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Factor structure of the Preschool Behavior Questionnaire:

Sociometric and social cognitive correlates

by

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ABSTRACT

The Preschool Behavior Questionnaire is a teacher's rating instrument developed to aid in the identification of preschool children with socio-emotional problems. Original research (Behar & Springfield, 1974) indicated that a total score reflecting overall level of maladjustment and three subscale scores reflecting aggressive/hostile, anxious/fearful, and hyperactive/distractible dimensions could be derived from the 30 item rating scale. Most studies using the Preschool Behavior Questionnaire have been using this three component solution. Recently, researchers such as Moller and Rubin (1988) and Tremblay, Desmarais-Gervais, Gagnon, and Charlebois (1987) have concluded that a two-component solution (aggressive/hostile/hyperactive and anxious/fearful) has a simpler structure and is easier to interpret. Other research indicates that the three component solution is valuable when assessing preschool children (Ladd & Price. 1987) or grade one students (Rubin, Moller, & Emptage, 1987) from a normal population. Consequently, this study examined the factor structure of a modified version of the Preschool Behavior Questionnaire as it applied to a sample of grade one students (43 males and 62 females). The modified version contained 28 of the original items plus 5 new prosocial items. Four factors were extracted: the first two nearly identical to those described by Behar and Springfield (1974), a third factor comprised of the prosocial items, and a fourth factor labelled "inattentive". The items defining the hyperactive component of the hyperactive/distractible

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The undersigned certify that they have read and recommend to the Faculty of Graduate Studies, for acceptance, a thesis entitled, "Factor structure of the Preschool Behavior Questionnaire: Sociometric and social cognitive correlates" submitted by Dianne Norris in partial fulfillment of the requirements for the degree of Master of Science.

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factor loaded on the hostile/aggressive factor in this analysis. The utility of a four factor solution was assessed by correlating the PBQ factors with indices of sociometric status and social cognition. Sociometric status was determined by combining the results of a positive nomination technique with results from a sociometric rating scale. Social cognition was assessed by presenting subjects with three hypothetical social problems and analyzing the results according to Dodge's (1986) social information processing model. Results indicated that teacher-identified aggressive and inattentive children were not liked by their peers whereas children rated as prosocial were popular. There were few differences found between groups on the social cognitive measure. Hostile/aggressive males did not view appealing to an authority figure as the optimal response in the peer provocation situation and provided incompetent enactment responses in the being teased situation. Both anxious/fearful and inattentive females rated the intentions of peers as hostile in the being teased situation.

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CHAPTER ONE

Introduction

A major premise of social developmental psychologists is that childhood peer relationships play a central and unique role in social and emotional development (Hartup, 1983). This viewpoint is widely accepted by professionals and children alike. Howes (1988) showed that peer relationships are significant even to the young child while Ellis, Rogoff, and Cromer (1981) demonstrated that peer relationships assumed increasing importance as children grow older. Contact with peers, especially friends, serves many functions (Furman & Robbins, 1985). Friends are important sources of companionship and recreation. They share advice and valued possessions, act as reliable allies, and provide stability in times of stress and transition. Having a friend may promote feelings of trust, acceptance, and understanding. Peer interactions also facilitate the development of moral values and communication skills (Hartup, 1976). Other researchers have stated their views even more emphatically, suggesting that student-student interactions are an absolute necessity for healthy cognitive and social development and socialization (Johnson, 1980, p.125).

There has been a rise in theoretical and empirical interest in peer relationships during the last 10 to 15 years (Coie, 1990) due to the recognition that peer interactions have come to play an increasingly important role in modern day society. The growing number of working mothers and single parent families has resulted in earlier entry of children into organized peer groups such as day care centres or nursery schools. Children also participate in more after school activities (clubs, sports teams, church groups) and stay in school longer (Asher, 1990). These changes in lifestyle ensure that children will spend considerable time with same-age peers throughout childhood and adolescence. Consequently, peer relationships become more central to the everyday life of children. As this happens, social competence becomes even more crucial.

There are, however, a number of children who find peer relationships stressful and a source of anguish for themselves, their families, and their peers (Asher, 1990). These children comprise a significant proportion of the population. Hymel and Asher (1977) found that approximately 11% of children in grades 3 to 6 had no friends and 22% had only one friend. When the criterion of reciprocal sociometric nominations is used, the percentage is even higher (Bukowski & Hoza, 1989).

Stability of Children's Social Status

Having no or few friends is not a transitory phenomena. There is growing evidence that a child's social status remains fairly stable over time. In one of the first studies assessing the stability of children's social status, Coie and Dodge (1983) found that social status for popular, neglected, and rejected children was relatively stable over a four year period. However, the status of rejected children was the most stable of all. Thirty percent of the children who were rejected in Grade 5 were still rejected in Grade 9. Studies which have investigated the behavioral correlates of peer rejection yield similar results. Ladd and Price (1987) found that differences in preschooler's social competence and peer acceptance remained relatively stable into the first year of elementary school. In addition, peer's perceptions of sociability and withdrawal have been found to be moderately stable over a three year period (Rubin, Hymel, & Mills, 1989). Moskovitz, Ledingham, and Schwartzman (1985) report similar results, stating that both withdrawal and aggression are moderately stable with withdrawn children becoming even more withdrawn over a 3 year period from grade four to seven. To summarize, peer rejection and other indices of social incompetence appear to begin at an early age and continue well into adolescence.

Given these findings plus the fact that socially maladjusted children are "at risk" for a variety of social and emotional problems (discussed below), there is little wonder that concerted efforts have been directed toward unravelling the processes that underlie peer rejection and toward delineating reliable procedures and/or instruments for identifying at risk children. The primary purpose of the present study was to examine the factor structure of one such instrument - the Preschool Behavior Questionnaire (PBQ; Behar & Springfield, 1974) in a typical population of grade one children.

Predictive Value of Social Adjustment Problems During Childhood

Mental Health Problems

There exists a vast body of literature indicating that children with social adjustment difficulties are "at risk" for a number of future problems. One often cited study (Cowen, Pederson, Babigian, Izzo, & Trost, 1973) suggests that peer assessed as well as teacher assessed acceptance relates to mental health problems. Cowen et al. (1973) examined information from the Monroe County psychiatric register to learn

whether children studied 11 to 13 years earlier (Grade 3, N=373; Grade 5, N=320) had subsequently received mental health services. They found that individuals with mental health problems had been identified earlier as vulnerable. The strongest indicator of later psychiatric visits were negative Class Play nominations by peers in third grade. In fact, negative Class Play scores were better predictors of clinical contact than third grade teachers ratings of adjustment, intellectual potential, anxiety, or self-esteem.

In their review of the "at risk" literature, Parker and Asher (1987) concluded that retrospective data (eg. Cowen et al., 1973) generally support the premise that psychologically troubled individuals have histories of poor peer acceptance. Their conclusions about follow-up or prospective studies were, however, not as definite. They cite Robins (1966) 12 year follow-up study which indicated that clinic-referred children who had peer relationship difficulties did not differ from other clinic children on rates of psychosis, neurosis, or alcoholism. Yet more recent studies suggest that there is a relationship. For example, Janes, Hesselbrook, Myers, and Pennelman (1979), in their 12 to 13 year longitudinal study of clinic-referred boys, found that one teacher rated item "fails to get along with other children" was significantly related to job dismissal caused by own behaviour, trouble with the law, and psychiatric hospitalization.

Deliquency, School Achievement and/or Dropout

Roff and Wirt (1984) expanded on previously described research in two ways. Their sample (N=1,140) was selected from a school (as opposed to a clinic) population and included both boys and girls. Peer sociometric ratings were used to identify low status children. Teachers then provided qualitative descriptions of the low status children. The purpose of the study was to clarify the relationship of specific childhood behaviours associated with peer rejection to delinquency, adult criminality, and mental health contact. Their main finding was that childhood aggression and low peer status were significantly related to delinquency for males, an antisocial diagnosis for both sexes, and differentiated individuals in the judicial system from those in the mental health system.

Moskowitz and Schwartzman (1989) reported longitudinal data on non-clinic referred adolescents and young adults in Montreal who were first contacted in grades 1, 4, and 7. At that point in time, subjects were identified by their peers as aggressive, withdrawn, or aggressive-withdrawn. The first study took place approximately six years after identification and included measures of intelligence and self-reports about affect, behaviour, school achievement. and peer relationships. In the second study archival data (medical records from the provincial government) was obtained concerning individuals physical and mental health for a four year period beginning four years after initial contact. The major finding was that high aggressiveness, for both males and females, was predictive of low intelligence, poor school achievement, and psychiatric problems. High social withdrawal was predictive of poor school achievement while withdrawn females had a relatively high proportion of abortions. Individuals who were both aggressive and withdrawn had relatively poor social competence, had general behaviour problems, had low intelligence, and were performing poorly in school. These results concur with Kupersmidt and Coie's (1990) 7 year study of grade 5 children in the United States. They found that the only significant predictor of delinquency in grade 12 was

aggression (based on peer nominations) toward peers. Aggression was also related to one or more police contacts and school dropout.

It has been shown that peer relationships and aggressiveness can have other affects on an individual's academic life. For example, Ledingham and Schwartzman (1984) found that children identified by peers as aggressive or aggressive-withdrawn were more likely to have failed a grade or to be in a special class three years later. Peer acceptance, on the other hand, has been related to academic achievement (Austin & Draper, 1984). In this study, children who were above average in achievement were significantly more often considered amiable or popular than rejected or isolated by their classmates. Students below average in achievement were more often rejected. Ladd (1990), in his study of kindergarten children, found that making new friends in the classroom was associated with gains in school performance. Early peer rejection, on the other hand, forecasted less favourable school perception, higher levels of school avoidance, and lower performance levels over the school year.

To summarize, children who are disliked by peers or rated by peers or teachers as aggressive or aggressive-withdrawn may presently be experiencing social and academic difficulties and are at risk for future social, emotional, and academic problems.

CHAPTER TWO

REVIEW OF THE LITERATURE

Social Cognition

Structural Model: Research in social cognition has been conducted from two perspectives (Yeates, Shultz, & Selman, 1991). The first perspective was largely inspired by the theoretical work of Piaget (1959) and was initially transferred into the domain of socio-moral knowledge and development by Kohlberg (1969) in his seminal work on stages of moral development. This model has been referred to as the structural model since it focuses on vertical levels of social or moral responding and emphasizes the development of general cognitive competencies that underlie social reason and behaviour. Research using this approach has linked variations in cognitive competencies such as perspective-taking to broader forms of social adjustment (Selman, 1980).

Recently, Yeates and Selman (1989), working from the assumption that general cognitive competencies underlie social development, have proposed a model focused on interpersonal negotiation strategies in thought and action. Their main hypothesis states that the level of a child's negotiation strategies is based upon his or her underlying capacities to coordinate social perspectives. The capacity to coordinate social perspectives increases with age. Thus, there are age-related increments in negotiation strategies. However, since this capacity does not vary instantaneously, there should be consistency in the level of responding within each hypothetical situation that is presented. There may be a change in interpersonal negotiation strategies from one hypothetical social social situation to the next since some social situations may "pull" for less sophisticated

solutions than those with less emotional salience. This change should be moderate because of a tendency to utilize a dominant level of perspective taking. Yeates et al. (1991), in their investigation of elementary children's negotiation strategies, provided support for developmental increases in the ability to provide solutions to hypothetical conflict situations and marginal support for a positive relationship between the level of strategies used and peer preference.

Social Information Processing

The other perspective has focused on specific social information processing skills, such as social problem solving. One of the earliest conceptualizations of social problem solving was articulated by Spivack and Shure (1972, 1974). They stated that social problem solving skills consist of five interrelated elements: (1) recognition of the interpersonal problem, (2) the ability to generate alternative solutions to solve the problem, (3) the ability to consider step-by-step means to reach desired goals, (4) the ability to consider consequences of social acts, and (5) the ability to identify and understand the motives of others. This description of social problem solving integrates aspects of Piagetian theory since the last three elements listed above are presumed to require perspective-taking skills and the appreciation of consequences.

Spivack and Shure (1972, 1974) have provided empirical support for their belief that knowledge and use of interpersonal problem solving skills are central aspects, or even prerequisites, of mental health and social adjustment. For example, Shure, Spivack, and Jaeger (1971) found problem solving skills distinctly superior among four year old children who were judged "adjusted" by their teachers. Children who were rated as "impulsive", "aggressive", or "inhibited" were unable to think problems through and were more likely to offer aggressive solutions. Similar results were obtained with older samples of 10 to 12 year old "disturbed" children when compared to a public school sample. Differences were irrespective of social class or intellectual functioning. The predominant finding was that four year old children who were described as "emotionally disturbed" by their teachers generated fewer solutions to hypothetical problems than "normal" children (Spivack & Shure, 1974).

The belief that the more solutions a child generates, the more competent that child will be when he or she actually encounters that situation has been sharply criticized (Krasnor & Rubin, 1981; Rubin & Krasnor, 1986; Sharp, 1981) on the grounds that the ability to generate many solutions is, at best, only marginally related to social behaviour. Krasnor and Rubin (1981) argue that it is the quality of the responses that is important for differentiating between socially skilled and problematic children. In an attempt to resolve this issue, Richard and Dodge (1982) found that, while popular children did generate more responses to a hypothetical situation (persuading a peer), the quantity of solutions predicted the number of persuasion attempts made whereas the quality of the generated solutions predicted the success that a child had in actually persuading a peer.

Social Information Processing Models

According to Coie (1990), these early efforts to link social cognition to social adjustment were not entirely successful because too much was attempted with a single general cognitive construct. Recent investigators (Dodge, 1986; Dodge & Feldman, 1990; Rubin & Krasnor, 1986) have described social information processing models of

social competence which may be more successful because they have been more specific about the process and context of social thinking. For example, Dodge and his colleagues describe five distinct sequential steps that children follow in processing social information. The first step of processing is to encode accurately the relevant social cues in the environment. Once the cues have been encoded the next step is to represent and interpret these cues accurately. The third step is to search for and decide upon an optimal response. The fourth step is to evaluate the possible effectiveness of responses. When this step has been completed and an optimal response has been selected, the child acts it out (the fifth step of the model labelled the enactment). The assumption underlying this model of social competence is that "children who are deficient or deviant in the way that they process social information may have a difficult time behaving competently with peers which, in turn, may lead them to be perceived negatively by the peer group " (Dodge & Feldman, 1990, p. 119). Other postulates of this model are that each of the steps can be assessed independently and that patterns at each step may be related to patterns in social behaviour. Furthermore, the steps occur in a temporal sequence and an individual's social interaction problems could originate at any of the steps in the sequence. This study will focus on step 2 (interpretation), step 3 (response search), step 4 (response evaluation), and step 5 (enactment) of the model.

Interpretation

Research in this area has focused on accuracy, attributional biases, and attributional style (Dodge & Feldman, 1990). In a study of high school students, Ausubel (1955) found significant correlation between the accuracy of others' perception of self and sociometric status among girls but not among boys. In a recent comprehensive study of the components of social problem solving, Guerra and Slaby (1989) presented high aggressive and low aggressive boys (N=48) with three hypothetical vignettes (toy, food, and marker pen acquisition). Their results indicated that high aggressive boys at both grade levels (grades two to three and five to six) were more likely to define social problems based on the perception that others were hostilely motivated.

It is possible that status group differences will vary with the kind of cues presented to the child. Dodge, Murphy, and Buchshaum (1984) assessed children's skill in interpreting the intentions of others in a social situation involving provocation by a peer. Boys and girls were presented with videotaped vignettes depicting hostile, prosocial, or ambiguous intentions by a peer. It was found that low status children were less accurate in identifying prosocial and ambiguous intentions than were high status children. The errors of low status children tended to consist of erroneously identifying prosocial intentions as hostile. Related research has shown that aggressive, rejected boys are more likely to make hostile attributions in ambiguous situations (Dodge, 1980), that peer-identified rejected fifth grade boys and girls process social information differently and make more conservative predictions of the behaviour of peers than nonrejected children (Dozier, 1988) and that popular fourth and fifth grade children (N=56) attribute success to internal causes and expect success to continue in the future more than rejected children (Sobol & Earn, 1985a).

To summarize, it is apparent that peer or teacher identified rejected children

process environmental cues differently than do nonrejected, nonaggressive children, especially in ambiguous situations. However, many of the studies included only male samples (eg. Dodge, 1980; Gouze, 1987; Guerra & Slaby, 1989), suggesting that caution should be used when applying these results to females.

Response Generation

Extensive research has been conducted into this dimension of the social information processing model. This includes the pioneering work of Spivack and Shure (1974), Spivack, Platt, and Shure (1976), and the early writings of Krasnor and Rubin (1981). There is now general agreement that both the quality and the quantity of responses should be assessed (Dodge & Feldman, 1990). For example, Gouze (1987) administered the Interpersonal Problem Solving Test, developed by Spivack and Shure (1974), to teacher identified aggressive and nonaggressive preschool boys. Results indicated that aggressive children provided more, rather than fewer, responses and that the responses were more aggressive than those provided by nonaggressive peers. Similar results were found for boys in grades two to three and five to six when presented with ambiguous hypothetical social situations (Guerra & Slaby, 1989).

On the other hand, Fischler and Kendall (1988) demonstrated that six to eleven year old children (boys and girls) who gave more socially appropriate solutions that were consistent across situations were better adjusted as rated by teachers and parents. Quantity of solutions was not related to adjustment. Feldman and Dodge (1987) found that low status children in grades 1, 3, and 5 responded differently than average and high status peers but only in the "being teased" situation. In contrast to these findings, Rabiner, Lenhart, and Lochman (1990) found no differences for situation type. They presented elementary school children (grade 4 and 5) with six hypothetical social problems: two peer frustration dilemmas, two peer provocation problems, and two peer group entry situations. Subjects were identified as aggressive or nonaggressive by the peer rated item "starts fights". The results indicated that subjects responded similarly in each context but differed in quality and quantity of solutions. Rejected aggressive boys, even when given time to reflect upon their answers, continued to provide fewer social assertive responses and more conflict escalating solutions than nonrejected boys. Similar status related differences were not found for girls.

Deficiencies in social information processing has also been found for adolescent psychiatric patients. Joffe, Dobson, Fine, Marriage, and Haley (1990) found that conduct disordered, but not depressed or normal, adolescents generated fewer assertive behavioral solutions to hypothetical problems and fewer means to attaining a goal.

There are, however, a number of studies which suggest that neither the quality nor the quantity of responses generated to hypothetical social problems are related to social maladjustment. For example, Spence (1987) found no relationship between the quantity of solutions generated by preschoolers and sociometric status. In addition, the number of solutions generated by preschoolers did not predict positive behaviour toward peers (Roopnarine, 1987) nor was it related to social status for grade one and two students (Vitaro & Pelletier, in press). Evans and Shore (1991), in their investigation of grade one and two students problem solving strategies, found that aggressive and socially withdrawn boys did not differ from the control group (children rated low in aggressiveness and withdrawal) in the number of effective first responses generated.

This brief review of the literature indicates that social cognition, as evaluated by responses generated to hypothetical social problems, yields somewhat equivocal results. Dodge and Feldman (1990) suggest that inconsistent results may be a consequence of presenting children with different hypothetical situations. They argue that low status children are not deficient in generating high quality responses in all situations. Situations involving conflict and stress may elicit more dramatic response search differences between high and low status children. This conclusion was supported by Dozier (1988) who found that rejected children's processing of information broke down in self-relevant situations.

Response Evaluation

There has been relatively little research in the area of response evaluation (Dodge & Feldman, 1990). The few studies that have been conducted tend to demonstrate that low status children are deviant in evaluating possible responses relative to high status children. For example, Dodge (1986) examined the response evaluation patterns of second, third, and fourth grade children (N=48) who teachers had rated as severely aggressive and socially rejected. He found that low status children were less accurate in evaluating consequences than high status children. Related research indicated that high status boys evaluated positive responses more favourably that did low status boys (Asarnow & Callan, 1985) and aggressive responses as less effective than did low status children in the "being teased" situation (Feldman & Dodge, 1987). Other researchers (Guerra & Slaby, 1989) using teachers ratings on a 10 item physical aggression scale to

classify boys as aggressive or nonaggressive, demonstrated that high aggressive boys expected few consequences to an aggressive act. Another difference emerged when high aggressive boys were asked to make a priority judgment in choosing the best and second best solutions. Although high and low aggressive boys were equally likely to choose an effective (nonhostile and nonaggressive) first solution, high aggressive boys were unlikely to choose an effective second solution. Similar results were found in a recent study with a sample of parent-identified maladjusted elementary school boys (Evans & Short, 1991). Both aggressive and withdrawn children provided less effective second responses.

Hart, Ladd, and Burleson (1990) studied the relationship of children's (N=144) expectations about the outcome of social strategies to sociometric status and maternal disciplinary styles in a sample of first and fourth grade students. Their results indicated that children who expected unfriendly assertive strategies (eg. threatening to hit another child) to lead to self-oriented gains were less accepted by peers. In addition, children of mothers who were more power assertive in their disciplinary styles tended to be less accepted by peers and tended to expect successful outcomes for unfriendly assertive methods.

Despite differences in categorization methods (teachers versus peers), it is apparent that children with social adjustment problems are deviant in evaluating responses to hypothetical social problems. Aggressive and/or rejected children are less accurate in evaluating and expect few consequences to an aggressive act. Socially adjusted children, on the other hand, evaluate positive responses favourably and aggressive responses as less effective. As noted earlier, there were more male subjects than females, suggesting that these conclusions may be more applicable to males.

Response Enactment

The final step of Dodge's social information processing model consists of the behavioral enactment of the response selected by the child. This step is distinct from previous steps in that it requires both verbal and motor skills to enact the response. Very few studies have focused on this step of the model (Dodge & Feldman, 1990) and those that do have tended to ask children to role-play particular social situations. For example, Dodge, McClaskey, and Feldman (1985) asked 39 teacher and peer identified aggressive children and 39 adaptive children to role-play responses to six different social situations and rated the competencies of their enactment. They found that aggressive rejected children enacted incompetent responses (relative to average children) to social expectations (peer group norms) and provocation situation (teasing) but the groups did not differ in enactments of other situations such as peer group entry and responding to success or failure.

A more recent study yielded different results. Feldman & Dodge (1987) asked elementary school children to enact specific competent responses to three hypothetical social situations (ambiguous provocation by a peer, being teased, and initiating entry into a peer group). While developmental differences were found in enactment competencies, no differences were found between high and low status groups in their ability to enact a particular response.

Perry, Perry, and Rasmussen (1986) studied another aspect of children's enactment responses, that is children's confidence in their ability to enact a particular

response. Compared to nonaggressive subjects (as identified by peers), aggressive subjects reported that it is easier to perform aggressive acts in specific situations and harder to inhibit aggressive impulses.

As noted earlier, this step of the social information processing model is distinct from earlier steps in that it consists of the actual behavioral enactment of responses to social dilemmas. Two observational studies of children's responses to actual social problems yielded similar results despite differences in methodology. Sharp (1981) studied preschoolers (N=107, 58 boys and 49 girls) in three different situations: a free play situation, a free play situation in which only a limited number of attractive toys were available, and a structured colouring task in which only one large crayon and one piece of paper were available. Responses clustered into three categories: (1) aggression, (2) general activity, and (3) dominance. Results indicated a significant correlation between teacher's ratings of aggression, impulsivity, and dominance and observations of aggression, general activity, and dominance respectively. There was, however, no relationship between children's responses to hypothetical social problems and their responses to actual social situations.

The second observational study was conducted by Vitaro and Pelletier (in press). They examined first and second grade student's (N=114) responses to three planned social dilemmas. Children were identified as maladjusted by peer sociometric nominations as well as by high ratings on the aggression scale of the Preschool Behavior Questionnaire (PBQ; Behar & Springfield, 1974) and low ratings on the prosocial factor added to the PBQ for this study. Children were presented with three problem situations:

(1) a peer pulling a cord out of an outlet when the target child is playing a video game, (2) a peer knocking a block structure down, and (3) a peer drinking most of the available juice. These dilemmas were acted out by a peer confederate. Results indicated that maladjusted subjects displayed less assertiveness and more verbal and nonverbal aggressive responses in the actual situations that did well-adjusted subjects. There were no gender differences in the observed responses.

There is not extensive research into this fifth and final step of the social information processing model. It does appear, however, that when different status groups were asked to enact **competent** responses, all groups were able to do so in some situations. However, when children were not instructed to enact a particular responses, differences between groups emerged. This was true in both the hypothetical and actual social situations.

Gender Differences

The behavioral correlates of peer acceptance and rejection have been well documented. Data from peers, teachers, and observations have consistently demonstrated that high status children are helpful, cooperative, follow the rules, and are active in positive peer interactions. Social rejection, on the other hand, is clearly related to aggression, rule violation, hyperactivity, and disruptiveness (Coie, Dodge, & Kupersmidt, 1990). However, there is evidence that aggression is more a factor in the rejection of boys than of girls. For instance, McGuire (1973) found that preschool girls who displayed high frequencies of aggressive behaviour (relative to other girls) tended to be popular rather than unpopular. La Greca (1981) found that peer acceptance ratings were negatively correlated with teacher's ratings of aggression and withdrawal among elementary school boys whereas only withdrawal was negatively correlated with peer acceptance among girls. These findings suggest that low status boys are aggressive whereas low status girls are withdrawn. Furthermore, Coie et al. (1982) assessed peer's perceptions of boys and girls and found that both rejected boys and girls were rated as highly aggressive relative to their same sex peers. However, aggression was a stronger discriminator of status groups among boys than among girls. Peer assessments of cooperativeness was a better discriminator among girls than among boys. A more recent study (Rogosch & Newcomb, 1989) indicated that rejected boys were perceived as having characteristics polar opposite to accepted qualities for girls whereas rejected girls were perceived as having characteristics polar opposite to accepted qualities for boys. In other words, while rejected boys are perceived as aggressive and nondisruptive.

Given these sex differences in the behavioral correlates of status, it seems reasonable to speculate that social cognitive correlates of status might also differ between sexes. There have been very few studies explicitly examining this question (Dodge & Feldman, 1990). Most studies have included only male samples (Eg. Asarnow & Callan, 1985; Gouze, 1987; Lochman & Lampron, 1986; Waas & French, 1989) to study the social cognitive correlates of status so the general conclusions apply for boys but not necessarily for girls.

The relationship between gender differences and social problem-solving has been

investigated without reference to sociometric status. These studies have yielded inconsistent results. Rubin and Krasnor (1983) presented preschool and kindergarten children with hypothetical social problems (different stories concerning toy acquisition) and found that females produced more alternatives per story than males and that agonistic strategies were lower in the frequency hierarchy of the girls than in the boys responses. On the other hand, Getz, Goldman, and Corsini (1984) found no gender differences in number of responses generated by preschoolers but did find significant differences in categories of response strategies. Girls generated more "polite" strategies whereas boys, relative to girls, generated more "nasty" strategies. Sharp (1981) found no gender differences on number of relevant responses or on the children's ability to conceptualize the consequences of an act.

Using a methodology designed to assess both qualitative and quantitative aspects of social problem solving, Fischler and Kendall (1988) found significant gender differences in their sample of six to eleven year old children. In this study, boys provided more inappropriate solutions, were less affectively sensitive in their solutions, and provided more solutions per story. This last result is in direct disagreement with that for preschoolers (Rubin & Krasnor, 1983) which indicated that girls provided more responses.

Pierce and Edwards (1988) studied another aspect of social problem solving and gender differences by analyzing stories written by children 9 to 14 years old. They found that boys used more violent solutions to solve problems while girls used more reasoning and analysis. Gender differences were also found in a recent study which investigated how children (grades 2 and 5) use self-involved and other-involved information to evaluate peers. Waas (1991) presented each child with hypothetical stories in which he or she is interacting with a focal peer (self-involved information) or the focal peer is interacted with a classmate (other-involved information). Self-involved information was the more powerful form of information used when evaluating peers. Relevant to the present discussion was the finding that, when evaluating the causes of a negative social event, girls were more likely than boys to view the cause as being part of a stable pattern of behaviour. When making dispositional inferences, boys were more likely than girls to label the peer as mean.

In one of the few studies that has focused directly on gender differences and sociometric status, Feldman and Dodge (1987) examined the relationship between sex, sociometric status, and age in elementary school children. While developmental differences were found for all three social situations (responding to a peer's provocation, being teased, and peer group entry) gender differences were found only for the social dilemma of "responding to a peer's provocation". Boys generated fewer and more aggressive responses and were more likely to attribute hostile intentions to the peer in the peer provocation situation. Status differences were found for only the "being teased" dilemma.

Rabiner, Lenhart, and Lockman (1990) tested automatic versus reflective problem solving skills by requiring that grade 4 and 5 students delay their responses to hypothetical social problems by 20 seconds. Consistent with Feldman and Dodge's (1987) findings, both aggressive and nonaggressive rejected boys generated fewer verbal responses and more conflict-escalating responses than did nonrejected boys in the automatic response condition. In the reflective response condition, only the responses of boys who were identified as both **aggressive** and **rejected** differed from the responses of nonrejected groups. In contrast to the results found for boys, there were no differences in the solutions generated by rejected, average, or popular females. Girls did, however, reduce the use of help-seeking strategies and increase the use of verbal assertion strategies in the delay condition.

Verbal assertion strategies have also been linked to outcome expectations for first and fourth grade children. For example, Hart, Ladd, and Burleson (1990) reported that children who expected unfriendly strategies to result in self-oriented gains tended to be less preferred as playmates. This relationship was stronger for first grade males than for first grade females.

Although most of the research described here generally support the contention that there are gender differences in social problem solving, there are (as noted earlier) inconsistencies in the literature. For example, Vitaro and Pelletier (in press) found no gender differences in their social problem solving study. It may be that children have to be identified as both aggressive and rejected for gender differences to emerge.

Identification of Children with Peer Relationship Problems

A variety of methods for determining children's social competence have been developed during the last few years. Some methods have been based on the pioneering work of Moreno (1934) while others are new techniques altogether. Five broad categories of assessment techniques have emerged: (1) rating scale and sociometric techniques, (2) teacher's ratings, (3) descriptive matching methods (eg. nominating peers for a specific role in a class play), (4) self-report measures, and (5) direct observation of behaviour. The present study focused on the first two methods.

Sociometric Techniques

Positive and Negative Nominations.

The most common sociometric technique is the peer nomination measure developed by Moreno (1934) in which children are asked to name a certain number of classmates according to some specific criteria (eg. most liked, like to play with the most). Each child's popularity or status score is calculated by summing the number of nominations he or she receives. The negative nomination procedure requires children to nominate children based on negative criteria (eg. name three children you do not like or do not like to play with). Rejected scores are based on the number of negative nominations received. Both positive and negative nominations have demonstrated adequate test-retest reliability. For example, Roff, Golden, and Sells (1972) reported that test-retest reliabilities of positive nominations ranged from .53 to .56 after one year while reliabilities for negative nominations ranged from .44 to .46 after one year. Positive nominations scores have frequently been reported as more stable (eg. Asher, Singleton, Tinsley, & Hymel, 1979; Roff et al., 1972). Two recent studies, however, have yielded different results. Johnston, Pelham, Crawford, and Atkins (1988) and Dygdon and Conger (1990) have found test-retest reliability for negative nominations to be higher

over 18 weeks and 5 weeks respectively.

Although positive and negative nomination procedures for assessing social status were developed in the 1930s, classification systems, based on these procedures, have emerged only during the last 15 years. The new classification systems use various combinations of both accepted and rejected scores to create new dimensions of peer status. For example, Perry (1979) created social preference scores by subtracting negative nomination scores from positive nomination scores and social impact scores by summing positive and negative nominations. While noting that the test-retest reliability of social impact and social preference scores are constrained by the reliability of the accepted and rejected scores on which they are based, Dygdon and Conger (1990) report higher reliability (r=.82) for social preference scores over a 5 week period than for social impact scores (r=.75).

Classification systems that have emerged since Perry's seminal work have used various combinations of social preference and social impact scores. One of the most widely used classification system was developed by Coie, Dodge, and Coppotelli (1982). These authors used positive nomination (liked most, LM) scores, negative nominations (liked least, LL) scores, social preference scores (LM-LL), and social impact scores (LM+LL) to create five status groups. These groups included (1) popular (high like most and social preference scores and low like least scores), (2) rejected (low like most and low social preference scores and high like least scores), (3) neglected (low social impact scores and few or no like most scores), (4) average (average social preference scores), and (5) controversial (high like most and like least scores).

The validity of the classification system was investigated by studying peer's perceptions of the behavioral correlates of the five groups (Coie et al., 1982). This investigation yielded distinct behavioral profiles (as perceived by peers) for the five groups. The popular children were viewed by peers in prosocial terms, being described as cooperative and as leaders. Rejected children were described as disruptive and likely to start fights. Controversial children were similar to both rejected and popular children. They were perceived as being disruptive, starting fights, and having leadership qualities. Neglected children were generally seen as shy.

Rating Scales.

Rating scales have often been used to determine a child's overall acceptance level within a classroom. When using rating scales, children are usually provided with a same sex list of classmates and then asked to rate each of his or her peers on a likert type scale. With elementary school children, each child typically selects a number from one to five that best describes how much he or she likes to play or work with each classmate. Low scores describe children that are not well liked (eg. kids you don't like to play with at all) while high scores indicate greater liking (eg. kids you like to play with a lot). A child's sociometric score is computed by averaging all the ratings received from classmates.

Asher, Singleton, Tinsley, and Hymel (1979) developed a rating scale for use with preschoolers or nonreaders. Instead of providing children with a list of classmates, children are presented with photographs of classmates. Each child is required to place each photograph in one of three boxes marked with a happy face (kids you like to play
with a lot), a neutral face (kids you kinda like to play with), or a sad face (kids you don't like to play with). The happy, neutral, and sad faces help the child to remember the meaning of each point on the scale while the pictures ensure that no child is missed or forgotten. As with the original rating scale, each child's sociometric score was the average of the ratings received from peers.

Rating scales have two main strengths (Kennedy, 1988). First, reliability for rating scales is typically higher than that of nomination measures: r=.81 after a four week period (Asher, et al., 1979; Olson & Lifgren, 1988) and .61 over a six week period (Krebhiel & Milich, 1986). Secondly, rating scales do not require children to identify specific peers whom they dislike, a feature often considered desirable by school systems. Although unsupported by empirical evidence (Bell-Dolan, Foster, & Sikora, 1989) school personnel have expressed concern that being asked to name disliked peers might cause children to become more aware of and increase negative interaction with unpopular classmates (Foster & Ritchie, 1986; Kennedy, 1988). Asher and Dodge (1986) addressed this concern by devising an alternative method of identifying rejected and neglected children based on the joint use of positive nominations and rating scales. In this case, low scores on the rating scale are used in place of negative nominations. The new method accurately identified a high percentage of rejected children (91.2%) and low scores on the rating scale were stable (r=.69) over a five month period.

Teacher Assessment

Advantages of Using Teacher Assessment

The most frequently used methods for assessing social behaviour and status in elementary school have been peer sociometric techniques (discussed earlier) and teacher ratings (Krebiel & Milich, 1986). It has been suggested that teacher's assessments may have distinct advantages over peer assessments (Rubin, Moller, & Emptage, 1987). Teachers are in the unique position of having consistent and long-term interactions with students. In the elementary school years teachers may spend more time with students then parents do and thus may have the opportunity to observe infrequently occurring events. Furthermore, teachers ratings are quick, easy, and economical to use and do not usurp classroom time. Secondly, teachers, since they are mot members of the student's peer group, may provide less reactive and more objective ratings than peers. Thirdly, teachers may be better judges of less salient behaviours in younger children. Younger, Schwartzmen, and Ledingham (1985) found that grade one student's rating of withdrawal was not as accurate as those of student's in grades four and seven. Children's view of aggression, on the other hand, was well-defined across all grade levels. The authors concluded, that at least for first grade students, teacher's ratings would serve as better estimates of withdrawal.

Furthermore, teacher's ratings generally agree with peer assessments (Kennedy, 1988). There has been, however, better correspondence between teacher's evaluations and peer ratings for some behaviours (extremely deviant) than for other (less deviant) behaviour and for highly visible behaviour (eg. aggression) than for other less visible

(eg. withdrawal) behaviour (Ledingham & Younger, 1985). The degree of relationship has also varied with age and grade level. With preschoolers, teacher's ratings have been found to correlate more highly with observational ratings than do peer ratings (Connolly & Doyle, 1981). Peer ratings, however, may be more sensitive when making predictions with older children (eg. Cowen et al., 1973).

Teacher Assessment Procedures

Teacher based evaluations have employed a variety of procedures including having teachers rate students on number of friends and severity of behaviour problems (Dubow & Cappas, 1988) or acceptability (French, Waas, & Tarver-Behring, 1986) or rank order students in terms of social competence (LaFreniere & Sroufe, 1985) or rejection (Connolly & Doyle, 1981). Ollendick, Oswald, and Francis (1989) varied the evaluation procedure by providing teachers with descriptions of status related behaviours and then having teachers nominate popular, aggressive, and withdrawn students based on these behavioral descriptions. Teacher rating scales and questionnaires, on the other hand, combine positive and negative evaluations to yield estimates of acceptability or rejection or to define students in terms of status related behaviours. For example, the Classroom Adjustment Rating Scale (Lorion, Cowen, & Caldwell, 1975) assesses learning problems and "acting-out" and shy, anxious behaviours, the Pupil Evaluation Inventory (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976) measures likeability, aggression, and withdrawal, and the Interpersonal Competency Scale (Cairns & Cairns, 1984) gives estimates of aggression, popularity, affiliation, and academic competence. Teacher rating scales designed specifically to identify socio-emotional problems in children include,

among many others, the teacher version of the Child Behaviour Profile (Achenbach & Edelbrock, 1979; Edelbrock & Achenbach, 1984), the Connors Teachers Rating Scale (Connors, 1969), and the Preschool Behavior Questionnaire (Behar & Springfield, 1974). These scales yield either broad-band dimensions of "externalizing" problems characterized by undercontrol or "internalizing" problems characterized by overcontrol or narrow band dimensions (3 to 7 subscales) which more specifically define socio-emotional problems.

Behar and Springfield (1974) developed the Preschool Behavior Questionnaire (PBQ) specifically to identify socio-emotional problems in young children. An English version of the PBQ (Hoge, Meginbir, Khan, & Weatherall, 1985; Moller & Rubin, 1988; Rubin & Clark, 1983) and a French version (Tremblay, Loeber, Gagnon, Charlebois, Larivee, & Leblanc, 1991; Tremblay, Desmarais-Gervais, Gagnon, & Charlesbois, 1987; Vitaro, Gagnon, & Tremblay, 1990; Vitaro & Pelletier, in press) have gained wide acceptance in Canada. It has also been used extensively in the United States (Campbell, March, Pierce, Ewing, & Szumowski, 1991; Fowler & Park, 1979; Ladd & Price, 1987). Other researchers have used the PBQ as a criterion to test the validity of other instruments such as the Sutter-Eyberg Student Behavioral Inventory (Funderburk & Eyberg, 1989) and the Revised Class Play (Rubin & Cohen, 1986). Acceptance of the PBQ is directly related to it's high interrater and test-retest reliability (Behar, 1977; Behar & Springfield, 1974).

Summary and Basic Aims of the Present Study

This study had two basic aims: (1) to examine the factor structure of the Preschool Behavior Questionnaire and (2) to relate the results of this analysis to both sociometric status and a measure of social problem solving.

The Preschool Behavior Questionnaire

As noted above, the primary purpose of the present study was to examine the factor structure of the PBQ. The PBQ, an adaptation of the Rutter Scale (Rutter, 1969) for use with elementary school children, was developed to aid in the identification of preschool and kindergarten children with behavioral problems. Initial research by Behar and Springfield (1974) has shown the questionnaire to have three orthogonal principal components: (1) problems related to hostility and aggression, (2) an anxiety and fearfulness component, and (3) a hyperactivity-distractible factor. Recent research (eg. Moller & Rubin, 1988) has, however, suggested that a two factor solution may be viable for the PBQ.

Two Versus a Three Factor Solution to the PBQ

Two of the factors listed above (aggression and anxiety/withdrawal) have been widely reported in prior research using a wide range of instruments and methodologies. These factors appear to be stable attributional dimensions around which adults organize their perceptions of children's behaviour (Quay, 1986). Research involving the third dimension (hyperactive-distractible) has not yielded clear-cut or consistent results, regardless of whether other instruments or the PBQ is employed. For example, Fowler and Park (1979), utilizing a 28 item version of the PBQ for a kindergarten sample,

reported a two-factor solution with hyperactivity items forming part of the aggressive factor. Although they did find the hyperactivity items clustered together in a three factor solution, Fowler and Park argued on other grounds (simple structure and interpretability) for a two factor solution. They suggested that the difference in the factor structure obtained in their study as compared to Behar and Springfield's was due to a difference in populations. Fowler and Park's subjects were kindergarten students attending regular classrooms whereas 17% of Behar and Springfield's sample were chosen to constitute a sample of emotionally disturbed children. Ladd and Price (1987), however, provided support for the three factor solution in their study of "normal' preschool and kindergarten students. Furthermore, scores on the hostile-aggressive and hyperactive-distractible factors were more stable over a one year period than were scores on the anxious-fearful subscale.

Similar factors were obtained by Rubin, Moller, and Emptage (1987). They examined the factor structure of the 30 item PBQ and reported that, although some items loaded on different factors in their grade one sample, the overall factor breakdown was similar to that obtained by Behar and Springfield (1974).

The two factor solution, however, has been reported in two recent Canadian studies. Tremblay, Desmarais-Gervais, Gagnon, and Charlebois (1987), studying a large sample of French Canadian children, found the two factor solution to be stable across sexes, ages (5 to 6 years), and cultures. Moller and Rubin (1988), on the other hand, demonstrated that the PBQ items could be factored into the broad band dimensions of "internalizing" and "externalizing" problems in their sample of grade one and two

students.

The last two studies plus Fowler and Park's (1979) study suggest that a two factor solution of the PBQ may be useful for identifying maladjusted children within a normal population. However, there are a number of issues which need to be addressed before one can confidently use the two factor solution. The first issue deals with the independence of hyperactive and aggressive behaviours. Tremblay et al. (1987) and Moller and Rubin (1988) argued that these two components can be combined to form a hostile-aggressive-hyperactive factor. Yet other studies (eg. Ladd & Price, 1987) suggest that hyperactivity is a distinct factor. Results supporting this position were obtained in a recent study utilizing the 28 item PBQ and 10 items from the Prosocial Behaviour Questionnaire (Weir & Duveen, 1981). Although factor analysis was not the primary purpose of this study, the authors (Tremblay et al., 1991) did report a four factor solution which they labelled disruptive, anxious, inattentive, and prosocial. In addition, studies investigating the factor structure of the Rutter Scale (Rutter, 1969), on which the major portion of the PBQ is based, propose that, not only can hyperactivity be distinguished from aggression (Mcgee, Williams, Bradshaw, Chapel, Robins, & Silva, 1985), but that a fourth factor "inattention" can be identified (McGee, Williams, & Silva, 1985).

The problem of making a clear and definite distinction between hyperactivity and aggression has not been solved by using other scales. For example, Lahey, Green, and Forehand (1980) analyzed the factor structure of the Connors Teachers Rating Scale (Connors, 1969), a very well known instrument used in approximately 78% of outcome

evaluation studies from 1960 to 1985 (Prinz, 1986) and found no evidence of a clear distinction between the two components. Lahey et al. (1980) argued for the combination of the hyperactive and aggressive scale on the basis of high intercorrelations between the two factors and similar pattern of correlations with the criterion variables. They did, however, provide support for an inattentive-passive dimension similar to Attention Deficit Disorder without Hyperactivity (DSM III; American Psychiatric Association, 1980). Contrasting results were found by Milich and Landau (1985) in their sample of clinic-referred boys. They found that teachers were able to differentiate significantly between inattention/hyperactivity and aggression using the Connors Scale. Recent research (Pope, Bierman, & Mumma, 1991), using a modified version of the Pupil Evaluation Inventory (Pekarik et al., 1976), found that peers were able to differentiate three main factors: aggression, hyperactivity, and inattention/immaturity. It thus seems that, regardless of which assessment technique is used, there is still controversy about the distinction between aggression and hyperactivity.

The Diagnostic and Statistical Manual of Mental Disorders (DSM III; American Psychiatric Association, 1980) addressed this issue by more clearly defining hyperactivity. The diagnostic category of "Attention Deficit Disorder" (ADD) was introduced which makes a distinction among three core components of maladaptive behaviour: inattention, impulsivity, and hyperactivity. Children with problems in all dimensions were labelled ADD with Hyperactivity whereas children with deficits in attention and impulsivity only were said to exhibit ADD without Hyperactivity. The revised *Diagnostic and Statistical Manual* (DSM III-R; American Psychiatric Association,

1987), on the other hand, dropped the former categories of Attention Deficit Disocrder with Hyperactivity and Attention Deficit Disorder without Hyperactivity in favor of two new categories, Attention Deficit-Hyperactivity Disorder (AD-HD) and Undifferentiated Attention Deficit Disorder (UADD). To be diagnosed as having AD-HD a child now has to exhibit a certain number of behaviors (8 of 13) from a sympton list containing items describing motor activity, inattention, and impulsiveness. The category of Undifferentiated Attention Deficit Disorder approximates the earlier category of Attention Deficit Disorder without Hyperactivity and is used to diagnose children with difficulties only in attention. However, DSM 111-R (1987) provides no criteria for UADD, a fact which may lead to confusion in research. In addition, the "impulsivity" component of many behaviour scales has not been stable. Items from this factor sometimes load on an inattention factor and sometimes on a hyperactivity factor (Loeber & Lahey, 1989).

Although these changes may have eliminated some of the problems in differentiating between aggression and hyperactivity, there still seems to be controversy about whether components of each disorder can be distinguished. For example, can inattention be distinguished from hyperactivity? Lahey et al. (1980) were able to isolate an inattention factor although they argued that the hyperactivity factor should be combined with the aggressive factor. On the other hand, McGee, Williams, et al. (1985), using the Rutter Scale (Rutter, 1969), identified aggressiveness, hyperactivity, and anxiety-fearfullness factors but did not describe a separate inattentive factor. However, McGee, Williams, and Silva (1985) pointed out that the Rutter Scale has only three items designed to assess hyperactivity and attempted to obtain more detailed results

by adding items assessing inattention, impulsivity, and hyperactivity according to DSM-III criteria. In this analysis, four factors were obtained - inattention, hyperactivity, antisocial behaviour, and a worry-fearful factor. Factor analyses of the Connors Scale (Connors, 1969) have also yielded inconsistent results. For example, Connors (1969) found separate factors of inattention and hyperactivity while others (eg. Trites, Blouin, & LePrade, 1982) have not. However, Loeber and Lahey (1989), in their review of the literature on attention deficits and hyperactivity, concluded that there is sufficient evidence to warrant the distinction between hyperactivity and inattention. They point out that when a sufficient number of items descriptive of both dimensions are included in the item pools and when subject samples are employed in which there is sufficient variance, two dimensions of Attention Deficit Disorder are generally extracted.

Another issue that needs to be addressed concerns the actual items that load on the hyperactive-distractible factor. For example, as noted earlier, impulsive items sometimes load on the inattention factor and sometimes on the hyperactivity factor. Furthermore, when measures of conduct disorder and aggression are included in the analysis, some of these impulsivity items sometimes load with the aggressive factor rather than the hyperactivity factor (Loeber & Lahey, 1989). Although Loeber and Lahey (1989) based their conclusions on studies employing DSM-III (1980) criteria, the items from the Preschool Behavior Questionnaire seem to follow the same pattern. For example, the items "poor concentration" and "inattentive" loaded on the aggressive factor in the Fowler and Park (1979) study and on the anxious-fearful factor in the Tremblay et al. (1987) study. The items "squirmy" and "restless" seem to consistently load on both factors. In fact, the results of the original research (Behar & Springfield, 1974) indicated that, although their highest loadings were on the hyperactive-distractible factor, these items also loaded significantly on the aggressive-hostile factor.

An additional consideration is the amount of total variance accounted for by each factor. Gorsuch (1983) states that, if the factors are actually the same, then the proportion of variance accounted for by each factor should be approximately the same across studies where the sample of variables and individuals have been drawn in the same manner. The researchers advocating a two factor solution to the PBQ (Fowler & Park, 1979; Moller & Rubin, 1988; Tremblay et al., 1987) follow these guidelines. They all used the 28 item PBQ with a "normal" population. Variance accounted for by the first factor ranged from 18% (Moller & Rubin, 1988) to 32.1% (Tremblay et al., 1987) whereas the variance accounted for by the second factor ranged from 10.9% (Tremblay et al., 1987) to 16% (Moller & Rubin, 1988). Fowler and Park's (1979) results were more similar to that of Tremblay et al.'s (1987) with their first and second factors accounting for 29.7% and 13.4%, respectively, of the total variance. There thus seems to be wide variations in the amount of total variance accounted for in these three studies. Furthermore, the factor eliminated by Tremblay et al. (1987) accounted for a relatively large proportion (6.2%) of the total variance. Taken together, these results suggest that the factor structure of the PBQ needs further evaluation.

Modification of the PBQ

A secondary purpose of this study was to assess teacher's ratings of prosocial behaviour. The PBQ, as well as Rutter's original scale, are exclusively centered on

maladjusted behaviour. Recently, low ratings of prosocial behaviour by teachers were linked to maintenance of rejected status in grade one boys (Vitaro, Gagnon, & Tremblay, 1990). Thus, five prosocial items (as suggested by Rubin, 1991, personal communication) were added to the PBQ in this study. Three of the items (has many friends, likes to play with other people rather than alone, makes friends easily) were adapted from the sociability-leadership dimension of the Revised Class Play (Masten, Morison, & Pelligrini, 1985), a peer assessment technique, which has high test-retest reliability. The other two items (shares, enjoys being around other people) have been used in other studies (eg. Eisenberg, Cameron, Pasternack, & Tryon, 1988) and are conceptually related to the prosocial dimension. The new negative items (inhibited with classmates, inhibited with teachers, and does not express feelings) were designed to assess children's unwillingness or inability to interact with others. The item "does not express feelings" forms part of the shy-anxious dimension of the Teacher-Child Ratings Scale (Hightower, Work, Cowen, Lotyczewski, Spinell, Guare, & Rohrbeck, 1986), a dimension similar to Behar & Springfield's (1974) anxious-fearful factor.

Another aim of this study was to examine the relationship between the factor structure of the modified PBQ and sociometric status and performance on a measure of interpersonal problem solving. Interpersonal problem solving was assessed according to Dodge's (1986) social information processing model and social status was assessed using positive nominations and a rating scale technique. The hypothetical social problems described in the social problem solving measure were chosen according to teacher's estimates of level of difficulty. Both Feldman and Dodge (1987) and Vitaro and Pelletier (in press) had teachers rate how difficult 44 potentially problematic situations would be for children in their classes. They determined that being teased by peers, having one's work destroyed by another, and being rejected when initiating entry into a peer group would be most problematic for school children. Because it was deemed desirable to keep the intent of the peers ambiguous, the children described in the hypothetical social situation involving peer group entry did not openly reject the subject but simply did not answer when the subject attempted entry into the peer group. Although this study was mainly exploratory in nature, four general hypotheses were derived from prior research.

Hypotheses

- Children rated by teachers as hostile-aggressive were expected to be unpopular and have a limited and incompetent problem-solving repertoire whereas children rated as anxious-fearful would not be unpopular and would have few deficits in social problem-solving.
- 2. It was expected that the prosocial factor would be positively related to sociometric status.
- 3. Children rated highly on the prosocial factor would provide competent responses to the social problem solving tasks.
- 4. It was also predicted that aggressive boys would have more problems than girls in the peer provocation situation (eg. having one's work destroyed by a peer).

CHAPTER THREE

Method

Subjects

All grade one students in four Calgary schools (three public schools and one Catholic school) were given a parental permission letter which described the study and requested from the parents written permission for their children to be included in the study. Permission was granted for 39.9% of the students. This was a relatively low response rate. Response rates for elementary school children to participate in social cognitive and/or sociometric studies have ranged from approximately 50% (Yeates et al., 1991) to 70% (Cairns, Cairns, Neckerman, Gest, & Gariepy, 1988) with many averaging in the 55% range (Bell-Dolan, Foster, & Sikora, 1989; Dubow, Tisak, Causey, & Hryshko, 1991; Hart, Ladd, & Burleson, 1990). There was, however, no reason to believe that the participants differed significantly from the non-participants. The sample included 105 students (43 males and 62 females, mean age 6 years 8 months, standard deviation 4.89 months).

Instruments

Preschool Behavior Questionnaire. Teachers completed the Preschool Behavior Questionnaire (PBQ; Behar, 1977; Behar & Springfield, 1974) for each participating student in their class. The PBQ is a 30 item measure of classroom social maladjustment that gives an overall score of social maladjustment as well as containing three subscales labelled hostile-aggressive, anxious-fearful, and hyperactive-distractible. Behar (1977)

has shown the PBQ to have high-interrater reliability (r=.84 for the overall scale and .81, .71, and .61 for factors 1, 2, and 3 respectively) and high test-retest reliability (after 4 months, r=.87 for the overall scale and .93, .60, and .94 for factors 1, 2, and 3, respectively). Other researchers (for example, Rubin & Clark, 1983) have correlated results of the PBQ with direct observations of behaviour, sociometric status, and social problem solving skills and shown that the PBQ has adequate concurrent validity while others (Rubin, Moller, & Emptage, 1987; Tremblay, Desmarais-Gervais, Gagnon, & Charlebois, 1987) have demonstrated that the PBQ is suitable for use with other cultures and for children ranging from kindergarten to junior high school age.

Consistent with prior research (Moller & Rubin, 1988; Tremblay et al. 1987) two items were not included in the present study. These items dealt with sexual problems and an overall rating of behaviour problems. However, three items dealing with inhibition (inhibited with teachers, inhibited with classmates, and does not express feelings) as well as five prosocial items (has many friends, makes new friends easily, likes to play with others rather than alone, shares things with others, enjoys being around others people) were added (K. Rubin, personal communication, 1991). Each of the items in the PBQ was assigned a rating of 1 (doesn't apply), 2 (applies sometimes), or 3 (certainly applies).

Sociometric Assessment. The study was conducted in the late winter and early spring of the year to ensure that both students and teachers were familiar with the participants. Subjects were required to complete both a positive nomination questionnaire (Moreno, 1934) as well as a roster rating scale. Estimates of the test-retest reliability of positive nominations by elementary school children have ranged from r=.83 to .96 after one week to .53 to .56 after one year (Roff, Sells, & Gordon, 1972). The reliability of the rating method is generally higher than the positive nomination method: r=.81 after a four week period (Asher, Singleton, Tinsley, & Hymel, 1979) and .61 over a six week period (Krebhiel & Milich, 1986).

The assessment was conducted in several stages. First, the researcher ensured that the subjects recognized all participating classmates by having them practice naming their classmates after which a brief training period was conducted in which each child was taught to use a three point scale. Second, using procedures outlined by Asher et al. (1979), children were presented with randomly arranged colour photographs of all participating classmates and were asked to name the three children they liked to play with the most. All subjects then placed each photograph in one of three boxes according to how much they liked to play with that peer. One box was marked with a happy face "children you like to play with a lot", a neutral face "children you kinda like to play with", and a sad face "children you don't like to play with". Several researchers, including Feldman and Dodge (1987), have advocated the use of ratings from only samesex classmates in peer sociometric assessments. However, sociometric ratings and nominations from all peers were considered in the present study since classification on the basis or positive and negative nominations have typically been based on both sex nominations (Coie & Dodge, 1983; Rubin, Hymel, LeMarc, & Bowden, 1989). In addition, Coie and Dodge (1983), in their five-year longitudinal study of the behavioral correlates of sociometric status, found that the stability of positive and negative

nominations was higher for large samples that included cross-sex choices. Negative nominations were not elicited from children in this study. Asher and Dodge (1986) have developed an alternative method of identifying rejected and neglected children involving the joint use of positive nominations and rating scale measures. They have argued that the number of extreme negative scores a child receives on a rating scale, that is, the number of 1's (ones) a child receives (in this study, the number of times a child's picture is placed in the box with the sad face) can be equated with negative nominations and then used to determine sociometric status. This procedure was followed in this study.

Groups of popular, rejected, neglected, and average boys and girls were formed according to the procedures outlined by Coie, Dodge, and Coppotelli (1982). Like Most (LM) and Like Least (LL) scores were computed as the sums of the nominations received. Social Preference (SP) scores were obtained by subtracting the Liked Least score from the Liked Most score (LM-LL) and Social Impact (SI) scores were derived by summing the Liked Most and Liked Least scores (LM+LL). All scores were standardized (z-scores) within each classroom to eliminate differences in scores due to classroom size. Sociometric groups were defined according to the following criteria. In order to be selected as popular, a child had to receive a LM score greater than 0. a LL score less than 0, and a SP score greater than 1.0. Rejected children were those who received a LM score less than -1.0. Average children were those whose SP scores were greater than -.5 and less than .5 and who did not fit another status group. This resulted in 20

children being categorized as popular (12 females and 8 males), 20 children as rejected (11 females and 9 males), 6 as neglected (3 females and 3 males), and 20 as average (10 females and 10 males). Given the small number of children classified as neglected (N=6), this category was dropped from subsequent analyses which involved sociometric status.

Social Cognitive Measure

Social cognition was assessed by administering a social problem solving procedure similar to that used by Feldman and Dodge (1987). Each subject was presented with three hypothetical social situations (being provoked, being teased, and having to initiate entry into an already formed peer group) in which the subject and the peer are the same sex and the intent of the peer is ambiguous. These hypothetical social problems were presented on audiotape in conjunction with cartoon visual aids. The children were asked to imagine that they were the protagonists in the story and to provide four different kinds of information corresponding to steps two to five of the social information processing model discussed earlier.

To illustrate the procedure, the script of the "being provoked' situation is presented.

Pretend that you are at school and playing with blocks. You are building a tower and have just put a long pointed block on top to finish it. A girl (boy) comes in and takes the long pointed block. She (he) doesn't say anything to you. In fact, she (he) doesn't even look at you.

Following this story, the subjects were asked to interpret the intentions of the children

involved in the story (Why do you think the girl (boy) took the long pointed block?). This corresponded to step two of the social information processing model. The subject's answer was scored as 1 if she or he attributed hostile intentions to the peer and 0 if he or she attributed nonhostile intentions to the peer.

Next, the subject was asked to generate as many responses as possible to solve the hypothetical social situation (eg. Now you really want the block back. So what could you do? What else could you do? What else could you do?). Questioning was stopped when the subject began to paraphrase responses already given or when the subject indicated he or she had finished generating alternatives. Responses were transcribed and later coded. Five variables related to the social information processing model were assessed: (1) the number of responses generated, (2) the proportion of responses generated that were judged to be competent, (3) the proportion of responses generated that were judged to be aggressive, (4) the proportion of responses generated that were judged to be passive-ineffective, and (5) the proportion of responses that involved appealing to an authority figure for intervention. In addition, a flexibility score was computed by assigning a score of 0 if the child failed to offer a solution, a 1 was recorded if the second response was in the same category as the first response and a 2 was scored if the second response was a modification of the first response or a completely new response. This scoring procedure was the same as that used by Rubin, Moller, and Emptage (1987). Lastly, an effectiveness score for first and second responses was computed according to the method outlined by Evans and Short (1991). First, the number of effective first responses were totalled for all three stories. This

resulted in a range of first responses from 0 to 3. Second, the number of effective second responses to each story was tallied and recorded. Again, this produced a score from 0 to 3 which indicated the number of effective second responses.

To assess a subject's evaluation tendencies (step 4) independently of the responses that he or she generated, five possible responses to each of the social situations were presented to each subject. These responses, suggested by Feldman and Dodge (1987), were rated as (1) competent, (2) aggressive, (3) passive-ineffective, (4) withdrawal, or (5) appeal to an authority figure for intervention. The script for step four for the peer provocation situation was as follows:

Now I am going to tell you some things you could do when this situation happens to you. Here is one thing. You could ignore her (him) and not pay any attention to her (him). What would happen if your ignored her (him)? Do you think she (he) would give you the block back? Here is another thing. You could get really mad and hit her (him). Do you think she (he) would give you the block back? Here is another thing. You could walk away from the girl (boy) and feel really bad because the girl (boy) had taken your block. What would happen if you walked away? Do you think the girl (boy) would give you the block back? Here is another thing, You could ask the girl (boy) why she (he) had taken your block and could explain to them that you really needed it to finish your tower. What would happen if you asked her (him) why she (he)) took the block? Do you think you would get the block back? Here is another thing you could do. You could tell the teacher. What would happen if you told the teacher? Do you think you

would get the block back?

The researcher recorded the subject's responses after each question. When no response was given the researcher proceeded to the next question. The subject's evaluation of each response was coded as (1) likely to be ineffective, (2) possibly ineffective or effective, or (3) likely to be effective. There were thus five measures for step four of the information processing model.

Step five consisted of assessing the subject's enactment skills. The subject was asked to role-play a competent response generated by the researcher. For example, "One thing some girls (boys) might do when they want a toy back is to ask the girl (boy) why they took the toy. Show me how you could do that." The subject's enactment was rated on a 5-point scale (1=incompetent, 5= highly competent) assessing the overall competence of the role-play. In total, 14 measures were collected for each of the three social problems.

Procedure.

The researcher accompanied each subject to a private room in his or her school. Each subject answered the positive nomination question and completed the rating scale measure. Confidentiality of answers was stressed. They were then presented with the three hypothetical social dilemmas in counter-balanced order. All answers were recorded verbatim and audiotaped for later checking and rescoring (with the exception of one school, N=22, whose principal requested that no audiotapes be used). Children were then thanked and escorted back to their classrooms.

CHAPTER FOUR

Results

Primary Analyses

Each of the items comprising the PBQ was assigned either a 1 (doesn't apply), a 2 (sometimes applies), or a 3 (certainly applies). This coding scheme, while consistent with recent research on the PBQ (eg. Moller & Rubin, 1988), differed from Behar and Springfield's (1974) original procedure, which involved values of 0, 1, and 2. The means for the present study have been adjusted downwards (by subtracting 1 from each mean) to facilitate comparisons. For example, the mean for the first item "squirmy" has been adjusted from 1.61 to .61 to compare with the Behar and Springfield data. Means and standard deviations for Behar and Springfield's original normal sample and the current sample are reported in Table 1.

As can be seen from Table 1, the means and standard deviations for the original items are comparable, ranging from .05 to .64 in the original sample and from .01 to .71 in the current sample. The item "other speech difficulty" which best discriminated between Behar and Springfield's normal and disturbed groups is virtually identical here (M=.16, SD=.51) in the original sample compared to M=.17 and SD=.50 in the current sample). The new prosocial items all show notably higher means. The other newly added item "Does not express feelings" has a slightly higher mean than the items in the original sample while the other two new items "Inhibited with classmates" and "Inhibited with teachers" are within the range of the original sample means.

Table 1

Means and Standard Deviations for items on the Preschool Behavior Questionnaire

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	Behar & SI N=598	Behar & Springfield N=598		study 05		
Items	M	SD	М	SD		
Restless	.64	.70	.61	.73		
Squirmy	.51	.65	.71	.74		
Destructive	.14	.40	.23	.52		
Fights	.37	.56	.50	.64		
Disliked	.12	.37	.32	.51		
Inhibited with classmates	-	_	.39	.55		
Worried	.22	.48	.52	.58		
Solitary	.57	.68	.61	.63		
Irritable	.27	.52	.27	.51		
Unhappy	.22	.46	.34	.55		
Twitches	.06	.27	.11	.34		
Bites nails	.07	.29	.07	.31		
Disobedient	.34	.54	.42	.62		
Poor concentration	.50	.62	.78	.74		
Fearful, afraid	.34	.37	.51	.64		
Does not express feelings	-	-	.66	.61		
Fussy	.19	.44	.21	.47		
Lies	.12	.37	.37	.61		
Soils self	.08	.32	.05	.34		
Stutters, stammers	.05	.26	.01	.09		
Other speech difficulty	.16	.51	.17	.50		
Bullies	.21	.48	.31	.56		
Inattentive	.55	.61	.70	.66		
Doesn't share toys	.38	.56	.22	.44		
Cries easily	.33	.54	.22	.44		
Blames others	.39	.56	.47	.61		
Gives up easily	.29	.53	.59	.65		
Inconsiderate	.25	.51	.37	.66		
Inhibited with teachers	-		.30	.54		
Kicks, bites, hits	.27	.54	.27	.55		
Stares into space	.14	.39	.51	.67		
Has many friends	- ·	_	1.13	.75		
Makes new friends easily	- `	-	1.08	.71		
Likes to play with others	-	-	1.40	.60		
Shares things	-	-	1.40	.62		
Enjoys being around other people	-	-	1.47	.61		

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Table 2 presents the correlation matrix for the items comprising the PBQ. As can be

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Correlation Matrix

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	V1	V2	V3	V 4	V5	V6	V7
V 1	1.00						
V2	.83	1.00					
V3	.51	.53	1.00				
V 4	.60	.67	.68	1.00			
V5	.31	.36	.44	.50	1.00		
V6	19	18	20	23	.14	1.00	
V7	.17	.15	05	.23	.30	.29	1.00
V8	31	29	13	15	.18	.53	.24
V9	.50	.50	.52	.67	.42	11	.35
V10	.08	.22	.26	.43	.44	.17	.46
V11	.17	.21	.31	.29	.20	07	.01
V12	.14	.15	.20	.15	.15	.17	.10
V13	.53	.60	.67	.73	.47	20	.16
V14	.49	.57	.33	.38	.29	.06	.27
V15	.00	.01	04	.02	.28	.52	.46
V16	08	.02	05	04	.23	.53	.20
V17	.12	.12	.14	.15	.17	.07	.08
V18	.32	.38	.52	.56	.47	.00	.26
V19	.17	.15	.15	.14	.23	.09	.04
V22	.53	.56	.65	.74	.40	18	.10
V23	.56	.55	.34	.36	.27	.09	.24
V24	.33	.42	.56	.51	.46	08	04
V25	.14	.11	.10	.28	.31	.26	.53
V26	.52	.57	.55	.76	.59	08	.28
V27	.33	.38	.18	.24	.32	.32	.34
V28	.57	.59	.66	.68	.40	19	.11
V29	.02	.05	.01	01	.21	.63	.35
V30	.54	.54	.66	.76	.39	16	.11
V31	.20	.25	01	.14	.21	.37	.31
V32	05	18	23	25	61	35	14
V33	06	09	18	17	53	36	15
V34	.17	.16	06	.04	33	27	04
V35	20	30	27	29	39	03	.10
V36	.05	02	04	10	21	29	.06

(table continues)

Table 2 (continued)

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	V8	V9	V10	V11	V12	V13	V14
V8	1.00						
V9	09	1.00					
V10	.25	.50	1.00				
V11	.06	.17	.12	1.00			
V12	.06	.11	04	.49	1.00		
V13	08	.63	.47	.20	.19	1.00	
V14	14	.29	.21	.05	.12	.33	1.00
V15	.33	.08	.31	.11	.15	.05	.17
V16	.37	01	.27	.08	.15	.07	.14
V17	,07	.09	.07	02	.09	.17	18
V18	.07	.40	.32	.09	.05	.55	.33
V19	08	.02	.00	.29	.15	.16	.13
V22	15	.63	.35	.23	.20	.72	.21
V23	03	.28	.18	.15	.12	.39	.70
V24	.00	.38	.25	.30	.16	.55	.21
V25	.09	.31	.35	.17	.09	.10	.24
V26	03	.70	.46	.23	.23	.68	.25
V27	.21	.22	.31	11	.06	.26	.64
V28	17	.52	.27	.17	.20	.77	.27
V29	.29	.05	.21	02	.27	.03	.14
V30	17	.61	.31	.26	.23	.68	.25
V31	.08	.05	.08	.02	.19	.00	.54
V32	31	15	33	10	09	28	20
V33	28	06	29	04	07	19	12
V34	28	.06	15	.08	01	.05	.00
V35	02	13	20	11	12	32	22
V36	21	07	25	.04	.01	01	15

(table continues)

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Table 2 (continued)

	V15	V16	V17	V18	V19	V22	. V23
V15	1.00						
V16	.51	1.00					
V17	.24	.15	1.00				
V18	.12	.00	.04	1.00			
V19	.22	.20	.17	.08	1.00		
V22	04	03	.20	.40	.11	1.00	
V23	.11	.16	18	.36	.17	.31	1.00
V24	.08	.00	.25	.38	.31	.55	.27
V25	.38	.10	.02	.33	.18	.17	.13
V26	.14	.04	.21	.56	.15	.69	.36
V27	.27	.12	14	.39	.02	.14	.61
V28	06	10	.26	.49	.08	.75	.36
V29	.41	.50	.06	.22	.01	.01	.15
V30	01	01	.09	.37	.13	.84	.32
V31	.26	.31	12	.09	.04	.02	.56
V32	23	27	.00	33	19	13	·22
V33	28	28	.01	25	10	09	20
V34	18	22	.12	14	12	.09	.04
V35	10	13	15	27	21	25	23
V36	16	23	.14	08	14	06	16
	V24	V25	V26	V27	V28	V29	V30
V24	1.00						
V25	.10	1.00					
V26	.59	.28	1.00				
V27 [`]	.15	.21	.27	1.00			
V28	.59	.13	.62	.22	1.00		
V29	.00	.31	.07	.19	.10	1.00	
V30	.48	.16	.68	.13	.67	.05	1.00
V31	.08	.30	.16	.53	.04	.39	01
V32	33	21	34	31	23	33	19
V33	24	21	27	29	19	37	16
V34	01	18	01	15	.09	26	.05
V35	41	07	30	20	30	10	24
V36	10	09	10	28	.05	17	09

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(table continues)

Table 2 (continued)

	V31	V32	V33	V34	V35	V36
V31			x			
V32	1.00					
V33	22	1.00				
V34	23	.86	1.00			
V35	14	.56	.53	1.00		
V36	16	.61	.51	.49	1.00	
	23	.55	.53	.70	.60	1.00

seen from the table, correlations ranged from -.39 to .86. To examine the factor structure of the PBQ, a factor analysis using a principal component extraction procedure was conducted. Two criteria were used to determine the number of factors to retain: (1) an empirical criterion (scree test, Gorsuch, 1983) and (2) interpretability of the factors. The results (see Table 3) indicated that there were seven components with eigenvalues greater than one which accounted for 70.2% of the variance.

Table 3

Factors extracted by Principal Component Analysis

Factor	Eigenvalue	Percentage of Variance	Cumulative Percentage
1	9.69	28.5	28.5
2	4.96	14.6	43.1
3	2.65	7.8	50.9
4	2.38	7.0	57.9
5	1.75	5.2	63.1
6	1.27	3.7	66.8
7	1.17	3.4	70.2

Although the scree test (See figure 1) indicated that four or five factors could be retained,

described physical or nervous activities (bites nails or fingers and soiled self this year). Consequently, four factors were retained: the three original factors (hostile-aggressive, anxious-fearful, and hyperactive-distractible) as outlined by Behar and Springfield (1974) and a fourth factor comprised of the five prosocial items. This decision is not consistent with other researchers (eg. McGee, Williams, & Silva, 1985) who advocate keeping all



Figure 1. Scree test

factors with eigenvalues greater that one (the little jiffy criterion). However, it is consistent with researchers (eg. Tremblay et al., 1987) who advocate a two factor solution to the original questionnaire. The final three factors were defined by only one or two variables and thus considered unreliable. Tabachnick and Fidell (1989), in their solution to the original questionnaire. The final three factors were defined by only one or two variables and thus considered unreliable. Tabachnick and Fidell (1989), in their discussion of the limitations of factor analysis and principal component analysis, stress the fact that factors defined by only a few variables are unstable. The next factor accounted for 5.2% of the variance, an amount comparable to Behar and Springfield's fourth factor which accounted for 4.4% of the variance.

Subsequently, the four principal factors were orthogonally rotated to the normalized varimax criterion. Table 4 displays the factor matrix for this analysis. Prior to this re-analyses, two items were excluded from further consideration, namely, "has stutter or stammer" and "has other speech difficulty". The exclusion of these items was warranted because of the poor discriminative power of these items. The item "has stutter or stammer" had a 1% frequency on value 2 and a 0% frequency on value 3 while the item "has other speech difficulty" had a 4% frequency on value 3. The four factor solution for the remaining 34 items accounted for 57.9% of the variance. Table 4 shows the factor loadings after rotation as well as Behar and Springfield's original factor structure.

Factor 1, loading on inconsiderateness, fighting, destructiveness, bullying, kicking, biting, and hitting, not sharing, blaming others, disobedience, irritability, lying, and being disliked, reflected an aggressive-antisocial factor. It is consistent with Behar and Springfield's "aggressive-hostile" factor. Behar and Springfield's (1974) descriptions of factor loadings were incomplete. For example, they included the items "disobedient", "irritable", "tells lies", and "disliked" in the equation defining factor 1 (p. 606), but did

Table 4

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Rotated Factor Matrix

	Factor	Factor	Factor	Factor
	One	Two	Three	Four
Restless, runs about	.64	10	.14	.48
Squirmy, fidgety child	.68	09	.05	.50
Destructive	.76	09	12	.09
Fights with other children	.87	02	06	.18
Disliked	.56	.29	43	.10
Inhibited with classmates	28	.75	24	.06
Worries	.14	.68	.18	.26
Does things alone, aolitary	19	.58	.27	18
Irritable, quick to fly off the				
handle	.74	.10	.04	.13
Appears miserable, unhappy	.44	.39	21	.07
Twitches	36	.14	.04	11
Bites nails or fingers	.22	.34	.04	06
Disobedient	.86	00	09	.10
Poor concentration	.27	.07	05	.83
Fearful, afraid of new things	.00	.76	09	.06
Does not express feelings	04	.63	22	.04
Fussy	.26	.31	.12	.42
Tells lies	.57	.14	19	.23
Has wet or soiled self this				
year	.20	.14	15	01
Bullies other children	.87	04	.00	.03
Inattentive	.33	.06	08	.78
Doesn't share toys	.69	02	24	03
Cries easily	.21	.51	02	.20
Blames others	.83	.15	11	.12
Gives up easily	.13	.24	20	.75
Inconsiderate	.84	06	04	.09
Inhibited with teachers	.03	.69	16	.12
Kicks, bites, or hits other				
children	.83	04	04	.05
Stares into space	05	.34	12	.71
Has many friends	25	24	.82	09
Makes new friends easily	17	27	.77	07
Likes to play with others			••••	
rather than alone	.12	12	.79	03
Shares things with others	31	.06	.73	08
Enjoys being around other				
people	02	05	.81	15

not report the size of the loadings when defining factor structure. Consequently, these are left blank in Table 5.

Factor two is similar to Behar and Springfield's "anxious-fearful" factor. It is composed of the same items (fearful, cries easily, and worried) plus the three new items (inhibited with teachers, inhibited with classmates, and does not express feelings). As previously mentioned, the magnitude of the loading for the "worried" item was not reported. The items "stares into space" and "gives up easily" had larger loadings on factor four (hyperactive-distractible) in this study. This is consistent with Rubin, Moller, and Emptage's (1987) study in which they examined the factor structure of the PBQ as it applied to grade one students. In the present study the third factor was comprised of the five prosocial items: (1) has many friends, (2) makes new friends easily, (3) likes to play with others, (4) shares, and (5) enjoys being around other people. The fourth factor (hyperactive-distractible) was defined by four items in our grade one data set. The items included "inattentive", "poor concentration", "stares into space", and "gives up easily". The first two items loaded significantly on the original preschool factor of hyperactivedistractible. Although the items "restless" and "squirmy" had the highest loadings on factor 1, they also had relatively high loadings (.45+) on factor four in this data set.

In order to further investigate the relationship among the items comprising each factor, the items were analyzed for reliability using coefficient alpha (Cronbach, 1970), an index of internal consistency. The value of alpha was .84, indicating an acceptable level of internal consistency.

Table 5

Items with Highest Loadings on the Preschool Behavior Questionnaire

	Behar &	Behar & Springfield (1974)			Present study		
·			Factors	5	,	·····	
	1	Ź	3	- 1	2	3	4
Inconsiderate	.78	.16	.16	.84	.06	04	.09
Fights	.77	.03	.13	.87	02	06	.18
Destroys	.70	.12	.21	.76	09	12	.09
Bullies	.71	.00	.05	.87	04	.00	.03
Kicks, hits, bites	.68	.08	.20	.83	04	04	.05
Doesn't share	.65	.24	.21	.69	02	24	03
Blames others	.64	.03	.07	.83	.15	11	.12
Disobedient				.86	.00	09	.10
Irritable				.74	.09	.03	.13
Tells lies				.57	.14	19	.23
Disliked	, c			.56	.29	43	.10
Fearful	.06	.66	.14	.00	.76	09	.06
Unhappy	.19	.66	.06	.44	.39	20	.07
Stares into space	.04	.57	.37	.05	.34	- . 12 [,]	.71
Cries easily	.24	.48	.14	.21	.51	02	.20
Gives up easily	.16	.47	.40	.13	.23	20	.75
Inhibited with classmates				28	.75	24	.06
Inhibited with teachers				03	.69	16	.12
Worried				.14	.68	.18	.26
Doesn't express feelings				04	.63	22	.04
Inattentive	.19	.24	.80	.33	.06	08	.78
Poor concentration	.12	.26	.80	.27	.07	05	.83
Restless	.36	.02	.69	.64	10	.14	.48
Squirmy	.37	.09	.68	.68	08	.05	.50
Variance (%)	?	?	?	28.5	14.6	7.8	7.0
Total Variance		37.7%	0		57	.9%	

1=hostile-aggressive, 2=anxious-fearful, 3=prosocial, 4=hyperactive-distractible.

The PBQ was originally developed for use with preschool children. Comparisons were thus made between the factor structure of the present data set and two other studies which advocate a two component solution of the PBQ for grade one students. As can be seen from Table 6, the first factor in each of the three samples are very similar. The only exception seems to be the relatively low loadings that Moller and Rubin (1988) report for the items "irritable" and "tells lies" (r=.30 and .32, respectively). The items "squirmy" and "restless", while loading on factor I in all three studies, had loadings greater than .30 on factor two of the Tremblay et al. (1987) study and the Moller and Rubin (1988) study and on factor four of the present study.

Factor two was also defined by many of the same items in all three studies (fearful, worried, solitary, cries easily). The items which differentiated Tremblay et al.'s factor two and Moller and Rubin's factor two were "poor concentration", "inattentive", "gives up easily", and "stares into space". However, the first three items load on both factors in the Tremblay et al. study and the first two items load on both factors in the Moller and Rubin study. It thus appeared that these items (except for the item "stares into space") were not clear indicators of either factor.

Factors three and four are also presented in Table 6. Factor three was defined by the five prosocial factors while factor four was defined by the items "poor concentration", "inattentive", "gives up easily", and "stares into space". This factor appears to describe an attention problem rather than a hyperactive problem. It is similar to McGee et al.'s (1985) "inattention" factor. In their research McGee et al. adapted and added to the Rutter Behaviour Scale (Rutter, 1967), on which the PBQ was based, and

Table 6

Present Study Tremblay et al. Moller & Rubin 1991 1987 1988 N = 105N=747 N=179 Factor 1 Fights .87 .81 .81 **Bullies** .86 .83 .70 Disobedient .86 .76 .69 Inconsiderate .84 .79 .86[.] Kicks, bites, hits .83 .78 .64 Blames others .83 .75 .58 Destructive .76 .74 .43 Irritable .74 .70 .30 Doesn't share .69 .66 .61 Squirmy .68 .70 .53 Restless .70 .63 .46 Tells lies .56 .61 .32 Disliked .56 .56 .47 28.5% Variance (%) 32.1% 18%% Factor 2 Fearful, afraid .76 .73 .73 Inhibited with classmates .75 _ -Inhibited with teachers .69 -Worried .68 .63 .53 Doesn't express feelings .63 _ -Solitary .58 .52 .51 Cries easily .50 .44 .48 Poor concentration .57 .59 ----Inattentive .61 .59 Gives up easily .54 .66 Stares into space .60 .70 ... Variance (%) 14.6% 10.9% 16%

Factor Structure of the Preschool Behavior Questionnaire for Three Grade One Samples.

(table continues)

Table 6 (continued)

	Present Study 1991	Tremblay et al. 1987	Moller & Rubin 1988
	N=105	N=747	N=179
Factor 3			
Has many friends	.82		
Enjoys being around other			
people	.81		
Likes to play with others	.79		
Makes friends easily	.77		
Shares things	.73		
Variance (%)	7.8%		
Factor 4	,		
Poor concentration	.83		
Inattentive	.78		
Gives up easily	.75		
Stares into space	.71		
Variance (%)	7%		
Total variance (%)	57.9%	43%	34%

identified four factors: inattention, antisocial behaviour, hyperactivity, and worry-fearful. The present data also support a separate "inattentive" factor.

Secondary Analysis

Scores on the items comprising each of the four factors were summed to produce four scores for each child. The hostile-aggressive factor was defined by 13 items, the anxious-fearful factor by 7 items, the prosocial factor by 5 items, and the inattentive factor by 4 items. Subsequently, each factor score (excluding the prosocial factor to be consistent with prior research) was summed to produce a total (maladjusted) scale score. Table 7 gives means and standard deviations for all five scores.

Table	7
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Means and Standard Deviations of Factor Scores of the PBQ						
Mean	Standard Deviation					
18.05	5.98					
10.23	2.77					
11.49	2.71					
6.58	2.27					
34.87	8.05					
	Mean 18.05 10.23 11.49 6.58 34.87	Mean Standard Deviation 18.05 5.98 10.23 2.77 11.49 2.71 6.58 2.27 34.87 8.05				

Pearson product moment correlations were then computed between the four factor scores and the total factor scores and sociometric data and social problem solving scores. The significant correlations are presented in Table 8.

As Table 8 shows, there were significant, but moderate, correlations between teacher's ratings of maladjusted and social behaviour and sociometric ratings. The total factor score (without the prosocial items) and factor four (inattention) correlated positively with the liked least score and negatively with the liked most and social preference scores. The prosocial factor was positively related to the Liked Most and the Social Preference scores. The hostile aggressive factor was positively correlated to the Liked Least score and negatively correlated with the Social Preference score.

The only significant correlations for the social problem solving data were obtained for the third social problem- being teased or laughed at. Children rated as anxiousfearful by their teachers were not unpopular with their peers but did suggest appealing
Table 8

	Aggress- ive	Fearful	social	ive	Factor Score	
Like Most	-		.30*	31*	33**	
Like Least	.26*			.26*	.33**	
Social Preference	27*		.29*	32**	37**	
Social Problem 3 (being teased)						
Appeals to authority		.25*				
Endorses competent						
responses			.24*			
Enactment					25*	
* - 01 ** - 001						

Statistically Significant Correlations-between PBQ Factors and Sociometric Status and

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* p<.01, ** p<.001

to authority figures to solve interpersonal problems whereas students rated as prosocial endorsed competent responses. Enactment success was negatively related to total factor score.

Gender differences were examined by computing separate Pearson product moment correlations for boys and girls. Table 9 presents the significant correlations between PBQ factor scores and the social problem solving data. As can be seen from Table 9, being rated as hostile-aggressive by teachers was negatively related to endorsing appeal to authority responses. In other words, hostile aggressive boys did not think that appealing to an adult authority figure would be successful. In addition, being rated as hostile-aggressive was negatively correlated with competent enactment responses and flexibility in responding. In contrast, the scores of hostile-aggressive females were not significantly correlated with any social problem solving measure. The scores of fearful-anxious males were positively related to giving effective second responses whereas the scores of fearful-anxious and inattentive females were positively related to attributing hostile intentions to peers. Responses of prosocial males were negatively related to giving aggressive responses in the peer group entry situation whereas the responses of prosocial females were positively correlated with giving effective first responses. The responses of inattentive boys was not correlated with any of the social problems solving measures. The total maladjusted score was negatively correlated with giving 'competent responses in the peer provocation situation.

In summary, children perceived by teachers as anxious fearful relied on adult intervention strategies to solve social problems but were neither liked nor disliked by peers. This finding concurs with the results of Rubin, Moller, and Emptage's (1987) study of grade one students. Children rated as prosocial by teachers endorsed using competent social problem solving strategies and were liked and preferred by their peers. On the other hand, children perceived as aggressive or inattentive by teachers did not differ in their social problem solving skills from other children but were not liked or preferred by their peers. Hostile-aggressive boys gave less flexible responses and were less competent in enacting social responses. This is consistent with prior research. Both inattentive and anxious-fearful girls attributed hostile intentions to peers in the being teased or laughed at situation. The result not supported by previous research was the

Table 9

Statistically Significant Correlations between PBQ Factors and Social Problem Solving

Measures for Males and Females

	Hostile Aggressive	Anxious/ Fearful	Pro- Social	In- Attentive	Total Factor Score
a) Males					
Endorsed appeal to authority response (peer provocation).	42*				
situation). Flexibility (Being teased	49**				47**
situation). Effective second responses.	37*	.38*			
Proportion of aggressive responses in peer group entry	L				
situation.			44*		 36*
b) Females					
Intent of peer (being teased situation). Effective first response. Proportion of competent		.37*	.35*	.37* .	
responses (peer provocation situation).				ı	33*
*p<.01, **p<.001					

finding that the total maladjusted score was negatively related to boys' aggressive responses.

CHAPTER FIVE

DISCUSSION

Summary and Discussion of Results

Factor Analysis

The primary purpose of the present study was to examine the factor structure of teachers' responses on the Preschool Behavior Questionnaire (PBQ; Behar & Springfield. 1974) as they related to a typical grade 1 population. As was expected, the means and standard deviations for the negative items closely resembled those reported by Behar and Springfield. The means for the prosocial items were, however, notably higher. This finding is consistent with other studies (eg. Olson & Lifgren, 1988) which assess both aggressive and prosocial behaviour. Perhaps these results are a reflection of the teachers' value systems and training. For example, teachers may have a positive bias towards looking for prosocial behaviour in their students, believing that it is better to focus on positive rather than negative aspects of children's behaviour. In addition, teachers may be trained to reward competent behaviour and hence have a propensity to notice prosocial aspects of behaviour. A further consideration that cannot be ruled out deals with the representativeness of the sample. It is possible that children with the most severe behaviour problems did not participate in this study. Furthermore, it should be noted that, although the prosocial items were selected to assess children's sociometric status and gregariousness, the new items are essentially unvalidated. Caution is therefore warranted in the interpretation of the prosocial factor in the questionnaire.

The factor structures of the modified PBQ were found to be good approximations

of previous analyses of the original questionnaire. The first two factors of aggressive/hostile and anxious/fearful were virtually identical to the first two factors described in the original research. What was surprising was the isolation of an inattentive (as distinct from hyperactive) factor in the present study. In the original research, the hyperactivity/distractible factor was comprised of items describing both motor activity (restless, squirmy) and inattention (inattentive, poor concentration). In this study, the motor activity items loaded on the aggressive factor while the inattention items combined with two other items (stares in space, gives up easily) to define a factor that was subsequently labelled "inattentive". This factor is similar to the inattention component of Attention Deficit Disorder (DSM 111, 1980) and may be related to Undifferentiated Attention Deficit Disorder (DSM 111-R, 1987), a diagnosis reserved for children with difficulties only in attention.

Twenty of the 28 items comprising the PBQ were adapted from the Rutter Scale (Rutter, 1967), a rating scale developed for use with elementary school children. McGee, Williams, and Silva (1985) identified an inattention factor by adding items to the Rutter Scale which reflected impulsivity, inattention, and hyperactivity. This is consistent with the view that if there are sufficient items in the item pool, distinct factors of hyperactivity and inattention will emerge. However, the emergence of a separate inattention factor in this study was not due to the inclusion of new items. Yet these results are consistent with a recent study conducted by Tremblay and his colleagues (1991). In this large (N=1159) investigation of kindergarten students, Tremblay et al. (1991), using the 28 item version of the PPQ plus 10 prosocial items, identified a fourth

factor comprised of the identical items that define the fourth factor in the present study. The factor was also labelled inattentive. In their study the "restless" item loaded on the disruptive factor while the item "squirmy" defined both the disruptive and inattentive factor.

It has recently been reported that hyperactivity and aggression/conduct disorders as defined by the Connors (1969) subscales and the Rutter (1967) factors do not constitute distinct syndromes (Hinshaw, 1987). This conclusion is also warranted in the present data set as well as in the Tremblay study. Hyperactivity was not distinguishable from aggression. However, Campbell et al. (1991) noted that it is rare to see overactivity and impulsivity which is not also accompanied by aggression towards peers and/or noncompliance towards adults. In fact, 90% of their problem sample were rated as hyperactive and aggressive/noncompliant by their teachers, suggesting a mixture of symptoms of Attention Deficit Disorder with Hyperactivity and Oppositional Disorder (DSM III-R, 1987).

Research which has distinguished between hyperactivity and aggressiveness has often used more than one rating scale. For example, Pope, Bierman, and Mumma (1989), using a rating scale designed to measure hyperactivity and aggression plus the SNAP (Pelham & Bender, 1982), were able to distinguish hyperactive from aggressive samples. The SNAP is based on DSM III's (1980) criteria for Attention Deficit Disorder with Hyperactivity and includes subscales for the core components of hyperactivity, impulsivity, and inattention. Furthermore, Campbell et al. (1991) combined results from the PBQ (the aggressive subscale) and the SNAP (Pelham & Bender, 1982) to define groups of active, inattentive, and impulsive preschool boys. While the PBQ in the present study did not distinguish between hyperactivity and aggression, the Campbell et. al. study suggests that the three component solution may be useful in combination with other rating scales for describing children according to DSM lll (1980) and DSM lll-R's (1987) categories of behaviour problems.

The PBQ was developed as a screening device to identify preschool and kindergarten students with social and emotional problems. To further evaluate the results of the present study as they apply to grade one students, comparisons were made between the factor structure obtained in the current data set and those obtained in two other studies (Moller & Rubin, 1988; Tremblay et al., 1987) which also employed a grade one data base. Both of these studies advocated a two-factor solution for the PBQ. The first factor of the two-factor solution is similar to the first factor in the present study in that it has an aggressive-hyperactive component comprised of aggressive dimensions (fights, bullies, disobeys, is inconsiderate, kicks, bites, hits, destroys, is irritable, doesn't share, tells lies, and is disliked) and a hyperactive dimension (restless, squirmy). Teachers' combining of aggressive and hyperactive dimensions is not surprising. Both hyperactivity and aggressiveness are salient events in a school setting because both behaviours disrupt normal class routine. This observation was given credence by the fact that Tremblay et al. (1991) labelled this factor "disruptive".

The second element of the two component solution is comprised of items defining both an anxious-fearful dimension (fearful, afraid, worried, solitary, cries easily) and an inattention dimension (poor concentration, inattentive, gives up easily, and stares into space). The last four items isolated an inattentive factor in the present study. In Moller and Rubin's (1988) two factor solution, the items "poor concentration" and "inattentive" loaded on both factors. In addition, three of the four items (inattentive, gives up, and poor concentration) defined a third component in Tremblay et al.'s (1987) comparison of two and three factor solutions. In Tremblay's two component solution, the items loaded on both factors. It is apparent that these items do not uniquely define either dimension when a two component solution is sought. They did, however, uniquely define an inattentive component in the present study.

The dispute over two versus three factor solutions may reflect differences in preferences for broad band versus narrow band descriptors of childhood behaviour. Moller and Rubin (1988), for example, established two broad band dimensions (externalizing and internalizing) from their analysis of the PBQ and subsequently used these dimensions to investigate the relationships between internalizing and externalizing behaviour, sociometric status, and behavioral observations. The decision to use a two factor versus a three factor solution may also depend on the purpose of the investigation. Tremblay et al. (1987) argued for a two factor solution when the purpose of the study was to examine the factor structure of the PBQ but employed a three factor solution (Tremblay, et al., 1991) when the purpose of the study was to assess the stability of disruptive boy's fighting patterns over a four year period. The amount of total variance accounted for in these latter two studies does not appear to be a consideration. Going to a two factor solution in the 1987 study decreased the amount of total variance accounted for by 6.2% whereas the anxious factor retained in the 1991 study accounted

for 3.4 % of the variance in the ratings of the 6 year old sample. It is suggested that this factor, as well as the inattentive component in the present analysis, has been retained because of their interpretability.

Sociometric Status

In this study, hostile aggressive ratings were associated with like least scores and negatively related to social preference scores. This is consistent with numerous other studies (eg. Coie & Dodge, 1988; Coie, Dodge, & Coppotelli, 1982; Coie, Dodge, & Kupersmidt, 1990; Coie, Dodge, Terry, & Wright, 1991) which state that the strongest single behavioral correlate of peer rejection, especially among boys, is aggression. It should be noted, however, that the correlations between aggression and sociometric status, while significant, are quite low (r=.26 for like least and r=-.27 for social preference). This suggests that other elements may be associated with peer rejection. Furthermore, the age of the present sample may have influenced the magnitude of the correlations. Rejection appears to be more strongly related to aggression in elementary school than in preschool (Coie, Belding, & Underwood, 1988), a fact that may be related to age differences in the quality and prevalence of aggression. During preschool, aggression is more prevalent and less violent than in elementary school (Coie et al., 1991). Evidence has been put forward that aggression is predictive of rejection only in peer groups in which aggression is deviant, that is, a low frequency phenomena (Wright, Giammarino, & Parad, 1986). In elementary school aggression occurs less frequently and is negatively evaluated. However, children in the present sample are only beginning elementary school and aggression may not be as salient or as aversive as it will be in later school years. The finding that prosocial behaviour is positively related to like most and social preferences scores is consistent with previous research. Coie et al. (1990) reported that helpfulness, rule conformity, friendliness, and prosocial interactions are positively related, at all ages, to peer acceptance. In this study, teachers' perceptions of these qualities were related to positive sociometric status.

Teachers' ratings on the anxious/fearful factor were not related to sociometric status in this study. This result does not concur with those of Rubin et al. (1987) who found small and negative correlations between anxious/fearfulness and sociometric status for elementary school children. In their study, anxious/fearful children were disliked by peers. Similar results have also been found for preschoolers (Rubin, Daniel-Bierness, & Heyvren, 1982; Rubin & Clark, 1983). However, the anxious/fearful factor in this study was comprised of an anxious/fearful dimension (fearful, afraid, worried, cries easily) and a social withdrawal dimension (inhibited with classmates, inhibited with teachers, does not express feelings). Studies examining observed social withdrawal only indicate that socially withdrawn children are not less popular than other children (Rubin, 1985; Rubin & Krasnor, 1986). While it is tempting to conclude that it is the withdrawn factor that is responsible for the lack of relationship in the present study, this conclusion is not warranted. Research using instruments other than the Preschool Behavior Questionnaire has indicated a relationship between an anxious and withdrawn factor and sociometric status. For example, Strauss, Frame, and Forehand (1987) used teachers' ratings on the Child Behaviour Checklist to identify anxious withdrawn elementary school They found that anxious withdrawn children received significantly lower children.

positive peer nominations, more negative nominations, and lower ratings of peer likeability than non-anxious children. Furthermore, anxiety in children seldom occurs without corresponding symptoms of withdrawal and social withdrawal in conjunction with other internalizing problems (eg. anxiety) is generally associated with poor peer relationships (Quay & LaGrece, 1986). This lack of relationship was thus unexpected and perplexing and may be related to methodology issues (to be discussed in a subsequent section).

Another result that has limited empirical support is the finding of a negative relationship between inattentiveness and sociometric status. Inattentiveness was negatively related to like most and social preference scores and positively related to like least scores, indicating that inattentive children were not liked by their peers. A large body of research (eg. Rubin & Clark, 1983; Rubin, Moller, & Emptage, 1987) has demonstrated that hyperactivity, of which inattention in a component, is negatively related to sociometric status. However, there is limited research investigating the relationship between inattention per se and sociometric status. An exception to this is the Lahey et al. (1980) study which, using the Connors Scale (Connors, 1969), found a negative relationship between inattention and peer acceptance and a positive relationship between inattention and peer rejection. Pope, Bierman, and Mumma (1991) reported a negative relationship between positive sociometric status and an inattention-immaturity dimension of the Pupil Evaluation Inventory (Pekarik, et al., 1976) for elementary school boys. Although not substantiated by a great deal of research, it does appear, that when an inattention dimension is isolated, it is related to poor peer relationships. This is

reasonable if one considers that children with attention deficits may not pay attention to social cues which, in turn, may interfere with sharing, turn-taking, and reciprocal social exchanges.

Social Cognition

There were no significant group differences in responses to the social problem solving tasks involving peer provocation or initiating entry into an already formed peer group. The only significant results occurred in the "being teased or laughed at" situation. This situation was identified by Feldman and Dodge (1987) as being problematic for both boys and girls and by Vitaro and Pelletier (in press) as one of the most difficult of the teacher identified social problems. The results of the present study give credence to the notion that being teased or identified as different and then laughed at is indeed problematic for both boys and girls.

However, even within the being teased situation, there were few significant results. The results that were obtained have had limited support in previous research. Much of the research on response generation (step two of Dodge's social information processing model) has focused on the responses of aggressive versus nonaggressive children (Gouze, 1987; Guerra & Slaby, 1989; Rabiner, Lenhart, & Lochman, 1990) and has generally found that aggressive children, especially boys, gave deviant and aggressive responses. In the present study, aggressive children were not deficient in any of the steps of the social information problem solving model. The results of the present study do concur, however, with research indicating no relationships between interpersonal social problem solving skills and aggressive, rejected status (Evans & Short, 1991; Roopnarine, 1987; Spence, 1987; Vitaro & Pelletier, in press). These conflicting results may be an artifact of different sample selection procedures or different methods of measuring social cognition or both. For example, studies differed in the type and number of hypothetical social problems presented to children. Furthermore, different and perhaps more stringent methods of selecting aggressive children were employed in all three studies mentioned earlier. Gouze (1987) used both teachers' ratings of aggression and behavioral observations to identify aggressive children, Guerra and Slaby (1989) developed a 10-point teacher's rating scale which measured only physical aggression, and Rabiner et al. (1990) combined sociometric ratings with children's ratings on the item "starts fights". All of these methods would probably have identified a more extreme group than that identified in the present study.

Teacher's ratings of anxious/fearfulness related positively to children's suggestions that adult intervention strategies would be optimal to solve the interpersonal problem of being teased by a peer. This is consistent with prior research (Rubin & Clark, 1983; Rubin, Moller, & Emptage, 1987). It is possible that anxious/fearful children are afraid to assert themselves and see going to an adult for help as the least threatening alternative in a social conflict situation.

A negative relationship was found between the enactment of a competent response and the total maladjusted score on the PBQ. Early research (Dodge, McClaskey & Feldman, 1985) indicated that aggressive children, as identified by teachers and peers, were deficient in enacting responses in some social situations compared to nonaggressive children. In contrast, Feldman and Dodge (1987) found no relationship between enactment competencies and social status in their study. However, in their study, children were categorized according to peer sociometric ratings instead of teacher's ratings as in the present study so a direct comparison is not possible. It should be noted that an adult evaluated the social competencies of the children in the present study and it is possible that an adult's evaluation may more readily agree with a teacher's assessment than a child's ratings. Furthermore, these results do agree with that of Vitaro and Pelletier (in press) who found differences between aggressive, rejected children (as identified by teachers and peers) and nonaggressive, nonrejected peers on observed behavioral responses to standardized social situations.

Overall, this study provided very weak support for the hypothesis that teacher identified aggressive, anxious/fearful, prosocial, and inattentive children differ in their social problem solving skills. Differences between groups were found in only one of three social situations. In spite of previous studies indicating differences in children's behaviour in peer group entry situations (Putallez & Wasserman, 1990), children in this study did not differ in their processing of social information about this situation. Similarly, differences were not found in the peer provocation dilemma. Differences were found in the being teased or identified as different situation. However, even in this situation differences were few. In fact, since a total of 42 social problem solving variables were correlated with each child adjustment rating, the number of significant correlations could be accounted for by chance alone. This observation, combined with the fact that correlations were low, indicate that caution is warranted in interpreting these results.

Gender Differences

In this study, aggressive/hostile males selected appealing to an adult to intervene as the least successful strategy for solving a peer provocation dilemma. Research investigating the relationship between aggression and children's choice of soliciting adult help has yielded equivocal results. For example, Rubin, Moller, and Emptage (1987) found no relationship between these two variables when analyzing responses generated by a sample of grade one students. On the other hand, Rubin and Clark (1983) found a small (r=-.18), but significant, relationship between these two variables for responses of preschool children. However, neither of these two studies reported analyzing the data for gender differences. The difference between the present study and the Rubin et al. (1987) investigation may be partially explained by differences in methodology (even though the PBQ was used in both studies). Rubin and his colleagues presented their sample with 11 social dilemmas representing three social situations whereas the present study presented the children with only three social dilemmas. The presentation of 11 social situations may have allowed children to develop a preferred way of responding. Rubin, Daniel-Bierness, and Hayvern (1982) reported that aggressive children have more conversations with teachers. Such conversations probably involve reprimands or, at the very least, a discussion of aggressive children's disruptive behaviour in the classroom, causing them to avoid the teacher when possible. An additional consequence may be that aggressive children believe that the teacher would not be willing to help them in social conflict situations.

Teachers' ratings of boys as hostile-aggressive were negatively related to

competent enactment responses, indicating that hostile-aggressive boys responded incompetently in the being teased dilemma. There was no relationship between teachers' ratings of aggressive girls and enactment competencies. These results do not concur with those of Dodge, McClaskey, and Feldman (1985) who found that boys behaved more competently overall than did girls, responding to failure with persistence or attempts to succeed at another task. Girls responded to failure with passive withdrawal. However, these results do agree with Dodge's (1986) findings that aggressive children (both boys and girls) behaved less competently than nonaggressive children. On the other hand, Dodge and Feldman (1987) found no gender differences when children were asked to enact competent responses. Thus, the results of the present study should be interpreted with caution.

It is possible that maladjusted boys and girls behave deviantly in some social situations but not in others. Dodge and Feldman (1990) suggest that children are not deficient in all social situations. Boys and girls may also respond differently in different social situations. Aggressive boys may have found it difficult to enact a competent response in the being teased situation whereas aggressive girls may have difficulty enacting competent responses in social situations not examined in this study.

Flexibility scores were negatively related to teachers' ratings of hostile aggressiveness for males, that is, aggressive boys were less able to alter their first alternative responses when faced with negative feedback, This relationship has been found for other social dilemmas (Rubin, Moller, & Emptage, 1987) and for older groups (Rubin & Krasnor, 1986). Prior research (Gouze, 1987; Guerra & Slaby, 1989) has suggested that aggressive boys provide more aggressive responses than nonaggressive boys. Offering aggressive responses combined with a lack of flexibility, as indicated by the present data set, may contribute to the peer rejection of aggressive boys. Response flexibility, on the other hand, may contribute to boy's social adjustment since the opposite attributes, that is, perseverance and rigidity, would imply a lack of adaptive responding to environmental feedback.

Anxious/fearful boys produced more effective second responses than other groups. This result was unexpected and surprising. It has not been substantiated in other research. In fact, research in this area has focused primarily on social withdrawal rather than anxious fearfulness. Since the anxious/fearful factor in the present study is comprised of both withdrawal and anxious dimensions, the research findings on withdrawal will be included here. For example, Rubin and Krasnor (1986) found no social cognitive deficits for withdrawn grade two children. Furthermore, Evans and Short (1991) found a negative relationship between effective second responses and social withdrawal (i.e., the more effective the second response, the lower the social withdrawal score). The results of the present study stand in direct contrast to those of Evans and Short. While these differences may be due to differences in methodology (parent rated withdrawal versus teacher rated anxiety and withdrawal), they do merit further investigation. This finding is especially intriguing when one considers that the same results were not found for girls.

Boys rated as prosocial by teachers gave few aggressive responses whereas prosocial females provided more effective first responses. The latter results is consistent with Rubin and Krasnor's (1983) study which demonstrated that girls suggested more prosocial strategies when interacting with boys. Evans and Short (1991) have suggested that first responses offered did not differentiate aggressive or socially withdrawn boys from their more appropriately adjusted peers but that the second response was the most salient in discriminating between groups. However, in this study, anxious/fearful boys gave more effective second solutions and prosocial girls provided the most effective first solutions. While the results of the present study do not lend support to the Evans and Short hypothesis, they do suggest that children with different socio-emotional problems do give different first and second responses to hypothetical social problems. This implies that the examination of sequencing of responses may be an important aspect to be considered in future research.

Anxious/fearful and inattentive girls appear to process social information in a similar pattern. Both groups attributed hostile intentions to the peer in the being teased situation. Most research in the area of social cue interpretation has used only male samples and has demonstrated that rejected aggressive boys attribute hostile intentions to peers in ambiguous situations (Dodge, 1980; Guerra & Slaby, 1989). Although not directly comparable because categorization was based on peer sociometric ratings, Feldman and Dodge (1987) found that rejected boys, relative to rejected girls, attributed more hostile intentions to peers in the peer provocation situation. The results of the present study are thus puzzling. It is possible that some anxious/fearful or inattentive girls are frequent targets of teasing or have been laughed at in the past and that these girls correctly perceive a high rate of hostile intentions by peers.

Overall, few gender differences were found in the present study. Most of the ones that did occur were in the expected direction. The most unexpected result was the finding of a positive relationship between ratings of anxious/fearfulness and effective second responses for boys.

Summary Evaluation of Hypotheses

The hypotheses regarding sociometric status were generally supported in this study. Children rated as prosocial by teachers were popular, aggressive children were unpopular, and anxious-fearful children were neither popular or unpopular. The result not predicted in this study was the finding that inattentive children were unpopular. The responses of prosocial children in the social problem solving measure were related only to the endorsement of competent responses. The last hypothesis which suggested that aggressive boys would have more problems in the peer provocation situation than aggressive girls was only partially supported. Aggressive boys did have more problems than aggressive girls but not exclusively in the peer provocation situation. Ratings on the PBQ were thus more related to sociometric status than to the social problem solving measure.

Limitations of the Study

The main limitation of the study, as in many factor analytic studies, is the small sample size. Correlation coefficients tend to be less reliable when estimated from small samples (Tabachnick & Fidell, 1989) and larger samples usually lead to clearer indications of the number of factors (Gorsuch, 1983). Tabachnick and Fidell (1989)

suggest that a sample size of 100 to 200 is good but that a general rule of thumb would be to have at least five cases for each observed variable. The latter condition was clearly not met in the present study. However, the obtained factor structure did replicate that of Tremblay et al. (1991) whose sample size exceeded one thousand (N=1159), giving some credence to the present results.

Another limitation may be the means used to collect sociometric data. Positive nominations and rating scales (a method developed by Asher and Dodge, 1986) were combined to classify children into sociometric groups. This combination may have yielded less homogeneous groups than would have been obtained if positive and negative nominations had been used. In fact, Asher and Dodge (1986) reported that their alternative method, when compared to the use of positive and negative nominations, correctly identified 91.2% of the rejected children but only 53.1% of the neglected group. Only six children were classified as neglected in the present study. It is possible that some neglected children were misclassified into other groups, thus obscuring results.

Another factor which may have influenced results but was not considered in the present study was verbal fluency. Several studies have indicated that IQ was not a factor in social problem solving (eg. Rabiner, Lenhart, & Lochman, 1990) while others (eg. Fischler & Kendall, 1988) suggest that mental age was significantly correlated to social adjustment. Furthermore, many ethnic backgrounds were represented in the present sample, resulting in a few children being included who had limited knowledge of English. In fact, one girl's social problem solving interview was terminated because the researcher was unable to determine if the subject completely understood the social

problem being presented. While a full scale IQ test may not have been warranted, perhaps a test of verbal fluency would have helped clarify results.

Finally, developmental issues or affect were not considered in this study. These criticisms have been made of the social information problem solving model itself (Dolgin, 1986) and are warranted here. It seems reasonable to assume that children will react differently to the same stimuli, depending upon their emotional state. For example, children may react with hostility and aggression to peer provocation when angry but may react entirely differently when feeling happy and confident in themselves. In addition, there could be significant developmental differences even within the same grade level.

General Conclusions and Implications for Future Research

The first conclusion that can be drawn from the present study is that the factor structure of the modified Preschool Behavior Questionnaire (Behar & Springfield, 1974) is similar to that obtained by the initial investigators and can be used to identify children with socio-emotional problems in an early elementary school setting. However, the delineation of an inattentive and a prosocial factor needs replicating with a larger sample size. Perhaps the addition of new items reflecting DSM Ill's criteria for Attention Deficit Disorder without Hyperactivity (American Psychiatric Association, 1980) would provide better definition for the inattentive factor.

However, classification of children according to the PBQ did not result in many differences between groups in the social problem solving tasks. Whether this is a limitation of the questionnaire or of the social problem solving task itself is unknown. It is possible that the social situations identified by teachers as problematic for boys and girls are not perceived by children as the most difficult problems that they have. It would be interesting to have children determine or, at the very least, rate which social problems are the most difficult and which problems occur the most often in a classroom setting. Another consideration that warrants further investigation concerns the development of underlying cognitive competenceis. Yeates et al. (1991) combined the structural model of social cognition with a measurement of social information processing to yield results indicating a relationship between interpersonal negotiation strategies, as measured by responses to hypothetical social problems, and behavioral adjustment, as assessed by teachers. Perhaps future research should include measures of levels of social competency in addition to measures of social information processing.

On the other hand, some researchers have questioned whether social problem solving skills are relevant at the moment a child encounters a social conflict situation (Evans and Short, 1991; Vitaro & Pelletier, in press). These researchers have suggested that social problems solving skills are not directly related to social problem solving behaviour in naturalistic settings. It may be that social behaviour, including problem solving in real life situations, may be a better index of social competence than hypothetical social problem solving. It is also possible that childhood social adjustment is such a complex phenomena that it cannot be explained by one social cognitive measure or by one rating scale. A clearer understanding of social maladjustment in childhood may be obtained by using multimethod assessment procedures such as combining the Preschool Behavior Questionnaire with other rating scales and observations of behaviours in naturalistic settings or in standardized social conflict situations as well as including measures of affect and development changes.

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