was the existence of gender differences relative to the frequency of conflict-type behavior, with boys showing higher frequency:

> ...[M]ale dyads produced more verbal-with-explanation type disagreements, while female dyads had more enactive type disagreements. The former, but not the latter, type of disagreement was significantly associated with positive cognitive change (Bearison et al., 1986, p. 26).

Because verbal-with-explanation type disagreements accounted for cognitive gain scores, and this type of disagreements were found among male dyads, but markedly less so among females, then one would be left to wonder what types of social interaction strategies promoting cognitive gain find most common use among females. To determine the answer to this question Bearison and Filardo (1986) re-examined the videotapes of the dyadic interactions in Bearison et al.

(1986) and coded them for instances of agreements. "If female interactions show less evidence of cognitive disconfirmation than male interaction" (they asked), "then do girls have a qualitatively different kind of interpersonal orientation than boys?" (p. 4). This line of reasoning followed Gilligan's (1982) position that girls are oriented toward maintaining social affiliation and cooperation, while boys, being more task-oriented, express more disagreements and are involved in more conflicts. Were this hypothesis correct, then girls would be expected to show a greater number of interpersonal agreements than boys. Interestingly, just the opposite was found : boys also demonstrated a higher frequency of agreements than girls, and girls' interactions showed lower rates of both disconfirmation and confirmation types of social responses (Bearison & Filardo, 1986).

Nisan (1976) studied delay of gratification in five and seven year olds and found clear differences along gender lines. Boys--but not girls--tended to delay gratification more in group than in individual decisions. Delay of gratification is a cognitive operation that is associated with children's affective development (Piaget, 1981).

Tudge (1985) also found significant gender differences in performance on a balance-beam task adopted from Siegler (1981). He examined the effects of joint problem-solving on

a balance-beam task in children of ages 5 through 9 and found that girls and boys performed differently in that the performance of boys tended to improve with increasing trials, whereas that of girls showed decline. Boys seemed to benefit more from the process of social interaction than did girls.

Perry and Weiss (1989) examined gender differences in the consequences children anticipate for aggression. It was hypothesized that children's expected outcomes of aggression vary with gender of the offender, degree of provocation, and gender of the target. Subjects (all aged ten years) rated their confidence that specified outcomes would ensue for the performance of acts of provoked and unprovoked aggression toward male and female peers. Boys expected less guilt and less parental disapproval for aggression (and especially for provoked aggression toward another boy) than did girls. When provoked, children in general expected less guilt and less parental disapproval than when not provoked. When aggressing toward boys, less guilt and less parental disapproval were expected, whereas when aggressing toward girls, boys expected to receive more disapproval from both parents and other girls.

Charlesworth and Dzur (1987) studied four and five year old boys and girls during problem-solving activity in both same- and mixed-gender groups. The group task in this

study required various self-serving behaviors to obtain viewing time for a cartoon movie. Results showed that boys and girls were equally effective in achieving viewing time and that boys and girls did not differ in total behavior output, but girls tended to use more verbal behavior than boys, while boys engaged in significantly more physical behavior than girls.

Gender Differences in Cross-Cultural Studies

Whiting and Pope (1973) undertook a cross-cultural study across six societies of gender differences in the behavior of children from 3 to 11 and found that boys engaged in more rough-and-tumble play than girls and were more aggressive, while girls were more passive and interacted less frequently with peers. Whiting and Edwards (1975) described one process by which gender-assigned chores may contribute to later behavioral differences between boys and girls, also across six different cultures. Results disclosed that girls were more frequently assigned responsibilities of a domestic nature, whereas boys were assigned responsibilities that necessarily took them away from the home, such as pasturing, herding animals, and the like. Such gender differences in assigned work are associated with differing frequencies of opportunity for interaction for boys and girls and also influence the character of interaction according to differing patterns in relationships

in interactions likely to occur in their respective activities. In all six cultures girls were found to be more helpful and nurturant, while boys were found to be more active and aggressive.

Omark and Edelma (1973) conducted a cross cultural study comparing children from the United States, Switzerland and Ethiopia, ages 4 to 10, at play. In all three cultures boys were more aggressive. Boys also maintained a greater physical distance between self and the nearest neighbor, and the dominance hierarchy was more clearly established between boy-boy dyads than between cross-gender or girl-girl dyads. In mixed-gender dyads boys dominated girls in all interactions. While these cross-cultural results show striking consistency with the results of studies carried out in this country showing consistently higher rates of male aggression, some caution is in order in attempting to draw conclusions, since we must be alert to the fact that sample size is consistently small and within-gender variability is often considerable. This said, it must nevertheless be conceded that the similarity in the pattern of the findings clearly commands attention and warrants further study under conditions providng greater support for the conclusions that would appear to be indicated.

Gender Differences in Social Interaction and Cognitive Growth

Research findings in dyadic interaction, cognitive growth, and gender differences in social interaction present a conceptual dilemma. If peer conflict is an important component of cognitive growth during cooperative task activity (Bearison et al., 1986), and males engage in this behavior significantly more than females (Bearison et al., 1986), one might logically predict that males would demonstrate consistently more advanced development on cognitive tasks. Yet research indicates that this is not at all the case (Webb, 1984; Charlesworth & Dzur, 1987). Two plausible explanations for this seeming contradiction are apparent: (1) there are other strategies of interaction (e.g., mitigated types) equally useful in promoting development; and (2) studies of interactional modes have focused upon a too narrow range of behaviors and variables and have been insensitive to gender biases in research design that may have contributed heavily to the outcome of that research. Although it is possible that both of the above explanations may be operating concurrently, questions concerning methodological deficiencies must first be addressed before meaningful research on the relationship between gender and social interaction can be undertaken. The present study was directed toward three methodological concerns: (1) gender composition of the group; (2) gender

differences in task interest; and (3) coding of a wider variety of interaction strategies and linguistic styles that emerge during the course of interaction.

Same Gender Versus Mixed Gender Interaction

Gender of the participants is an important variable in peer interaction. Previous research findings suggest that changing the gender composition of the dyad significantly affects female style of interaction. Miller et al. (1986) found that whereas boys behaved in essentially the same manner in both same and mixed gender dyads, girls behaved differently when interacting with a girl than with a boy. Very little of their behavior toward other girls was conflictual in nature, but that toward boys resembled that of the boys to a markedly greater extent.

Phinney and Rotheram (1982) examined social interaction of three- and five-year-olds in same gender and mixed gender dyads during free play. Boys in all-male dyads were more likely to engage in aggressive, conflict-type behaviors, while girls in all-female dyads were more likely to behave in a manner that was intended to defuse the conflict. For mixed-gender dyads, however, girls seemed more aggressive and their strategies of interaction bore a marked resemblance to those of boys.

Ederman and Omark (1973) examined six and nine year old

children in same gender and mixed gender dyads as they responded to comparisons of classmates with one another and with themselves. Results showed that there was a higher proportion of dyads of established dominance in the mixed gender dyads than in same gender dyads. In mixed gender dyads, boys were almost always recognized as dominant by both members.

Wilkinson et al. (1982) investigated gender differences in communication in peer-directed instructional groups. Mixed gender instructional groups were examined to shed some light on the communicative processes within these groups: "Do males dominate the interaction?" (p. 186). Subjects were second and third graders, with groups composed of two boys and two girls. Results showed clear gender differences in that boys' answers prevailed significantly more often than girls' answers, and boys were also more active in mixed groups.

From a developmental perspective other evidence suggests that with increasing age girls' behavior tends to increasingly resemble that of boys. Sgan and Pickert (1980) examined same and mixed gender assertive bids in cooperative group activity. "Assertive bids" refer to both aggressive and non-aggressive attempts to direct another child's activity. The basic question posed was whether assertive bids were directed primarily to members of the same or

opposite gender. Using triads rather than dyads, they found age differences in the pattern of assertive bids both between and within gender. For male-majority triads at the kindergarten and first grade level, most of the assertive bids were made by boys and were directed toward other boys. In female-majority triads of the same level, boys directed more bids toward girls than girls toward boys or even toward other girls. In contrast, third-grade boys directed fewer bids toward girls than did first-grade boys, while third-grade girls directed more assertive bids toward one another than girls at the first-grade level. These findings point to an age-related change in the pattern of assertive bids. The data from the kindergarten and first-grade subjects are in agreement with other research findings that boys are more aggressive than girls (Miller et al., 1986; Phinney & Rotheram, 1982). On the other hand, the finding that at third-grade level girls in mixed gender groups were attempting to direct and influence boys as well as other girls represents a new and provocative discovery.

Nelson and Decooke (1987) examined same gender and cross gender help exchange in reading and mathematics classes among third and fifth graders. Overall, girls were perceived by their classmates to be academically competent and more likely to want to help than boys.

Nonetheless, girls were less often the target of mixed gender help-seeking than boys. Both boys and girls more frequently sought help from same gender than from opposite gender classmates. When help-seeking occurred between opposite gender classmates, girls were more likely to report liking these helpers as much as their same gender helpers.

Examination of both same and mixed gender dyads during social interaction is important in order to avoid the problems of studies that focus almost exclusively on differences between males and females and that, in Thorne's (1986) words, "tend to extract gender from social context to assume males and females are qualitatively and permanently different" (p. 768).

Gender Differences in Task Interest

At as early an age as twelve months gender differences in play activities and preferences emerge, with girls preferring dolls and soft toys and boys preferring to play with trucks, guns, and transportation toys (Etaugh, 1983). Liss 1983) observed kindergarten children playing individually with toys that were categorized as male-traditional (truck), female-traditional (doll), or neutral (musical instrument). After five minutes of free play, the experimenter inter-

rupted the play activity and asked the children their opinion of the toy chosen for play. Results showed that girls expressed more positive affect (nurturance) about the doll play, while boys made more negative comments about the doll play.

Serbin and Connor (1979) examined the relationship between toy preference and cognitive competence, specifically spatial-visual ability. Their findings corresponded with those of Liss (1983), that it was primarily the gender association of the toy played with, rather than the gender of the child, that determined skill level.

In one intervention study Connor and Serbin (1977) trained boys and girls on the embedded figures task. They found that with minimal training the performance of girls improved, while that of boys did not, and that training succeeded in raising the level of the girls' performance, relative to that of boys. They suggest that the greater initial skill of boys on this type of task was explained by greater experience, rather than by greater ability.

Fagot and Leinback (1983) found in observing children's free play that males had higher scores on rough-and-tumble play, play with blocks, and carpentry, whereas girls scored higher on doll play. They also found that children who showed appropriate gender-role behaviors were encouraged by their peers.

Goldberg (1980) presented 3 and 5 year old boys and girls with twelve drawings depicting age-appropriate situations in which a boy and a girl behaved identically in the presence of an adult. Six of the situations involved either traditionally male or traditionally female types of tasks or activities, with the remainder portraying activities for which adults usually treat both genders similarly. Subjects were asked what they would do in the adult's place (e.g., Give the doll to the girl or to the boy). Findings indicate that from ages 3 to 5 subjects become increasingly aware that adults treat boys and girls differently in ways that support gender-stereotyped behavior. By age 5 both boys and girls not only demonstrated an acute awareness of adult encouragement of gender-typing, but typically made the same choices themselves, suggesting that they accepted the adult behavior.

Dileo (1979) examined five year old children's gender-typed behavior in toy choices, toy play, and preferences for games. Results showed that both genders preferred to play with toys and games that were gender-appropriate (dolls for girls, guns for boys).

To investigate if gender-role knowledge leads to conscious attempts to make same-gender stereotyped preferences and to exhibit stereotyped behavior, it is helpful to examine children's *own* reasoning for their stereotyped toy

choices. In a recent study Eisenberg and Hite (1982) examined children's reasoning for their naturally occurring toy choices. Three and four year olds were allowed to play with a pre-designed masculine toy (truck, blocks), feminine toy (doll, doll house), or neutral toy (puzzle). During play the child was approached by the researcher and asked, "What is it you like about this toy?" Results showed that children frequently justified their toy choices with references to gender-role stereotyped considerations (e.g., "because girls play with dolls" or "because boys play with trucks").

Kaplan and McCormack (1982) examined toy choices in same- and mixed-gender pre-school dyads, in particular the effect of a peer partner's gender on the toy choices and the social behavior of the partner during free play. Two different toys were chosen to represent the masculine sex-typed toy (soldiers); two were chosen to represent the female sex-typed toy (doll);and two neutral toys (puzzles) were chosen. In order to promote social interaction rather than competition for toys, a duplicate of each toy was provided. Results showed that play with a same-gender partner involved more proximity to that partner, more talking, and more imitation of play. Boys played more appropriately with the designated masculine sex-typed toy, while girls played more appropriately with both feminine and neutral sex-typed toys.

Yet in spite of the finding of a number of studies indicating clear gender differences in toy preferences (Liss, 1983; Kaplan & McCormack, 1982), research has consistently ignored the effects of possible gender bias in the selection of activities for measures of cognitive performance (Mugny & Doise, 1978; Bearison et al., 1986). In the same way, studies have ignored the possibility that level of interest in the activity may influence the style of interaction and, as a consequence, affect the level of cognitive achievement on performance of the activity as well.

Liss' (1983) study is an excellent illustration of the ways in which boys and girls interact when the task holds strong interest for them. Results showed that placing boys and girls with toys of high interest produced interaction styles with more similarities than differences. Boys and girls showed greater similarity in their play patterns than was to be expected from examining previous research on gender differences.

Gender Differences in Linguistic Styles During Social Interaction

Lakoff's (1975) book, *Language and women's place*, proposed a model that postulated differences related to gender in the speech of adult males and females, according to which

women use more indirect and polite forms of communication. It describes traits which are claimed to be characteristic of women's language and which build up to a style in which women express themselves "politely".

Brown's (1980) study provided strong support for this model in a study of men and women in Tenejaga, a community in India, in which "positive" and "negative" politeness are distinguished. Positive politeness aims to disarm threats, seek agreements, and avoid disagreements. Negative politeness is characterized by restraints, with linguistic deference (e.g., Excuse me...) and questioning. According to Brown, women use more positive politeness and negative politeness in their interactions. Women use words such as "perhaps", "maybe", "please", "could we", and the like, all of which stress shared feelings between the speaker and the person addressed. Men likewise have gender-typed usages, such as "truly" and "really", words which tend to emphasize the public-speaking quality in men. Women's positive politeness is seen as contributing to shared values and appreciation of the addressee, while stressing in-group relationships.

Sociologists have taken a variety of approaches to studying the form and content of children's discourse. Some have analyzed speech acts, such as directives and requests (Ervin-Tripp, 1982; Wilkinson, 1982), while others

have looked at speech events, such as arguments (Eisenberg & Garvey, 1981; Goodwin, 1980; Genishi & DiPaolo, 1982). Eisenberg and Garvey (1981) recorded arguments of pre-school dyads in a laboratory playroom, examining a particular discourse, called "adversative episodes", defined as "the interaction that grows out of an opposition to a request for action" (p. 31). Results showed that boys, more than girls, used complex arguments. Genishi and DiPaolo (1982) examined 3-5 year old children's use of arguments during play and found that all boys and girls alike used simple arguments and repetitions.

Arguments by girls in the midst of play are different from the prolonged disputes that arise among boys in similar domains (Goodwin, 1987). In boys' games and constructive play activity, coordinated largely through a leader's imperatives (e.g., "Get off my step"), players create hierarchical distinctions among themselves. They make use of what Labov and Fanschel (1977) have identified as "aggravated" types of action, which contrast with more "mitigated" ways of saying things.

In Goodwin's (1987) study of girls playing jump-rope it was found that girls can engage in prolonged arguments. The jump-rope game permits negotiation among group members while providing constraints upon disputation occurring within this realm. Thus, contrary to widely popular notions

about girls' supposed inability to engage in disputes without terminating a game (Lever, 1976), girls were seen to be able to handle conflict without disruption of the ongoing interaction.

Goodwin's (1980) study of 8 and 13 year old urban black children's directives in a coordinated group activity distinguished two types of speech, aggravated and mitigated. Children's linguistic styles were analyzed during two activities with results showing that while boys' directives constituted commands as opposed to an action to be undertaken, girls' directives were constructed as suggestions for action. The form, "Let's", which was never used by boys, was used repeatedly by girls. "Let's" signals a proposal, rather than either a command or a request.

The use of aggravated forms by girls was, however, clearly evident in cross-gender interactions, which show a higher usage of argumentatives by girls. When children interacted in mixed-gender groups, girls used direct forms of communication as often as did boys. Although the population studied in this research differed culturally from those studied in other research, the findings implied a need for further investigation into boys' and girls' same-gender and cross-gender language styles during cooperative group activity.

Goodwin's (1980) study of speech patterns in children's

play groups demonstrated that boys and girls organize friendly interactions in different ways and that these differences are expressed in the use of different linguistic forms. Boys, for example, express hierarchy through direct commands, while girls deny hierarchy through suggestions phrased in proposals for future activities.

Serbin (1982) examined the verbal social influence style of boys and girls between 4 and 5 years of age. Results showed that boys emitted a greater number of influence attempts than girls, and that this was due to their greater use of direct forms of requests.

Wilkinson (1982) in her classroom study identified "characteristics of requests that predict obtaining appropriate responses from listeners" in student groups. Effective speakers "express themselves clearly and directly in an attempt to minimize misinterpretation of their requests" (p. 187). Results showed that males' speech met the standard for what she termed an "effective speaker", while females' speech was more indirect, with the result that their requests for answers were largely ignored.

Sack (1987) observed 5 year old boys and girls in dyads during pretend play, coding instances of "obliges" in linguistic style. *Obliges* were defined as utterances that set up an obligatory environment for a reply or a behavior. Thus, "What is your name?", would be considered an oblige,

since it requires a response. Results showed that even though boys and girls used the same number of obliges, the language of girls was more mitigating in character. Boys used more imperatives, prohibitions and directives, which are all forms showing absence of mitigation. Girls used more pretend directives, which show mitigation, in that they posit a transformation from reality (Pretend he cried...)as well as tag questions and utterances that implied cooperation between listener and speaker. These "tag questions" are mitigating because they provide an opportunity for the listener to disagree with the content of the utterance, as in "That is for the bedroom, okay?"

Summary Statement

The focus upon conflict may in itself reflect a gender bias that has directed researchers away from a consideration of alternative modes of peer interaction which might facilitate cognitive development during cooperative activity. Indeed, it was precisely this consideration that prompted Bearison and Filardo (1986) to examine the frequency of affiliative behavior in the form of agreements among partners in the dyads they studied. Research has consistently found that females express more affiliative behavior than males in group interaction (Miller et al., 1986; Whiting & Edwards, 1975; Lever, 1976). Contrary to expec-

tations, however, the male subjects in Bearison and Filardo's (1986) study expressed more affiliative behavior --limited to the single form of agreements--than did female subjects. Although it is tempting to dismiss one apparently isolated conflicting finding, closer examination of this finding suggests a number of methodological concerns and questions.

One of the major shortcomings of most research in this area has been the tendency to focus upon observations of but a single behavior (e.g.,Bearison & Filardo, 1986); another has been a predeliction for cooperative play or free play activities, which do not require agreement of both partners for satisfactory completion, and thus differ from Bearison and Filardo (1986). What this inevitably led to was a situation in which each person pursued separate goals, in which the harmonization of divergent viewpoints was not an essential requirement of the activity. As a result, the nature of the interaction assumed a form in which the behavior of one person was not necessarily conditioned upon or responsive to that of the other.

Although research has documented clear differences in toy and game preferences between boys and girls (Kaplan & McCormack, 1982; Liss, 1981; 1983), these studies of interaction strategies in cooperative groups have failed to control for gender bias in the activity. On the contrary, tasks employed in this kind of research have typically been

ones that uniquely tapped male interest (Webb, 1984; Bearison et al., 1986). A notable exception has been the research of Goodwin (1988), which had young black girls make rings and young black boys make slingshots. It was found that putting girls in an activity of high interest (making rings, playing with doll houses) influenced their interaction strategies and linguistic style. The behavior of the girls resembled that of the boys: they engaged in more disagreements, sustained arguments, and engaged in complex negotiations.

In general, however, the relationship of gender preference in the specific task and the structure of interaction behavior in cooperative task activity has been almost completely ignored in research in this area. This criticism applies equally to research investigating behavior as a function of gender composition of the group. Considerable research has documented variation in interaction strategies and language usage as a function of gender composition of the groups (Miller et al., 1986; Goodwin, 1980; 1987; Sacks, 1987). While the findings have not been entirely consistent, inconsistencies may be a function of differences in the primary focus of the various studies.

The use of gender as a variable in psychological research has drawn much criticism (Scarr, 1988). Gender,

it is pointed out, only rarely in and of itself accounts for the differences it claims to measure. Most often it is simply a "proxy variable" (Tittle, 1986) that masks some kind of sociological status variable; the status is shared in by females (hence the gender identification), but also by others who may be males; but the additional sociological status differences between males and females act to differentially affect their comparative responses. In the present study gender is a proxy for gender-typical socialized roles. In female-female social interaction, adherence to an interaction style that is consistent with the assigned social role is made easy by the fact that when both partners follow the same interaction style, no advantage is lost with respect to effective advocacy for one's own position. When both partners seek to mitigate controversy, the behavior of neither poses a direct challenge to the other, consequently there is no demand for counter-challenge to avoid running the risk of having one's own position submerged by adversarial challenge. However, when a female in a mixed-gender dyad adheres completely to the interaction style that is consistent with the assigned social role, she runs the danger of being unable to withstand the challenges that are an integral feature of the interaction style of the assigned social role of her male partner. Accordingly, she

will feel a greater need to emerge occasionally from the interaction style of the assigned social role, lest her position be overwhelmed.

A final problem pertains to the operational definition of "conflict", "mitigated", and "affiliative" behaviors. These terms are commonly used throughout the literature on social interaction, yet rarely with precisely the same meaning. In practice the terms have been used to describe an array of widely differing strategies employed in interaction. Compounding the problem, they are susceptible to serious misinterpretation, in that they lend themselves to association with behaviors outside the operational definitions. The result is simply further confusion. The present study attempted to address this confusion by adopting the definitions used in recently-published studies (e.g., Goodwin, 1980; 1985; Bearison & Filardo, 1986; Phinney & Rotheram, 1982; Charlesworth & Ozur, 1987). In so doing, consistency will, hopefully, be promoted in the use of these operational definitions.

Hypotheses

Hypothesis 1. Male interaction strategies will be characterized by a higher proportion of aggravated behavior scores than female interaction strategies.

Hypothesis 2. There will be an interaction between gender and dyadic composition, such that (a) male interaction strategy will be consistent across both dyadic conditions, while (b) female interaction strategy will be characterized by a higher proportion of aggravated scores in mixed gender dyads as compared to same gender dyads.

Hypothesis 3. Both male and female interaction strategies will be characterized by a higher proportion of aggravated behavior scores in high interest activity as compared to low interest activity.

Question

Recent research suggests gender patterns in interaction strategies and linguistic styles may be obfuscated when collapsed into total aggravated scores. As such, although no hypotheses are proposed, the present study will consider not just the aggravated scores across all forms of discourse, but also the individual discourse strategy scores (e.g. questions, disagreements, etc.) in order to test whether the expected gender differences are specific to particular forms of discourse.

CHAPTER III

Methods

Subjects

The sample consisted of 80 children, 40 boys and 40 girls. The children ranged in age from 5 years 1 month to 6 years 6 months (Mean Age = 5 years 8 months). They were recruited from a private day school in the New York City area. The children were white and primarily from middle-class families. These children were identified as middle-class on the dimension of the financial status of their parents and their area of residence.

Subjects were randomly assigned to either one of two dyadic conditions, same gender or mixed gender, with the exception that the names of their best friends and intensely disliked persons, determined by information furnished by teachers, were withdrawn from the assignment pool in order to prevent the confounding of affective disposition toward partners with the variables of interest.

As a result of the pairing process there were 40 dyads: 10 female-female dyads, 10 male-male dyads, and twenty female-male dyads.

Materials

All dyads engaged in two activities: one employing materials judged as being of high interest to females (Doll House); the other employing materials judged as being of

high interest to males (G I Joe Command Center). The Doll House (Lundby of Sweden, Jester Toy International) was an enclosed structure with two floors, each with three adjoining rooms. There were ten pieces of home furniture and four dolls. The G.I. Joe Command Center (Hasbo, Inc., Pawtucket, RI 02362, U.S.A.) was an enclosed structure with two floors, each with three adjoining rooms, with ten pieces of guns and tanks and four humanoid figures.

In order to determine if there was a clear gender preference for one activity over the other, twenty subjects (10 males and 10 females) were individually asked to state their preference for either the Doll House or the G.I. Joe Command Center. All 10 girls expressed a preference for playing with the doll-house, and all ten boys expressed a preference for playing with the G.I. Joe Command Center. To avoid any possibility of producing "guided responses", subjects were permitted to respond in any manner they chose. Many of these replies were stated in other than "this-one/that-one" terms.

Procedures

All dyads were presented with both activities, with the order of presentation counterbalanced within groups, such that an equal number of dyads in each group received the doll house first and an equal number of dyads received the command center first.

Instructions for the Doll House

This is a small new house. This (indicating) is the furniture for the house, and there (indicating) are the people who will live in the new house. I want the two of you to work together to place the furniture and the people in this house, so that this house is a nice place to live and visit. Both of you have to agree on where everything goes. When you both agree, we will know it is a nice house. Are there any questions?

Instructions for the Command Center

This is a G.I. Joe Command Center. These (indicating) are the guns and tanks for the Command Center and these (indicating) are the soldiers. I want the two of you to work together to place the guns and the tanks and the soldiers in the Command Center so that it is safe from enemy attack. Both of you have to agree on where everything goes in the Command Center. When you both agree, we will know it is a safe Command Center. Are there any questions?

The instructions were given immediately prior to the appropriate activity and were repeated and clarified if any subject indicated confusion or a problem in understanding the activity.

Subjects were given the items from each activity, one piece at a time to prevent parallel play and to promote interaction. Subjects were instructed to work together on the placement of each item. When all items had been placed, subjects were asked if they both agreed on where everything had been placed. The activity was terminated when all activity items had been placed and both subjects expressed agreement on their placement. Requirements for completion were the same for both activities: placing the furniture and the dolls in the Doll House; and placing the guns, tanks, and soldiers in the Command Center. All the interactions, including the instructions to subjects, were videotaped and the videotapes were then examined to code the behaviors of interest.

Coding System for Scoring Dyadic Interactions

Videotapes of the social interactions were viewed and transcribed. A coding system was developed to score the occurrence of activity-relevant behavior during interactions. Generally speaking, "activity-relevant" was interpreted as encompassing any behaviors that were intended to

sustain, or had the effect of sustaining, attention; or of initiating or sustaining an act of placement; or of developing or influencing one's own decision or the decision of one's partner as to placement of an item.

Social Interactions and Sociolinguistic Scores.

Social interactions and sociolinguistic scores were defined as actions which alter or maintain the relationship of the self and the other in face-to-face communication or activity (Labov & Fanchel, 1977). The unit of analysis was a single utterance by a single child. Social interaction strategies were coded for types of (a) verbal disagreements; (b) verbal disagrements with enactive disagreements; (c) commands; (d) agreements; and (e) questions.

Sociolinguistic Scores.

Within each coded category of social interaction, distinctions were made between aggravated and mitigated styles of verbal expression. Aggravation and mitigation are different linguistic styles used in social interaction, in which a party either moves to avoid "creating offense" by increasing indirectness (mitigation), or becomes more demanding by increasing directness (aggravation) during social interaction (Labov & Fanchel, 1977).

Aggravated Scores.

An aggravated style was defined as the way one party

attempted to display or establish position with respect to another party by making direct requests, assertions, straightforward directives, expectations of compliance, statements of judgment, and explicit commands to that party. Compliance was expected without questions (Labov & Fanchel, 1977; Goodwin, 1980).

An aggravated style made reference to the rights of the speaker, or obligations of the listener, or to the speaker's desires, or conveyed an understanding that the parties possessed assymetrical rights with respect to each other (Labov & Fanchel, 1977). One way by which this was conveyed was through the use of "you" (e.g., "You have to put it here...").

For example, "Get away from here" was an imperative form of giving a command, rather than a form of hint or suggestion, thus opting for non-mitigated or relatively aggravated direct form. Aggravated forms were constructed as imperatives, commands, assertions that an action should be undertaken at the time they were being issued. For example, "Give me the doll". Here one party was ordering the other to do some-thing now, not at a later time (Goodwin, 1980). In an aggravated form one party was either ordering another party to do something or, alternatively, requesting action from some other party (Goodwin, 1980).

Mitigated Scores.

A mitigated form referred to needs and abilities of the recipient, or made references to the requirements of the situation. Mitigated forms were constructed in the form of suggestions for action, requests for compliance, embedded directives, hints, supportive statements (e.g., "Let's..."; "Could we..."; "Please..."; "Maybe..."; and so on (Goodwin, 1980).

"Let's" signalled a proposal, rather than a command, and as such showed no special rights over the other as would a command (Goodwin, 1980).

Mitigation referred to the softening of requests so as to avoid creating offense, while aggravation referred to increasing the force of the request. Mitigation could be accomplished through the use of such expressions as "Please" or "If you don't mind", or by using one of the indirect imperative forms (e.g., "Can I have the chair?"; "Can I play?").

Mitigated forms included question directives, such as "Could you give me the bed?"; or tag questions, which provided the listener an opportunity to disagree with the speaker; pretend directives ("Let's make believe that..."), or just directives which implied cooperation between listener and speaker (Sacks, 1987).

Mitigation was important for the maintenance of smooth social interaction, since mitigation allowed the listener more options in responding to the speaker than simple compliance to the request (Labov & Fanchel, 1977).

Mitigated social negotiations were those that displayed greater consideration for the point of view of the other member of the dyad, while aggravated strategies took a more direct form and did not give the listener a response choice other than compliance with the request.

Reference to the needs of the activity or abilities of the listener could be conveyed through the use of "we", as in "We should finish the second floor first". Mitigated directives were constructed as suggestions and hints for action in the future; aggravated directives were constructed as commands that an action be undertaken at the time the imperative was issued.

Interaction Strategies by Linguistic Style

1. Verbal disagreements.

Verbal disagreements were any verbally expressed statements that contradicted an immediately preceding statement or a prior placement of an item by either subject in the dyad (Bearison et al., 1986), e.g., "No, don't put the bed there". This code was used by Bearison et al. (1986) to denote a behavior that denoted potential for sociocognitive conflict; it was associated with cognitive gain scores in

boys, but *not* in girls.

Consistent with Piaget's (1977) model of cognitive disequilibration as a factor in development, aspects of social interaction that were indicative of cognitive conflict and resultant disequilibration were classified according to syntactical characteristics, which were then operationally defined.

The code "verbal disagreement" has been used in socio-linguistic research where a distinction has been made between aggravated and mitigated verbal disagreements (Goodwin, 1980). Clear gender differences have been found; boys have evidenced more aggravated disagreements, while girls have evidenced more mitigated disagreements. Because of the clear gender differences found in both research areas of strategies of interaction and linguistic styles in verbal disagreements, it identifies itself as an important code in need for further study. Verbal disagreements were further distinguished for being aggravated or mitigated.

Aggravated	Mitigated
Aggravated verbal disagreements were any assertion or non-compliance; e.g., "It doesn't belong there"; "No, you don't tell me what to do." (here opposition was emphasized).	Mitigated verbal disagreements were any indirect assertion of position; e.g., "Don't you think the bed looks better here?" "I think the chair looks better here."

"Well, this looks better here."
(here disagreements were organized as a dis-preferred action, mitigated by the hesitant "well" or by a hedge, "I think").

2. Verbal-plus-enactive disagreements

Verbal-plus-enactive disagreements involved both verbal disagreements, as specified in (1), plus enactive disagreements that involved changing the place of an item by one partner that had been previously placed by the other partner (Bearison et al., 1986). The verbal aspects of this type of disagreement were further distinguished for being aggravated or mitigated.

Aggravated	Mitigated
assertion of position or non-compliance, coupled with the displacement of an item; e.g., "No, it doesn't belong there" (at the same time the subject picked up the item and put it in the other room).	indirect assertion of position, coupled with the displacement of an item; e.g., "Don't you think this looks better here" (at the same time the subject picked up the item and changed its

position to another place).

3. Commands.

Commands were forms of directives for an action to be undertaken. Here the speaker's intention was encoded explicitly in the language form. They were used when the speaker expected compliance without question (Ervin-Tripp, 1986), e.g., "Come here!" This code was used by Charlesworth and Dzur (1987) and Phinney and Rotheram (1982) in their studies of gender differences in young children. Both studies found that boys used commands more frequently than girls in their interactions. The code has been used as well in socio-linguistic research. Goodwin (1980) examined the use of commands in a study of children's arguing and found clear gender differences in the way commands were used; boys used them in a confrontative and direct manner, girls in an indirect, less confrontative manner. The gender differences found in these studies on both interaction strategy and linguistic style necessitated further exploration of the function of commands during children's social interaction.

Commands were further distinguished for being aggravated or mitigated.

Aggravated	Mitigated
Expectations of compliance	Request of compliance,

without question; explicit directives, e.g., "Come here!" "Put it here!" "Give it to me!"	e.g., "Could you please come here." "Could you put it here."

4. Agreements.

Agreements were verbalizations which supported a partner's activity-relevant statement or action (Bearison & Filardo, 1986), e.g., "Okay, that is good." "That is a good idea." This code was previously used by Bearison and Filardo (1986) in their study of gender differences in the social interaction of young children during a cooperative activity.

The rationale for examining agreements arises out of the argument advanced by Gilligan (1982), that girls are oriented toward maintaining social harmony and avoiding confrontation (such as disagreements). Agreements (or *confirmations*, as they are called in Bearison and Filardo, 1986) were seen as the inverse of disagreements.

However, Bearison and Filardo (1986) found that boys used agreements more frequently than did girls--an entirely unexpected result. Agreements, however, can be either mitigated or aggravated, a distinction not considered by Bearison and Filardo that may help clarify their findings. Therefore, agreements were further distinguished for being

aggravated or mitigated.

Aggravated	Mitigated
statement of judgment, e.g., "That is good", or "I like that."	statement of opinion, e.g., "We did that well."

5. Questions.

Questions were counted for every instance when one subject verbally asked for information or clarification on any point made by the other subject in the dyad (Labov & Fanchel, 1977), e.g., "What is this?" "What are you doing?"

This code was used by Phinney and Rotheram (1982) in a study of gender differences in social interaction during children's free play. In that study the code was denominated, *Request for Information*, (e.g.," What are you doing"), and *Request for Clarification* (e.g., " What is this").

Since this distinction was not relevant to the purposes of the present study, the two categories were collapsed. In the cited study, the results showed that girls used both types of questions more frequently than boys; however, the method of analysis used in the study did not allow for determination of what type of linguistic styles (aggravated or mitigated) were used. In the light of postulations concerning linguistic style in the present study, a distinction along these lines seemed indicated.

Aggravated	Mitigated
Question that is confrontational, requiring one to explain one's behavior, e.g. "Why did you do do that?" Direct request for clarification, e.g., "What are you doing?"	Question eliciting cooperative involvement or participation. e.g., "Where do you think this bed goes?" Indirect request for clarification, e.g., "Do you like this here?"

Coding Point System

In scoring the interactions, each coded behavior received a score of *one* for each separate occurrence. The scores for each category were summed and divided by the sum of all coded behaviors for the interaction, thus indicating the proportion of total behaviors during the interaction represented by the specific coded category. The mean proportion scores for the various coded behaviors were entered in the appropriate cells in the design and thereafter converted by arc-sine transformation (Fisher & Yates, 1957), as was done in the great majority of the studies cited.

Inter-rater Reliability

In order to establish inter-rater reliability in the scoring of the protocols, six randomly selected protocols (two from each gender composition group) were scored by two

independent raters, working from typewritten transcriptions. One of the raters had no prior knowledge of the hypotheses of the study, the gender of the subjects being rated, the gender composition of the dyad, or the activity preference condition.

Inter-rater reliability was computed by dividing the number of agreements by the number of agreements plus the number of disagreements. This was done on each of the five coded interaction strategies, and for the five coded interaction strategies combined, as indicated in Table 1. The overall inter-rater reliability for 466 total scored interaction units was .96.

Table 1

Units of Interaction Scored by Independent Raters and Individual and Overall Inter-rater Reliability

	Aggravated		Mitigated	
	Male	Female	Male	Female
Strategies				
Verbal	34/32	23/24	27/25	23/27
Disagreements	.94	.96	.93	.95
Verbal-Enactive	38/39	36/34	26/27	23/21
Disagreements	.97	.94	.96	.91
Agreements	14/14	21/22	23/23	31/30
	1.00	.95	1.00	.97
Questions	10/10	5/5	17/17	21/20
	1.00	1.00	1.00	.95
Commands	27/26	19/19	20/20	19/20
	.96	1.00	1.00	.95
TOTALS	123/121	104/104	113/112	118/117
	.99	1.00	.99	.99

Total Units of Interaction Scored = 466

Total Number of Agreements = 446 r = .96

CHAPTER IV

Results

The unit of analysis was the proportion of aggravated interaction strategy scores. This was obtained for each subject by dividing the total number of aggravated interaction strategy scores by the total number of aggravated and mitigated interaction strategy scores. Separate scores were derived for high interest activity and for low interest activity for each of the five interaction strategies. The Means, Standard Deviations, and Number of observed behaviors for male and female subjects in same gender and mixed gender dyads are depicted in Tables 2-7. Table 2 presents the Mean, Standard Deviation, and Number of observed behaviors of all males in high interest and low interest activity for each interaction strategy. Tables 3 and 4 present the Means, Standard Deviations, and Number of observed behavios of males in same gender and mixed gender dyads, respectively. Table 5 presents the Mean, Standard Deviation, and Number of observed behaviors of all females in high interest and low interest activity for each interaction strategy. Tables 6 and 7 present the Means, Standard Deviations, and Number of observed behaviors of females in same gender and mixed gender dyads, respectively.

Table 2

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for All Males (N=40)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	91	77.50	31.92
Lo-Disagree	60	66.25	36.49
Hi-Enactive	134	51.25	48.68
Lo-Enactive	74	42.92	44.31
Hi-Commands	88	57.50	40.11
Lo-Commands	21	62.50	41.98
Hi-Agree	39	72.50	29.85
Lo-Agree	62	53.75	36.49
Hi-Question	12	52.50	35.72
Lo-Question	39	60.00	32.42
Hi-Total	364	61.75	26.10
Lo-Total	256	57.08	26.57

Table 3

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for Males in Same Gender Dyads (N=20)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	63	30.00	29.91
Lo-Disagree	60	57.50	40.62
Hi-Enactive	94	62.50	48.33
Lo-Enactive	36	35.85	42.66
Hi-Commands	64	55.00	35.91
Lo-Commands	6	42.50	37.26
Hi-Agree	15	85.00	23.51
Lo-Agree	7	42.50	33.54
Hi-Question	6	52.50	37.96
Lo-Question	12	52.50	30.24
Hi-Total	242	66.00	24.58
Lo-Total	85	46.17	23.68

Table 4

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for Males in Mixed Gender Dyads (N=20)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	28	75.00	34.41
Lo-Disagree	36	75.00	30.35
Hi-Enactive	40	40.00	47.57
Lo-Enactive	38	50.00	45.88
Hi-Commands	24	60.00	44.72
Lo-Commands	15	82.50	37.26
Hi-Agree	24	60.00	30.78
Lo-Agree	55	65.00	36.63
Hi-Question	6	52.50	34.32
Lo-Question	27	67.50	33.54
Hi-Total	122	57.50	27.50
Lo-Total	171	68.00	25.26

Table 5

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for All Females (N=40)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	65	52.50	25.19
Lo-Disagree	13	71.25	27.47
Hi-Enactive	173	28.75	35.60
Lo-Enactive	20	66.00	43.19
Hi-Commands	62	41.25	47.89
Lo-Commands	13	70.00	43.55
Hi-Agree	86	47.62	31.74
Lo-Agree	52	71.25	31.80
Hi-Question	31	42.50	34.99
Lo-Question	15	62.50	35.25
Hi-Total	417	42.75	21.60
Lo-Total	113	67.95	22.22

Table 6

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for Females in Same Gender Dyads (N=20)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	11	50.00	22.94
Lo-Disagree	5	57.50	24.47
Hi-Enactive	96	27.50	34.34
Lo-Enactive	9	79.80	34.56
Hi-Commands	32	20.00	41.03
Lo-Commands	8	57.50	46.67
Hi-Agree	39	42.50	33.54
Lo-Agree	10	75.00	25.65
Hi-Question	15	27.50	30.24
Lo-Question	3	57.50	37.26
Hi-Total	193	33.50	16.94
Lo-Total	35	64.96	19.92

Table 7

Mean Proportion and Standard Deviation of Aggravated Style Behavior by Strategy and Interest Level for Females in Mixed Gender Dyads (N=20)

Interest Level/ Variable	No. of Behaviors	Mean Proportion	S.D.
Hi-Disagree	54	55.00	37.62
Lo-Disagree	8	85.00	23.51
Hi-Enactive	77	30.00	37.70
Lo-Enactive	11	52.20	47.26
Hi-Commands	30	62.50	45.52
Lo-Commands	5	82.50	37.26
Hi-Agree	47	52.75	29.80
Lo-Agree	42	67.50	37.26
Hi-Question	16	57.50	33.54
Lo-Question	12	67.50	33.54
Hi-Total	224	52.00	22.15
Lo-Total	78	70.94	24.45

A 2 (gender: male, female) x 2 (group: same gender, mixed gender) x 2 (interest: high, low) x 5 (interaction strategies) MANOVA with interest and interaction strategies as repeated measures was performed on the proportion of aggravated behavior scores. The results of the MANOVA are presented in Table 8 and Table 9. All pairwise *post hoc* comparisons for significant effects were carried out using the Newman-Keuls method, with the significance level set at $p < .05$.

Main effects on proportion of aggravated behavior scores

There was no main effect for gender on the proportion of aggravated behavior scores ($M = 59.42, 55.35$, males and females respectively).

There was a significant main effect for group on the proportion of aggravated behavior scores. Mixed gender dyads expressed a significantly higher proportion of aggravated behaviors compared with same gender dyads ($M = 62.11, 52.66$, mixed gender and same gender dyads respectively. $F(1, 76) = 4.57, p < .05$).

There was a significant main effect for interest on the proportion of aggravated behavior scores. Subjects expressed a significantly higher proportion of aggravated behaviors on low interest activity compared with high interest activity ($M = 62.52, 52.25$ respectively), $F(1, 76) = 13.99, p < .001$.

Table 8

F Values for All Significant Effects on MANOVA on Proportion of Aggravated Behavior Scores (df = 1, 76)

Main Effects		
Group	4.57	*
Interest	13.99	***
Interaction Effects		
Gender x Interest	29.59	***
Gender x Group x Interest	15.23	***

* $p < .05$ *** $p < .001$

Table 9

F Values for All Significant Effects on MANOVA on Individual Interaction Strategies (*df* = 1, 76)

Verbal Disagreements		
	Gender x Interest	14.84 ***
	Group x Interest	10.88 **
Verbal-Enactive Disagreements		
	Gender x Interest	5.63 *
	Gender x Group x Interest	4.74 *
Commands		
	Group x Interest	13.32 ***
Agreements		
	Gender x Interest	14.09 ***
	Gender x Group x Interest	7.07 **
Questions		
	Group x Interest	3.86 *
	Gender x Group x Interest	3.86 *

* $p < .05$ ** $p < .01$ *** $p < .001$

There was no main effect for interaction strategies on the proportion of aggravated behavior scores.

Interaction effects on the proportion of aggravated scores

There was a significant interaction effect for gender x interest on the proportion of aggravated behavior scores, F (1, 76) = 29.59, p < .001. A significantly higher proportion of aggravated behavior was expressed by females on low interest activity compared with females on high interest activity (M = 67.95, 42.75 respectively). Males did not differ significantly on the proportion of aggravated behavior expressed on high interest and low interest activity.

There was a significant three-way interaction effect gender x group x interest on the proportion of aggravated behavior scores, F (1, 76) = 15.23, p < .001. A significantly higher proportion of aggravated behavior was expressed by males in same gender dyads on high interest activity compared with males in same gender dyads on low interest activity (M = 66.00, 46.17 respectively); by males in mixed gender dyads on low interest activity compared with males in mixed gender dyads on high interest activity (M = 68.00, 57.50 respectively); and by males in mixed gender dyads on low interest activity compared with males in same gender dyads on low interest activity

(*M* = 68.00, 46.17 respectively). Females on low interest activity expressed a significantly higher proportion of aggravated behavior than on high interest activity, both in same gender dyads (*M* = 64.96, 33.50 respectively) and in mixed gender dyads (*M* = 70.94, 52.00 respectively). Males in same gender dyads on high interest activity expressed a significantly higher proportion of aggravated behavior compared with females in same gender dyads on high interest activity (*M* = 66.00, 33.50 respectively). In mixed gender dyads on low interest activity, there was no significant difference in the proportion of aggravated behavior expressed by males compared with females (*M* = 68.00, 70.94 respectively). This interaction effect is shown in Figure 1.

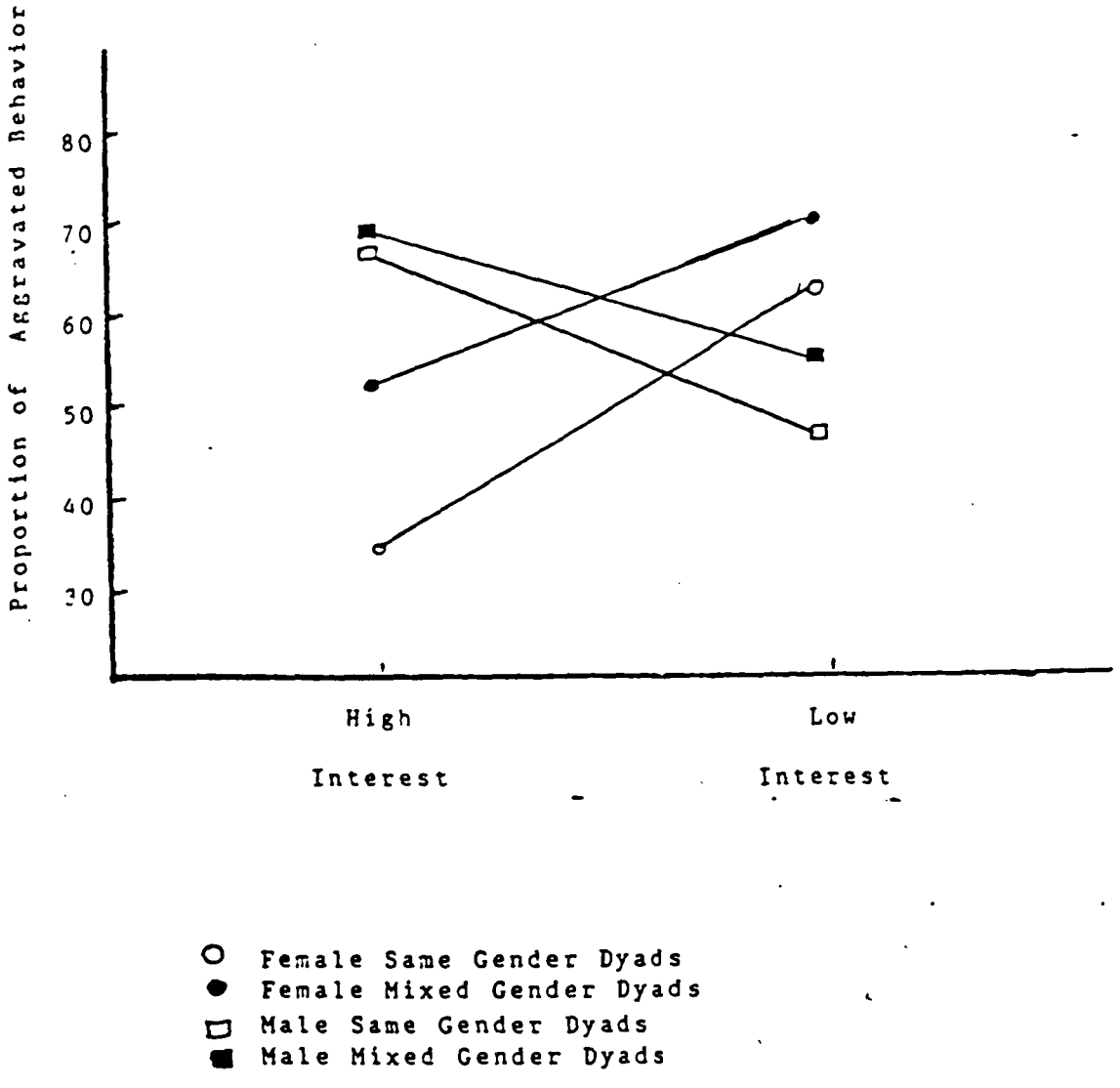
Main effects for interaction strategies

There were no main effects for gender, group or interest on any of the individual interaction strategies.

Numerous interaction effects were found for individual interaction strategies. These interaction effects are discussed for each interaction strategy, taken in order.

Figure 1

Three-Way Interaction Effect Gender x Group x Interest on the Proportion of Aggravated Behavior Scores



Interaction effects for interaction strategies

1. Verbal Disagreements

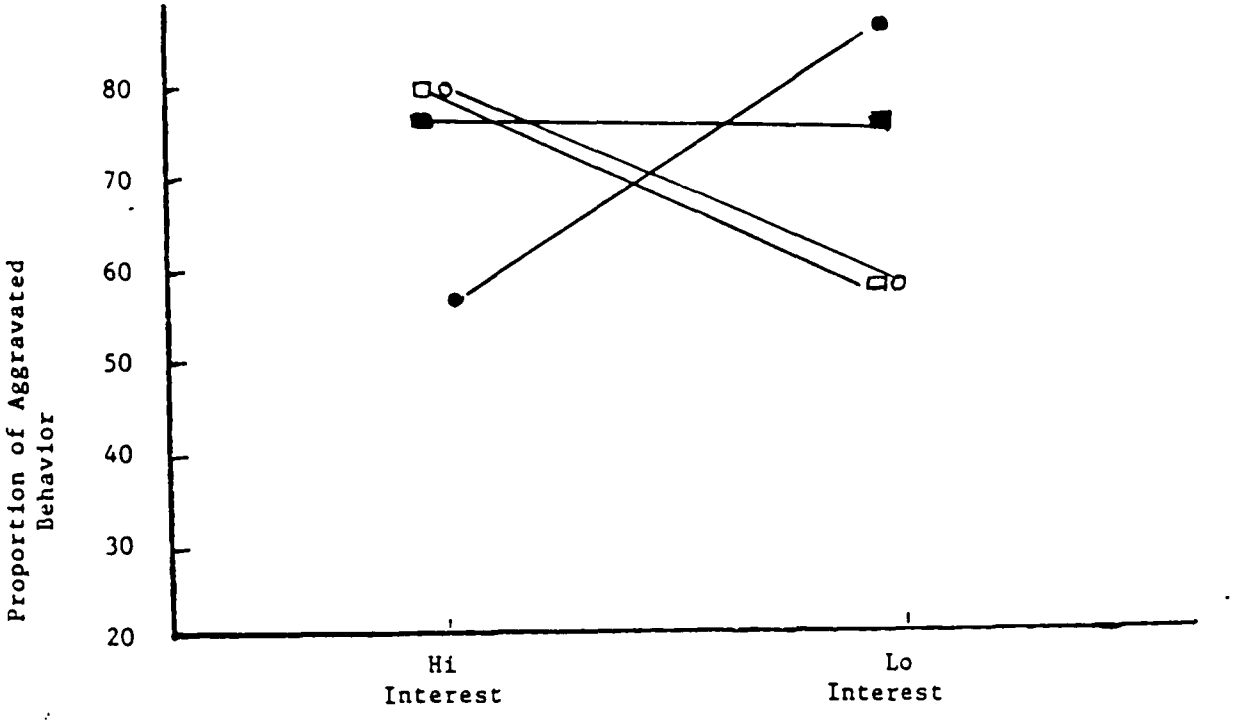
There was a significant interaction effect for gender x interest on the verbal disagreements interaction strategy, F (1, 76) = 14.84, $p < .001$. In the high interest activity males expressed a significantly higher proportion of aggravated behavior on the verbal disagreements interaction strategy compared with females in both same gender groups (M = 80.00, 50.00 respectively) and mixed gender groups (M = 75.00, 55.00 respectively).

There was a significant interaction effect for group x interest on the verbal disagreements interaction strategy, F (1, 76) = 10.88, $p < .01$. A significantly higher proportion of aggravated behavior in low interest activity on this interaction strategy was expressed in mixed gender groups compared with same gender groups by both males (M = 75.00, 57.50 respectively) and females (M = 85.00, 57.50 respectively). There were no interaction effects gender x group x interest on this interaction strategy.

All two-way interaction effects for the verbal disagreements strategy are depicted in Figure 2.

Figure 2

Two-Way Interaction Effects Gender x Interest and Group x Interest on Verbal Disagreements Strategy



○ Same-Gender Groups
● Mixed-Gender Groups

□ Same-Gender Groups-Male
■ Mixed-Gender Groups-Male

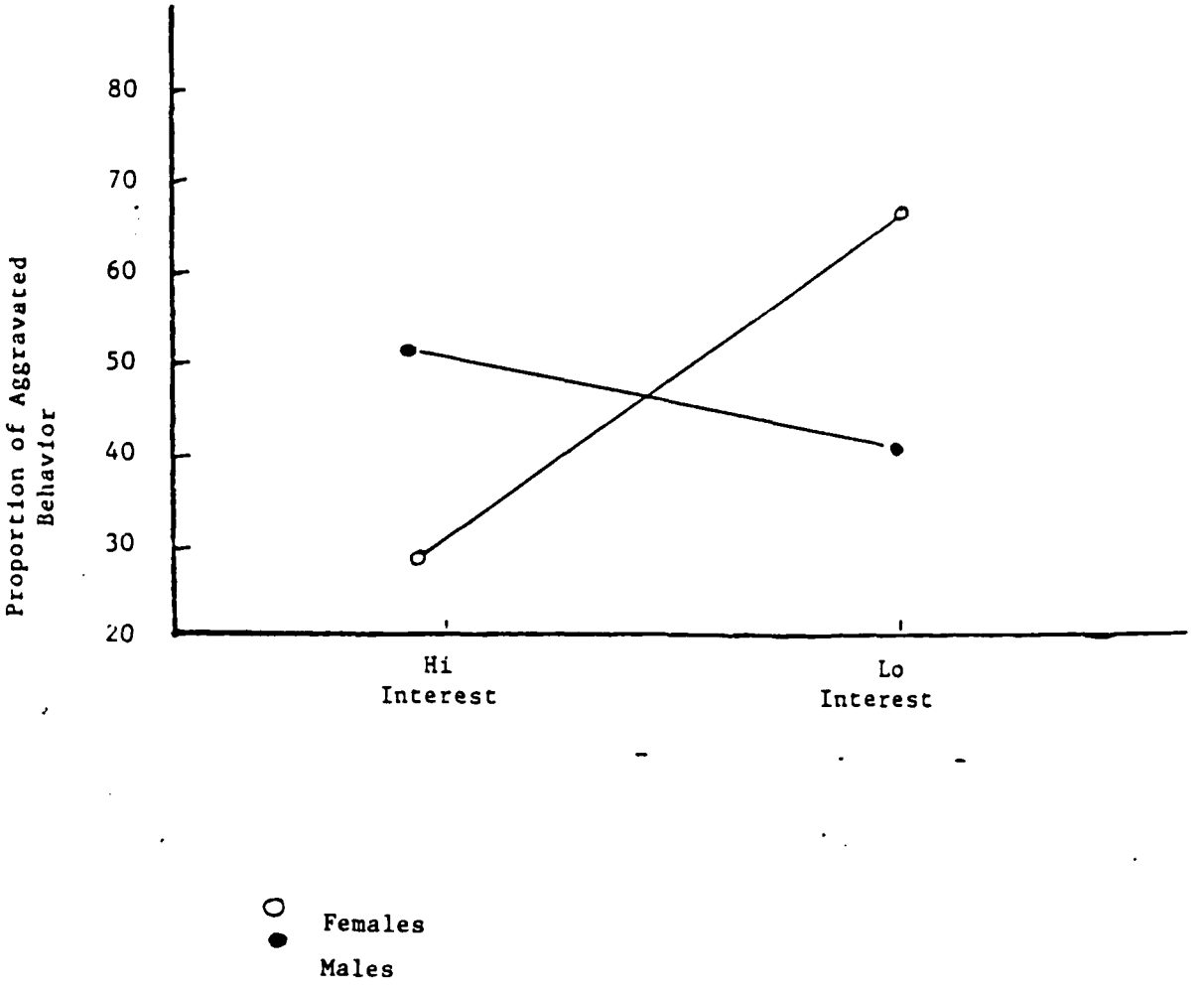
2. Verbal-enactive disagreements

There was a significant interaction effect for gender x interest on the verbal enactive disagreements interaction strategy, F (1, 76) = 5.63, $p < .05$. On high interest activity males expressed a significantly higher proportion of aggravated behavior on the verbal enactive disagreements interaction strategy compared with females (M = 51.25, 28.75 respectively). On low interest activity females expressed a significantly higher proportion of aggravated behavior on the verbal enactive disagreements interaction strategy compared with males (M = 66.00, 42.92 respectively). These interaction effects are depicted in Figure 3.

There was a significant interaction effect for gender x group x interest on the verbal enactive disagreements interaction strategy, F (1, 76) = 4.74, $p < .05$. On low interest activity females in same gender dyads expressed a significantly higher proportion of aggravated behavior on the verbal enactive disagreements interaction strategy compared with males in same gender dyads (M = 79.80, 35.85 respectively), and females in mixed-gender dyads. There was no significant difference in the proportion of aggravated behavior expressed by males and females in mixed gender dyads in low interest activity on the verbal enactive disagreements interaction strategy.

Figure 3

Two-Way Interaction Effect Gender x Interest on Verbal + Enactive Disagreements Strategy



Males in mixed gender dyads in low interest activity expressed a significantly higher proportion of aggravated behavior on the verbal enactive disagreements interaction strategy compared with males in same gender dyads (*M* = 50.00, 35.85 respectively). Females in same gender dyads expressed a significantly higher proportion of aggravated behavior on the verbal enactive disagreements interaction strategy in low interest activity compared with females in mixed gender dyads (*M* = 79.80, 52.50 respectively). This interaction effect is depicted in Figure 4.

3. Commands

There was a significant interaction effect for group x interest on the Commands interaction strategy, F (1, 76) = 13.32, $p < .001$. Subjects in mixed gender dyads expressed a significantly higher proportion of aggravated behavior on the commands interaction strategy in high interest activity compared with subjects in same gender dyads (*M* = 61.25, 37.50 respectively). In low interest activity subjects in mixed gender dyads expressed a significantly higher proportion of aggravated behavior on the commands interaction strategy compared with subjects in same gender dyads (*M* = 82.50, 50.00, respectively). This interaction effect is depicted in Figure 5.

Figure 4

Three-Way Interaction Effect Gender x Group x Interest on Verbal + Enactive Disagreements Strategy

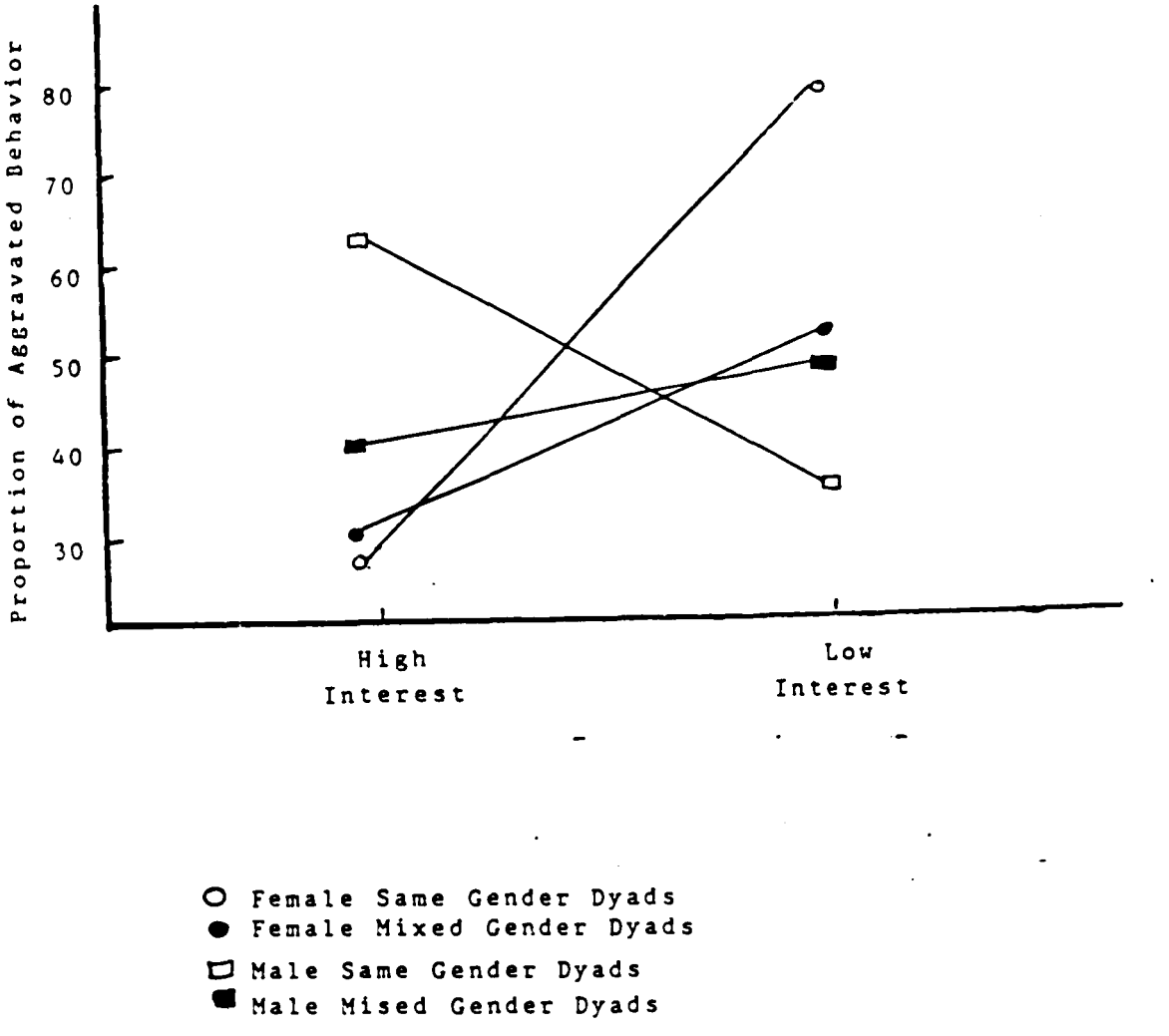
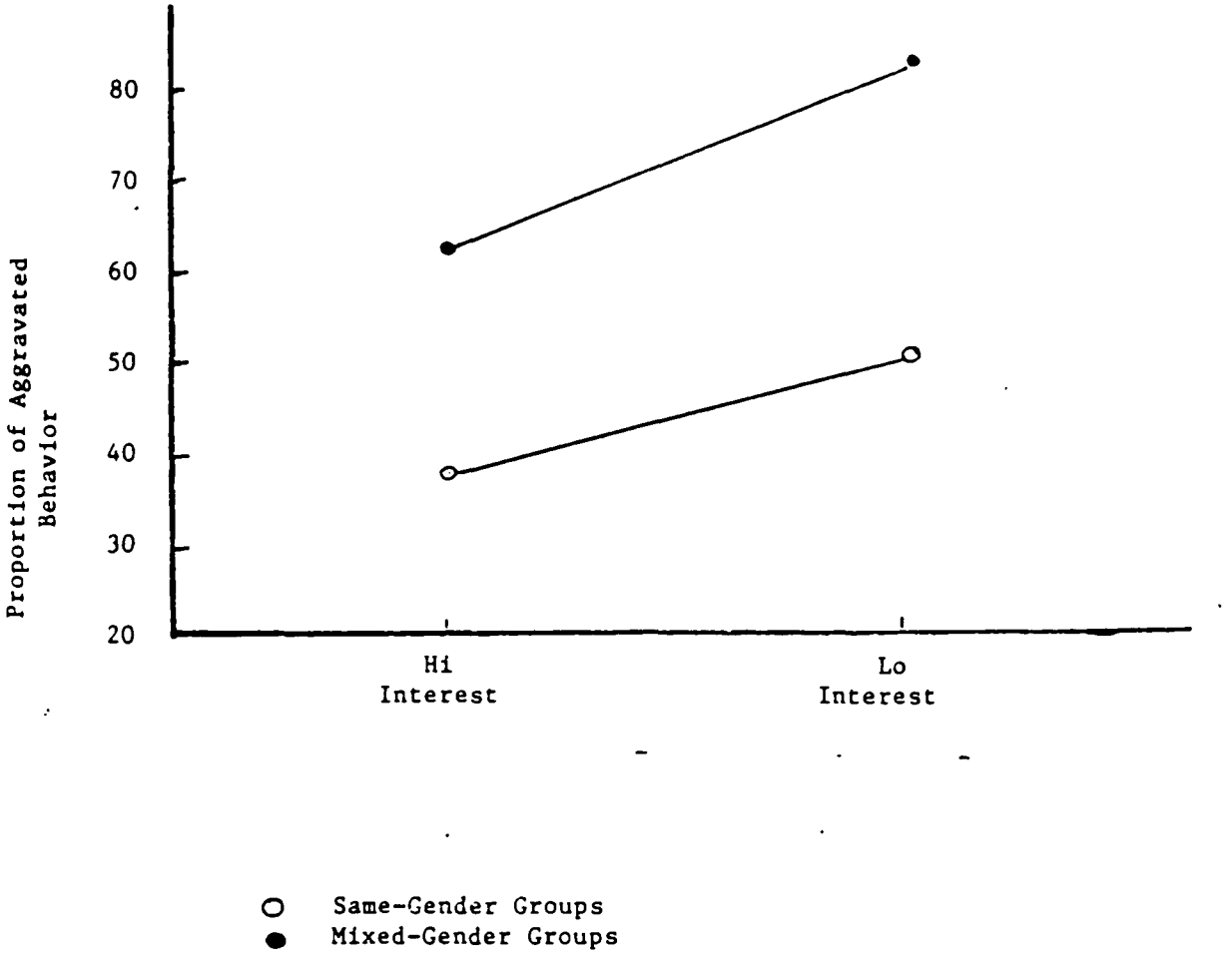


Figure 5

Two-Way Interaction Effect Group x Interest on Commands Strategy



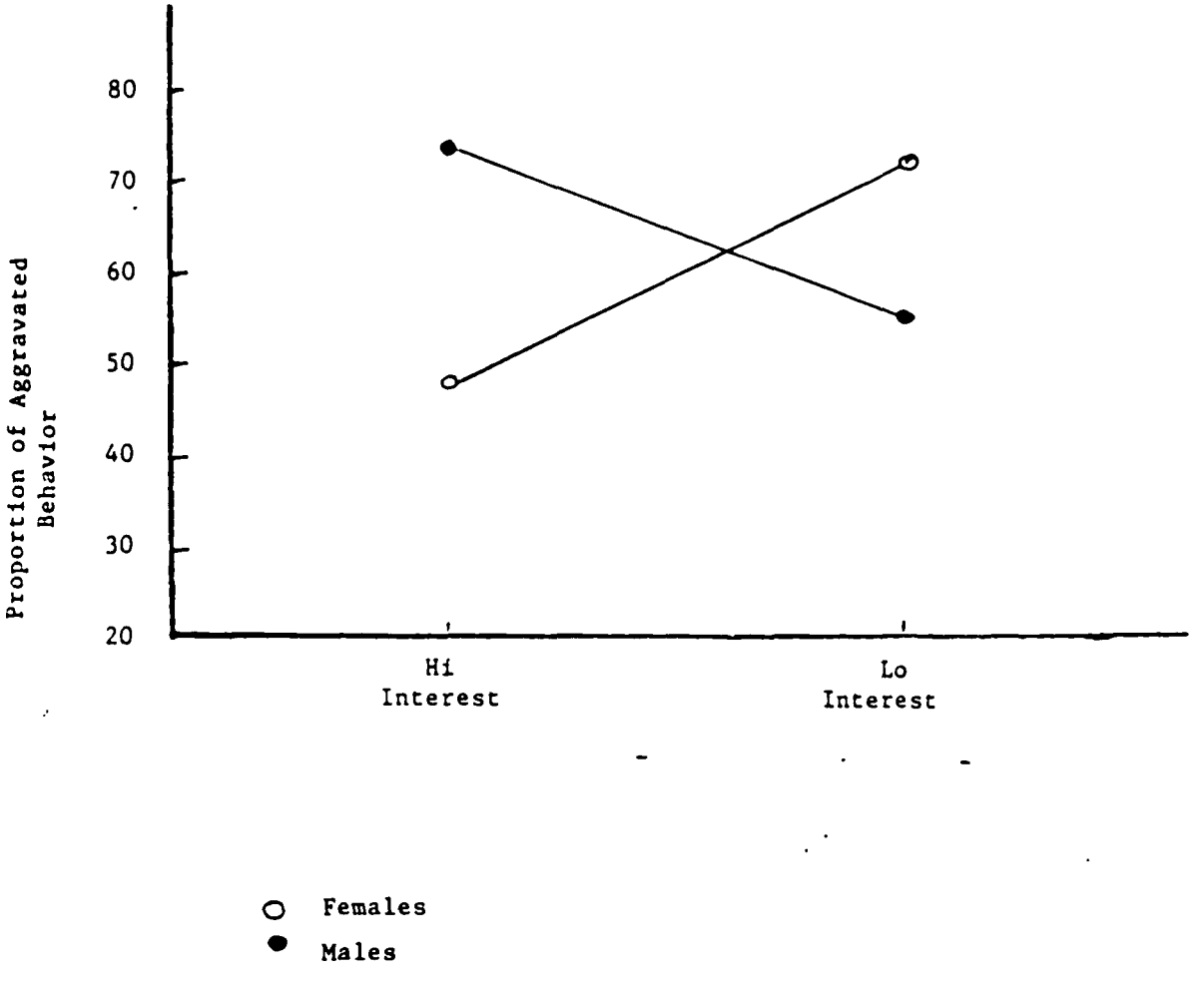
4. Agreements

There was a significant interaction effect for gender x interest on the proportion of aggravated behavior on the agreements interaction strategy, F (1, 76) = 14.09, $p < .001$. On high interest activity males expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy compared with females (M = 72.50, 47.68 respectively). On low interest activity females expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy compared with males (M = 71.25, 53.75 respectively). This interaction effect is depicted in Figure 6.

There was a significant interaction effect for gender x group x interest on the proportion of aggravated behavior on the agreements interaction strategy, F (1, 76) = 7.07, $p < .01$. Males in same gender dyads on high interest activity expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy compared with males in mixed gender dyads (M = 85.00, 65.00 respectively), whereas females in mixed gender dyads on high interest activity expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy compared with females in same gender dyads (M = 52.75, 42.50 respectively). Males in same gender dyads on high interest activity expressed a

Figure 6

Two-Way Interaction Effect Gender x Interest on Agreements Strategy



significantly higher proportion of aggravated behavior on the agreements interaction strategy compared with females in both same gender dyads (*M* = 85.00, 42.50 respectively) and mixed gender dyads (*M* = 85.00, 52.75 respectively).

On low interest activity a significantly higher proportion of aggravated behavior on the agreements interaction strategy was expressed by females compared with males (*M* = 71.25, 53.75 respectively). Males in mixed gender dyads expressed a signficantly higher proportion of aggravated behavior on the agreements interaction strategy on low interest activity compared with males in same gender dyads (*M* = 65.00, 42.50 respectively). Females in same gender dyads expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy in low interest activity than males in both same gender dyads (*M* = 75.00, 42.50 respectively) and mixed gender dyads (*M* = 75.00, 65.00 respectively), while females in mixed gender dyads expressed a significantly higher proportion of aggravated behavior on the agreements interaction strategy in low interest activity compared with males in same gender dyads (*M* = 67.50, 42.50 respectively).

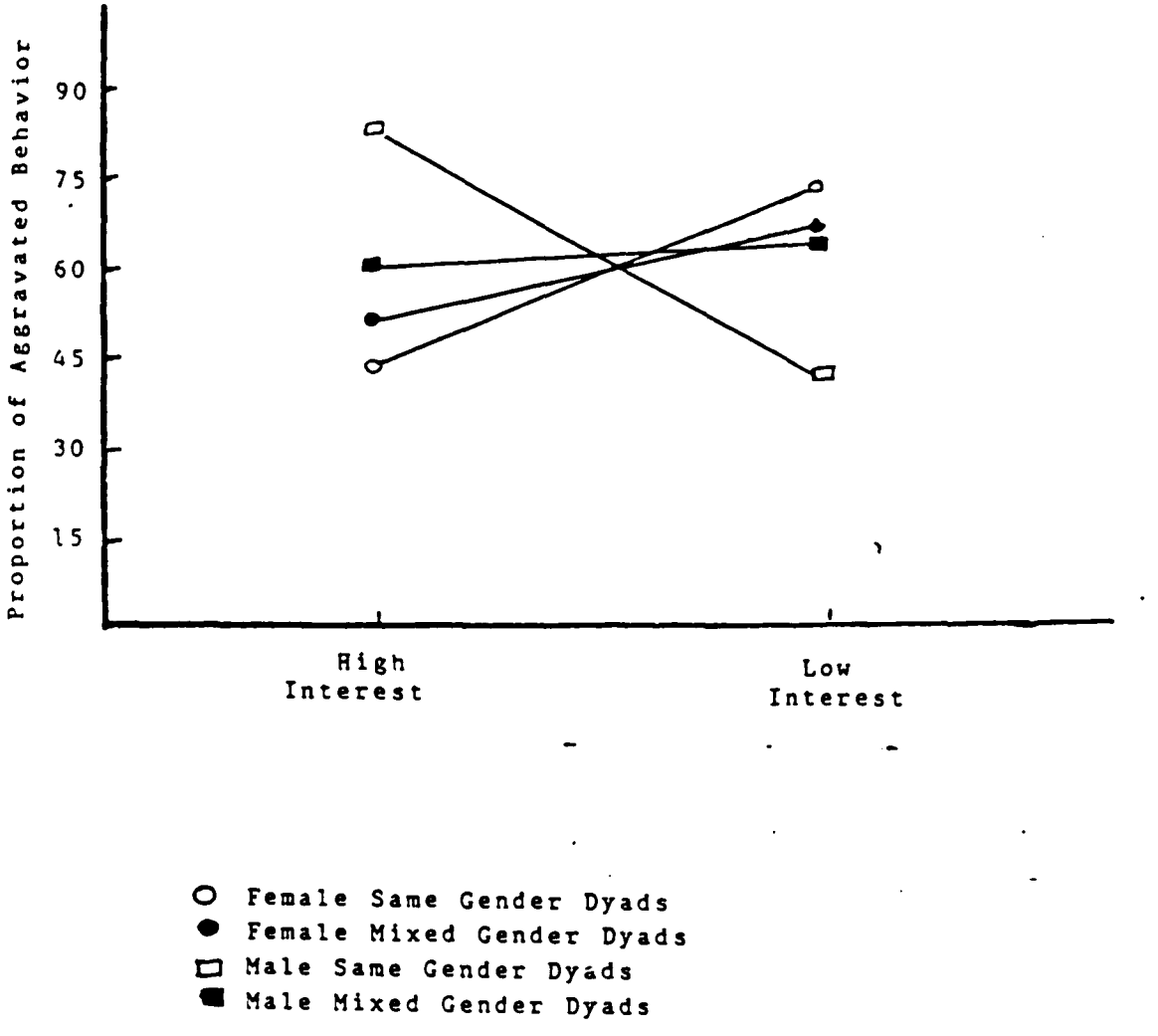
These interaction effects are depicted in Figure 7.

5. Questions

There was a significant interaction effect for group x

Figure 7

Three-Way Interaction Effect Gender x Group x Interest on Agreements Strategy



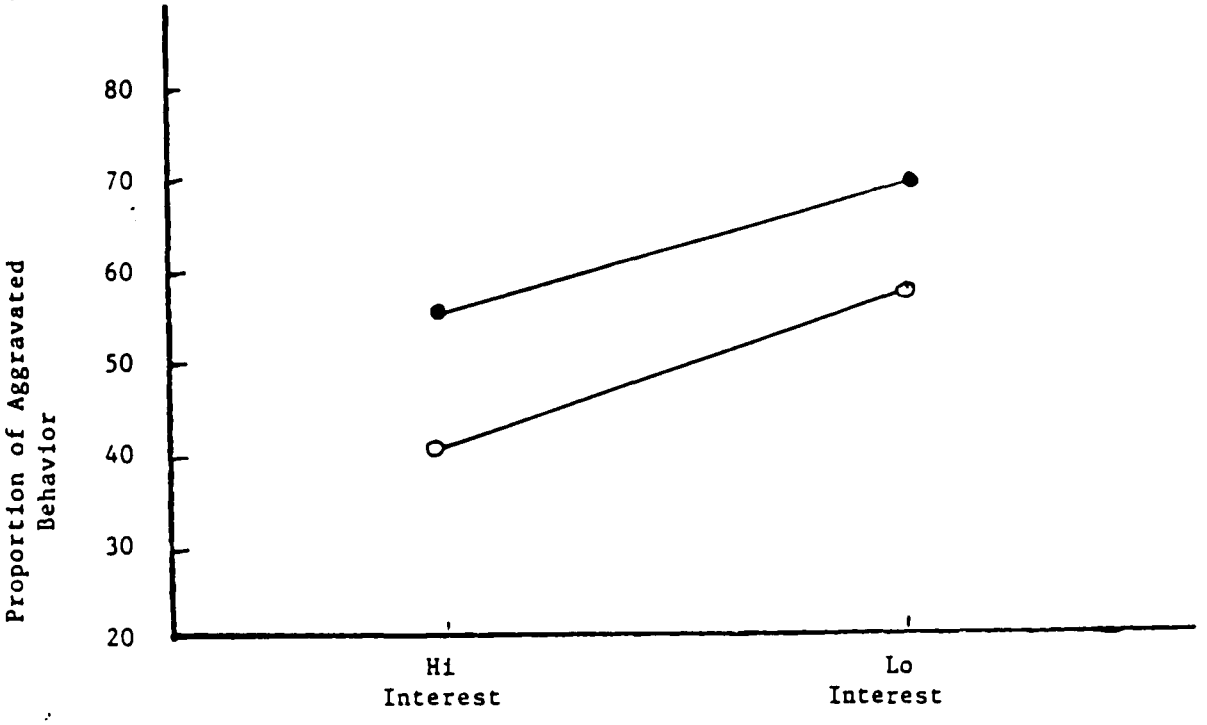
interest on the proportion of aggravated behavior on the questions interaction strategy, F (1, 76) = 3.86, p < .05. On high interest activity subjects in mixed gender dyads expressed a significantly higher proportion of aggravated behavior on the questions interaction strategy compared with subjects in same gender dyads (M = 55.00, 40.00 respectively). This interaction effect is depicted in Figure 8.

There was a significant interaction effect for gender x group x interest on the proportion of aggravated behavior on the questions interaction strategy, F (1, 76) = 3.86, p < .05. In high interest activity, males in same gender dyads expressed a significantly higher proportion of aggravated behavior on the questions interaction strategy compared with females in same gender dyads (M = 52.50, 27.50 respectively); males in mixed gender dyads expressed a significantly higher proportion of aggravated behavior on the questions interaction strategy compared with females in same gender dyads (M = 52.50, 27.50 respectively); and females in mixed gender dyads expressed a significantly higher proportion of aggravated behaivor on the questions interaction strategy compared with females in same gender dyads (M = 57.50, 27.50 respectively). This interaction effect is depicted in Figure 4.

There were no significant interaction effects on the questions interaction strategy on low interest activity.

Figure 8

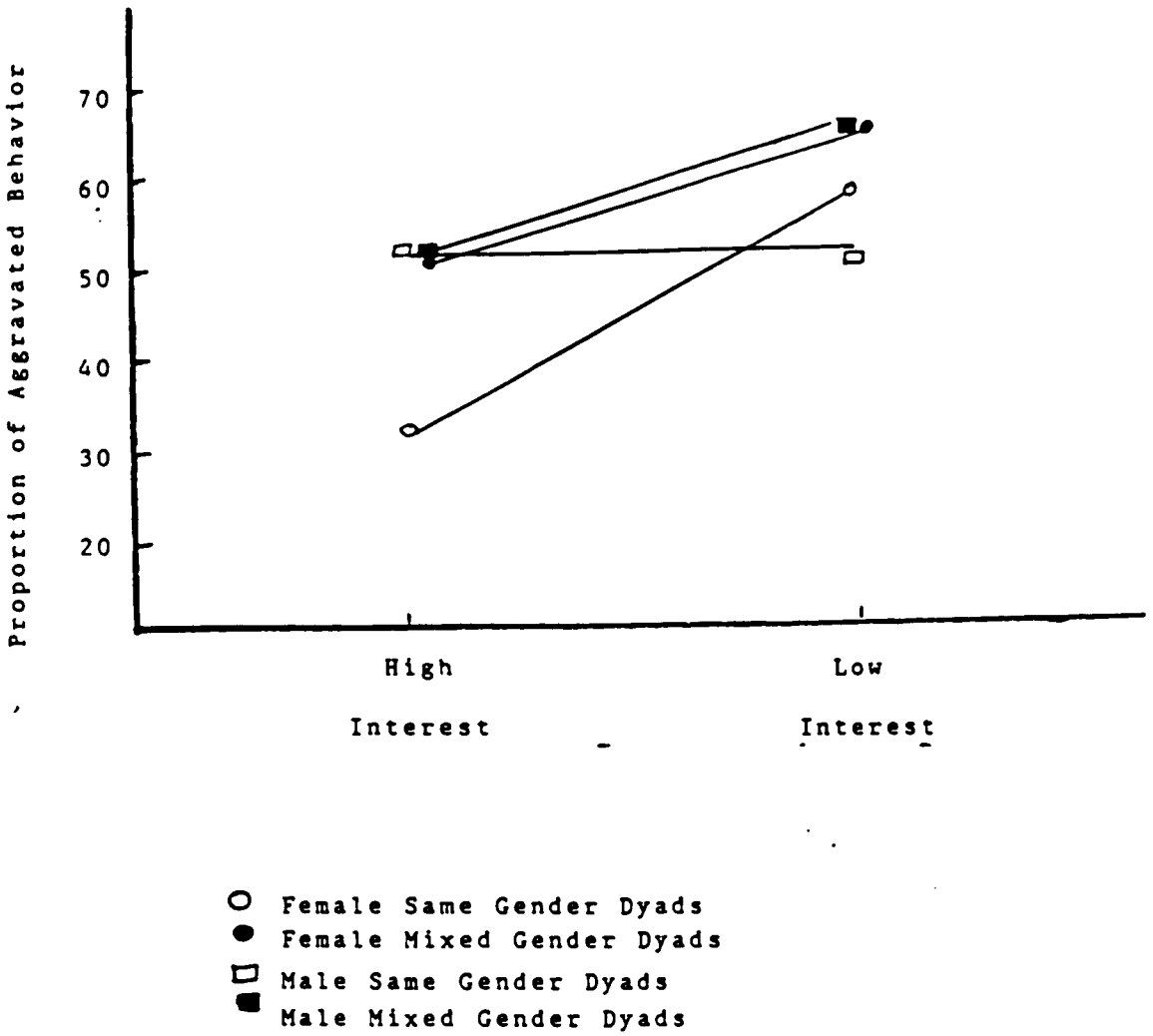
Two-Way Interaction Effect Group x Interest on Questions Strategy



○ Same-Gender Groups
● Mixed-Gender Groups

Figure 9

Three-Way Interaction Effect Gender x Group x Interest on Questions Strategy



Summary of Tests of Hypotheses

1. *On all the interaction strategies combined males will express a significantly higher proportion of aggravated behaviors compared to females.*

This hypothesis was tested by a 2 (Gender: male, female) x 2 (Group: same gender, mixed gender) x 2 (Interest Level: high, low) x 5 (Interaction Strategies/ repeated measures) MANOVA (Table 8). There was no main effect for gender on the proportion of aggravated behavior scores, nor on any of the individual interaction strategies (Table 9). This hypothesis is **not supported** by the findings.

2. *On all interaction strategies combined there will be an interaction between gender and group, such that: (a) male interaction will be characterized by a significantly higher proportion of aggravated behavior scores compared with mitigated behavior scores across both dyadic conditions; and (b) female interaction will be characterized by a significantly higher proportion of aggravated behavior scores in mixed gender dyads compared with same gender dyads.*

Hypothesis 2 (a) was tested by the MANOVA on the proportion of aggravated behavior scores (*M* = 66.00, 57.50 for males in same gender dyads and males in mixed gender dyads respectively). Hypothesis 2 (a) is thus **supported**.

Hypothesis 2 (b) was similarly tested by the MANOVA on the proportion scores (*M* = 61.47, 49.23 for females in mixed gender and same gender dyads respectively). Hypothesis 2 (b) is thus **supported.**

3. *Both males and females will express a significantly higher proportion of aggravated behavior scores on high interest activity compared to low interest activity.*

Hypothesis 3 was tested by the MANOVA. For males there was no significant difference in the proportion of aggravated behavior for high-interest compared with low-interest activity (*M* = 61.75, 57.08). Hypothesis 3 is therefore rejected to the extent that it refers to males.

For females, however, *low* interest activity showed a significantly higher proportion of aggravated behavior scores compared to high interest activity (*M* = 64.96, 33.50 respectively). This result runs opposite to the prediction of Hypothesis 3, which is therefore not supported to the extent that it refers to females.

Hypothesis 3 is therefore **not supported** as to either males or females.

CHAPTER V

Discussion

The central objective of the present study was to determine if findings in previous research that appeared to support the hypothesis of gender-typical interaction styles, with males expressing predominantly aggravated style interaction strategies and females expressing predominantly mitigated style interaction strategies, were biased by the gender-specific characteristics of the tasks employed. Researchers (Lever, 1976; Miller et al., 1986; Charlesworth & Dzur, 1987; Bearison et al., 1986) have proposed that the activities in which young children engage influence their interaction strategies and, consequently, their linguistic styles. Their findings in general have tended to support an argument that girls use more indirect, cooperative, conflict-mitigating interaction strategies, whereas boys incline toward more direct, aggravated interaction strategies. Additionally, Bearison et al. (1986) found that boys' interaction strategies prevailed more frequently and were directly related to cognitive gain scores in dyadic problem-solving activities.

All these findings raise questions regarding young children's gender-related patterns of interaction. If female interactions show a lower incidence of aggravated

style behavior, and this behavior is clearly shown to be associated with cognitive gain scores in dyadic problem-solving activity, then what types of behaviors expressed by girls are useful predictors of cognitive gain scores in dyadic problem-solving activity for girls?

It was argued in the present study that what appeared to be a gender-related difference was an *interest*-related difference, and that the employment of tasks that would act to neutralize gender-related differences in interest would result in the disappearance of these gender differences in interaction style found in earlier studies. The method selected to accomplish this neutralization was the employment of two tasks, rather than one, with one of the tasks possessing recognizable high interest for males and low interest for females, and the other possessing recognizable high interest for females and low interest for males.

Both of the activities employed (Command Center, Doll House) are forms of playing, with relatively few explicit rules. As within any activity requiring close coordination of the actions of the participants, decisions regarding how the play is to proceed must be made from moment to moment. Both participants were instructed as to the necessity of reaching agreement as to where each element would be placed in the Command Center and the Doll House. The actual

findings present results that include both the expected and the completely unexpected.

It was expected that as a result of the employment of both high interest and low interest activities for both genders, the proportion of aggravated behaviors for both genders on the two activities combined would show a significant difference favoring males. This turned out to be unsupported, with males expressing a proportion of 59.42 aggravated behaviors for high and low interest activity combined, compared to a proportion of 55.35 aggravated behaviors for high and low interest activity combined for females. This difference was not significant.

Another hypothesis of the present study was that males would express a significantly higher proportion of aggravated behaviors on high interest activity compared to low interest activity, and that, too, was found to be unsupported. What was not predicted by the hypotheses and which ran counter to expectations was the finding that females expressed significantly higher levels of aggravated behaviors on the *low* interest activity than on the high interest activity (M = 67.95, 42.75, respectively). Examination of the proportion of aggravated behavior for females at both interest levels for each of the five interaction strategies disclosed a striking consistency in the higher frequency of aggravated behavior for that

strategy on the *low* interest activity, as opposed to the high interest activity (e.g., on verbal disagreements interaction strategy, High = 52.50, Low = 71.25; on verbal enactive disagreements interaction strategy, High = 28.75, Low = 66.00; on commands interaction strategy, High = 41.25, Low = 70.00; on agreements interaction strategy, High = 47.63, Low = 71.25; on the questions interaction strategy, High = 42.50, Low = 62.50).

There is no ready explanation for this finding of consistency in significantly higher levels of aggravated behavior on low interest activity as opposed to high interest activity with respect to females. It should be remembered that the express purpose of employing two activities, rather than one, was to overcome the gender bias in the employment of activity that flawed many of the earlier studies. Their rather consistent pattern of findings, that aggravated behaviors predominated in male interaction strategies and mitigated behaviors predominated in female interaction strategies, was criticized on the ground that by obliging females to engage in activity that was of low interest for them, they failed to allow the full range of female expression to reveal itself, and this could be more fully revealed by allowing females an oportunity to engage in activity of high interest for them. It is

paradoxical, then, to find in a study that offered females a high interest activity as a means of eliciting a higher frequency of expression of aggravated behavior the expected higher frequency of aggravated behavior, but on the *low* interest activity, rather than on the high interest activity.

One would expect that subjects would feel a higher level of confidence in their own judgments on high interest activity than on low interest activity, and that this would translate into an interaction style reflective of that higher level of confidence, which is to say the aggravated style. Clearly, this is not what occurred in the present case. One would be hard pressed to find anything in the way of a theoretically based explanation for a difference in the opposite direction, such as emerged in the present study.

It could be argued, on the other hand, that interest level was not a determinant in the matter of the counter-intuitive findings with respect to females discussed above, and that the results can be explained simply on the basis of the very nature of the tasks themselves. This argument could be advanced for any two tasks. There was

clear evidence of the difference in interest level, but there was no indisputable evidence that interest level influenced the results. While we reject that argument for reasons already set forth, the question could be more convincingly settled by the method suggested above, of using a sizeable number of high and low interest activities within a single experimental design. Repeated evidence of association between interest level and significantly higher proportions of aggravated behavior would tend to rule out the likelihood of systematic operation of some other, unidentified factor.

On the other hand, the finding that higher frequencies of aggravated behavior were expressed by females in mixed gender dyads compared to same gender dyads was completely consistent with the hypotheses of the present study. The pattern is not so consistent in the case of female aggravated behavior on low interest activity noted previously.

For all interaction strategies combined, the proportion of aggravated behavior in mixed gender dyads was 62.12, significantly exceeding that of 52.66 in same gender dyads. When gender is considered, males in same gender dyads expressed a (nonsignificantly) higher proportion of aggravated behavior compared to males in mixed gender dyads on the high interest activity (*M* = 66.00 vs. 57.50),

but a significantly higher proportion in mixed gender dyads on the low interest activity (*M* = 68.00 vs. 46.17). Females in mixed gender dyads expressed a significantly higher proportion of aggravated behavior compared to females in same gender dyads on high-interest activity (*M* = 52.00 vs. 33.50), but a nonsignificantly higher proportion on low interest activity (*M* = 70.94 vs. 64.96). These results hold with considerable consistency over the individual interaction strategies, with statistically significant differences.

One would expect that for females mixed gender groups present a more competitive type of vehicle for social interaction than same gender groups, in which questions of gender role fulfillment and identity assume larger roles. Such an explanation would account for the unusually consistent finding of a higher proportion of aggravated behavior over all five interaction strategies at both levels of interest, with few exceptions. It could of course be argued that gender role fulfillment for females should lead to the expression of *less* aggravated style behavior in mixed gender groups than in same gender groups, rather than a finding of more, as was found in the present study. Yet, considering that the subjects were 5 and 6 years of age, there is a probability that the female subjects had not yet been socialized to what has come to be accepted as gender

appropriate behavior for females, which is to say an interaction style characterized by a predominance of mitigated style behaviors. Sgan and Pickert's (1980) study of children's free play also found a high frequency of aggravated behavior. At 3 and 5 years of age the interaction strategies of the girls in their study were characterized by more indirect, mitigated styles, while those of the 9 and 11 year old girls were marked by more direct, aggravated styles that resembled the behavior the boys to a greater extent. The significance of the findings in the present study and in Sgan and Pickert (1980) cannot be fully evaluated until they have been duplicated in a study of older female subjects, such as 9 and 13, under similar conditions as prevailed in the present study. Subjects at that age--both males and females--would be more socialized to gender appropriate social roles, and thus a duplication of the finding in the present study of higher frequencies of aggravated behavior in mixed gender dyads compared to same gender dyads would have greater implications than what can be advanced on the basis of the present findings. Findings of a typically aggravated style of interaction behavior for females in such studies as Sgan and Pickert (1980); Foot, Smith and Chapman (1979); and Goodwin (1980) involved children somewhat older than those in the present study (i.e., third-graders, fourth-graders, and in both the

Goodwin and Sgan studies, 9-11 year olds). Other studies (e.g., Phinney & Rotheram, 1982) have used younger subjects than those in the present study, in which variables such as such as passivity and self-withholding disposition could be argued as providing an equally satisfactory explanation of the results. In short, many of the previous studies in this area have been limited in terms of their generalizability, not only by their failure to take into account the possible effect of interest level, but also by the failure to test subjects at different age levels of the socialization process. Where the latter has in fact occurred (e.g., Miller et al., 1986), there was no effort to examine the effect of differences in age in terms of possible demarcation of stages in the socialization process.

The finding of no main effect for gender on the proportion of aggravated behavior scores indicated that that the ascription of aggravated behavior to males and mitigated behavior to females in the large number of earlier studies was based upon a fundamental error, which ignored the possible effect of interest level in influencing linguistic style.

The finding of a main effect for group on the proportion of aggravated behavior scores was likewise predicted by the hypotheses. It was predicted that females would express significantly higher levels of aggravated behavior in mixed

gender dyads, and that is the result that was found.

The finding of a main effect for interest level on the proportion of aggravated behavior scores was expected. Surprisingly, however, it was low interest activity that resulted in the expression of aggravated forms of interaction, rather than high interest activity, which was the thesis of the present study. It was argued in the present study that the low interest level for females of activities employed in earlier studies was directly responsible for the lower frequencies of aggravated behavior forms in the female subjects they observed; employing an activity of high interest level for females would result in a higher frequency of aggravated behaviors for females and a lower frequency of aggravated behaviors for males, so that on the two activities combined, no significant differences in frequency of aggravated behaviors would be found between males and females. Just as had been predicted, no significant differences were found between males and females: but the higher frequency of aggravated behavior was expressed on *low* interest activity, rather than on high interest activity. It is not easy to interpret this finding, given the very considerable weight of earlier research that found females expressing lower frequencies of aggravated behavior on activities that were clearly biased in the direction of male interest.

The finding of an interaction between gender and interest level for the proportion of aggravated behavior scores follows in the same direction as the finding of a main effect for interest. Females expressed significantly higher levels of aggravated behavior in the low interest activity compared to the high interest activity. Earlier discussion has explored to considerable length possible explanations for this finding, and nothing more can be added here.

The three-way interaction effect, gender x group x interest on the proportion of aggravated behavior scores presents findings of particular interest. The finding that males in same gender dyads expressed significantly higher frequency of this interaction strategy on high interest activity compared with low interest activity was in accord with the hypotheses of the present study. Other findings, however, were surprising. One of the expectations of the study was that, given an activity of high interest to them, females would express a frequency of aggravated behavior comparable to that of males on male high interest activity. Males in same gender dyads on high interest activity expressed significantly greater aggravated behavior than females in same gender dyads on high interest activity--almost twice the proportion (*M* = 66.00, 33.50 respectively). No less interesting is the finding that females in same gender dyads expressed almost twice the

proportion of aggravated behavior on *low* interest activity compared to high interest activity (*M* = 64.96, 33.50 respectively). Also of interest is the finding that in mixed gender dyads, a higher proportion of aggravated behavior was expressed on low interest activity compared to high interest activity both by males (*M* = 68.00, 57.50 respectively) and by females (*M* = 70.94, 52.00 respectively).

What conclusions can be drawn from these findings with respect to the mixed gender groups on low interest activity? It would be unwise to attempt to conclude too much from these findings without further study. While it cannot be ignored that these interaction effects were impressive the fact that they ran counter to the findings in a sizeable number of recent studies argues for the utmost caution in interpreting the results.

Results of the majority of studies examining gender-related differences suggest that interaction strategies of females are directly affected by the activity itself and the level of interest that inheres in it. Activities of limited interest level lead to less active behavior. But if the activity is one of higher interest level, as Goodwin (1988) pointed out, the interaction strategies of girls resemble those of boys to a very great extent. These findings con-

stituted an implicit assumption in the development of the present study, that on activities of comparable interest, there would be little if any difference between the behavior of girls and the behavior of boys. What has emerged, however, is a finding that in a large sampling of behavior that includes activities at both interest levels, the overall behavior of girls and boys will not significantly differ; but group composition and interest level of the activity play a significant role in determining what the character (i.e., aggravated or mitigated) of behavior will be for both boys and girls. Perhaps even more important, group composition can influence the character of behavior of both boys and girls, *even if the activity is of low interest for their gender*, as evidenced by the numerous instances of significantly higher proportions of aggravated behavior on low interest activity for both males and females in mixed gender dyads.

The present study has served to illustrate the advantages of an integrated approach to the study of young children's social interaction during a cooperative activity. It also has served to illustrate the importance of considering motivational factors (i.e., activity interest), which have been found to impact upon social behavior. Instead of considering gender differences as reflecting two distinct paths, as Gilligan (1982) proposed--one concerned with

justice, the other with relationships--differences are to be thought of as lying on a continuum of responses during social interaction.

Numerous efforts have been undertaken to find discussions that best describe variations in interaction style; Miller et al. (1986), to cite one example, made a distinction between "heavy handed conflict" and "conflict-mitigating" behavior. The findings of the present study suggested that tendencies toward dichotomization arise out of an erroneous assumption that is compelled by the original error of failure to consider the role of magnitude of interest in determining the extent and nature of interaction of both males and females.

The question sought to be answered by the present study relates to whether or not there exists a uniform style of discourse that can describe the interaction of boys on the one hand and girls on the other. The answer to this question is no. In the context of group composition and interest level a stable style of discourse presents itself, different for boys and girls, and different according to interaction strategy. This latter point fully justifies the decision to distinguish the different strategies, which were limited to five in order to make possible easier comparison with earlier studies which gave rise to the present study.

The more or less stable styles of discourse that we find in the results of the present study are these. Males tend to express a high proportion of aggravated behavior in both high and low interest activity, but in particular in same gender groups; much of this aggravated behavior is expressed in verbal disagreements and in agreements. Females tend to express a high proportion of aggravated behavior in low interest activity, especially in mixed gender groups; much of this behavior is expressed in enactive disagreements and in agreements. These findings generally conform to the description of recent researchers (Brown, 1980), but also clarify the limitations of their argument by pointing out the importance of group composition and interest level, factors which they often ignored .

Methodological Limitations Regarding the Unit of Analysis

Recent researchers have used the dyad as the unit of analysis. In the present study the individual child is the unit of analysis. This decision was compelled by the hypotheses of the present study that made predictions as to the behavior of individual subjects in varying dyadic conditions. Hypothesis 1, for example, predicted that males would express a significantly higher proportion of aggravated behaviors compared to females. Since half the male

subjects and half the female subjects are in mixed gender dyads, it would not have been possible to isolate male and female behavior within the dyad if the unit of analysis had been the dyad. Using the dyad as the unit of analysis would not have allowed for examination of effects of gender with dyadic composition, nor for that matter of gender in isolation or in combination with any other variable.

The limitation imposed by using the individual child as the unit of analysis is that the behavior of the individual in a group is a product of the individual's own previous behavior, the response of the other member(s) of the group to that behavior, and the behavior of the other member(s) of the group to which the individual then responds. One could go beyond that and say that the very existence of other persons in the group, whether actively participating or passively, tends to influence the behavior of the individual. Using the individual as the unit of analysis does not ignore the relationship described here. Had the present study been focused upon measuring the effect of interaction strategies upon outcomes, as was true in Bearison et al. (1986), the relationship of the dynamics to outcomes would have been analyzed. In the present study, however, there is no differentially measurable outcome; the outcome is the same for all, in that it consists of simply completing the activity--how does not matter for the purposes of

the present study.

There is abundant support for the use of the individual child as the unit of analysis. A number of studies examining gender patterns in young children's dyadic interaction have used the individual child as the unit of analysis in order to address specific issues of interest (Miller et al., 1986; Goodwin, 1980; 1988; Bearison et al., 1986). Individual children's scores are judged preferable to dyadic scores as the unit of analysis for the examination of the effects anticipated by the hypotheses.

Future Research

The finding that the dynamics of female behavior can show considerable interest-level related variability is much too novel a finding to permit us to consider the matter settled on the basis of a finding in a single study. Optimally, it should be tested within a multi-activity design, and across a number of age levels so as to determine whether these are general findings that can be found in females at various stages of the socialization process.

Finally, there is the question of the applicability of these findings to school or workplace activities. If further investigation replicates the present findings, that

females in low interest activity display significant amounts of aggravated styles of behavior in mixed gender dyads, can this finding be generalized to traditional cognitive tasks? What is the relationship of aggravated style behavior to cognitive performance? Assuming a significant positive correlation, how much aggravated style behavior is optimal? Will simply placing a female in a mixed gender dyad evoke a higher level of aggravated behavior on a low interest activity. These questions will have to be answered if we are to see a significant application of the findings of the present study to pedagogical practice.

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